

Attachment 3: Highlight version of Air Emission Permit No. 03700011-101

A copy of Permit No. 03700011-101 (SIP11 relevant) that highlights the proposed changes to SIP conditions is submitted to EPA for reference in reviewing Minnesota's proposed SIP revision.



Minnesota Pollution Control Agency

Air Individual Permit Major Amendment 03700011-101

Permittee: **Flint Hills Resources Pine Bend Refinery**
Flint Hills Resources Pine Bend, LLC
4111 East 37th Street North, Wichita, KS 67220 (owner)
PO Box 64596, St. Paul, MN 55068 (operator)

Facility name: **Flint Hills Resources Pine Bend Refinery**
13775 Clark Road
Rosemount, MN 55068
Dakota County

Operating permit issuance date: January 9, 2013

Expiration date: January 9, 2018

* All Title I Conditions do not expire

Major Amendment: January 13, 2017

Permit characteristics: **Federal; Part 70/ Major for NSR; NSR Authorization**

Each new or revised condition designated "Title I Condition: SIP for SO₂" is not effective or enforceable until approved by U.S. Environmental Protection Agency (EPA) as a State Implementation Plan (SIP) revision under Title I of the Clean Air Act.

*The Permittee may continue to operate this facility after the expiration date of the permit, per the provision under Minn. R. 7007.0450, subp. 3.

The emission units, control equipment and emission stacks at the stationary source authorized in this permit amendment are as described in the Permit Applications Table.

This permit amendment supersedes Air Emission Permit No. 03700011-012 and authorizes the Permittee to operate and construct the stationary source at the address listed above unless otherwise noted in the permit. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. (Any additions or changes to conditions incorporated into Minnesota's State Implementation Plan (SIP) under 40 CFR § 52.1220, designated "Title I: SIP for SO₂" must go through the federal SIP approval process before becoming effective.) Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Unless otherwise indicated, all the Minnesota rules cited as the origin of the permit terms are incorporated into the SIP under 40 CFR § 52.1220 and as such as are enforceable by EPA Administrator or citizens under the Clean Air Act.

Signature: **Adriane Lenshek**

This document has been electronically signed.

for Don Smith, P.E., Manager
Air Quality Permits Section
Industrial Division

for the Minnesota Pollution Control Agency

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1. Permit applications table

Subsequent permit applications:

Title description	Application receipt date	Action number
Part 70 Reissuance	05/04/2010 updated 11/07/2012	03700011-009
Major Amendment	09/08/2011	03700011-009
Minor Amendment	05/02/2011	03700011-009
Major Amendment	11/19/2012 updated 02/12/2013 and 04/30/2013	03700011-010
Moderate Amendment	10/11/2012 updated 04/30/2013	03700011-010
Moderate Amendment	11/25/2013	03700011-011
Minor Amendment	12/23/2013	03700011-011
Administrative Amendment	01/31/2014	03700011-011
Major Amendment	04/07/2014 updated 11/12/2014	03700011-012
Major Amendment	04/22/2014 updated 12/05/2014	03700011-012
Major Amendment	02/12/2016 updated 11/09/2016	03700011-101
Major Amendment	04/28/2016	03700011-101
Minor Amendment	08/17/2015	03700011-101
Administrative Amendment	12/23/2015	03700011-101
Administrative Amendment	10/29/2014	03700011-101

2. Where to send submittals

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Chief Air Enforcement
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by Minn. R. 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

Send any application for a permit or permit amendment to:

Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Document Coordinator notices of:

- a. Accumulated insignificant activities
- b. Installation of control equipment
- c. Replacement of an emissions unit, and
- d. Changes that contravene a permit term

Unless another person is identified in the applicable Table, send all other submittals to:

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

3. Facility description

The Flint Hills Resources Pine Bend Refinery (Facility) is located at 13775 Clark Rd in Rosemount, MN, Dakota County, Minnesota. Flint Hills Resources Pine Bend, LLC (FHR) owns and operates the Pine Bend Refinery in the city of Rosemount, Dakota County, Minnesota. The refinery primarily processes heavy, sour crude oil from Western Canada, although it may also process oil from other parts of the world. Pipelines currently deliver all of the crude oil to the refinery, where FHR processes it to produce a wide variety of products. These products include gasoline, diesel fuel, heating oil, jet fuel, petroleum coke, asphalt and elemental sulfur. FHR distributes these products to customers in Minnesota and the surrounding Upper Midwest states via pipelines, trucks, barges and railcars.

Permit Action 101 description:

The Pine Bend Technology and Efficiency Improvement Projects cover three individual projects that are collectively referred to as the Projects as follows:

1. The Coker Replacement Project replaces two older and less efficient delayed coking process units and Pine Bend's largest NOx emitting heaters with one new delayed coking unit and a single, more efficient heater. The heater is equipped with selective catalytic reduction (SCR) and low NOx burners which will reduce NOx emissions by over 100 tons/year. The new design will also eliminate emissions associated with periodic heater decoking while improving product yields. A new integrated gas plant will more effectively recover propane and similar streams to help meet market demand for these products.
2. The Diesel Selectivity Projects improve refinery flexibility to produce higher volumes of ULSD fuel from its distillate hydrocracker. The installation of a heat integrated gas oil vacuum fractionator increases the amount of feed available to the distillate hydrocracker. The Diesel Selectivity Projects further leverage heat recovery to steam opportunities by utilizing waste heat to convert it to steam at the back end of the distillate hydrotreater. Improvements to the distillate hydrocracker will allow it to meet seasonal demands for ULSD more effectively. The projects also provide additional hydrogen necessary to remove sulfur and convert intermediates to transportation fuels by retrofitting the #4 hydrogen plant with new technology that utilizes waste process heat from the existing hydrogen reformer to produce additional hydrogen.
3. The Naphtha Processing Improvement Projects improve the refinery's naphtha hydrotreating capability. The projects provide the refinery with improved flexibility to convert various crude types into gasoline without installing any new combustion sources. It will help avoid dips in gasoline production during periodic maintenance and catalyst replacements in the existing hydrotreaters. The projects reroute naphtha already desulfurized in the upstream distillate and gas oil hydrotreaters to an underutilized fractionation system in the distillate hydrocracker unit, bypassing the naphtha hydrotreaters to more efficiently process additional naphtha. The projects further provide additional naphtha hydrotreating capability by improving an existing naphtha hydrotreater.

This permit action also includes a major amendment to update and correct various existing permit conditions, and also add additional permit conditions to existing emission activities to refine, strengthen, and further improve the quality of the Facility's air permitting and compliance programs through clear and concise Title V operating permit conditions.

This permit action also includes a minor amendment to add an 80 kW natural gas-fired emergency generator and two natural gas-fired 3 mmBtu/hr boilers to the North Contractor Building. Also included are insignificant activities of a water heater and three rooftop units to the North Contractor Building.

There are also two administrative amendments included in this permit action. One of them adds a rooftop unit to the permit as an emission unit and other rooftop units and a humidifier system that qualify as insignificant activities. The administrative amendment also will have additional drain and drain piping connections installed to existing EQUI518.

Permit issued: January 13, 2017
Permit expires: January 9, 2018

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The second administrative amendment will add a storage tank terminal, truck loading rack and rail loading rack to the insignificant activities listed in Appendix A of the permit.

4. Summary of subject items

SI ID: Description	Relationship Type	Related SI ID: Description
ACTV9: All IA's		
COMG100: Storage Tank Heaters built before June 11, 1973	has members	EQUI330, EQUI331, EQUI332, EQUI334, EQUI335, EQUI336, EQUI337, EQUI338, EQUI339, EQUI340, EQUI341, EQUI342
COMG103: #4 Coker VOC Emissions	has members	EQUI1456, EQUI1457, FUGI132
COMG104: Non-Process Boilers Supporting Administrative Buildings	has members	EQUI1472, EQUI1473
COMG10: Sulfur Degassing System	has members	EQUI381, EQUI1205, EQUI1241
COMG11: Fugitive LDAR Connectors, Misc. All FS numbers are included in this group.	has members	COMG11
COMG13: Drains subject to NSPS QQQ (sealed w/plug)	has members	FUGI66, FUGI69, FUGI70, FUGI71, FUGI72, FUGI83, FUGI94, FUGI110, FUGI111, FUGI116, FUGI117, FUGI127, FUGI128, FUGI129, FUGI130
COMG14: Drains subject to NSPS	has members	FUGI66, FUGI69,

SI ID: Description	Relationship Type	Related SI ID: Description
QQQ active (water seal, lube oil or equivalent)		FUGI70, FUGI71, FUGI72, FUGI83, FUGI94, FUGI110, FUGI111, FUGI116, FUGI117, FUGI127, FUGI128, FUGI129, FUGI130
COMG15: Drains subject to NSPS QQQ inactive (equipped with plugs water seal or equivalent)	has members	FUGI66, FUGI69, FUGI70, FUGI71, FUGI72, FUGI83, FUGI94, FUGI110, FUGI111, FUGI116, FUGI117, FUGI127, FUGI128, FUGI129, FUGI130
COMG16: Equipment subject to both NESH FF controls and NSPS QQQ	has members	EQUI350, EQUI453, EQUI454, EQUI458, EQUI459, EQUI517, EQUI761, EQUI813, EQUI908, EQUI909
COMG17: Fugitive Equipment in Natural Gas (non-VOC) Service	has members	FUGI75, FUGI82, FUGI122
COMG1: Junction Boxes receiving Wastewater from NSPS QQQ Units not subject to	has members	FUGI66, FUGI69, FUGI72, FUGI75, FUGI82,

SI ID: Description	Relationship Type	Related SI ID: Description
NESHAPs FF		FUGI83, FUGI111, FUGI116, FUGI117, FUGI127, FUGI129, FUGI130, FUGI132
COMG22: Oil/water separators w/fixed roof subject to NSPS QQQ and NESH FF w/CVS & control device	has members	EQUI349, EQUI350, EQUI399, EQUI400, EQUI453, EQUI458, EQUI465, EQUI466, EQUI467
COMG23: Stationary Diesels (Spark Ignition 4SRB) Subject to MACT ZZZZ	has members	EQUI396, EQUI397, EQUI398, EQUI539, EQUI540, EQUI572, EQUI573
COMG24: Refinery Emergency Flares and Flare System (for Consent Decree Flare Policy)	has members	TREA1, TREA2, TREA3, TREA4, TREA41, TREA42, TREA43, TREA44
COMG25: Containers subject to NESH FF; w/vac trucks to haul NESH FF waste	has members	EQUI399, EQUI400, EQUI459, EQUI517
COMG27: Combustion Turbine and Duct Burners	has members	EQUI5, EQUI11, EQUI12, EQUI13, EQUI14, EQUI15, EQUI16, EQUI367, EQUI368, FUGI122, STRU89, TREA52, TREA53
COMG28: Diesel Engines with SIP Conditions and	has members	EQUI325, EQUI326, EQUI327,

SI ID: Description	Relationship Type	Related SI ID: Description
<83.3 hr/mon		EQUI329, EQUI365, EQUI366, EQUI486, EQUI489, EQUI497, EQUI502, EQUI514, EQUI567
COMG29: FCC Catalyst Transfers	has members	EQUI422, EQUI423, EQUI424
COMG2: Tanks NSPS QQQ	has members	EQUI761, EQUI813, EQUI908, EQUI909
COMG32: Emission Units subject to Minn. R. built after June 11, 1973	has members	EQUI292, EQUI375, EQUI546, EQUI560, EQUI561, EQUI562, EQUI563, EQUI564, EQUI565, EQUI566, EQUI568, EQUI569, EQUI570
COMG34: NSPS K Tanks w/fixed roof & CVS/CD & > 40,000 gals	has members	EQUI868, EQUI869
COMG35: Tanks MN R 1969-73 and > 65,000 gals	has members	EQUI796, EQUI797, EQUI846, EQUI848, EQUI849, EQUI862
COMG36: Tanks MN R 1969-73 and > 2,000-65,000 gals	has members	EQUI910
COMG37: Tanks MN R post 1973 and >2,000 - 40,000 gals	has members	EQUI757, EQUI784, EQUI1191
COMG38: EFR tank/basin subject to NESHAPs FF following the	has members	EQUI369, EQUI370, EQUI401, EQUI761,

SI ID: Description	Relationship Type	Related SI ID: Description
requirements of Kb		EQUI813
COMG3: ULSD Project CO Emissions	has members	EQUI469, EQUI470, EQUI471, STRU72, STRU73
COMG41: Sulfur Recovery Units	has members	EQUI63, EQUI64, EQUI131, EQUI149, EQUI214, EQUI262, EQUI319, EQUI320, EQUI503, STRU83, STRU139, STRU140
COMG43: Liquid Butane Storage Facility	has members	EQUI1143, TREA8, TREA72
COMG44: Equipment subject to NSPS NNN	has members	EQUI530, EQUI531, EQUI532
COMG48: Non-contact Cooling Water Systems	has members	
COMG49: Fugitive LDAR in Vacuum Service	has members	FUGI8, FUGI64, FUGI71, FUGI75, FUGI77, FUGI85, FUGI89, FUGI91
COMG4: ULSD Project VOC Emissions	has members	EQUI469, EQUI470, EQUI471, EQUI1131, EQUI1138, FUGI94, FUGI127
COMG50: Temporary Portable Coke Crushers	has members	EQUI527, EQUI528
COMG51: Drains subject to NESH FF only and equipped w/water seal or	has members	EQUI518, FUGI7, FUGI8, FUGI63, FUGI64,

SI ID: Description	Relationship Type	Related SI ID: Description
equivalent		FUGI67, FUGI71, FUGI74, FUGI77, FUGI78, FUGI79, FUGI80, FUGI85, FUGI86, FUGI89, FUGI91, FUGI93, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI112, FUGI113, FUGI114, FUGI115, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI128, FUGI129, FUGI131
COMG52: Stationary Diesels (Compression Ignition) Subject to MACT ZZZZ	has members	EQUI324, EQUI325, EQUI326, EQUI327, EQUI329, EQUI365, EQUI366, EQUI486, EQUI489, EQUI497, EQUI502, EQUI567
COMG53: NSPS K Tanks w/ fixed roof > 40,000 gals without CVS/CD	has members	EQUI1190
COMG54: Affected Sources at the refinery under MACT GGGGG	has members	EQUI467, EQUI533, EQUI534, EQUI535,

SI ID: Description	Relationship Type	Related SI ID: Description
		STRU84, STRU85, STRU86, TREA62, TREA63, TREA65, TREA66, TREA73
COMG56: Emission Units subject to Minn. R. built before June 11, 1973	has members	EQUI431, EQUI432, EQUI545, EQUI547, EQUI548, EQUI549, EQUI550, EQUI551, EQUI552, EQUI557
COMG57: Tanks/Basins subject to NESHAP FF w/vapor recovery & control device	has members	EQUI350, EQUI351, EQUI354, EQUI355, EQUI356, EQUI357, EQUI358, EQUI359, EQUI360, EQUI361, EQUI362, EQUI382, EQUI399, EQUI400, EQUI415, EQUI416, EQUI453, EQUI455, EQUI456, EQUI464, EQUI465, EQUI466, EQUI467, EQUI468, EQUI516, EQUI529, EQUI876, EQUI1279
COMG58: Oil/water separators w/floating roof subject to NSPS	has members	EQUI454

SI ID: Description	Relationship Type	Related SI ID: Description
QQQ and NESHAP FF		
COMG59: Treatment Processes to meet destruction req. NESH FF	has members	EQUI351, EQUI354, EQUI355, EQUI356, EQUI357, EQUI358, EQUI359, EQUI360, EQUI361, EQUI362, EQUI369, EQUI370, EQUI401, EQUI455, EQUI456, EQUI464, EQUI468, EQUI529
COMG5: Storage Tank Heaters built after June 11, 1973	has members	EQUI333, EQUI343, EQUI344, EQUI345, EQUI346, EQUI347, EQUI348, EQUI449, EQUI450
COMG60: Drains subject to NESH FF equipped with plugs	has members	EQUI518, FUGI7, FUGI8, FUGI63, FUGI64, FUGI67, FUGI71, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80, FUGI85, FUGI86, FUGI89, FUGI91, FUGI93, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI109, FUGI110, FUGI112, FUGI113, FUGI114, FUGI115, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI128, FUGI129, FUGI131
COMG61: Loading Rack Activities in CFP group limit	has members	EQUI372, EQUI373, EQUI374, EQUI375, EQUI380, EQUI483
COMG62: NSPS Ka Tanks w/fixed roof > 40,000 gals	has members	EQUI1192, EQUI1241
COMG63: IFR tank/basin subject to NESHAPs FF following the requirements of Kb	has members	EQUI908, EQUI909
COMG64: Temporary TK002 Thermal Oxidizers	has members	STRU61
COMG65: Refinery Fuel Gas SO2 Emissions	has members	EQUI19, EQUI24, EQUI25, EQUI29, EQUI283, EQUI312
COMG66: Cooling Towers (#1, #3, #4, #5, #6 and #7) and associated Heat Exchange Systems	has members	FUGI96, FUGI97, FUGI98, FUGI99, FUGI100, FUGI101
COMG67: Emergency Propane Generators	has members	EQUI408, EQUI409, EQUI410, STRU62, STRU63, STRU64, TREA57

SI ID: Description	Relationship Type	Related SI ID: Description
COMG68: Limit that Applies to Gas Oil HDS Heaters (EU084 and EU085)	has members	EQUI541, EQUI559
COMG69: RGP Vapor Combustion Unit	has members	EQUI404, EQUI405, STRU90, TREA74
COMG6: Stormwater Sewers	has members	EQUI522
COMG71: NSPS Kb Tanks w/internal floating roof > 39,890 gals	has members	EQUI758, EQUI796, EQUI797, EQUI798, EQUI800, EQUI810, EQUI812, EQUI833, EQUI834, EQUI899, EQUI900, EQUI901, EQUI902, EQUI903, EQUI908, EQUI909, EQUI915, EQUI916, EQUI917, EQUI919, EQUI924, EQUI925, EQUI931, EQUI933, EQUI935, EQUI937, EQUI1131, EQUI1138
COMG72: External Floating Tanks NSPS Kb > 39,890 gals	has members	EQUI754, EQUI761, EQUI762, EQUI794, EQUI795, EQUI799, EQUI801, EQUI808, EQUI809, EQUI811, EQUI813, EQUI814,

SI ID: Description	Relationship Type	Related SI ID: Description
		EQUI815, EQUI817, EQUI832, EQUI861, EQUI913, EQUI918, EQUI922, EQUI923, EQUI1009, EQUI1454, EQUI1455
COMG74: NSPS Kb Tanks w/fixed roof & CVS/CD > 39,890 gals	has members	EQUI752, EQUI755, EQUI759, EQUI782, EQUI783, EQUI835, EQUI836, EQUI837, EQUI838, EQUI842, EQUI843, EQUI844, EQUI845, EQUI846, EQUI848, EQUI849, EQUI862, EQUI863, EQUI866, EQUI874, EQUI876, EQUI881, EQUI891, EQUI896, EQUI898, EQUI904, EQUI905, EQUI914, EQUI920, EQUI921, EQUI927, EQUI928, EQUI929, EQUI930, EQUI1039, EQUI1135, EQUI1205
COMG75: NSPS Kb Tanks w/fixed roof & CVS/CD 19,813-	has members	EQUI757, EQUI784, EQUI894,

SI ID: Description	Relationship Type	Related SI ID: Description
39,890 gals		EQUI910, EQUI911
COMG78: MACT CC Group 1 Tank Requirements, satisfied by NSPS Kb	has members	EQUI754, EQUI758, EQUI761, EQUI762, EQUI783, EQUI794, EQUI795, EQUI796, EQUI797, EQUI798, EQUI799, EQUI800, EQUI801, EQUI808, EQUI810, EQUI811, EQUI812, EQUI813, EQUI814, EQUI815, EQUI817, EQUI832, EQUI861, EQUI868, EQUI869, EQUI899, EQUI900, EQUI901, EQUI902, EQUI908, EQUI909, EQUI913, EQUI915, EQUI916, EQUI917, EQUI918, EQUI919, EQUI922, EQUI923, EQUI924, EQUI925, EQUI931, EQUI933, EQUI935, EQUI937, EQUI1009, EQUI1131, EQUI1138, EQUI1454,

SI ID: Description	Relationship Type	Related SI ID: Description
		EQUI1455
COMG79: Tanks MN R post 1973 and > 40,000 gals	has members	EQUI755, EQUI759, EQUI762, EQUI782, EQUI783, EQUI794, EQUI795, EQUI808, EQUI809, EQUI810, EQUI811, EQUI817, EQUI833, EQUI837, EQUI838, EQUI842, EQUI843, EQUI844, EQUI845, EQUI868, EQUI869, EQUI908, EQUI909, EQUI917, EQUI918, EQUI920, EQUI921, EQUI922, EQUI923, EQUI927, EQUI928, EQUI929, EQUI930, EQUI1131, EQUI1138, EQUI1143, EQUI1189, EQUI1190, EQUI1192, EQUI1205, EQUI1241, EQUI1454, EQUI1455
COMG7: Fugitive LDAR Emission Sources not in VOC or HAP Service	has members	FUGI132
COMG80: All equipment included in	has members	EQUI518, EQUI519, FUGI6, FUGI7,

SI ID: Description	Relationship Type	Related SI ID: Description
individual drain system subject to NSPS QQQ or NESHAPs FF		FUGI8, FUGI63, FUGI64, FUGI67, FUGI69, FUGI70, FUGI71, FUGI74, FUGI75, FUGI76, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI89, FUGI90, FUGI91, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI124, FUGI125, FUGI127, FUGI128, FUGI129, FUGI131, FUGI132
COMG81: Drains subject to NESH FF and also subject to	has members	FUGI7, FUGI8, FUGI63, FUGI64,

SI ID: Description	Relationship Type	Related SI ID: Description
NSPS QQQ (water seal; lube oil or equivalent)		FUGI67, FUGI74, FUGI77, FUGI78, FUGI79, FUGI80, FUGI85, FUGI86, FUGI89, FUGI91, FUGI93, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI112, FUGI113, FUGI114, FUGI115, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI131
COMG82: Junction Boxes subject to NESH FF when equipped with carbon canisters	has members	EQUI519, FUGI7, FUGI8, FUGI63, FUGI64, FUGI67, FUGI74, FUGI77, FUGI78, FUGI79, FUGI82, FUGI85, FUGI86, FUGI89, FUGI91, FUGI94, FUGI102, FUGI110, FUGI112, FUGI113, FUGI115, FUGI120, FUGI121, FUGI123,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI125, FUGI128, FUGI129, FUGI131, FUGI132
COMG83: Fugitive Compressors LDAR Requirements	has members	FUGI9, FUGI67, FUGI71, FUGI82, FUGI85, FUGI108, FUGI113, FUGI114, FUGI123, FUGI125, FUGI129, FUGI130, FUGI132
COMG84: Fugitive LDAR All Equipment in VOC or HAP Service	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI65, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI87, FUGI89, FUGI90, FUGI91, FUGI92, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG85: Fugitive LDAR Equipment Designated Non-detectable emissions (NDE)	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI65, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI87, FUGI89, FUGI90, FUGI91, FUGI92,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG86: Fugitive LDAR Open-ended Lines	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI65, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI87, FUGI89, FUGI90, FUGI91, FUGI92, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131
COMG87: Fugitive LDAR PSV to Atmosphere in Gas/Vapor Service	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI65, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI82, FUGI83, FUGI85, FUGI86, FUGI89, FUGI90, FUGI91, FUGI92, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG88: Fugitive LDAR Pumps In Heavy Liquid Service	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI77,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI87, FUGI89, FUGI90, FUGI91, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG89: Fugitive LDAR Light Liquid Pumps	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI65, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI73, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI87, FUGI89, FUGI90, FUGI91, FUGI92, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG8: Tanks subject to NSPS UU (each tank)	has members	EQUI837, EQUI838, EQUI842, EQUI843, EQUI844, EQUI845, EQUI846,

SI ID: Description	Relationship Type	Related SI ID: Description
		EQUI848, EQUI849, EQUI862, EQUI866, EQUI898, EQUI914
COMG90: Fugitive LDAR Sample Stations	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI65, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI87, FUGI89, FUGI90, FUGI91, FUGI92, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG91: Fugitive LDAR Heavy Liquid Valves and PSVs (in LL/HL Service)	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI87, FUGI89, FUGI90, FUGI91, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG92: Fugitive LDAR Valves in Light Liquid Service	has members	FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI65, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI87, FUGI89, FUGI90, FUGI91, FUGI92, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG93: Units where carbon canisters may be used to meet NESHAP FF Requirements	has members	FUGI6, FUGI7, FUGI8, FUGI9, FUGI11, FUGI63, FUGI64, FUGI66, FUGI67, FUGI69, FUGI70, FUGI71, FUGI72, FUGI73, FUGI74, FUGI75, FUGI76, FUGI77, FUGI78, FUGI79, FUGI80, FUGI82, FUGI83, FUGI85, FUGI86, FUGI87, FUGI89, FUGI90, FUGI91, FUGI93, FUGI94, FUGI102, FUGI105, FUGI106,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI107, FUGI108, FUGI109, FUGI110, FUGI111, FUGI112, FUGI113, FUGI114, FUGI115, FUGI116, FUGI117, FUGI118, FUGI119, FUGI120, FUGI121, FUGI123, FUGI124, FUGI125, FUGI127, FUGI128, FUGI129, FUGI130, FUGI131, FUGI132
COMG94: Drains subject to NESH FF and NSPS QQQ sealed with plugs	has members	FUGI7, FUGI8, FUGI63, FUGI64, FUGI67, FUGI74, FUGI77, FUGI78, FUGI79, FUGI80, FUGI85, FUGI86, FUGI89, FUGI91, FUGI93, FUGI102, FUGI105, FUGI106, FUGI107, FUGI108, FUGI109, FUGI110, FUGI112, FUGI113, FUGI114, FUGI115, FUGI119, FUGI121,

SI ID: Description	Relationship Type	Related SI ID: Description
		FUGI123, FUGI125, FUGI131
COMG95: Control Equipment Used to Meet Requirements of MACT CC	has members	EQUI290, EQUI546, TREA48, TREA56, TREA61, TREA64
COMG96: Fuel Gas Supply Systems	has members	EQUI87, EQUI128, EQUI260, EQUI264, EQUI446, EQUI481
COMG97: Fugitive Compressors Exempt from LDAR Requirements	has members	FUGI11, FUGI69, FUGI70, FUGI72, FUGI74, FUGI78, FUGI94, FUGI111, FUGI115, FUGI116, FUGI130, FUGI131
COMG98: Fugitive LDAR PSV with Upstream Rupture Disks	has members	FUGI7, FUGI73, FUGI78, FUGI80, FUGI82, FUGI86, FUGI93, FUGI112, FUGI132
COMG99: Sour Water Tanks	has members	EQUI1454, EQUI1455
COMG9: Tanks subject to VOC Limit (CFP)	has members	EQUI752, EQUI754, EQUI755, EQUI758, EQUI761, EQUI762, EQUI794, EQUI795, EQUI796, EQUI797, EQUI798, EQUI799, EQUI800,

SI ID: Description	Relationship Type	Related SI ID: Description
		EQUI801, EQUI808, EQUI809, EQUI810, EQUI811, EQUI812, EQUI813, EQUI814, EQUI815, EQUI817, EQUI832, EQUI833, EQUI834, EQUI835, EQUI836, EQUI837, EQUI838, EQUI842, EQUI843, EQUI844, EQUI845, EQUI846, EQUI848, EQUI849, EQUI861, EQUI862, EQUI863, EQUI866, EQUI874, EQUI876, EQUI881, EQUI891, EQUI896, EQUI898, EQUI899, EQUI900, EQUI901, EQUI902, EQUI903, EQUI904, EQUI905, EQUI908, EQUI909, EQUI910, EQUI911, EQUI913, EQUI914, EQUI915, EQUI916, EQUI917, EQUI918,

SI ID: Description	Relationship Type	Related SI ID: Description
		EQUI919, EQUI920, EQUI921, EQUI922, EQUI923, EQUI924, EQUI925, EQUI927, EQUI928, EQUI929, EQUI930, EQUI931, EQUI933, EQUI935, EQUI937, EQUI1009
EQUI1009: Organic Liquid		
EQUI1039: Chemical/Additive Storage Tank 35TK4		
EQUI10: ATS CO Analyzer	monitors	EQUI574: ATS Process Unit - Refining Equipment
EQUI1107: Chemical/Additive Storage Tank 11V31		
EQUI1120: Chemical/Additive Storage Tank 16TK1		
EQUI1124: Chemical/Additive Storage Tank 31V8		
EQUI1131: Heavy Naphtha		
EQUI1135: Chemical/Additive Storage Tank 102TK15		
EQUI1138: Heavy Naphtha		
EQUI1143: Organic Liquid Storage Tank	is controlled in parallel by	TREA72: Refrigerated Condenser
EQUI1143: Organic	is	TREA8: Direct

SI ID: Description	Relationship Type	Related SI ID: Description
Liquid Storage Tank	controlled in parallel by	Flame Afterburner
EQUI1189: Water/Process Mixture Storage Tank @ 21 Unit		
EQUI1190: Cooling Water @ 21 Unit		
EQUI1191: Water/Process Mixture Storage Tank		
EQUI1192: Jet Water @ 23 Unit		
EQUI11: Combustion Turbine Fuel Flow Meter	monitors	EQUI367: Combustion Turbine - Turbine
EQUI1205: Sulfur Storage Tank		
EQUI1210: Demineralized Water		
EQUI1211: Demineralized Water		
EQUI1234: Propane		
EQUI1236: Propane		
EQUI1241: Sulfur		
EQUI1279: Wastewater Storage Tank 102TK12		
EQUI127: Natural Gas Flow to Pilots of Heaters in Main Control Area	monitors	EQUI513: Main Control Pilots - Other Emission Unit
EQUI128: 45V-39 Mix Drum Refinery Fuel Gas H2S Concentration	monitors	COMG96: Fuel Gas Supply Systems
EQUI128: 45V-39 Mix Drum Refinery Fuel Gas H2S Concentration	monitors	EQUI481: Fuel Gas Supply System (45 unit) Monitoring Point for FG

SI ID: Description	Relationship Type	Related SI ID: Description
		H2S and sulfur - Refining Equipment
EQUI129: 45H-6 O2	monitors	EQUI319: #3 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit
EQUI129: 45H-6 O2	monitors	STRU140: 45H6 Stack
EQUI12: Duct Burners Fuel Flow Meter	monitors	EQUI368: Duct Burners - Duct Burner
EQUI130: TGTU1 O2 Analyzer - 45H61	monitors	EQUI478: Incinerator for SRU4 Bypasses of TGTU1 SRU3/4 Sulfur Degassing SW TK Purge Gassing - Incinerator
EQUI130: TGTU1 O2 Analyzer - 45H61	monitors	STRU139: 45H61 Stack
EQUI131: TGTU1 SO2 Analyzer - 45H61	monitors	EQUI478: Incinerator for SRU4 Bypasses of TGTU1 SRU3/4 Sulfur Degassing SW TK Purge Gassing - Incinerator
EQUI131: TGTU1 SO2 Analyzer - 45H61	monitors	STRU139: 45H61 Stack
EQUI132: 45H-8 Fuel Gas Flow Meter	monitors	EQUI480: Tail Gas Treating Unit #1 (SCOT) Incinerator - Incinerator
EQUI133: 45H61 Fuel Gas Flow	monitors	EQUI478: Incinerator for SRU4 Bypasses of TGTU1 SRU3/4 Sulfur Degassing SW TK Purge Gassing -

SI ID: Description	Relationship Type	Related SI ID: Description
		Incinerator
EQUI133: 45H61 Fuel Gas Flow	monitors	STRU139: 45H61 Stack
EQUI134: EMRC Flow Meter for TGTU1	monitors	EQUI478: Incinerator for SRU4 Bypasses of TGTU1 SRU3/4 Sulfur Degassing SW TK Purge Gassing - Incinerator
EQUI134: EMRC Flow Meter for TGTU1	monitors	STRU139: 45H61 Stack
EQUI135: 71B8 O2 Analyzer to Monitor NOx Emissions	monitors	EQUI371: Steam Boiler #8 - Boiler
EQUI135: 71B8 O2 Analyzer to Monitor NOx Emissions	monitors	STRU168: 71B8 Stack
EQUI136: North Flare Pilot Thermocouple	monitors	STRU145: North Flare Stack
EQUI137: East Flare Pilot Thermocouple	monitors	STRU146: East Flare Stack
EQUI138: SVE System: Temperature Monitor for West Buffer	monitors	EQUI452: West Buffer Zone Offgas (88H2) - Refining Equipment
EQUI138: SVE System: Temperature Monitor for West Buffer	monitors	STRU176: 88H2 Stack
EQUI139: 94H1 & 94H3 Natural Gas Flow	monitors	STRU162: 94H1 Stack
EQUI13: 75 Unit NOx	monitors	EQUI367: Combustion Turbine - Turbine
EQUI13: 75 Unit NOx	monitors	EQUI368: Duct Burners - Duct Burner

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI140: Temperature Monitor (Stack) for 94H-3 Thermal Oxidizer		
EQUI141: 94H1 SO2 Analyzer	monitors	STRU162: 94H1 Stack
EQUI142: FCC CO Low	monitors	EQUI421: FCCU - Refining Equipment
EQUI142: FCC CO Low	monitors	STRU95: FCC Main Stack
EQUI143: 21H-1 West Fuel Gas Flowmeter	monitors	EQUI491: #1 Coker Heater - Process Heater
EQUI143: 21H-1 West Fuel Gas Flowmeter	monitors	STRU100: 21H1N Stack
EQUI143: 21H-1 West Fuel Gas Flowmeter	monitors	STRU99: 21H1S Stack
EQUI144: 21H-1 East Fuel Gas Flowmeter	monitors	EQUI491: #1 Coker Heater - Process Heater
EQUI144: 21H-1 East Fuel Gas Flowmeter	monitors	STRU100: 21H1N Stack
EQUI144: 21H-1 East Fuel Gas Flowmeter	monitors	STRU99: 21H1S Stack
EQUI1454: Sour Water		
EQUI1455: Sour Water		
EQUI1456: EQUI24H1	sends to	EQUI1458: EQUI24H1DAS
EQUI1456: EQUI24H1	is monitored by	EQUI1461: EQUI24H1O2
EQUI1456: EQUI24H1	is monitored by	EQUI1462: EQUI24H1NOX
EQUI1456: EQUI24H1	is monitored by	EQUI1463: EQUI24H1CO
EQUI1456: EQUI24H1	is monitored by	EQUI1464: EQUI24H1FUEL
EQUI1456:	sends to	STRU215:

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI24H1		STRU24H1
EQUI1456: EQUI24H1	is controlled by	TREA85: TREA24H1
EQUI1457: EQUI24DRUMS (Process)		
EQUI1458: EQUI24H1DAS		
EQUI1459: EQUI24DRUMDAS		
EQUI145: 21H-2 West Fuel Gas Flowmeter	monitors	EQUI492: #2 Coker Heater - Process Heater
EQUI145: 21H-2 West Fuel Gas Flowmeter	monitors	STRU101: 21H2S Stack
EQUI145: 21H-2 West Fuel Gas Flowmeter	monitors	STRU102: 21H2N Stack
EQUI1460: EQUI30H401DAS		
EQUI1461: EQUI24H1O2	sends to	EQUI1458: EQUI24H1DAS
EQUI1462: EQUI24H1NOX	sends to	EQUI1458: EQUI24H1DAS
EQUI1463: EQUI24H1CO	sends to	EQUI1458: EQUI24H1DAS
EQUI1464: EQUI24H1FUEL	sends to	EQUI1458: EQUI24H1DAS
EQUI1465: EQUI24DRUMSPRESS		
EQUI1466: EQUI30H401FUEL	sends to	EQUI1460: EQUI30H401DAS
EQUI1467: EQUI30H401NOX	sends to	EQUI1460: EQUI30H401DAS
EQUI146: 21H-2 East Fuel Gas Flowmeter	monitors	EQUI492: #2 Coker Heater - Process Heater
EQUI146: 21H-2 East Fuel Gas Flowmeter	monitors	STRU101: 21H2S Stack
EQUI146: 21H-2 East Fuel Gas Flowmeter	monitors	STRU102: 21H2N Stack
EQUI1471: North Contractor Building	sends to	STRU217: North

SI ID: Description	Relationship Type	Related SI ID: Description
Emergency Generator		Contractor Building Emergency Generator
EQUI1472: North Contractor Building Boiler #1	sends to	STRU218: North Contractor Building Boiler #1
EQUI1473: North Contractor Building Boiler #2	sends to	STRU219: North Contractor Building Boiler #2
EQUI1474: Lab Roof Top Unit #1	sends to	STRU220: Lab Roof Top Unit #1
EQUI1475: 37H1 2 6 O2 Analyzer for NOx	monitors	STRU130: 37H1 2 6 Stack
EQUI1476: Propylene VCU Flow	monitors	EQUI405: RGP Vapor Combustion Unit - Other Combustion
EQUI1477: CHP Facility Electricity Generation 1	monitors	EQUI367: Combustion Turbine - Turbine
EQUI1477: CHP Facility Electricity Generation 1	monitors	EQUI368: Duct Burners - Duct Burner
EQUI1478: CHP Facility Electricity Generation 2	monitors	EQUI367: Combustion Turbine - Turbine
EQUI1478: CHP Facility Electricity Generation 2	monitors	EQUI368: Duct Burners - Duct Burner
EQUI1479: CHP Facility Steam Delivery	monitors	EQUI367: Combustion Turbine - Turbine
EQUI1479: CHP Facility Steam Delivery	monitors	EQUI368: Duct Burners - Duct Burner
EQUI147: 23H-1 South Fuel Gas Flowmeter	monitors	EQUI495: #3 Coker Heater - Process Heater
EQUI147: 23H-1	monitors	STRU104:

SI ID: Description	Relationship Type	Related SI ID: Description
South Fuel Gas Flowmeter		23H1 Stack
EQUI148: 23H-1 North Fuel Gas Flowmeter	monitors	EQUI495: #3 Coker Heater - Process Heater
EQUI148: 23H-1 North Fuel Gas Flowmeter	monitors	STRU104: 23H1 Stack
EQUI149: TGTU2 CO Analyzer	monitors	EQUI427: 26H21 Standby Incinerator for TGTU #2 Bypasses & SRU5 Sulfur Degassing - Incinerator
EQUI149: TGTU2 CO Analyzer	monitors	STRU83: #5 SRU 26 Unit Stack
EQUI14: 75 Unit CO	monitors	EQUI367: Combustion Turbine - Turbine
EQUI14: 75 Unit CO	monitors	EQUI368: Duct Burners - Duct Burner
EQUI150: Natural Gas Flowmeter to Pilots	monitors	EQUI377: #3 H2 Heater - Process Heater
EQUI150: Natural Gas Flowmeter to Pilots	monitors	STRU172: 27H501 Stack
EQUI151: 31H1 Fuel Gas Flowmeter	monitors	EQUI545: #6 HDS Reactor Charge Heater - Process Heater
EQUI151: 31H1 Fuel Gas Flowmeter	monitors	STRU116: 31H1 Stack
EQUI152: 31H2 Fuel Gas Flowmeter	monitors	EQUI546: #2 HDS Fractionation Heater (31H2) - Fractionation Equipment
EQUI152: 31H2 Fuel Gas Flowmeter	monitors	STRU117: 31H2 Stack

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI153: 31H7 Fuel Gas Flowmeter	monitors	EQUI549: #5 HDS Charge Heater (naphtha) - Process Heater
EQUI153: 31H7 Fuel Gas Flowmeter	monitors	STRU120: 31H7 Stack
EQUI154: 31H8 Fuel Gas Flowmeter	monitors	EQUI550: #1 HDS Reactor Charge Heater - Process Heater
EQUI154: 31H8 Fuel Gas Flowmeter	monitors	STRU121: 31H8 Stack
EQUI155: 31H9 Fuel Gas Flowmeter	monitors	EQUI551: #1 HDS Fractionation Heater - Fractionation Equipment
EQUI155: 31H9 Fuel Gas Flowmeter	monitors	STRU122: 31H9 Stack
EQUI15: 75 Unit O2	monitors	EQUI367: Combustion Turbine - Turbine
EQUI15: 75 Unit O2	monitors	EQUI368: Duct Burners - Duct Burner
EQUI16: 75 Unit Stack Flow	monitors	EQUI367: Combustion Turbine - Turbine
EQUI16: 75 Unit Stack Flow	monitors	EQUI368: Duct Burners - Duct Burner
EQUI17: NOx Monitor at 25H3	monitors	EQUI501: #3 Crude Unit Vac Pre-Fractionator Heater - Process Heater
EQUI18: CO Monitor at 25H3	monitors	EQUI501: #3 Crude Unit Vac Pre-Fractionator Heater -

SI ID: Description	Relationship Type	Related SI ID: Description
		Process Heater
EQUI194: Propylene 70% Propane 30%		
EQUI195: Propylene 70% Propane 30%		
EQUI196: 31H10 Fuel Gas Flowmeter	monitors	EQUI552: #2 HDS Reactor Charge Heater - Process Heater
EQUI196: 31H10 Fuel Gas Flowmeter	monitors	STRU123: 31H10 Stack
EQUI197: 31H-5 Fuel Gas Flowmeter	monitors	EQUI548: Unisar Reactor Charge Heater - Process Heater
EQUI197: 31H-5 Fuel Gas Flowmeter	monitors	STRU119: 31H5 Stack
EQUI198: 31H4 Fuel Gas Flowmeter	monitors	EQUI547: HDS Heater (hot oil system) - Process Heater
EQUI198: 31H4 Fuel Gas Flowmeter	monitors	STRU118: 31H4 Stack
EQUI199: 32H-9 Fuel Gas Flowmeter	monitors	EQUI557: Powerformer Regenerator Gas Heater - Process Heater
EQUI199: 32H-9 Fuel Gas Flowmeter	monitors	STRU125: 32H9 Stack
EQUI19: 41 Unit Fuel Gas Mix Drum Total Sulfur	monitors	EQUI446: Fuel Gas Supply System (41 unit) Monitoring Point for FG H2S and sulfur - Refining Equipment
EQUI1: 94H3 SO2 Analyzer	monitors	EQUI444: Unit 94H3-Thermal Oxidizer Back-

SI ID: Description	Relationship Type	Related SI ID: Description
		up - Other Combustion
EQUI1: 94H3 SO2 Analyzer	monitors	EQUI457: OSWTP - Thermal Oxidizer - Other Combustion
EQUI1: 94H3 SO2 Analyzer	monitors	STRU180: 94H3 Stack
EQUI200: 32H-5 Fuel Gas Flowmeter	monitors	EQUI554: Powerformer Reactor Charge Heater (Grouped with EU 073/074/075) - Process Heater
EQUI200: 32H-5 Fuel Gas Flowmeter	monitors	STRU124: 32H5 6 7 Stack
EQUI201: 32H-6 Fuel Gas Flowmeter	monitors	EQUI555: Powerformer Reactor #1 Reheat Heater(Group ed with EU 073/074/075) - Process Heater
EQUI201: 32H-6 Fuel Gas Flowmeter	monitors	STRU124: 32H5 6 7 Stack
EQUI202: 32H-7 Fuel Gas Flowmeter	monitors	EQUI556: Powerformer Reactor #2 Reheat Heater (Grouped with EU 073/074/075) - Process Heater
EQUI202: 32H-7 Fuel Gas Flowmeter	monitors	STRU124: 32H5 6 7 Stack
EQUI203: 33H1 Fuel Gas Flowmeter	monitors	EQUI431: H2 Plant Vaporizer Heater -

SI ID: Description	Relationship Type	Related SI ID: Description
		Process Heater
EQUI203: 33H1 Fuel Gas Flowmeter	monitors	STRU127: 33H1 2 Stack (33H4)
EQUI204: 33H2 Fuel Gas Flowmeter	monitors	EQUI432: #1 H2 Plant Reformer/Heater - Process Heater
EQUI204: 33H2 Fuel Gas Flowmeter	monitors	STRU127: 33H1 2 Stack (33H4)
EQUI205: 37H-3/4/5 NOx Analyzer	monitors	EQUI562: Platformer Charge Heater (Grouped with EU 095/096/097) - Process Heater
EQUI205: 37H-3/4/5 NOx Analyzer	monitors	EQUI563: Platformer #1 Interheater(Grouped with EU 095/096/097) - Process Heater
EQUI205: 37H-3/4/5 NOx Analyzer	monitors	EQUI564: Platformer #2 Interheater(Grouped with EU 095/096/097) - Process Heater
EQUI205: 37H-3/4/5 NOx Analyzer	monitors	STRU131: 37H3 4 5 Stack
EQUI206: 37H-3/4/5 CO Analyzer	monitors	EQUI562: Platformer Charge Heater (Grouped with EU 095/096/097) - Process Heater
EQUI206: 37H-3/4/5 CO Analyzer	monitors	EQUI563: Platformer #1 Interheater(Grouped with EU 095/096/097) - Process Heater

SI ID: Description	Relationship Type	Related SI ID: Description
		- Process Heater
EQUI206: 37H-3/4/5 CO Analyzer	monitors	EQUI564: Platformer #2 Interheater(Grouped with EU 095/096/097) - Process Heater
EQUI206: 37H-3/4/5 CO Analyzer	monitors	STRU131: 37H3 4 5 Stack
EQUI207: 37 O2 Percent	monitors	EQUI562: Platformer Charge Heater (Grouped with EU 095/096/097) - Process Heater
EQUI207: 37 O2 Percent	monitors	EQUI563: Platformer #1 Interheater(Grouped with EU 095/096/097) - Process Heater
EQUI207: 37 O2 Percent	monitors	EQUI564: Platformer #2 Interheater(Grouped with EU 095/096/097) - Process Heater
EQUI207: 37 O2 Percent	monitors	STRU131: 37H3 4 5 Stack
EQUI208: 37H-1 Fuel Gas Flowmeter	monitors	EQUI560: Naphtha Hydrotreater Charge Heater - Process Heater
EQUI208: 37H-1 Fuel Gas Flowmeter	monitors	STRU130: 37H1 2 6 Stack
EQUI209: 37H-2 Fuel Gas Flowmeter	monitors	EQUI561: Naphtha Hydrotreater Stripper Reboiler - Boiler

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI209: 37H-2 Fuel Gas Flowmeter	monitors	STRU130: 37H1 2 6 Stack
EQUI210: 37H4 Fuel Gas Flowmeter	monitors	EQUI563: Platformer #1 Interheater(Gr ouped with EU 095/096/097) - Process Heater
EQUI210: 37H4 Fuel Gas Flowmeter	monitors	STRU131: 37H3 4 5 Stack
EQUI211: 37H5 Fuel Gas Flowmeter	monitors	EQUI564: Platformer #2 Interheater(Gr ouped with EU 095/096/097) - Process Heater
EQUI211: 37H5 Fuel Gas Flowmeter	monitors	STRU131: 37H3 4 5 Stack
EQUI212: 37H3 Fuel Gas Flowmeter	monitors	EQUI562: Platformer Charge Heater (Grouped with EU 095/096/097) - Process Heater
EQUI212: 37H3 Fuel Gas Flowmeter	monitors	STRU131: 37H3 4 5 Stack
EQUI213: 37H6 Fuel Gas Flowmeter	monitors	EQUI565: Platformer Stabilizer Reboiler Heater - Process Heater
EQUI213: 37H6 Fuel Gas Flowmeter	monitors	STRU130: 37H1 2 6 Stack
EQUI214: 45 CO ppm	monitors	EQUI478: Incinerator for SRU4 Bypasses of TGTU1 SRU3/4 Sulfur Degassing SW TK Purge

SI ID: Description	Relationship Type	Related SI ID: Description
		Gassing - Incinerator
EQUI214: 45 CO ppm	monitors	STRU139: 45H61 Stack
EQUI215: Natural Gas 88H-2 SVE Oxidizer	monitors	EQUI452: West Buffer Zone Offgas (88H2) - Refining Equipment
EQUI215: Natural Gas 88H-2 SVE Oxidizer	monitors	STRU176: 88H2 Stack
EQUI216: East Flare Natural Gas Flowmeter	monitors	STRU146: East Flare Stack
EQUI217: West Flare Natural Gas Flowmeter	monitors	STRU147: West Flare Stack
EQUI218: North Flare Natural Gas Flowmeter	monitors	STRU145: North Flare Stack
EQUI219: Pilot indicator for ZTOF at rail loading	monitors	EQUI375: Track 8 Rail Loading - Loading-Unloading Equipment
EQUI219: Pilot indicator for ZTOF at rail loading	monitors	STRU8: RR Load to Stack
EQUI220: Natural Gas Flow to 86H41	monitors	EQUI451: Central Buffer Zone Offgas (86H41) - Refining Equipment
EQUI220: Natural Gas Flow to 86H41	monitors	STRU177: 86H41 Stack
EQUI221: Pilot Thermocouple for Butane Storage Tank 086TK		
EQUI222: VOC Monitor at Bottom Loading Unit	monitors	EQUI483: Truck Bottom Loading (gas, distillate) including the trucks - Loading-

SI ID: Description	Relationship Type	Related SI ID: Description
		Unloading Equipment
EQUI222: VOC Monitor at Bottom Loading Unit	monitors	STRU9: BT Load VRU Stack
EQUI223: 11H-6 CO Monitor	monitors	EQUI376: 11H-6 - Refining Equipment
EQUI223: 11H-6 CO Monitor	monitors	STRU82: 11H6 Stack
EQUI224: O2 Monitor for 11H6	monitors	EQUI376: 11H-6 - Refining Equipment
EQUI224: O2 Monitor for 11H6	monitors	STRU82: 11H6 Stack
EQUI231: 11H6 Fuel Gas Flowmeter	monitors	EQUI376: 11H-6 - Refining Equipment
EQUI231: 11H6 Fuel Gas Flowmeter	monitors	STRU82: 11H6 Stack
EQUI232: 11H1 Fuel Gas Flowmeter	monitors	EQUI484: #1 Crude Heater atmospheric distillation - Distillation Equipment
EQUI232: 11H1 Fuel Gas Flowmeter	monitors	STRU10: 11H1 Stack
EQUI233: 12H4 Firebox O2	monitors	EQUI487: Vacuum Pre-Strip Heater - Process Heater
EQUI233: 12H4 Firebox O2	monitors	STRU93: 12H4 Stack
EQUI234: 12H4 Fuel Gas Flowmeter	monitors	EQUI487: Vacuum Pre-Strip Heater - Process Heater
EQUI234: 12H4 Fuel Gas Flowmeter	monitors	STRU93: 12H4 Stack
EQUI235: 16H1 O2 Monitor	monitors	EQUI488: #2 Vac Heater - Process Heater
EQUI235: 16H1 O2 Monitor	monitors	STRU94: 16H1 Stack
EQUI236: 16H1 CO Monitor	monitors	EQUI488: #2 Vac Heater -

SI ID: Description	Relationship Type	Related SI ID: Description
		Process Heater
EQUI236: 16H1 CO Monitor	monitors	STRU94: 16H1 Stack
EQUI237: 16H1 NOx Monitor	monitors	EQUI488: #2 Vac Heater - Process Heater
EQUI237: 16H1 NOx Monitor	monitors	STRU94: 16H1 Stack
EQUI238: 16H1 Fuel Gas Flowmeter	monitors	EQUI488: #2 Vac Heater - Process Heater
EQUI238: 16H1 Fuel Gas Flowmeter	monitors	STRU94: 16H1 Stack
EQUI239: FCC Common Stack NOx Analyzer	monitors	EQUI421: FCCU - Refining Equipment
EQUI239: FCC Common Stack NOx Analyzer	monitors	STRU95: FCC Main Stack
EQUI240: FCC Common Stack SO2 Analyzer	monitors	EQUI421: FCCU - Refining Equipment
EQUI240: FCC Common Stack SO2 Analyzer	monitors	STRU95: FCC Main Stack
EQUI241: 17H-4 Fuel Gas Flow Meter	monitors	EQUI421: FCCU - Refining Equipment
EQUI241: 17H-4 Fuel Gas Flow Meter	monitors	STRU95: FCC Main Stack
EQUI242: EMRC Flow for 17ME-187	monitors	EQUI421: FCCU - Refining Equipment
EQUI242: EMRC Flow for 17ME-187	monitors	STRU95: FCC Main Stack
EQUI243: EMRC Temperature Thermocouple for 17ME-187	monitors	EQUI421: FCCU - Refining Equipment
EQUI243: EMRC Temperature Thermocouple for 17ME-187	monitors	STRU95: FCC Main Stack
EQUI244: 19H1	monitors	EQUI490: #1

SI ID: Description	Relationship Type	Related SI ID: Description
Fuel Gas Meter		Vac Heater - Process Heater
EQUI244: 19H1 Fuel Gas Meter	monitors	STRU98: 19H1 Stack
EQUI245: 23H-2 O2 Analyzer	monitors	EQUI496: #3 Coker Heater - Process Heater
EQUI245: 23H-2 O2 Analyzer	monitors	STRU105: 23H2 Stack
EQUI246: 23H-2 Fuel Gas Flow Meter pass 1	monitors	EQUI496: #3 Coker Heater - Process Heater
EQUI246: 23H-2 Fuel Gas Flow Meter pass 1	monitors	STRU105: 23H2 Stack
EQUI247: 23H-2 Fuel Gas Flow Meter pass 3	monitors	EQUI496: #3 Coker Heater - Process Heater
EQUI247: 23H-2 Fuel Gas Flow Meter pass 3	monitors	STRU105: 23H2 Stack
EQUI248: SRU#5 NOx Monitor	monitors	EQUI421: FCCU - Refining Equipment
EQUI248: SRU#5 NOx Monitor	monitors	STRU95: FCC Main Stack
EQUI249: # 5 Sulfur Recovery Unit: 50 ppmvd NOx (24-hr roll. avg.; 9.7 lb/hr 365-day roll. avg), SV 042	sends to	EQUI248: SRU#5 NOx Monitor
EQUI24: 45 Mix Drum Fuel Gas Combustion SO2 Monitor at 25H3	monitors	EQUI501: #3 Crude Unit Vac Pre-Fractionator Heater - Process Heater
EQUI250: 23H-2 Fuel Gas Flow Meter pass 4	monitors	EQUI496: #3 Coker Heater - Process Heater
EQUI250: 23H-2 Fuel Gas Flow Meter pass 4	monitors	STRU105: 23H2 Stack
EQUI253: 27H-1 Fuel Gas Supply Flow Meter	monitors	EQUI543: #2 H2 Plant Reformer Heater - Process Heater

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI253: 27H-1 Fuel Gas Supply Flow Meter	monitors	STRU114: 27H1 Stack
EQUI254: 27H-101 Fuel Gas Supply Flow Meter 2	monitors	EQUI505: Distillate HDS Recycle Hydrogen Charge Heater - Process Heater
EQUI254: 27H-101 Fuel Gas Supply Flow Meter 2	monitors	STRU112: 27H101 Stack
EQUI255: 27H-1 PSA Gas Supply Flow Meter	monitors	EQUI543: #2 H2 Plant Reformer Heater - Process Heater
EQUI255: 27H-1 PSA Gas Supply Flow Meter	monitors	STRU114: 27H1 Stack
EQUI256: 27H-101 Fuel Gas Supply Flow Meter 1	monitors	EQUI505: Distillate HDS Recycle Hydrogen Charge Heater - Process Heater
EQUI256: 27H-101 Fuel Gas Supply Flow Meter 1	monitors	STRU112: 27H101 Stack
EQUI257: 28H-1 Natural Gas Supply Flow Meter	monitors	EQUI544: Naphtha Hydrotreater Reactor Chg Htr - Reactor
EQUI257: 28H-1 Natural Gas Supply Flow Meter	monitors	STRU115: 28H1 Stack
EQUI258: 33H31 Firebox O2	monitors	EQUI541: Gas Oil HDS Charge Heater - Process Heater
EQUI258: 33H31 Firebox O2	monitors	STRU128: 33H31 Stack
EQUI259: 38H2 Fuel Gas Flow	monitors	EQUI570: Unit 38 Gasoil HDS Fractionation Charge Heater - Process

SI ID: Description	Relationship Type	Related SI ID: Description
		Heater
EQUI259: 38H2 Fuel Gas Flow	monitors	STRU137: 38H2 Stack
EQUI25: 45 SO2 Monitor at 29H1/2	monitors	EQUI469: Hydrocracker Feed Heater - Process Heater
EQUI25: 45 SO2 Monitor at 29H1/2	monitors	EQUI470: Hydrocracker Reboiler - Boiler
EQUI260: 41U Fuel Gas Mix Drum	monitors	COMG96: Fuel Gas Supply Systems
EQUI260: 41U Fuel Gas Mix Drum	monitors	EQUI446: Fuel Gas Supply System (41 unit) Monitoring Point for FG H2S and sulfur - Refining Equipment
EQUI261: 45H6 Stack Temp	monitors	EQUI319: #3 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit
EQUI261: 45H6 Stack Temp	monitors	STRU140: 45H6 Stack
EQUI262: 45H-6 SO2	monitors	EQUI319: #3 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit
EQUI262: 45H-6 SO2	monitors	STRU140: 45H6 Stack
EQUI263: 45H-7 Natural Gas Flow Meter	monitors	EQUI479: Tail Gas Treating Unit #1 (SCOT) - Sulfur Recovery Unit
EQUI264: 45U Fuel Gas Mix Drum	monitors	COMG96: Fuel Gas Supply Systems
EQUI264: 45U Fuel Gas Mix Drum	monitors	EQUI481: Fuel Gas Supply System (45 unit) Monitoring

SI ID: Description	Relationship Type	Related SI ID: Description
		Point for FG H2S and sulfur - Refining Equipment
EQUI266: 71B8 Natural Gas Supply Flow Meter	monitors	EQUI371: Steam Boiler #8 - Boiler
EQUI266: 71B8 Natural Gas Supply Flow Meter	monitors	STRU168: 71B8 Stack
EQUI267: SVE System: Temperature Monitor for Central Buffer	monitors	EQUI451: Central Buffer Zone Offgas (86H41) - Refining Equipment
EQUI267: SVE System: Temperature Monitor for Central Buffer	monitors	STRU177: 86H41 Stack
EQUI268: 94H-1 Thermocouple for Fire Box Temperature	monitors	STRU162: 94H1 Stack
EQUI269: 11H6 NOx Monitor	monitors	EQUI376: 11H-6 - Refining Equipment
EQUI269: 11H6 NOx Monitor	monitors	STRU82: 11H6 Stack
EQUI270: 17ME-187 FCC Common Stack Opacity Analyzer	monitors	EQUI421: FCCU - Refining Equipment
EQUI270: 17ME-187 FCC Common Stack Opacity Analyzer	monitors	STRU95: FCC Main Stack
EQUI271: 17H-2 Fuel Gas Flow Meter	monitors	EQUI421: FCCU - Refining Equipment
EQUI271: 17H-2 Fuel Gas Flow Meter	monitors	STRU95: FCC Main Stack
EQUI272: 23H-2 Fuel Gas Flow Meter pass 2	monitors	EQUI496: #3 Coker Heater - Process Heater
EQUI272: 23H-2 Fuel Gas Flow	monitors	STRU105: 23H2 Stack

SI ID: Description	Relationship Type	Related SI ID: Description
Meter pass 2		
EQUI273: FCC CO(%) in Flue Gas Monitor	monitors	EQUI421: FCCU - Refining Equipment
EQUI273: FCC CO(%) in Flue Gas Monitor	monitors	STRU95: FCC Main Stack
EQUI274: 26H-41 Fuel Gas Flow Meter	monitors	EQUI429: 26H41 TGTU #2 Incinerator - Incinerator
EQUI275: 27H-501 Natural Gas Supply Flow Meter	monitors	EQUI377: #3 H2 Heater - Process Heater
EQUI275: 27H-501 Natural Gas Supply Flow Meter	monitors	STRU172: 27H501 Stack
EQUI276: 28H-1 Fuel Gas Supply Flow Meter	monitors	EQUI544: Naphtha Hydrotreater Reactor Chg Htr - Reactor
EQUI276: 28H-1 Fuel Gas Supply Flow Meter	monitors	STRU115: 28H1 Stack
EQUI277: 38H1A Fuel Gas Flow	monitors	EQUI568: Unit 38 Gasoil HDS A-Train Heater - Process Heater
EQUI277: 38H1A Fuel Gas Flow	monitors	STRU135: 38H1A Stack
EQUI278: EMRC Temperature Thermocouple for TGTU1	monitors	STRU139: 45H61 Stack
EQUI279: 45H6 Stack Flow	monitors	EQUI319: #3 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit
EQUI279: 45H6 Stack Flow	monitors	STRU140: 45H6 Stack
EQUI280: West Flare Pilot Thermocouple	monitors	STRU147: West Flare Stack
EQUI281: 31H2 Flow Meter for Exhaust Gases	monitors	EQUI546: #2 HDS Fractionation

SI ID: Description	Relationship Type	Related SI ID: Description
		Heater (31H2) - Fractionation Equipment
EQUI281: 31H2 Flow Meter for Exhaust Gases	monitors	STRU117: 31H2 Stack
EQUI282: VCU Thermocouple	sends to	EQUI676: VCU Temperature Data Acquisition System
EQUI282: VCU Thermocouple	sends to	EQUI679: RGP VCU Thermocouple for Flame Presence
EQUI283: 25H-3 O2 Analyzer	monitors	EQUI501: #3 Crude Unit Vac Pre-Fractionator Heater - Process Heater
EQUI285: 11H2 Fuel Gas Flowmeter	monitors	EQUI485: #1 Crude Heater crude preflash - Process Heater
EQUI285: 11H2 Fuel Gas Flowmeter	monitors	STRU11: 11H2 Stack
EQUI286: FCC O2 Dry Percent	monitors	EQUI421: FCCU - Refining Equipment
EQUI286: FCC O2 Dry Percent	monitors	STRU95: FCC Main Stack
EQUI287: 29H-1/2 O2 Monitor	monitors	EQUI469: Hydrocracker Feed Heater - Process Heater
EQUI287: 29H-1/2 O2 Monitor	monitors	EQUI470: Hydrocracker Reboiler - Boiler
EQUI287: 29H-1/2 O2 Monitor	monitors	STRU70: Hydrocracker Feed Heater and Reboiler
EQUI288: 27H-101 O2 Monitor	monitors	EQUI505: Distillate HDS

SI ID: Description	Relationship Type	Related SI ID: Description
		Recycle Hydrogen Charge Heater - Process Heater
EQUI288: 27H-101 O2 Monitor	monitors	STRU112: 27H101 Stack
EQUI289: 31H2: 66.4 lbs SO2/hr (3-hr avg) EU 055	sends to	EQUI84: 34H3 SO2 Analyzer
EQUI290: Temperature Indicator for 101H1	monitors	COMG95: Control Equipment Used to Meet Requirements of MACT CC
EQUI290: Temperature Indicator for 101H1	monitors	EQUI375: Track 8 Rail Loading - Loading-Unloading Equipment
EQUI290: Temperature Indicator for 101H1	monitors	FUGI90: Track 8 Load and Uncontrolled Rail - Material Handling/Transfer/Storage
EQUI291: HCL adsorber inlet temperature indicator (32TI01110)	monitors	EQUI558: Powerformer Catalyst Regeneration - Refining Equipment
EQUI291: HCL adsorber inlet temperature indicator (32TI01110)	monitors	STRU126: Powerform Cat Reg Stack
EQUI292: HCL adsorber inlet temperature indicator (37TC1150A)	monitors	COMG32: Emission Units subject to Minn. R. built after June 11, 1973
EQUI292: HCL adsorber inlet temperature indicator (37TC1150A)	monitors	EQUI566: Platformer Catalyst Regeneration Vent -

SI ID: Description	Relationship Type	Related SI ID: Description
		Regenerator
EQUI292: HCL adsorber inlet temperature indicator (37TC1150A)	monitors	STRU132: Plat Cat Reg Stack
EQUI293: Catalyst Inlet temperature for #6 CT Diesel Pump (81TI8210)	monitors	EQUI514: No. 6 Cooling Tower Diesel Pump - Reciprocating IC Engine
EQUI293: Catalyst Inlet temperature for #6 CT Diesel Pump (81TI8210)	monitors	STRU76: No. 6 Cooling Tower Diesel Pump
EQUI294: Catalyst Bed Differential Pressure for #6 CT Diesel Pump (81PDT8211)	monitors	EQUI514: No. 6 Cooling Tower Diesel Pump - Reciprocating IC Engine
EQUI294: Catalyst Bed Differential Pressure for #6 CT Diesel Pump (81PDT8211)	monitors	STRU76: No. 6 Cooling Tower Diesel Pump
EQUI296: 29H-1/2 NOx Monitor	monitors	EQUI469: Hydrocracker Feed Heater - Process Heater
EQUI296: 29H-1/2 NOx Monitor	monitors	EQUI470: Hydrocracker Reboiler - Boiler
EQUI296: 29H-1/2 NOx Monitor	monitors	STRU70: Hydrocracker Feed Heater and Reboiler
EQUI297: 29H-1/2 CO Monitor	monitors	EQUI469: Hydrocracker Feed Heater - Process Heater
EQUI297: 29H-1/2 CO Monitor	monitors	EQUI470: Hydrocracker Reboiler - Boiler
EQUI297: 29H-1/2 CO Monitor	monitors	STRU70: Hydrocracker Feed Heater

SI ID: Description	Relationship Type	Related SI ID: Description
		and Reboiler
EQUI29: 45 Mix Drum Fuel Gas Combustion O2 Monitor at 29H1/2	monitors	EQUI469: Hydrocracker Feed Heater - Process Heater
EQUI29: 45 Mix Drum Fuel Gas Combustion O2 Monitor at 29H1/2	monitors	EQUI470: Hydrocracker Reboiler - Boiler
EQUI2: EMRC Flow Meter for 94H1 Exhaust Gases	monitors	EQUI457: OSWTP - Thermal Oxidizer - Other Combustion
EQUI2: EMRC Flow Meter for 94H1 Exhaust Gases	monitors	STRU162: 94H1 Stack
EQUI303: 29H-1/2 NOx Monitor	monitors	EQUI469: Hydrocracker Feed Heater - Process Heater
EQUI303: 29H-1/2 NOx Monitor	monitors	EQUI470: Hydrocracker Reboiler - Boiler
EQUI303: 29H-1/2 NOx Monitor	monitors	STRU70: Hydrocracker Feed Heater and Reboiler
EQUI304: 29H-1/2 CO Monitor	monitors	EQUI469: Hydrocracker Feed Heater - Process Heater
EQUI304: 29H-1/2 CO Monitor	monitors	EQUI470: Hydrocracker Reboiler - Boiler
EQUI304: 29H-1/2 CO Monitor	monitors	STRU70: Hydrocracker Feed Heater and Reboiler
EQUI305: 25H2 Stack Temperature	monitors	EQUI407: 25H2 Heater - Process Heater
EQUI305: 25H2 Stack Temperature	monitors	STRU66: 25H2 #3 Crude Heater Stack
EQUI306: 11H6 Stack Temperature	monitors	EQUI376: 11H-6 - Refining

SI ID: Description	Relationship Type	Related SI ID: Description
		Equipment
EQUI306: 11H6 Stack Temperature	monitors	STRU82: 11H6 Stack
EQUI307: 23H3 Stack Temperature	monitors	EQUI406: 23H3 Heater - Process Heater
EQUI307: 23H3 Stack Temperature	monitors	STRU65: 23H3 #3 Coker Heater Stack
EQUI309: 25H-2 Fuel Flowmeter	monitors	EQUI407: 25H2 Heater - Process Heater
EQUI309: 25H-2 Fuel Flowmeter	monitors	STRU66: 25H2 #3 Crude Heater Stack
EQUI30: 27H-101 CO Monitor	monitors	EQUI505: Distillate HDS Recycle Hydrogen Charge Heater - Process Heater
EQUI310: 25H-2 O2 Analyzer	monitors	EQUI407: 25H2 Heater - Process Heater
EQUI310: 25H-2 O2 Analyzer	monitors	EQUI500: #3 Crude Unit Charge Heater - Process Heater
EQUI310: 25H-2 O2 Analyzer	monitors	STRU66: 25H2 #3 Crude Heater Stack
EQUI311: NOx Monitor at 25H2	monitors	EQUI407: 25H2 Heater - Process Heater
EQUI311: NOx Monitor at 25H2	monitors	EQUI500: #3 Crude Unit Charge Heater - Process Heater
EQUI311: NOx Monitor at 25H2	monitors	STRU66: 25H2 #3 Crude Heater Stack
EQUI312: 45 Unit Fuel Gas Mix Drum Total Sulfur	monitors	EQUI481: Fuel Gas Supply System (45 unit) Monitoring Point for FG

SI ID: Description	Relationship Type	Related SI ID: Description
		H2S and sulfur - Refining Equipment
EQUI313: CO Monitor at 25H2	monitors	EQUI407: 25H2 Heater - Process Heater
EQUI313: CO Monitor at 25H2	monitors	EQUI500: #3 Crude Unit Charge Heater - Process Heater
EQUI313: CO Monitor at 25H2	monitors	STRU66: 25H2 #3 Crude Heater Stack
EQUI314: 23H-3 O2 Monitor	monitors	EQUI406: 23H3 Heater - Process Heater
EQUI314: 23H-3 O2 Monitor	monitors	STRU65: 23H3 #3 Coker Heater Stack
EQUI315: 23H-3 NOx Monitor	monitors	EQUI406: 23H3 Heater - Process Heater
EQUI315: 23H-3 NOx Monitor	monitors	STRU65: 23H3 #3 Coker Heater Stack
EQUI316: 23H-3 CO Monitor	monitors	EQUI406: 23H3 Heater - Process Heater
EQUI316: 23H-3 CO Monitor	monitors	STRU65: 23H3 #3 Coker Heater Stack
EQUI317: 23H-3 Fuel Flowmeter	monitors	EQUI406: 23H3 Heater - Process Heater
EQUI317: 23H-3 Fuel Flowmeter	monitors	STRU65: 23H3 #3 Coker Heater Stack
EQUI319: #3 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit	sends to	STRU139: 45H61 Stack
EQUI319: #3 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit	sends to	STRU140: 45H6 Stack
EQUI319: #3 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit	is controlled by	TREA40: Direct Flame Afterburner

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI31: 27H-101 NOx Monitor	monitors	EQUI505: Distillate HDS Recycle Hydrogen Charge Heater - Process Heater
EQUI320: #4 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit	sends to	STRU139: 45H61 Stack
EQUI320: #4 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit	is controlled by	TREA39: Direct Flame Afterburner
EQUI321: SRU 3 Sulfur Pit - Sulfur Recovery Unit	sends to	STRU139: 45H61 Stack
EQUI321: SRU 3 Sulfur Pit - Sulfur Recovery Unit	sends to	STRU140: 45H6 Stack
EQUI321: SRU 3 Sulfur Pit - Sulfur Recovery Unit	is controlled by	TREA39: Direct Flame Afterburner
EQUI321: SRU 3 Sulfur Pit - Sulfur Recovery Unit	is controlled by	TREA88: #3 & #4 SRU Degas CVS
EQUI322: SRU 4 Sulfur Pit - Sulfur Recovery Unit	sends to	STRU139: 45H61 Stack
EQUI322: SRU 4 Sulfur Pit - Sulfur Recovery Unit	is controlled by	TREA39: Direct Flame Afterburner
EQUI323: Steam Boiler No. 6 at Boilerhouse - Boiler	sends to	STRU69: 71B6 Stack
EQUI324: Plant Air Compressor Diesel Engine - Reciprocating IC Engine	sends to	STRU58: 71C11 Diesel Stack
EQUI325: Diesel for Standby Circ Pump at #3 Cooling Tower (S end) - Reciprocating IC Engine	sends to	STRU141: 81P444 Diesel Stack
EQUI326: Diesel for Standby Circ Pump	sends to	STRU142: 81P89 Diesel

SI ID: Description	Relationship Type	Related SI ID: Description
at #3 Cooling Tower (N end) - Reciprocating IC Engine		Stack
EQUI327: Diesel for Standby Circ Pump at #4 Cooling Tower - Reciprocating IC Engine	sends to	STRU143: 81P159 Diesel Stack
EQUI328: Diesel for Fire Water Pump at #4 Cooling Tower - Reciprocating IC Engine		
EQUI329: Diesel for Standby Circ Pump at #5 Cooling Tower - Reciprocating IC Engine	sends to	STRU144: 81P357 Diesel Stack
EQUI32: 71B6 NOx Monitor	monitors	EQUI323: Steam Boiler No. 6 at Boilerhouse - Boiler
EQUI330: Tank 19 Heater - Process Heater	sends to	STRU148: 86H27 Stack
EQUI331: Tank 39 Heater - Process Heater	sends to	STRU149: 86H15A B Stack
EQUI332: Tank 39 Heater - Process Heater	sends to	STRU149: 86H15A B Stack
EQUI333: Asphalt Line Heater - Process Heater	sends to	STRU7: 86H7 Stack
EQUI334: Tank 411 Heater - Process Heater		
EQUI335: Tank 411 Heater - Process Heater	sends to	STRU175: 86H17A B Stack
EQUI336: Tank 412 Heater - Process Heater	sends to	STRU152: 86H18A B Stack
EQUI337: Tank 412 Heater - Process Heater	sends to	STRU152: 86H18A B Stack

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI338: Tank 414 Heater - Process Heater		
EQUI339: Tank 414 Heater - Process Heater	sends to	STRU154: 86H32 33 Stack
EQUI33: 71B6 CO Monitor	monitors	EQUI323: Steam Boiler No. 6 at Boilerhouse - Boiler
EQUI340: Tank 415 Heater - Process Heater	sends to	STRU155: 86H22 Stack
EQUI341: Tank 416 Heater - Process Heater	sends to	STRU156: 86H24A B Stack
EQUI342: Tank 416 Heater - Process Heater	sends to	STRU156: 86H24A B Stack
EQUI343: Tank 417 Heater - Process Heater	sends to	STRU157: 86H25 Stack
EQUI344: Tank 418 Heater - Process Heater	sends to	STRU158: 86H26 & 86H38 Stack
EQUI345: Tank 423 Heater - Process Heater	sends to	STRU159: 86H34 35 Stack
EQUI346: Tank 423 Heater - Process Heater	sends to	STRU159: 86H34 35 Stack
EQUI347: Tank 424 Heater - Process Heater	sends to	STRU160: 86H36 37 Stack
EQUI348: Tank 424 Heater - Process Heater	sends to	STRU160: 86H36 37 Stack
EQUI349: OSWTP - Trash Rack & Diversion Box (94ME16A) - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI34: 71B6 O2 Monitor	monitors	EQUI323: Steam Boiler No. 6 at Boilerhouse - Boiler
EQUI350: OSWTP -	sends to	STRU162:

SI ID: Description	Relationship Type	Related SI ID: Description
API Oil/Water Separator Fore Bay (94B1A & 94B1B) - Separation Equipment		94H1 Stack
EQUI350: OSWTP - API Oil/Water Separator Fore Bay (94B1A & 94B1B) - Separation Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI351: OSWTP - Sludge Basin 2A - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI351: OSWTP - Sludge Basin 2A - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI354: OSWTP - Equalization Basin 2B - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI354: OSWTP - Equalization Basin 2B - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI355: OSWTP - Equalization Basin 2C - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI355: OSWTP - Equalization Basin 2C - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI356: OSWTP-Enhanced Biological Treatment Basin 94B3C - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI356: OSWTP-Enhanced Biological Treatment Basin 94B3C - Refining Equipment	sends to	STRU180: 94H3 Stack

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI356: OSWTP-Enhanced Biological Treatment Basin 94B3C - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI357: OSWTP - DAF Tank (old) - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI357: OSWTP - DAF Tank (old) - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI358: OSWTP - DAF Tank (new) - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI358: OSWTP - DAF Tank (new) - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI359: OSWTP - DAF Rapid Mix Tank (old) - Mixing Equipment	sends to	STRU162: 94H1 Stack
EQUI359: OSWTP - DAF Rapid Mix Tank (old) - Mixing Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI360: OSWTP - DAF Rapid Mix Tank (new) - Mixing Equipment	sends to	STRU162: 94H1 Stack
EQUI360: OSWTP - DAF Rapid Mix Tank (new) - Mixing Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI361: OSWTP - DAF Floc Tank (old) - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI361: OSWTP - DAF Floc Tank (old) - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat

SI ID: Description	Relationship Type	Related SI ID: Description
		Exchanger
EQUI362: OSWTP - DAF Flocc Tank (new) - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI362: OSWTP - DAF Flocc Tank (new) - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI363: OSWTP - Aerobic Digester - Digester	sends to	STRU162: 94H1 Stack
EQUI363: OSWTP - Aerobic Digester - Digester	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI364: OSWTP - Oily Sludge Dewatering (Centrifuge) - Refining Equipment	sends to	STRU162: 94H1 Stack
EQUI364: OSWTP - Oily Sludge Dewatering (Centrifuge) - Refining Equipment	sends to	STRU180: 94H3 Stack
EQUI364: OSWTP - Oily Sludge Dewatering (Centrifuge) - Refining Equipment	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI365: Diesel for Fire Water Pump at Lagoon - Reciprocating IC Engine	sends to	STRU163: 93P400 Diesel Stack
EQUI366: Diesel for Fire Water Pump at Storm/Water Basin - Reciprocating IC Engine	sends to	STRU164: 93P570 Diesel Stack
EQUI367: Combustion Turbine - Turbine	sends to	STRU89: HRSG Stack
EQUI367:	is	TREA52:

SI ID: Description	Relationship Type	Related SI ID: Description
Combustion Turbine - Turbine	controlled by	Catalytic Oxidizer
EQUI367: Combustion Turbine - Turbine	is controlled by	TREA53: SCR (Selective Catalytic Reduction)
EQUI368: Duct Burners - Duct Burner	sends to	STRU89: HRSG Stack
EQUI368: Duct Burners - Duct Burner	is controlled by	TREA52: Catalytic Oxidizer
EQUI368: Duct Burners - Duct Burner	is controlled by	TREA53: SCR (Selective Catalytic Reduction)
EQUI369: OSWTP-Equalization Basin 7A - Refining Equipment		
EQUI370: OSWTP-Equalization Basin 7B - Refining Equipment		
EQUI371: Steam Boiler #8 - Boiler	sends to	STRU168: 71B8 Stack
EQUI372: Asphalt & Heavy Fuel Oil Truck Loading - Loading-Unloading Equipment		
EQUI373: Barge Loading/Unloading Heavy Product (N side) - Barge Loading Equipment	sends to	STRU9: BT Load VRU Stack
EQUI374: Barge Loading/Unloading Heavy Product (S side) - Barge Loading Equipment	sends to	STRU9: BT Load VRU Stack
EQUI375: Track 8 Rail Loading - Loading-Unloading Equipment	sends to	STRU8: RR Load to Stack
EQUI375: Track 8 Rail Loading - Loading-Unloading Equipment	is controlled by	TREA61: Flaring
EQUI376: 11H-6 -	sends to	STRU82: 11H6

SI ID: Description	Relationship Type	Related SI ID: Description
Refining Equipment		Stack
EQUI376: 11H-6 - Refining Equipment	is controlled by	TREA60: SCR (Selective Catalytic Reduction)
EQUI377: #3 H2 Heater - Process Heater	sends to	STRU172: 27H501 Stack
EQUI378: Equipment Requiring Performance Test - Other Emission Unit		
EQUI379: MACT Equipment Requiring Performance Test - Refining Equipment		
EQUI380: Tracks 1-7 Rail Loading Excluding Sulfur, spent acid loading - Loading-Unloading Equipment		
EQUI381: Sulfur Loading - Loading-Unloading Equipment		
EQUI382: Old Oil/Water Separator at Old Bottom Loading Rack - Loading-Unloading Equipment		
EQUI383: Coke Pile Fugitive Emissions - Coke Handling Equipment		
EQUI384: Pet Coke - Coke Load/Pile Fugitive - Rail - Coke Handling Equipment		
EQUI385: EU- Coke Load/Pile fugitive - Rail - Coke		

SI ID: Description	Relationship Type	Related SI ID: Description
Handling Equipment		
EQUI396: Octane Comparator at Knock Engine Building (52ME65B) - Refining Equipment		
EQUI397: Octane Comparator at Knock Engine Building (52ME93) - Refining Equipment		
EQUI398: Octane Comparator at Knock Engine Building (52ME65A) - Refining Equipment		
EQUI399: Desalter Brine API 94ME259A - Refining Equipment	sends to	STRU81: Desalter Brine Stack
EQUI3: EMRC Flow Meter for 94H3 Exhaust Gases	monitors	EQUI457: OSWTP - Thermal Oxidizer - Other Combustion
EQUI3: EMRC Flow Meter for 94H3 Exhaust Gases	monitors	STRU180: 94H3 Stack
EQUI400: Desalter Brine API 94ME259B - Refining Equipment	sends to	STRU81: Desalter Brine Stack
EQUI401: Equalization Basin 94V49 - Above Ground Storage Tank		
EQUI402: CE-45H6:SRU#3 Bypass Incinerator - Incinerator		

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI403: CE-88H1:Butane Storage Tank - Above Ground Storage Tank		
EQUI404: RGP Railcar Loading Rack - Loading-Unloading Equipment	sends to	STRU90: RGP Vapor Combustion Stack
EQUI404: RGP Railcar Loading Rack - Loading-Unloading Equipment	is controlled by	TREA74: Flaring
EQUI405: RGP Vapor Combustion Unit - Other Combustion	sends to	STRU90: RGP Vapor Combustion Stack
EQUI405: RGP Vapor Combustion Unit - Other Combustion	is controlled by	TREA74: Flaring
EQUI406: 23H3 Heater - Process Heater	sends to	STRU65: 23H3 #3 Coker Heater Stack
EQUI406: 23H3 Heater - Process Heater	is controlled by	TREA58: SCR (Selective Catalytic Reduction)
EQUI407: 25H2 Heater - Process Heater	sends to	STRU66: 25H2 #3 Crude Heater Stack
EQUI407: 25H2 Heater - Process Heater	is controlled by	TREA59: SCR (Selective Catalytic Reduction)
EQUI408: Sump 3 Emergency Generator - Reciprocating IC Engine	sends to	STRU62: Sump 3 Emergency Generator Exhaust Stack
EQUI409: Sump 7 Emergency Generator - Reciprocating IC Engine	sends to	STRU63: Sump 7 Emergency Generator Exhaust Stack
EQUI410: Lift Station Emergency Generator -	sends to	STRU64: LS Emergency Generator

SI ID: Description	Relationship Type	Related SI ID: Description
Reciprocating IC Engine		Exhaust Stack
EQUI410: Lift Station Emergency Generator - Reciprocating IC Engine	is controlled by	TREA57: Catalytic Converter
EQUI412: 37V67 Deaerator - Refining Equipment		
EQUI413: 71V1 Deaerator - Refining Equipment		
EQUI414: 71ME34 Alky Driers Moisture Analyzer Vent - Refining Equipment		
EQUI415: 11V-45 Sludge Recycle Tanks - Refining Equipment		
EQUI416: 14V-22 Slop Drum - Refining Equipment		
EQUI417: 17A1119 Vent - Refining Equipment		
EQUI418: 17A1120 Vent - Refining Equipment		
EQUI419: 17A1132 Vent - Refining Equipment		
EQUI420: Startup Airline Preheater - Process Heater		
EQUI421: FCCU - Refining Equipment	sends to	STRU95: FCC Main Stack
EQUI421: FCCU - Refining Equipment	is controlled by	TREA23: Electrostatic Precipitator - Medium Efficiency
EQUI421: FCCU - Refining	is controlled	TREA49: Direct Flame

SI ID: Description	Relationship Type	Related SI ID: Description
Equipment	in parallel by	Afterburner w/Heat Exchanger
EQUI421: FCCU - Refining Equipment	is controlled in parallel by	TREA50: Direct Flame Afterburner w/Heat Exchanger
EQUI421: FCCU - Refining Equipment	is controlled by	TREA83: Selective Noncatalytic Reduction for NOX
EQUI422: FCC Fresh Catalyst Transfer to Hopper - Material Handling Equipment	sends to	STRU4: FCC Fresh Cat Hopper Stack
EQUI423: FCC Spent Catalyst Transfer to Hopper - Material Handling Equipment	sends to	STRU6: FCC Spent Cat Baghouse Stack
EQUI424: FCC Spent Catalyst Transfer to Hopper - Material Handling Equipment	sends to	STRU5: FCC Spent Cat Hopper Stack
EQUI425: 25V52 Deaerator Vent - Refining Equipment	sends to	STRU170: 25V52 Deaerator Vent Stack
EQUI426: 25V53 Deaerator Vent - Refining Equipment	sends to	STRU108: 25V53 Deaerator Vent Stack
EQUI427: 26H21 Standby Incinerator for TGTU #2 Bypasses & SRU5 Sulfur Degassing - Incinerator	sends to	STRU83: #5 SRU 26 Unit Stack
EQUI427: 26H21 Standby Incinerator for TGTU #2 Bypasses & SRU5 Sulfur Degassing - Incinerator	is controlled by	TREA37: Direct Flame Afterburner

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI428: 26H40 TGTU #2 - Refining Equipment		
EQUI429: 26H41 TGTU #2 Incinerator - Incinerator	sends to	STRU83: #5 SRU 26 Unit Stack
EQUI429: 26H41 TGTU #2 Incinerator - Incinerator	is controlled by	TREA38: Direct Flame Afterburner w/Heat Exchanger
EQUI430: 27V509 Deaerator Vent - Refining Equipment	sends to	STRU173: 27V509 Deaerator Vent Stack
EQUI431: H2 Plant Vaporizer Heater - Process Heater	sends to	STRU127: 33H1 2 Stack (33H4)
EQUI432: #1 H2 Plant Reformer/Heater - Process Heater	sends to	STRU127: 33H1 2 Stack (33H4)
EQUI433: Benfield OH Accumulator - Refining Equipment		
EQUI434: 33V41 Deaerator Vent - Refining Equipment	sends to	STRU174: 33V41 Deaerator Vent Stack
EQUI435: Condensate Stripper - Stripping Equipment		
EQUI436: 35A0001 Vent - Refining Equipment		
EQUI437: 35A0307 Vent - Refining Equipment		
EQUI438: 35A0384/385 Vent - Refining Equipment		
EQUI439: 37A0461 Vent - Refining Equipment		
EQUI440: 37A0810 Vent - Refining Equipment		

SI ID: Description	Relationship Type	Related SI ID: Description
Equipment		
EQUI441: 37A0863 Vent - Refining Equipment		
EQUI442: Platformer Catalyst Hopper Vent to 37H-4 - Hopper		
EQUI443: 39A0101/102 Vent - Refining Equipment		
EQUI444: Unit 94H3-Thermal Oxidizer Back-up - Other Combustion	sends to	STRU180: 94H3 Stack
EQUI444: Unit 94H3-Thermal Oxidizer Back-up - Other Combustion	is controlled in parallel by	TREA11: Other
EQUI444: Unit 94H3-Thermal Oxidizer Back-up - Other Combustion	is controlled in parallel by	TREA63: Direct Flame Afterburner
EQUI445: 17V18 Deaerator - Refining Equipment	sends to	STRU77: 17V18 Deaerator Stack Vent
EQUI446: Fuel Gas Supply System (41 unit) Monitoring Point for FG H2S and sulfur - Refining Equipment		
EQUI447: 42A0456/457 Vent - Refining Equipment		
EQUI448: Portable Diesel Engines - Reciprocating IC Engine		
EQUI449: Asphalt tk Heater for tk 415 - Process Heater		
EQUI450: Asphalt tk Heater for tk 418 - Process		

SI ID: Description	Relationship Type	Related SI ID: Description
Heater		
EQUI451: Central Buffer Zone Offgas (86H41) - Refining Equipment	sends to	STRU177: 86H41 Stack
EQUI451: Central Buffer Zone Offgas (86H41) - Refining Equipment	is controlled by	TREA66: Direct Flame Afterburner
EQUI452: West Buffer Zone Offgas (88H2) - Refining Equipment	sends to	STRU176: 88H2 Stack
EQUI452: West Buffer Zone Offgas (88H2) - Refining Equipment	is controlled in parallel by	TREA65: Direct Flame Afterburner
EQUI452: West Buffer Zone Offgas (88H2) - Refining Equipment	is controlled in parallel by	TREA76: 88H2 CVS
EQUI453: OSWTP-API Oil/Water Separator Exit Bay (94B1A & 94B1B) - Separation Equipment		
EQUI454: OSWTP-API Oil/Water Separator Mid Bay 94B1A & 94B1B - Separation Equipment		
EQUI455: OSWTP-Enhanced Biological Treatment Basin 94B3A - Refining Equipment		
EQUI456: OSWTP-Enhanced Biological Treatment Basin 94B3B - Refining Equipment		
EQUI457: OSWTP - Thermal Oxidizer - Other Combustion	is monitored by	EQUI139: 94H1 & 94H3 Natural Gas Flow
EQUI457: OSWTP -	is	EQUI140:

SI ID: Description	Relationship Type	Related SI ID: Description
Thermal Oxidizer - Other Combustion	monitored by	Temperature Monitor (Stack) for 94H-3 Thermal Oxidizer
EQUI457: OSWTP - Thermal Oxidizer - Other Combustion	is monitored by	EQUI141: 94H1 SO2 Analyzer
EQUI457: OSWTP - Thermal Oxidizer - Other Combustion	is monitored by	EQUI268: 94H-1 Thermocouple for Fire Box Temperature
EQUI457: OSWTP - Thermal Oxidizer - Other Combustion	sends to	STRU162: 94H1 Stack
EQUI457: OSWTP - Thermal Oxidizer - Other Combustion	sends to	STRU180: 94H3 Stack
EQUI457: OSWTP - Thermal Oxidizer - Other Combustion	is controlled in parallel by	TREA11: Other
EQUI457: OSWTP - Thermal Oxidizer - Other Combustion	is controlled in parallel by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI458: 94S-2A/D Slop Oil Sump at API Oil/Water Separator - Separation Equipment		
EQUI459: Phase Separator at Alt Waste Handling Site - Separation Equipment		
EQUI460: Centrate Sump - Pump		
EQUI461: Spring Lake: Lift Station - Loading-Unloading Equipment		
EQUI462: Land Treatment Facility - Refining Equipment		
EQUI463: Spring		

SI ID: Description	Relationship Type	Related SI ID: Description
Lake Loading Arm for Removal of Recovered Product - Loading-Unloading Equipment		
EQUI464: Air Saturation Drum 94V22 - Separation Equipment		
EQUI465: 94V-25D Wemco D Cell - Refining Equipment		
EQUI466: 94V-25E Wemco E Cell - Refining Equipment		
EQUI467: 94V-25F Wemco F Cell - Refining Equipment		
EQUI468: Air Saturation Drum 94V5 - Separation Equipment		
EQUI469: Hydrocracker Feed Heater - Process Heater	sends to	STRU70: Hydrocracker Feed Heater and Reboiler
EQUI470: Hydrocracker Reboiler - Boiler	sends to	STRU70: Hydrocracker Feed Heater and Reboiler
EQUI471: No. 4 Hydrogen Plant Reformer - Refining Equipment	sends to	EQUI1460: EQUI30H401D AS
EQUI471: No. 4 Hydrogen Plant Reformer - Refining Equipment	is monitored by	EQUI1466: EQUI30H401F UEL
EQUI471: No. 4 Hydrogen Plant Reformer - Refining Equipment	is monitored by	EQUI1467: EQUI30H401N OX
EQUI471: No. 4 Hydrogen Plant Reformer - Refining Equipment	sends to	STRU71: New Hydrogen Plant Reformer

SI ID: Description	Relationship Type	Related SI ID: Description
		Furnace
EQUI471: No. 4 Hydrogen Plant Reformer - Refining Equipment	is controlled by	TREA86: TREA30H401
EQUI472: Hydrogen Plant PSA Feed - Other Emission Unit	sends to	STRU72: Hydrogen Plant PSA Feed Bypass
EQUI473: Hydrogen Plant PSA Purge - Other Emission Unit	sends to	STRU73: Hydrogen Plant PSA Purge Bypass
EQUI474: Hydrogen Plant H2 Product - Other Emission Unit	sends to	STRU74: Hydrogen Plant H2 Product Bypass
EQUI475: Light Plant #1 - Refining Equipment		
EQUI476: 45A0453 Vent - Refining Equipment		
EQUI477: 45V-19/22 Caustic Neutralizer Off Gas - Neutralizer		
EQUI478: Incinerator for SRU4 Bypasses of TGTU1 SRU3/4 Sulfur Degassing SW TK Purge Gassing - Incinerator	sends to	STRU139: 45H61 Stack
EQUI478: Incinerator for SRU4 Bypasses of TGTU1 SRU3/4 Sulfur Degassing SW TK Purge Gassing - Incinerator	sends to	STRU140: 45H6 Stack
EQUI478: Incinerator for SRU4 Bypasses of TGTU1 SRU3/4 Sulfur Degassing SW TK Purge	is controlled by	TREA39: Direct Flame Afterburner

SI ID: Description	Relationship Type	Related SI ID: Description
Gassing - Incinerator		
EQUI479: Tail Gas Treating Unit #1 (SCOT) - Sulfur Recovery Unit		
EQUI480: Tail Gas Treating Unit #1 (SCOT) Incinerator - Incinerator	is controlled by	TREA19: Direct Flame Afterburner w/Heat Exchanger
EQUI481: Fuel Gas Supply System (45 unit) Monitoring Point for FG H2S and sulfur - Refining Equipment		
EQUI482: 47A0065 Vent - Refining Equipment		
EQUI483: Truck Bottom Loading (gas, distillate) including the trucks - Loading-Unloading Equipment	sends to	STRU3: Stack Vent at the Enclosed Flare at Bottom Loading
EQUI483: Truck Bottom Loading (gas, distillate) including the trucks - Loading-Unloading Equipment	sends to	STRU9: BT Load VRU Stack
EQUI483: Truck Bottom Loading (gas, distillate) including the trucks - Loading-Unloading Equipment	is controlled by	TREA48: Activated Carbon Adsorption
EQUI483: Truck Bottom Loading (gas, distillate) including the trucks - Loading-Unloading Equipment	is controlled by	TREA64: Flaring
EQUI483: Truck	is	TREA82: Other

SI ID: Description	Relationship Type	Related SI ID: Description
Bottom Loading (gas, distillate) including the trucks - Loading-Unloading Equipment	controlled by	(CVS)
EQUI484: #1 Crude Heater atmospheric distillation - Distillation Equipment	sends to	STRU10: 11H1 Stack
EQUI485: #1 Crude Heater crude preflash - Process Heater	sends to	STRU11: 11H2 Stack
EQUI486: Emergency generator @ #1,2 crude units - Reciprocating IC Engine	sends to	STRU56: EE1852 Diesel Stack
EQUI487: Vacuum Pre-Strip Heater - Process Heater	sends to	STRU93: 12H4 Stack
EQUI488: #2 Vac Heater - Process Heater	sends to	STRU94: 16H1 Stack
EQUI489: Emergency Generator @ FCC - Reciprocating IC Engine	sends to	STRU97: EE1718 Diesel Stack
EQUI490: #1 Vac Heater - Process Heater	sends to	STRU98: 19H1 Stack
EQUI491: #1 Coker Heater - Process Heater	sends to	STRU100: 21H1N Stack
EQUI491: #1 Coker Heater - Process Heater	sends to	STRU99: 21H1S Stack
EQUI492: #2 Coker Heater - Process Heater	sends to	STRU101: 21H2S Stack
EQUI492: #2 Coker Heater - Process Heater	sends to	STRU102: 21H2N Stack
EQUI493: Steam/Air Heater	sends to	STRU103: 21H1 Decoke

SI ID: Description	Relationship Type	Related SI ID: Description
Decoking - 21H-1 - Process Heater		Pit Stack
EQUI493: Steam/Air Heater Decoking - 21H-1 - Process Heater	is controlled by	TREA16: Gas Scrubber (General, Not Classified)
EQUI494: Steam/Air Heater Decoking - 21H-2 - Process Heater	sends to	STRU103: 21H1 Decoke Pit Stack
EQUI494: Steam/Air Heater Decoking - 21H-2 - Process Heater	is controlled by	TREA16: Gas Scrubber (General, Not Classified)
EQUI495: #3 Coker Heater - Process Heater	sends to	STRU104: 23H1 Stack
EQUI496: #3 Coker Heater - Process Heater	sends to	STRU105: 23H2 Stack
EQUI497: Emergency Generator @ #3 Coker - Reciprocating IC Engine	sends to	STRU106: 23ME26 Diesel Stack
EQUI498: Steam/Air Heater Decoking 23H-1 - Process Heater	sends to	STRU107: P20 Decoke Pit Stack
EQUI498: Steam/Air Heater Decoking 23H-1 - Process Heater	is controlled by	TREA9: Gas Scrubber (General, Not Classified)
EQUI499: Steam/Air Heater Decoking 23H-2 - Process Heater	sends to	STRU108: 25V53 Deaerator Vent Stack
EQUI499: Steam/Air Heater Decoking 23H-2 - Process Heater	is controlled by	TREA9: Gas Scrubber (General, Not Classified)
EQUI500: #3 Crude Unit Charge Heater - Process Heater		
EQUI501: #3 Crude Unit Vac Pre-Fractionator Heater - Process Heater	sends to	STRU110: 25H3 Stack

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI502: Emergency Generator @ #3 Crude Unit - Reciprocating IC Engine	sends to	STRU111: EE1657 Diesel Stack
EQUI503: #5 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit	sends to	STRU83: #5 SRU 26 Unit Stack
EQUI503: #5 Sulfur Recovery Unit (SRU) - Sulfur Recovery Unit	is controlled by	TREA37: Direct Flame Afterburner
EQUI504: SRU 5 Sulfur Pit - Sulfur Recovery Unit	sends to	STRU83: #5 SRU 26 Unit Stack
EQUI504: SRU 5 Sulfur Pit - Sulfur Recovery Unit	is controlled by	TREA37: Direct Flame Afterburner
EQUI504: SRU 5 Sulfur Pit - Sulfur Recovery Unit	is controlled by	TREA87: #5 SRU Degas CVS
EQUI505: Distillate HDS Recycle Hydrogen Charge Heater - Process Heater	sends to	STRU112: 27H101 Stack
EQUI508: Light Plant #2 - Refining Equipment		
EQUI509: Light Plant #3 - Refining Equipment		
EQUI510: Compressor #1 - Compressor		
EQUI511: FW Pump #1 - Pump		
EQUI512: FW Pump #2 - Pump		
EQUI513: Main Control Pilots - Other Emission Unit		
EQUI514: No. 6 Cooling Tower Diesel Pump - Reciprocating IC Engine	sends to	STRU76: No. 6 Cooling Tower Diesel Pump

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI515: Steam Boiler No. 9 - Boiler	sends to	STRU78: Boiler No. 9 Stack
EQUI516: Oily Sludge Storage Vessel - Material Handling Equipment		
EQUI517: Vac Trucks at FHR - Other Emission Unit		
EQUI518: FHR Lab Inside - Other Emission Unit		
EQUI519: FHR Lab Outdoors - Other Emission Unit		
EQUI520: Unit 26 CO2 - Refining Equipment		
EQUI521: Non Contact Cooling Water Systems - Cooler		
EQUI522: Storm Sewers - Other Emission Unit		
EQUI523: Natural Gas Pool - Other Emission Unit		
EQUI524: Fuel Gas Pool - Material Handling Equipment		
EQUI525: API Separator - Separation Equipment		
EQUI526: #3 Crude Unit Vacuum Heater - Process Heater	sends to	STRU12: 25H4 Stack
EQUI527: Temporary Coke Crusher #1 - Crusher		
EQUI528: Temporary Coke Crusher #2 - Crusher		

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI529: OSWTP-Dissolved Nitrogen Floatation Unit - Dissolver		
EQUI530: Poly Unit De-Propanizer - Other Emission Unit		
EQUI531: Sat Gas De-Propanizer - Other Emission Unit		
EQUI532: Alky Unit De-Propanizer - Separation Equipment		
EQUI533: Containers/Vac Trucks/Frac Tanks used for managing remediation wastes - Material Handling Equipment		
EQUI534: Transfer Systems Associated with Remediation Systems - Material Handling Equipment		
EQUI535: 1st & A Groundwater Remediation Knockout Pot 86V22 - Refining Equipment		
EQUI536: Coke Drum System A and B - Coke Handling Equipment		
EQUI537: Coke Drum System C and D - Coke Handling Equipment		
EQUI538: Coke Drum System E and F - Coke Handling Equipment		

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI539: Octane Comparator at Knock Engine Building (52ME2B) - Refining Equipment		
EQUI540: Octane Comparator at Knock Engine Building (52ME91) - Refining Equipment		
EQUI541: Gas Oil HDS Charge Heater - Process Heater	sends to	STRU128: 33H31 Stack
EQUI542: Distillate Hydrotreater Fractntr Htr - Distillation Equipment	sends to	STRU113: 27H102 Stack
EQUI543: #2 H2 Plant Reformer Heater - Process Heater	sends to	STRU114: 27H1 Stack
EQUI544: Naphtha Hydrotreater Reactor Chg Htr - Reactor	sends to	STRU115: 28H1 Stack
EQUI545: #6 HDS Reactor Charge Heater - Process Heater	sends to	STRU116: 31H1 Stack
EQUI546: #2 HDS Fractionation Heater (31H2) - Fractionation Equipment	sends to	STRU117: 31H2 Stack
EQUI547: HDS Heater (hot oil system) - Process Heater	sends to	STRU118: 31H4 Stack
EQUI548: Unisar Reactor Charge Heater - Process Heater	sends to	STRU119: 31H5 Stack
EQUI549: #5 HDS Charge Heater (naphtha) - Process Heater	sends to	STRU120: 31H7 Stack
EQUI550: #1 HDS	sends to	STRU121:

SI ID: Description	Relationship Type	Related SI ID: Description
Reactor Charge Heater - Process Heater		31H8 Stack
EQUI551: #1 HDS Fractionation Heater - Fractionation Equipment	sends to	STRU122: 31H9 Stack
EQUI552: #2 HDS Reactor Charge Heater - Process Heater	sends to	STRU123: 31H10 Stack
EQUI554: Powerformer Reactor Charge Heater (Grouped with EU 073/074/075) - Process Heater	sends to	STRU124: 32H5 6 7 Stack
EQUI555: Powerformer Reactor #1 Reheat Heater(Grouped with EU 073/074/075) - Process Heater	sends to	STRU124: 32H5 6 7 Stack
EQUI556: Powerformer Reactor #2 Reheat Heater (Grouped with EU 073/074/075) - Process Heater	sends to	STRU124: 32H5 6 7 Stack
EQUI557: Powerformer Regenerator Gas Heater - Process Heater	sends to	STRU125: 32H9 Stack
EQUI558: Powerformer Catalyst Regeneration - Refining Equipment	sends to	STRU126: Powerform Cat Reg Stack
EQUI558: Powerformer Catalyst Regeneration - Refining Equipment	is controlled by	TREA13: Packed-Gas Adsorption Column

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI559: Gas Oil HDS Fractionation Charge Heater - Process Heater	sends to	STRU129: 33H32 Stack
EQUI560: Naphtha Hydrotreater Charge Heater - Process Heater	sends to	STRU130: 37H1 2 6 Stack
EQUI561: Naphtha Hydrotreater Stripper Reboiler - Boiler	sends to	STRU130: 37H1 2 6 Stack
EQUI562: Platformer Charge Heater (Grouped with EU 095/096/097) - Process Heater		
EQUI563: Platformer #1 Interheater(Grouped with EU 095/096/097) - Process Heater		
EQUI564: Platformer #2 Interheater(Grouped with EU 095/096/097) - Process Heater		
EQUI565: Platformer Stabilizer Reboiler Heater - Process Heater	sends to	STRU130: 37H1 2 6 Stack
EQUI566: Platformer Catalyst Regeneration Vent - Regenerator	sends to	STRU132: Plat Cat Reg Stack
EQUI566: Platformer Catalyst Regeneration Vent - Regenerator	is controlled by	TREA14: Packed-Gas Adsorption Column
EQUI567: Emergency Generator at Platformer - Reciprocating IC Engine	sends to	STRU133: EE1309 Diesel Stack
EQUI568: Unit 38	sends to	STRU135:

SI ID: Description	Relationship Type	Related SI ID: Description
Gasoil HDS A-Train Heater - Process Heater		38H1A Stack
EQUI569: Unit 38 Gasoil HDS B-Train Heater - Process Heater	sends to	STRU136: 38H1B Stack
EQUI570: Unit 38 Gasoil HDS Fractionation Charge Heater - Process Heater	sends to	STRU137: 38H2 Stack
EQUI572: Octane Comparator at Knock Engine Building (52ME92) - Refining Equipment		
EQUI573: Octane Comparator at Knock Engine Building (52ME2A) - Refining Equipment		
EQUI574: ATS Process Unit - Refining Equipment	sends to	STRU91: ATS Process Unit
EQUI574: ATS Process Unit - Refining Equipment	is controlled by	TREA75: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min
EQUI58: O2 Monitor at 25H4	monitors	EQUI526: #3 Crude Unit Vacuum Heater - Process Heater
EQUI58: O2 Monitor at 25H4	monitors	STRU12: 25H4 Stack
EQUI59: Fuel Gas Flow Meter at 25H4	monitors	EQUI526: #3 Crude Unit Vacuum Heater - Process Heater
EQUI59: Fuel Gas Flow Meter at 25H4	monitors	STRU12: 25H4 Stack
EQUI5: Ambient Air Monitor	monitors	EQUI367: Combustion

SI ID: Description	Relationship Type	Related SI ID: Description
		Turbine - Turbine
EQUI5: Ambient Air Monitor	monitors	EQUI368: Duct Burners - Duct Burner
EQUI60: NOx Monitor at 25H4	monitors	EQUI526: #3 Crude Unit Vacuum Heater - Process Heater
EQUI60: NOx Monitor at 25H4	monitors	STRU12: 25H4 Stack
EQUI61: CO Monitor at 25H4	monitors	EQUI526: #3 Crude Unit Vacuum Heater - Process Heater
EQUI61: CO Monitor at 25H4	monitors	STRU12: 25H4 Stack
EQUI622: #3 H2 Heater: CO, EU 213	sends to	EQUI70: 27H-501 CO Analyzer
EQUI623: #3 H2 Heater: EU 213, fuel flow	sends to	EQUI150: Natural Gas Flowmeter to Pilots
EQUI623: #3 H2 Heater: EU 213, fuel flow	sends to	EQUI275: 27H-501 Natural Gas Supply Flow Meter
EQUI623: #3 H2 Heater: EU 213, fuel flow	sends to	EQUI79: 27H501 PSA Purge Gas Flow
EQUI624: FCCU: 30% opacity (1-hr ave.), EU 228	sends to	EQUI270: 17ME-187 FCC Common Stack Opacity Analyzer
EQUI625: FCCU: 450 ppm NOx (24-hr ave.), EU 228	sends to	EQUI239: FCC Common Stack NOx Analyzer
EQUI625: FCCU: 450 ppm NOx (24-hr ave.), EU 228	sends to	EQUI286: FCC O2 Dry Percent
EQUI626: FCCU: 25 ppm SO2 (365-day ave.), EU 228	sends to	EQUI240: FCC Common Stack SO2 Analyzer
EQUI627: FCCU: 50 ppm SO2 (7-day	sends to	EQUI240: FCC Common Stack

SI ID: Description	Relationship Type	Related SI ID: Description
ave.), EU 228		SO2 Analyzer
EQUI628: FCCU: 500 ppm CO (1-hr ave.), EU 228	sends to	EQUI142: FCC CO Low
EQUI628: FCCU: 500 ppm CO (1-hr ave.), EU 228	sends to	EQUI273: FCC CO(%) in Flue Gas Monitor
EQUI629: FCCU: EU 228, fuel flow	sends to	EQUI241: 17H-4 Fuel Gas Flow Meter
EQUI629: FCCU: EU 228, fuel flow	sends to	EQUI271: 17H-2 Fuel Gas Flow Meter
EQUI62: 25H-3 Fuel Gas Flow Meter	monitors	EQUI501: #3 Crude Unit Vac Pre-Fractionator Heater - Process Heater
EQUI62: 25H-3 Fuel Gas Flow Meter	monitors	STRU110: 25H3 Stack
EQUI630: New Truck Bottom Loading: 10 milligrams/liter of total organic compounds gasoline loaded, EU 004	sends to	EQUI222: VOC Monitor at Bottom Loading Unit
EQUI631: #1 Crude Heater Distillation: 12.8 lbs SO2 (1-hr & 3-hr ave., fuel flow), EU 005	sends to	EQUI232: 11H1 Fuel Gas Flowmeter
EQUI632: #1 Crude Heater Preflash: EU 006	sends to	EQUI285: 11H2 Fuel Gas Flowmeter
EQUI633: Vacuum Pre-Strip Heater: EU 016	sends to	EQUI234: 12H4 Fuel Gas Flowmeter
EQUI634: Vacuum Pre-Strip Heater: 0.045 lbs NOx/mmBtu, (3-hr ave.), EU 016	sends to	EQUI233: 12H4 Firebox O2
EQUI635: #2 Vac Heater: 15.3 tons SO2/yr (365-day ave.), EU 019	sends to	EQUI238: 16H1 Fuel Gas Flowmeter
EQUI636: #2 Vac	sends to	EQUI235:

SI ID: Description	Relationship Type	Related SI ID: Description
Heater: EU 019		16H1 O2 Monitor
EQUI636: #2 Vac Heater: EU 019	sends to	EQUI236: 16H1 CO Monitor
EQUI637: #2 Vac Heater:0.045 lbs NOx/mmBtu, (3-hr ave.) EU 019	sends to	EQUI235: 16H1 O2 Monitor
EQUI637: #2 Vac Heater:0.045 lbs NOx/mmBtu, (3-hr ave.) EU 019	sends to	EQUI237: 16H1 NOx Monitor
EQUI638: # 1 Vac Heater: 6.5 lbs SO2/hr (3-hr & 24-hr ave., fuel flow), EU 026	sends to	EQUI244: 19H1 Fuel Gas Meter
EQUI639: # 1Coker Heater: 5.5 lbs SO2/hr (3-hr & 24-hr ave., fuel flow), EU 028	sends to	EQUI143: 21H-1 West Fuel Gas Flowmeter
EQUI639: # 1Coker Heater: 5.5 lbs SO2/hr (3-hr & 24-hr ave., fuel flow), EU 028	sends to	EQUI144: 21H-1 East Fuel Gas Flowmeter
EQUI63: TGTU2 SO2 Analyzer - 26H21	monitors	EQUI427: 26H21 Standby Incinerator for TGTU #2 Bypasses & SRU5 Sulfur Degassing - Incinerator
EQUI63: TGTU2 SO2 Analyzer - 26H21	monitors	STRU83: #5 SRU 26 Unit Stack
EQUI640: #2 Coker Heater: 5.5 lbs SO2/hr (3-hr & 24-hr ave. fuel flow), EU 030	sends to	EQUI145: 21H-2 West Fuel Gas Flowmeter
EQUI640: #2 Coker Heater: 5.5 lbs SO2/hr (3-hr & 24-hr ave. fuel flow), EU 030	sends to	EQUI146: 21H-2 East Fuel Gas Flowmeter

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI641: #3 Coker Heater: 9.7 lbs SO ₂ /hr (3-hr & 24-hr ave., fuel flow), EU 034	sends to	EQUI147: 23H-1 South Fuel Gas Flowmeter
EQUI641: #3 Coker Heater: 9.7 lbs SO ₂ /hr (3-hr & 24-hr ave., fuel flow), EU 034	sends to	EQUI148: 23H-1 North Fuel Gas Flowmeter
EQUI642: #3 Coker Heater: 0.12 lbs NO _x /mmBtu (365-day ave.) EU 035	sends to	EQUI245: 23H-2 O ₂ Analyzer
EQUI643: #3 Coker Heater: 0.10 lbs CO/mmBtu (1-hr ave.) EU 035	sends to	EQUI245: 23H-2 O ₂ Analyzer
EQUI644: #3 Coker Heater: EU 035	sends to	EQUI246: 23H-2 Fuel Gas Flow Meter pass 1
EQUI644: #3 Coker Heater: EU 035	sends to	EQUI247: 23H-2 Fuel Gas Flow Meter pass 3
EQUI644: #3 Coker Heater: EU 035	sends to	EQUI250: 23H-2 Fuel Gas Flow Meter pass 4
EQUI644: #3 Coker Heater: EU 035	sends to	EQUI272: 23H-2 Fuel Gas Flow Meter pass 2
EQUI645: #3 Crude Unit Atm Distillate Heater: 0.12 lbs NO _x /mmBtu (365-day ave.); 0.10 lbs CO/mmBtu (1-hr ave.); EU 040	sends to	EQUI310: 25H-2 O ₂ Analyzer
EQUI646: #3 Crude Unit Vac Distillate Heater: 0.12 lbs NO _x /mmBtu (365-day ave.); 0.10 lbs CO/mmBtu (1-hr ave.); EU 041	sends to	EQUI283: 25H-3 O ₂ Analyzer
EQUI646: #3 Crude Unit Vac Distillate	sends to	EQUI62: 25H-3 Fuel Gas Flow

SI ID: Description	Relationship Type	Related SI ID: Description
Heater: 0.12 lbs NO _x /mmBtu (365-day ave.); 0.10 lbs CO/mmBtu (1-hr ave.); EU 041		Meter
EQUI647: #5 Sulfur Recovery Unit: 250 ppm (12-hr ave.), EU 045; SV 042	sends to	EQUI64: TGTU2 O ₂ Analyzer - 26H21
EQUI648: # 5 Sulfur Recovery Unit: 170.8 lbs SO ₂ /hr (1-hr & 3-hr), SV 042	sends to	EQUI63: TGTU2 SO ₂ Analyzer - 26H21
EQUI649: # 5 Sulfur Recovery Unit: 121.0 tons CO/yr (365-day ave.), SV 045	sends to	EQUI149: TGTU2 CO Analyzer
EQUI64: TGTU2 O ₂ Analyzer - 26H21	monitors	EQUI427: 26H21 Standby Incinerator for TGTU #2 Bypasses & SRU5 Sulfur Degassing - Incinerator
EQUI64: TGTU2 O ₂ Analyzer - 26H21	monitors	STRU83: #5 SRU 26 Unit Stack
EQUI650: Distillate HDS Recycle H ₂ Charge Heater: 0.08 lbs NO _x /mmBtu (24-hr ave.) EU 050	sends to	EQUI254: 27H-101 Fuel Gas Supply Flow Meter 2
EQUI650: Distillate HDS Recycle H ₂ Charge Heater: 0.08 lbs NO _x /mmBtu (24-hr ave.) EU 050	sends to	EQUI256: 27H-101 Fuel Gas Supply Flow Meter 1
EQUI651: Distillate Hydrotreater Frac. Heater: 0.08 lbs NO _x /mmBtu (24-hr ave.) EU 051	sends to	EQUI72: 27H-102 O ₂ Analyzer
EQUI651: Distillate Hydrotreater Frac.	sends to	EQUI75: 27H-102 Natural

SI ID: Description	Relationship Type	Related SI ID: Description
Heater: 0.08 lbs NOx/mmBtu (24-hr ave.) EU 051		Gas Supply Flow Meter
EQUI651: Distillate Hydrotreater Frac. Heater: 0.08 lbs NOx/mmBtu (24-hr ave.) EU 051	sends to	EQUI77: 27H-102 Fuel Gas Supply Flow Meter
EQUI652: #2 H2 Plant Reformer Heater: 0.10 lbs NOx/ mmBtu (24-hr ave), EU 052	sends to	EQUI71: 27H-1 O2 Analyzer
EQUI653: #2 H2 Plant Reformer Heater: EU 052, Fuel Flow	sends to	EQUI253: 27H-1 Fuel Gas Supply Flow Meter
EQUI653: #2 H2 Plant Reformer Heater: EU 052, Fuel Flow	sends to	EQUI255: 27H-1 PSA Gas Supply Flow Meter
EQUI653: #2 H2 Plant Reformer Heater: EU 052, Fuel Flow	sends to	EQUI78: 27H-1 Natural Gas Supply Flow Meter
EQUI654: Naptha Hydrotreater Heater: EU 053, fuel Flow	sends to	EQUI257: 28H-1 Natural Gas Supply Flow Meter
EQUI654: Naptha Hydrotreater Heater: EU 053, fuel Flow	sends to	EQUI276: 28H-1 Fuel Gas Supply Flow Meter
EQUI655: Naptha Hydrotreater Heater: 0.14 lbs NOx/mmBtu (24-hr aver < 90%); 0.10 lbs NOx/mmBtu (24-hr ave. > 90%), EU 053	sends to	EQUI80: 28H-1 O2 Analyzer
EQUI656: Powerformer Reactor Heaters: 0.045 lbs NOx/mmBtu (3-hr ave.); SV 066	sends to	EQUI81: 32H5,6,7 O2 Analyzer for NOx
EQUI657: Powerformer Reactor Heaters:SV	sends to	EQUI200: 32H-5 Fuel Gas Flowmeter

SI ID: Description	Relationship Type	Related SI ID: Description
066, fuel flow		
EQUI657: Powerformer Reactor Heaters:SV 066, fuel flow	sends to	EQUI201: 32H-6 Fuel Gas Flowmeter
EQUI657: Powerformer Reactor Heaters:SV 066, fuel flow	sends to	EQUI202: 32H-7 Fuel Gas Flowmeter
EQUI658: Gas Oil HDS Fract. Charge Heater: 0.045 lbs NOx/mmBtu (3-hr), EU 085	sends to	EQUI82: 33H32 Firebox O2
EQUI659: Gas Oil HDS Fract. Charge Heater: 167.6 tons SO2/yr (365-day ave.) EU 084 and EU 085	sends to	EQUI76: 33H32 Fuel Gas Flow
EQUI65: 26H-40 Natural Gas Flow Meter	monitors	EQUI428: 26H40 TGTU #2 - Refining Equipment
EQUI660: Platformer Heater/Interheaters: EU 095/EU 096/EU 097, SV 083, Fuel Flow	sends to	EQUI207: 37 O2 Percent
EQUI661: Platformer Heater/Interheaters: SV 083	sends to	EQUI205: 37H-3/4/5 NOx Analyzer
EQUI662: Platformer Heater/Interheaters: 0.040 lbs CO/mmBtu (3-hr ave.), SV 083	sends to	EQUI206: 37H-3/4/5 CO Analyzer
EQUI663: SRU #3 & #4: 200 ppm SO2 (12-hr ave.), SV 093	sends to	EQUI130: TGTU1 O2 Analyzer - 45H61
EQUI664: SRU #3 & #4: 250 ppm SO2 (12-hr ave.), SV 093	sends to	EQUI130: TGTU1 O2 Analyzer - 45H61
EQUI665: SRU #3 & #4: 149.0 lbs	sends to	EQUI131: TGTU1 SO2

SI ID: Description	Relationship Type	Related SI ID: Description
SO2/hr (1-hr & 3-hr), SV 093		Analyzer - 45H61
EQUI666: SRU #3 & #4: SV 093, Fuel Flow.	sends to	EQUI133: 45H61 Fuel Gas Flow
EQUI666: SRU #3 & #4: SV 093, Fuel Flow.	sends to	EQUI279: 45H6 Stack Flow
EQUI667: Steam Boiler No. 8: 0.20 lbs NOx/mmBtu (30-day ave.), EU 204	sends to	EQUI135: 71B8 O2 Analyzer to Monitor NOx Emissions
EQUI668: Steam Boiler No. 8: EU 204, fuel flow	sends to	EQUI266: 71B8 Natural Gas Supply Flow Meter
EQUI669: 11H6 Heater: CO, EU 212	sends to	EQUI223: 11H-6 CO Monitor
EQUI66: EMRC Flow for TGTU2 - 26H21	monitors	EQUI427: 26H21 Standby Incinerator for TGTU #2 Bypasses & SRU5 Sulfur Degassing - Incinerator
EQUI66: EMRC Flow for TGTU2 - 26H21	monitors	STRU83: #5 SRU 26 Unit Stack
EQUI670: 11H6 Heater: 0.045 lbs NOx/mmBtu (3-hr ave.), EU 212	sends to	EQUI224: O2 Monitor for 11H6
EQUI670: 11H6 Heater: 0.045 lbs NOx/mmBtu (3-hr ave.), EU 212	sends to	EQUI269: 11H6 NOx Monitor
EQUI671: 11H6 Heater: EU 212, fuel flow	sends to	EQUI231: 11H6 Fuel Gas Flowmeter
EQUI672: #3 H2 Heater: 0.042 lbs NOx/mmBtu (24-hr ave.), EU 213	sends to	EQUI69: 27H-501 NOx Analyzer
EQUI672: #3 H2 Heater: 0.042 lbs NOx/mmBtu (24-hr ave.), EU 213	sends to	EQUI73: 27H501 Firebox O2 Analyzer

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI673: Gas Oil HDS Charge Heater: 0.045 lbs NOx/mmBtu (3-hr ave.), EU 084	sends to	EQUI258: 33H31 Firebox O2
EQUI674: Gas Oil HDA Charge Heater: 37.6 lbs SO2/hr (3-hr & 24-hr ave.), EU 084, Fuel Flow	sends to	EQUI83: 33H31 Fuel Gas Flow
EQUI675: PI Historian - for ATS		
EQUI676: VCU Temperature Data Acquisition System		
EQUI677: PI Historian - for 23H3		
EQUI678: PI Historian - for 25H2		
EQUI679: RGP VCU Thermocouple for Flame Presence	monitors	EQUI405: RGP Vapor Combustion Unit - Other Combustion
EQUI67: 26H-21 Fuel Gas Flow	monitors	EQUI427: 26H21 Standby Incinerator for TGTU #2 Bypasses & SRU5 Sulfur Degassing - Incinerator
EQUI67: 26H-21 Fuel Gas Flow	monitors	STRU83: #5 SRU 26 Unit Stack
EQUI680: Utility Flare Pilot Thermocouple	monitors	STRU68: Utility Flare Stack
EQUI68: EMRC Temperature Thermocouple for TGTU2	monitors	STRU83: #5 SRU 26 Unit Stack
EQUI69: 27H-501 NOx Analyzer	monitors	EQUI377: #3 H2 Heater - Process Heater
EQUI69: 27H-501	monitors	STRU172:

SI ID: Description	Relationship Type	Related SI ID: Description
NOx Analyzer		27H501 Stack
EQUI6: ATS SO2 Analyzer	monitors	EQUI574: ATS Process Unit - Refining Equipment
EQUI70: 27H-501 CO Analyzer	monitors	EQUI377: #3 H2 Heater - Process Heater
EQUI70: 27H-501 CO Analyzer	monitors	STRU172: 27H501 Stack
EQUI71: 27H-1 O2 Analyzer	monitors	EQUI543: #2 H2 Plant Reformer Heater - Process Heater
EQUI71: 27H-1 O2 Analyzer	monitors	STRU114: 27H1 Stack
EQUI72: 27H-102 O2 Analyzer	monitors	EQUI542: Distillate Hydrotreater Fractntr Htr - Distillation Equipment
EQUI72: 27H-102 O2 Analyzer	monitors	STRU113: 27H102 Stack
EQUI73: 27H501 Firebox O2 Analyzer	monitors	EQUI377: #3 H2 Heater - Process Heater
EQUI73: 27H501 Firebox O2 Analyzer	monitors	STRU172: 27H501 Stack
EQUI74: 27H-101 Natural Gas Supply Flow Meter	monitors	EQUI505: Distillate HDS Recycle Hydrogen Charge Heater - Process Heater
EQUI74: 27H-101 Natural Gas Supply Flow Meter	monitors	STRU112: 27H101 Stack
EQUI752: Organic Liquid		
EQUI754: Organic Liquid		
EQUI755: Organic Liquid		
EQUI757: Chemical/Additive Storage Tank @ 45		

SI ID: Description	Relationship Type	Related SI ID: Description
Unit		
EQUI758: Organic Liquid		
EQUI759: Spent Sulfuric Acid Storage Tank 35TK5		
EQUI75: 27H-102 Natural Gas Supply Flow Meter	monitors	EQUI542: Distillate Hydrotreater Fractntr Htr - Distillation Equipment
EQUI75: 27H-102 Natural Gas Supply Flow Meter	monitors	STRU113: 27H102 Stack
EQUI761: Organic Liquid		
EQUI762: Organic Liquid		
EQUI76: 33H32 Fuel Gas Flow	monitors	EQUI559: Gas Oil HDS Fractionation Charge Heater - Process Heater
EQUI76: 33H32 Fuel Gas Flow	monitors	STRU129: 33H32 Stack
EQUI77: 27H-102 Fuel Gas Supply Flow Meter	monitors	EQUI542: Distillate Hydrotreater Fractntr Htr - Distillation Equipment
EQUI77: 27H-102 Fuel Gas Supply Flow Meter	monitors	STRU113: 27H102 Stack
EQUI782: Stripped Sour Water @ 26 Unit		
EQUI783: Sour Water Tank @ 26 Unit		
EQUI784: Chemical/Additive Storage Tank @ 26 Unit		
EQUI78: 27H-1 Natural Gas Supply Flow Meter	monitors	EQUI543: #2 H2 Plant Reformer

SI ID: Description	Relationship Type	Related SI ID: Description
		Heater - Process Heater
EQUI78: 27H-1 Natural Gas Supply Flow Meter	monitors	STRU114: 27H1 Stack
EQUI794: Organic Liquid		
EQUI795: Organic Liquid		
EQUI796: Organic Liquid		
EQUI797: Organic Liquid		
EQUI798: Organic Liquid		
EQUI799: Organic Liquid		
EQUI79: 27H501 PSA Purge Gas Flow	monitors	EQUI377: #3 H2 Heater - Process Heater
EQUI79: 27H501 PSA Purge Gas Flow	monitors	STRU172: 27H501 Stack
EQUI7: ATS O2 Analyzer	monitors	EQUI574: ATS Process Unit - Refining Equipment
EQUI800: Organic Liquid		
EQUI801: Organic Liquid		
EQUI808: Organic Liquid		
EQUI809: Organic Liquid		
EQUI80: 28H-1 O2 Analyzer	monitors	EQUI544: Naphtha Hydrotreater Reactor Chg Htr - Reactor
EQUI80: 28H-1 O2 Analyzer	monitors	STRU115: 28H1 Stack
EQUI810: Organic Liquid		
EQUI811: Organic Liquid		
EQUI812: Ethanol		
EQUI813: Organic Liquid @ 94 Unit		
EQUI814: Organic		

SI ID: Description	Relationship Type	Related SI ID: Description
Liquid		
EQUI815: Organic Liquid		
EQUI817: Organic Liquid		
EQUI81: 32H5,6,7 O2 Analyzer for NOx	monitors	EQUI554: Powerformer Reactor Charge Heater (Grouped with EU 073/074/075) - Process Heater
EQUI81: 32H5,6,7 O2 Analyzer for NOx	monitors	EQUI555: Powerformer Reactor #1 Reheat Heater(Group ed with EU 073/074/075) - Process Heater
EQUI81: 32H5,6,7 O2 Analyzer for NOx	monitors	EQUI556: Powerformer Reactor #2 Reheat Heater (Grouped with EU 073/074/075) - Process Heater
EQUI81: 32H5,6,7 O2 Analyzer for NOx	monitors	STRU124: 32H5 6 7 Stack
EQUI82: 33H32 Firebox O2	monitors	EQUI559: Gas Oil HDS Fractionation Charge Heater - Process Heater
EQUI82: 33H32 Firebox O2	monitors	STRU129: 33H32 Stack
EQUI832: Organic Liquid		
EQUI833: Organic Liquid		
EQUI834: Organic Liquid		
EQUI835: Organic		

SI ID: Description	Relationship Type	Related SI ID: Description
Liquid		
EQUI836: Organic Liquid		
EQUI837: Asphalt	is controlled by	TREA24: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI838: Asphalt	is controlled by	TREA36: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI83: 33H31 Fuel Gas Flow	monitors	EQUI541: Gas Oil HDS Charge Heater - Process Heater
EQUI83: 33H31 Fuel Gas Flow	monitors	STRU128: 33H31 Stack
EQUI842: Asphalt	is controlled by	TREA26: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI843: Asphalt	is controlled by	TREA27: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI844: Asphalt	is controlled by	TREA28: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI845: Asphalt	is controlled by	TREA29: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI846: Asphalt	is controlled by	TREA35: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI848: Asphalt	is controlled by	TREA30: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI849: Asphalt	is	TREA31: Mist

SI ID: Description	Relationship Type	Related SI ID: Description
	controlled by	Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI84: 34H3 SO2 Analyzer	monitors	EQUI546: #2 HDS Fractionation Heater (31H2) - Fractionation Equipment
EQUI84: 34H3 SO2 Analyzer	monitors	STRU117: 31H2 Stack
EQUI85: EMRC Temperature Thermocouple for 34H-3		
EQUI861: Organic Liquid		
EQUI862: Asphalt		
EQUI863: Organic Liquid		
EQUI866: Asphalt	is controlled by	TREA34: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI868: Non-Phen Water @ 45 Unit		
EQUI869: Non-Phen Water @ 45 Unit		
EQUI86: 38H1B Fuel Gas Flow	monitors	EQUI569: Unit 38 Gasoil HDS B-Train Heater - Process Heater
EQUI86: 38H1B Fuel Gas Flow	monitors	STRU136: 38H1B Stack
EQUI874: Organic Liquid		
EQUI876: Organic Liquid Storage Tank	is controlled by	TREA62: Direct Flame Afterburner w/Heat Exchanger
EQUI879: Spent Sulfuric Acid @ 35 Unit		
EQUI87: 41V33	monitors	COMG96: Fuel

SI ID: Description	Relationship Type	Related SI ID: Description
Fuel Gas Mix Drum H2S		Gas Supply Systems
EQUI87: 41V33 Fuel Gas Mix Drum H2S	monitors	EQUI446: Fuel Gas Supply System (41 unit) Monitoring Point for FG H2S and sulfur - Refining Equipment
EQUI880: Spent Sulfuric Acid @ 35 Unit		
EQUI881: Organic Liquid		
EQUI882: Fresh Sulfuric Acid @ 35 Unit		
EQUI883: Fresh Sulfuric Acid @ 35 Unit		
EQUI891: Organic Liquid		
EQUI894: Chemical/Additive Storage Tank	is controlled by	TREA5: Other
EQUI896: Organic Liquid		
EQUI898: Asphalt	is controlled by	TREA33: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min
EQUI899: Organic Liquid		
EQUI8: ATS Air Flow Monitor	monitors	EQUI574: ATS Process Unit - Refining Equipment
EQUI900: Organic Liquid		
EQUI901: Organic Liquid		
EQUI902: Organic Liquid		
EQUI903: Organic Liquid		
EQUI904: Organic Liquid		

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI905: Organic Liquid		
EQUI908: Organic Liquid @ 94 Unit		
EQUI909: Organic Liquid @ 94 Unit		
EQUI910: Organic Liquid @ 103 Unit		
EQUI911: Organic Liquid @ 103 Unit		
EQUI913: Organic Liquid		
EQUI914: Asphalt		
EQUI915: Organic Liquid		
EQUI916: Organic Liquid		
EQUI917: Organic Liquid		
EQUI918: Organic Liquid		
EQUI919: Organic Liquid		
EQUI920: Organic Liquid		
EQUI921: Organic Liquid		
EQUI922: Organic Liquid		
EQUI923: Organic Liquid		
EQUI924: Organic Liquid		
EQUI925: Organic Liquid		
EQUI927: Organic Liquid		
EQUI928: Organic Liquid		
EQUI929: Organic Liquid		
EQUI930: Organic Liquid		
EQUI931: Organic Liquid		
EQUI933: Organic Liquid		
EQUI935: Organic Liquid		
EQUI937: Organic		

SI ID: Description	Relationship Type	Related SI ID: Description
Liquid		
EQUI965: Chemical/Additive Storage Tank 52V1		
EQUI9: ATS NOx Analyzer	monitors	EQUI574: ATS Process Unit - Refining Equipment
FUGI100: No 5 Cooling Tower - zFugitive	is controlled by	TREA70: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min
FUGI101: No 6 Cooling Tower - zFugitive	is controlled by	TREA71: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min
FUGI102: 45 Sulfur Recovery Unit 3 & 4 - Process Emissions		
FUGI103: Emissions for all FS units		
FUGI105: SWS/Non-Phenolic/Phenolic - Process Emissions		
FUGI106: 45 Fuel Gas Treating - Process Emissions		
FUGI107: 42 Caustic Treating (C3,C4) - Process Emissions		
FUGI108: 41 Fuel Gas Liquid Recovery - Process Emissions		
FUGI109: 41 Amine System - Process Emissions		
FUGI10: 45 Sulfur Recovery Unit 3 & 4 Drain System - Process Emissions		
FUGI110: 39 Oxy Fuel - Process Emissions		

SI ID: Description	Relationship Type	Related SI ID: Description
FUGI111: 37 Platformer - Process Emissions		
FUGI112: 36 Dimersol - Process Emissions		
FUGI113: 35 Alkylation - Process Emissions		
FUGI114: 33-Hydrogen Plant No. 1 - Process Emissions		
FUGI115: 32 Aviation Gasoline 0 - Process Emissions		
FUGI116: 27-Hydrogen Plant No. 2 - Process Emissions		
FUGI117: 26-Sulfur Recovery Unit SRU 5, TGTU 2 - Process Emissions		
FUGI118: North Flare - Process Emissions		
FUGI119: 43 Polymerization - Process Emissions		
FUGI11: 37 Naptha Hydro-Desulfurizer - Process Emissions		
FUGI120: 32 Penex - Process Emissions		
FUGI121: 18-2 FCC Gasoline Plant - Process Emissions		
FUGI122: CHP Equipment in Natural Gas Service - Process Emissions		
FUGI123: 18-1 FCC Gasoline Plant - Process Emissions		
FUGI124: Unburied Sewer Lines subject to NESHAP FF or NSPS QQQ - Material		

SI ID: Description	Relationship Type	Related SI ID: Description
Handling/Transfer/ Storage		
FUGI125: 48 ATS Process Unit - Process Emissions		
FUGI126: 25 Unit Drains Requiring Emission Controls - Process Emissions		
FUGI127: No. 4 Hydrogen Plant Fugitive Equipment - Process Emissions		
FUGI128: New Flare System and 84-Flare (84Unit1 and 84Unit_1) - Process Emissions		
FUGI129: 84 Flare Gas Recovery - Process Emissions		
FUGI130: 47 H2 Recovery Gas - Process Emissions		
FUGI131: 32 Powerformer - Process Emissions		
FUGI132: FUGI24FUGVOC		
FUGI133: FUGI24FUGPM		
FUGI63: Gas and Distillate Blending - Process Emissions		
FUGI64: 16 Vacuum Distillation - Process Emissions		
FUGI65: RGP Loading Rack - Process Emissions		
FUGI66: 71 Process Steam Boilers - Process Emissions		
FUGI67: 15-Coker Gasoline - Process Emissions		
FUGI68: Coke Pile - Piles		
FUGI69: 27- Distillate		

SI ID: Description	Relationship Type	Related SI ID: Description
Hydrotreater - Process Emissions		
FUGI6: SVE Thermal Oxidizer(86 UNIT3 and 88 UNIT2) - Process Emissions		
FUGI70: 38 High Pressure Gas/Oil Hydrotreater - Process Emissions		
FUGI71: Bottom Loading - Material Handling/Transfer/ Storage	is controlled by	TREA48: Activated Carbon Adsorption
FUGI72: 28- Naphtha Hydrotreater - Process Emissions		
FUGI73: All Tankage (including line pumps) 52Unit 2; 61Unit2, 86Unit2 &102Unit2 - Process Equipment		
FUGI74: 31 Product Desulfurization - Process Emissions		
FUGI75: 25-Crude Unit - Process Emissions		
FUGI76: Carbon Canisters & Associated Piping - Process Emissions		
FUGI77: 17-Fluid Catalytic Cracking (FCC) Unit - Process Emissions		
FUGI78: 33 Low Pressure GOHT - Process Emissions		
FUGI79: OSWTP Fugitive Emissions Includes Non- vented Equipment - Process Emissions		
FUGI7: 21- 1Delayed Coker -		

SI ID: Description	Relationship Type	Related SI ID: Description
Process Emissions		
FUGI80: 21-2 Delayed Coker - Process Emissions		
FUGI81: Heavy Liquid Tanks(00Unit_1, HLTanksC and HLTanksV) - Process Emissions		
FUGI82: 23- Delayed Coker & Gasoline Plant - Process Emissions		
FUGI83: 27-5 Hydrogen Plant No. 3 - Process Emissions		
FUGI84: 45 Fuel Gas Treating Drain System - Process Emissions		
FUGI85: 14- Saturate Plant - Process Emissions		
FUGI86: 11-1 Crude Unit - Process Emissions		
FUGI87: Top Loading and UC Top Loading - Material Handling/Transfer/ Storage		
FUGI88: UC Barge - Open Air Source		
FUGI89: 12 Vacuum Distillation - Process Emissions		
FUGI8: 19 Vacuum Distillation - Process Emissions		
FUGI90: Track 8 Load and Uncontrolled Rail - Material Handling/Transfer/ Storage	is controlled by	TREA61: Flaring
FUGI91: 17- Clarified Oil		

SI ID: Description	Relationship Type	Related SI ID: Description
Vacuum Frac - Process Emissions		
FUGI92: RGP Transfer - Process Emissions		
FUGI93: 11-2 Crude Unit - Process Emissions		
FUGI94: Hydrocracker Feed Equipment - Process Emissions		
FUGI95: #2 Hydrogen Plant Drain System - Process Emissions		
FUGI96: No 7 Cooling Tower - zFugitive		
FUGI97: No 1 Cooling Tower - zFugitive	is controlled by	TREA67: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min
FUGI98: No 3 Cooling Tower - zFugitive	is controlled by	TREA68: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min
FUGI99: No 4 Cooling Tower - zFugitive	is controlled by	TREA69: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min
FUGI9: 88-Butane - Process Emissions	is controlled by	TREA8: Direct Flame Afterburner
STRU100: 21H1N Stack		
STRU101: 21H2S Stack		
STRU102: 21H2N Stack		
STRU103: 21H1 Decoke Pit Stack		
STRU104: 23H1 Stack		
STRU105: 23H2 Stack		
STRU106: 23ME26		

SI ID: Description	Relationship Type	Related SI ID: Description
Diesel Stack		
STRU107: P20 Decoke Pit Stack		
STRU108: 25V53 Deaerator Vent Stack		
STRU10: 11H1 Stack		
STRU110: 25H3 Stack		
STRU111: EE1657 Diesel Stack		
STRU112: 27H101 Stack		
STRU113: 27H102 Stack		
STRU114: 27H1 Stack		
STRU115: 28H1 Stack		
STRU116: 31H1 Stack		
STRU117: 31H2 Stack		
STRU118: 31H4 Stack		
STRU119: 31H5 Stack		
STRU11: 11H2 Stack		
STRU120: 31H7 Stack		
STRU121: 31H8 Stack		
STRU122: 31H9 Stack		
STRU123: 31H10 Stack		
STRU124: 32H5 6 7 Stack		
STRU125: 32H9 Stack		
STRU126: Powerform Cat Reg Stack		
STRU127: 33H1 2 Stack (33H4)		
STRU128: 33H31 Stack		
STRU129: 33H32		

SI ID: Description	Relationship Type	Related SI ID: Description
Stack		
STRU12: 25H4 Stack		
STRU130: 37H1 2 6 Stack		
STRU131: 37H3 4 5 Stack	receives from	EQUI562: Platformer Charge Heater (Grouped with EU 095/096/097) - Process Heater
STRU131: 37H3 4 5 Stack	receives from	EQUI563: Platformer #1 Interheater(Gr ouped with EU 095/096/097) - Process Heater
STRU131: 37H3 4 5 Stack	receives from	EQUI564: Platformer #2 Interheater(Gr ouped with EU 095/096/097) - Process Heater
STRU132: Plat Cat Reg Stack		
STRU133: EE1309 Diesel Stack		
STRU135: 38H1A Stack		
STRU136: 38H1B Stack		
STRU137: 38H2 Stack		
STRU139: 45H61 Stack		
STRU140: 45H6 Stack		
STRU141: 81P444 Diesel Stack		
STRU142: 81P89 Diesel Stack		
STRU143: 81P159 Diesel Stack		
STRU144: 81P357 Diesel Stack		
STRU145: North		

SI ID: Description	Relationship Type	Related SI ID: Description
Flare Stack		
STRU146: East Flare Stack		
STRU147: West Flare Stack		
STRU148: 86H27 Stack		
STRU149: 86H15A B Stack		
STRU150: 86H1 Stack		
STRU151: 86H5 Stack		
STRU152: 86H18A B Stack		
STRU153: 86H19A B Stack		
STRU154: 86H32 33 Stack		
STRU155: 86H22 Stack		
STRU156: 86H24A B Stack		
STRU157: 86H25 Stack		
STRU158: 86H26 & 86H38 Stack		
STRU159: 86H34 35 Stack		
STRU160: 86H36 37 Stack		
STRU161: Butane Oxidizer (88H1) Stack		
STRU162: 94H1 Stack		
STRU163: 93P400 Diesel Stack		
STRU164: 93P570 Diesel Stack		
STRU165: 86H6 Stack		
STRU166: 86H8 Stack		
STRU167: 86H16A B Stack		
STRU168: 71B8 Stack		
STRU169: 21H-2 Decoke Pit Stack		

SI ID: Description	Relationship Type	Related SI ID: Description
STRU170: 25V52 Deaerator Vent Stack		
STRU171: SRU 5 Sulfur Pit Vent Stack		
STRU172: 27H501 Stack		
STRU173: 27V509 Deaerator Vent Stack		
STRU174: 33V41 Deaerator Vent Stack		
STRU175: 86H17A B Stack		
STRU176: 88H2 Stack		
STRU177: 86H41 Stack		
STRU178: TK423 Demister Stack		
STRU179: TK424 Demister Stack		
STRU180: 94H3 Stack	is monitored by	EQUI140: Temperature Monitor (Stack) for 94H-3 Thermal Oxidizer
STRU181: 86H2 Stack		
STRU182: TK019 Demister Stack		
STRU183: TK029 Demister Stack		
STRU184: TK037 Demister Stack		
STRU185: TK039 Demister Stack		
STRU186: TK411 Demister Stack		
STRU187: TK412 Demister Stack		
STRU188: TK414 Demister Stack		
STRU189: TK415 Demister Stack		
STRU190: TK416 Demister Stack		

SI ID: Description	Relationship Type	Related SI ID: Description
STRU1: TK417 Demister Stack		
STRU215: STRU24H1		
STRU216: STRU24DRUMS		
STRU217: North Contractor Building Emergency Generator		
STRU218: North Contractor Building Boiler #1		
STRU219: North Contractor Building Boiler #2		
STRU220: Lab Roof Top Unit #1		
STRU2: TK418 Demister Stack		
STRU3: Stack Vent at the Enclosed Flare at Bottom Loading		
STRU4: FCC Fresh Cat Hopper Stack		
STRU56: EE1852 Diesel Stack		
STRU58: 71C11 Diesel Stack		
STRU5: FCC Spent Cat Hopper Stack		
STRU61: Temporary Portable TO Stack		
STRU62: Sump 3 Emergency Generator Exhaust Stack		
STRU63: Sump 7 Emergency Generator Exhaust Stack		
STRU64: LS Emergency Generator Exhaust Stack		
STRU65: 23H3 #3 Coker Heater Stack		
STRU66: 25H2 #3		

SI ID: Description	Relationship Type	Related SI ID: Description
Crude Heater Stack		
STRU68: Utility Flare Stack		
STRU69: 71B6 Stack		
STRU6: FCC Spent Cat Baghouse Stack		
STRU70: Hydrocracker Feed Heater and Reboiler		
STRU71: New Hydrogen Plant Reformer Furnace		
STRU72: Hydrogen Plant PSA Feed Bypass		
STRU73: Hydrogen Plant PSA Purge Bypass		
STRU74: Hydrogen Plant H2 Product Bypass		
STRU76: No. 6 Cooling Tower Diesel Pump		
STRU77: 17V18 Deaerator Stack Vent		
STRU78: Boiler No. 9 Stack		
STRU79: 37V67 Deaerator Stack Vent		
STRU7: 86H7 Stack		
STRU81: Desalter Brine Stack		
STRU82: 11H6 Stack		
STRU83: #5 SRU 26 Unit Stack	receives from	EQUI428: 26H40 TGTU #2 - Refining Equipment
STRU84: Process Vents Associated with Spring Lake Remediation System		
STRU85: Process Vents Associated		

SI ID: Description	Relationship Type	Related SI ID: Description
with Soil Extraction Units 86H41 & 88H2		
STRU86: Process Vents Associated with Misc. Remediation Systems		
STRU89: HRSG Stack		
STRU8: RR Load to Stack		
STRU90: RGP Vapor Combustion Stack		
STRU91: ATS Process Unit		
STRU93: 12H4 Stack		
STRU94: 16H1 Stack		
STRU95: FCC Main Stack		
STRU97: EE1718 Diesel Stack		
STRU98: 19H1 Stack		
STRU99: 21H1S Stack		
STRU9: BT Load VRU Stack		
TFAC4: Flint Hills Resources Pine Bend Refinery		
TREA10: Gas Scrubber (General, Not Classified)		
TREA11: Other	is monitored by	EQUI139: 94H1 & 94H3 Natural Gas Flow
TREA11: Other	is monitored by	EQUI140: Temperature Monitor (Stack) for 94H-3 Thermal Oxidizer
TREA11: Other	is monitored by	EQUI141: 94H1 SO2 Analyzer

SI ID: Description	Relationship Type	Related SI ID: Description
TREA11: Other	is monitored by	EQUI1: 94H3 SO2 Analyzer
TREA11: Other	is monitored by	EQUI268: 94H-1 Thermocouple for Fire Box Temperature
TREA11: Other	is monitored by	EQUI2: EMRC Flow Meter for 94H1 Exhaust Gases
TREA11: Other	is monitored by	EQUI3: EMRC Flow Meter for 94H3 Exhaust Gases
TREA12: Vapor Recovery System-Condensers, Hoods, & Other Enclosures		
TREA13: Packed-Gas Adsorption Column	is monitored by	EQUI291: HCL adsorber inlet temperature indicator (32TI01110)
TREA14: Packed-Gas Adsorption Column	is monitored by	EQUI292: HCL adsorber inlet temperature indicator (37TC1150A)
TREA15: Activated Carbon Adsorption		
TREA16: Gas Scrubber (General, Not Classified)		
TREA19: Direct Flame Afterburner w/Heat Exchanger		
TREA1: 84ME23 E. Flare - zControl	is monitored by	EQUI137: East Flare Pilot Thermocouple
TREA1: 84ME23 E. Flare - zControl	is monitored by	EQUI216: East Flare Natural Gas Flowmeter
TREA1: 84ME23 E. Flare - zControl	sends to	STRU146: East Flare Stack
TREA20: Other(CVS Flare from 11V45)		

SI ID: Description	Relationship Type	Related SI ID: Description
TREA21: Other(CVS Flare from 14V22)		
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI142: FCC CO Low
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI239: FCC Common Stack NOx Analyzer
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI240: FCC Common Stack SO2 Analyzer
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI241: 17H-4 Fuel Gas Flow Meter
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI242: EMRC Flow for 17ME-187
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI243: EMRC Temperature Thermocouple for 17ME-187
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI270: 17ME-187 FCC Common Stack Opacity Analyzer
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI271: 17H-2 Fuel Gas Flow Meter
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI273: FCC CO(%) in Flue Gas Monitor
TREA23: Electrostatic Precipitator - Medium Efficiency	is monitored by	EQUI286: FCC O2 Dry Percent
TREA24: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA25: Mist Eliminator - Low		

SI ID: Description	Relationship Type	Related SI ID: Description
Velocity, i.e., V<250 Ft/Min		
TREA26: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA27: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA28: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA29: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA2: 84ME24 W. Flare - zControl	is monitored by	EQUI217: West Flare Natural Gas Flowmeter
TREA2: 84ME24 W. Flare - zControl	is monitored by	EQUI280: West Flare Pilot Thermocouple
TREA2: 84ME24 W. Flare - zControl	sends to	STRU147: West Flare Stack
TREA30: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA31: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA32: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA33: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA34: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA35: Mist		

SI ID: Description	Relationship Type	Related SI ID: Description
Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA36: Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min		
TREA37: Direct Flame Afterburner		
TREA38: Direct Flame Afterburner w/Heat Exchanger		
TREA39: Direct Flame Afterburner		
TREA3: 84ME27 U. Flare - zControl	is monitored by	EQUI680: Utility Flare Pilot Thermocouple
TREA3: 84ME27 U. Flare - zControl	sends to	STRU68: Utility Flare Stack
TREA40: Direct Flame Afterburner	is monitored by	EQUI129: 45H-6 O2
TREA40: Direct Flame Afterburner	is monitored by	EQUI261: 45H6 Stack Temp
TREA40: Direct Flame Afterburner	is monitored by	EQUI262: 45H-6 SO2
TREA40: Direct Flame Afterburner	is monitored by	EQUI279: 45H6 Stack Flow
TREA41: Flaring		
TREA42: Flaring		
TREA43: Flaring		
TREA44: Flaring		
TREA45: Other		
TREA46: Other		
TREA47: Other		
TREA48: Activated Carbon Adsorption	is monitored by	EQUI222: VOC Monitor at Bottom Loading Unit
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI142: FCC CO Low
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI239: FCC Common Stack NOx Analyzer
TREA49: Direct	is	EQUI240: FCC

SI ID: Description	Relationship Type	Related SI ID: Description
Flame Afterburner w/Heat Exchanger	monitored by	Common Stack SO2 Analyzer
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI241: 17H-4 Fuel Gas Flow Meter
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI242: EMRC Flow for 17ME-187
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI243: EMRC Temperature Thermocouple for 17ME-187
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI270: 17ME-187 FCC Common Stack Opacity Analyzer
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI271: 17H-2 Fuel Gas Flow Meter
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI273: FCC CO(%) in Flue Gas Monitor
TREA49: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI286: FCC O2 Dry Percent
TREA49: Direct Flame Afterburner w/Heat Exchanger	is controlled in series by	TREA83: Selective Noncatalytic Reduction for NOX
TREA4: 84ME3 N. Flare - zControl	is monitored by	EQUI136: North Flare Pilot Thermocouple
TREA4: 84ME3 N. Flare - zControl	is monitored by	EQUI218: North Flare Natural Gas Flowmeter
TREA4: 84ME3 N. Flare - zControl	sends to	STRU145: North Flare Stack
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI142: FCC CO Low
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI239: FCC Common Stack NOx Analyzer
TREA50: Direct	is	EQUI240: FCC

SI ID: Description	Relationship Type	Related SI ID: Description
Flame Afterburner w/Heat Exchanger	monitored by	Common Stack SO2 Analyzer
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI241: 17H-4 Fuel Gas Flow Meter
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI242: EMRC Flow for 17ME-187
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI243: EMRC Temperature Thermocouple for 17ME-187
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI270: 17ME-187 FCC Common Stack Opacity Analyzer
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI271: 17H-2 Fuel Gas Flow Meter
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI273: FCC CO(%) in Flue Gas Monitor
TREA50: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI286: FCC O2 Dry Percent
TREA50: Direct Flame Afterburner w/Heat Exchanger	is controlled in series by	TREA83: Selective Noncatalytic Reduction for NOX
TREA52: Catalytic Oxidizer	is controlled in series by	TREA53: SCR (Selective Catalytic Reduction)
TREA53: SCR (Selective Catalytic Reduction)		
TREA56: Other (Flare Gas Recovery Sys)		
TREA57: Catalytic Converter		
TREA58: SCR (Selective Catalytic Reduction)	is monitored by	EQUI314: 23H-3 O2 Monitor
TREA58: SCR (Selective Catalytic Reduction)	is monitored by	EQUI315: 23H-3 NOx Monitor

SI ID: Description	Relationship Type	Related SI ID: Description
TREA58: SCR (Selective Catalytic Reduction)	is monitored by	EQUI316: 23H-3 CO Monitor
TREA58: SCR (Selective Catalytic Reduction)	is monitored by	EQUI317: 23H-3 Fuel Flowmeter
TREA59: SCR (Selective Catalytic Reduction)	is monitored by	EQUI309: 25H-2 Fuel Flowmeter
TREA59: SCR (Selective Catalytic Reduction)	is monitored by	EQUI310: 25H-2 O2 Analyzer
TREA59: SCR (Selective Catalytic Reduction)	is monitored by	EQUI311: NOx Monitor at 25H2
TREA59: SCR (Selective Catalytic Reduction)	is monitored by	EQUI313: CO Monitor at 25H2
TREA5: Other		
TREA60: SCR (Selective Catalytic Reduction)		
TREA61: Flaring	is monitored by	EQUI290: Temperature Indicator for 101H1
TREA62: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI139: 94H1 & 94H3 Natural Gas Flow
TREA62: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI141: 94H1 SO2 Analyzer
TREA62: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI268: 94H-1 Thermocouple for Fire Box Temperature
TREA62: Direct Flame Afterburner w/Heat Exchanger	is monitored by	EQUI2: EMRC Flow Meter for 94H1 Exhaust Gases
TREA63: Direct Flame Afterburner	is monitored by	EQUI139: 94H1 & 94H3 Natural Gas Flow
TREA63: Direct Flame Afterburner	is monitored by	EQUI140: Temperature Monitor (Stack) for

SI ID: Description	Relationship Type	Related SI ID: Description
		94H-3 Thermal Oxidizer
TREA63: Direct Flame Afterburner	is monitored by	EQUI1: 94H3 SO2 Analyzer
TREA63: Direct Flame Afterburner	is monitored by	EQUI3: EMRC Flow Meter for 94H3 Exhaust Gases
TREA64: Flaring		
TREA65: Direct Flame Afterburner	is monitored by	EQUI138: SVE System: Temperature Monitor for West Buffer
TREA65: Direct Flame Afterburner	is monitored by	EQUI215: Natural Gas 88H-2 SVE Oxidizer
TREA66: Direct Flame Afterburner		
TREA67: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min		
TREA68: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min		
TREA69: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min		
TREA70: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min		
TREA71: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min		
TREA72: Refrigerated Condenser		
TREA73: Activated Carbon Adsorption		
TREA74: Flaring		

SI ID: Description	Relationship Type	Related SI ID: Description
TREA75: Mist Eliminator - High Velocity, i.e., V>250 Ft/Min		
TREA76: 88H2 CVS	is monitored by	EQUI138: SVE System: Temperature Monitor for West Buffer
TREA76: 88H2 CVS	is monitored by	EQUI215: Natural Gas 88H-2 SVE Oxidizer
TREA81: Other (86H41)		
TREA82: Other (CVS)	is monitored by	EQUI222: VOC Monitor at Bottom Loading Unit
TREA82: Other (CVS)	is controlled in parallel by	TREA48: Activated Carbon Adsorption
TREA82: Other (CVS)	is controlled in parallel by	TREA64: Flaring
TREA83: Selective Noncatalytic Reduction for NOX	is controlled in series by	TREA23: Electrostatic Precipitator - Medium Efficiency
TREA85: TREA24H1		
TREA86: TREA30H401		
TREA87: #5 SRU Degas CVS		
TREA88: #3 & #4 SRU Degas CVS		
TREA8: Direct Flame Afterburner	is monitored by	EQUI221: Pilot Thermocouple for Butane Storage Tank 086TK
TREA9: Gas Scrubber (General, Not Classified)		

5. Limits and other requirements

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TFAC 4	03700011	Flint Hills Resources Pine Bend Refinery	
	5.1.1		The Permittee is authorized to construct and modify equipment associated with the Technology and Efficiency Improvement Projects Permit and as described in Air Emission Permit No. 03700011-101. This equipment includes: EQUI1456-1467, FUGI132-133, STRU215-216 and TREA85-86. The construction authorization expires if construction does not commence within 18 months after receipt of such approval by Air Emissions Permit No. 03700011-101, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. [40 CFR 52.21(r)(2) & Minn. R. 7007.3000]
	5.1.2		The Permittee shall limit Sulfur Dioxide $\leq$ 3770 tons per year 365-day rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.3		Refinery Fuel Oil Restrictions: The Permittee shall not burn refinery nos. 3, 4 or 6 fuel oil at any Refinery location. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.4		CHANGES NOT REQUIRING A MODIFICATION OF THE SIP: The Permittee is authorized to begin construction of the activities listed below at the Refinery without a modification of the SIP. The Permittee may conduct activities not listed below without a modification of the SIP, if the activities do not emit sulfur dioxide, do not affect the modeling parameters assumed in Appendix C, and do not affect the continuous emission monitors (CEMs) or continuous monitoring systems (CMSs) used to demonstrate compliance with SIP. The Permittee shall, however, obtain an air emission permit prior to commencing any new activity or facility modification if one is required by Minnesota statutes, Minnesota rules or federal statutes and regulations. After obtaining the appropriate air emission permit (if required) but prior to a modification of the SIP, the Permittee may begin construction of a new unit or modification to an existing unit. However, the Permittee shall not operate a new emission unit and shall not operate a modified unit in a manner contrary to the modeling parameters in Appendix C for that unit until the modification to the SIP is obtained and approved by EPA. A. The Permittee may install and operate any new SO₂ process and control equipment with a maximum potential SO₂ emissions rate that does not exceed 2.28 lbs/hr, except as expressly allowed elsewhere in the permit. The Permittee may modify and operate any existing SO₂ process or control equipment to increase the SO₂ emission rate up to 2.28 lbs/hr over the modeled emission rate for that emission unit in

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			Appendix B. B. The Permittee may physically and operationally modify process and control equipment if the modification does not increase the modeled sulfur dioxide emissions rate above the amount allowed in Appendix B, decrease the modeled stack emissions exit velocity, or decrease the modeled heat content of the stack exit emissions, at the emission source where the modification occurs and all other potentially affected emission points assumed in the modeling presented in Appendix B. C. The Permittee may modify or replace and operate an existing sulfur dioxide emissions stack with a new stack if the height of the modified or replacement stack is not less than that of the stack assumed in the modeling presented in Appendix B, and if the exit diameter of the modified or replacement stack is not greater than that of the stack assumed in the modeling presented in Appendix B. D. The Permittee may install and operate new structures, or modify and operate existing structures if the new or modified structures do not increase the effective structural dimensions assumed in the modeling presented in Appendix B. E. The Permittee may replace and operate replacement SIP CEMs and CMSs covered by this permit or the Permittee may install and operate additional CEMs and CMSs, so long as the new or replacement SIP CEMs and CMSs are properly certified, comply with this permit and are operated and tested as required by this permit. (continued below). [Title I Condition: 40 CFR 50.4(SO₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.5		(continued from above) F. The Permittee may add additional CEMs or CMSs as needed to provide redundancy, providing the Permittee notifies the Commissioner in writing at least 30 days prior to conducting any CEM or CMS certification test. The Permittee may modify the fuel gas delivery system if the following conditions are met: 1) fuel gas flow and sulfur content must be continuously measured for all heaters, either by measuring the sulfur level in the main Refinery fuel gas system and feeding the heater directly from the system, or by separately monitoring the fuel gas to or sulfur dioxide emissions from the heater; and 2) any new fuel gas monitors added to the system must be certified within 60 days of startup, must meet 40 CFR pt. 60, Appendix F QA/QC requirements, must have a QA/QC plan prepared and implemented within 60 days of startup, and operate in accordance with Minn. R. 7017.1090 within two quarters of startup. G. The boundaries of the Permittee owned property may be extended and existing fencing removed provided that the property excluded from the definition of ambient air, as shown in Appendix B, continues to meet the requirements in the permit. [Title I Condition: 40 CFR 50.4(SO₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.6		Permittee Property and Access Restrictions:

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			A. The Permittee shall prevent the general public access to Permittee-owned property in order to exclude the atmosphere above the property from the definition of ambient air subject to the sulfur dioxide NAAQS. B. Access Control The Permittee shall have enclosed the boundaries of the property with a continuous fence, excluding access points, and shall have installed gates at each access point. The Permittee shall therefore keep the gates closed unless: 1) a guard or other FHR employee or contractor patrols and monitors access at a gate or 2) authorized persons are entering or leaving the property through a gate. C. Inspection, Maintenance, and Repair The Permittee shall inspect the fencing and gates installed to ensure compliance with access control at least annually. The Permittee shall maintain and repair the fencing and gates to maintain continuous compliance. The Permittee shall complete all repairs and maintenance to the fencing and gates as soon as possible, but no later than 30 days after the date the Permittee observes the need for repair or maintenance, or after the MPCA notifies the Permittee of the need for repair or maintenance. [Title I Condition: 40 CFR 50.4(SO₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.7		GENERAL MONITORING REQUIREMENTS FOR THE SIP EMISSION UNITS A. Accurate Measurements Required 1. The Permittee shall install, certify, calibrate, operate and maintain each SIP CEM and CMS, and shall conduct all non-continuous sampling and analysis as required by the permit to ensure accurate measurements of the parameters to be monitored. 2. The Permittee shall measure the stack sulfur dioxide concentration (ppm), stack velocity and stack temperature and compute the sulfur dioxide emission rate in lb/hr to determine compliance with the emission limitations listed for EQUI56 (31H-2), STRU139 (SRU 3/4), STRU83 (SRU 5), and STRU95 (FCCU). The Permittee shall measure the Refinery fuel gas sulfur concentration and fuel gas flow rate to determine compliance with the emission limit for sulfur dioxide emissions from Refinery fuel gas combustion. B. Continuous Monitoring Requirements 1. General a) Compliance with Minnesota Rules and Federal Regulations. The Permittee shall meet the requirements of Minn. Rs. 7017.1002 to 7017.1020 and 40 CFR Section 60.13 with each CEM and CMS. If the requirements of Minn. Rs. 7017.1002 to 7017.1020 and 40 CFR Section 60.13 differ, the more stringent regulation shall apply. b) Continuous Operation of CMS and CEM Systems. The Permittee shall at all times properly operate and maintain each CMS and CEM system to provide continuous, accurate, real time monitoring data for the determination of compliance

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			with the terms and requirements of SIP requirements. In those situations where a CMS or CEM system becomes incapable of meeting the requirement of providing continuous, accurate, real time monitoring data, the Permittee shall expeditiously replace or repair the CMS or CEM system and take all other measures as necessary to meet the requirement as soon as possible. 2. Monitor Certification a) Sulfur Dioxide CEMs. The Permittee shall certify each sulfur dioxide CEM as required by 40 CFR pt. 60, Appendix B, Performance Specification 2. b) Emission Rate CMSs. The Permittee shall certify each continuous monitoring system as required by 40 CFR pt. 60, Appendix B, Performance Specification 6, except that the Permittee need not meet calibration drift requirements for those flow monitors that are not designed for conducting calibration drift tests (pitot tube or venturi type). c) Total Reduced Sulfur CMSs for Fuel Gas Monitoring: The Permittee shall certify each total reduced sulfur CMS as required by 40 CFR pt. 60, Appendix B, by using the procedures specified in Performance Specification 5. d) All CEMs and CMS. All CEMs and CMS certification shall be conducted in compliance with Minn. Rs. 7017.1050 - 7017.1080. 3. Quality Assurance The Permittee shall conduct a quality assurance and quality control (QA/QC) program as required by 40 CFR pt. 60, Appendix F, to properly maintain and calibrate each CEM and CMS. The Permittee shall develop and follow the master QA/QC Plans for each CEM and CMS. 4. Monitoring System Uptime a) Mass Sulfur Dioxide CEM Systems. The Permittee shall operate and maintain each mass sulfur dioxide CEM system in accordance with Minn. R. 7017.1090 so that compliance with each emission limitation determined from real time certified CEM monitoring. b) Refinery Fuel Gas Sulfur Monitoring. The Permittee shall maintain an SO₂ CEMS at a representative heater which combusts 45 unit mix drum fuel gas, or maintain a CEMS which measures total sulfur in the 45 unit mix drum fuel gas stream. The SO₂ CEMS shall provide a continuous record of the sulfur dioxide content of the heater exhaust in ppm. The CEMS which measures total sulfur shall provide a continuous record of the total sulfur content of the fuel gas in ppm. (continued below). [Title I Condition: 40 CFR 50.4(SO₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.8		(continued from above) The Permittee shall maintain a CEMS which measures reduced sulfur in the 41 unit mix drum fuel gas stream. The CEMS shall provide a continuous record of the reduced sulfur content of the fuel gas in ppm.

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			For heaters receiving commercial grade fuels directly that are neither inherently low in sulfur nor categorically exempt, contract guarantees for sulfur content and heat content shall be utilized for compliance demonstration purposes. c) Each CEM or CMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit startup, shutdown, or malfunction. This requirement to operate the monitor applies whether or not an emission limit applies during these periods. CEM or CMS downtime is unacceptable except for reasonable periods of monitor downtime due to the following causes: (1) damage to the CEM or CMS due to acts of God such as lightning strikes, tornadoes, or floods that render the CMS inoperative; (2) sudden and not reasonably preventable CEM or CMS breakdowns; (3) scheduled maintenance based on equipment manufacturer's recommended schedule which cannot be reasonably conducted when the emission unit is not operating; or (4) unavoidable CEM or CMS downtime to conduct required checks and audits. C. Non-Continuous Monitoring Requirements 1. The Permittee shall perform non-continuous monitoring as required by the permit; 2. The Permittee shall conduct performance stack tests to determine compliance with the SIP emission limitations and fuel restrictions as required by the Commissioner pursuant to Minn. Rs.7017.2001 to 7017.2060. Stack tests can also be required by authorized EPA personnel. All performance tests shall be conducted in accordance with the requirements of Minn. Rs. 7017.2001 to 7017.2060. The Permittee shall submit to the MPCA performance stack test plans, protocols and schedules at least 15 days prior to the pretest meeting requirements listed below. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.9		Recordkeeping Requirements: The Permittee is required to keep specified records so that EPA and the MPCA can evaluate the Permittee's compliance SIP requirements for the following. 1. The Permittee must keep records on maintenance of property access controls. 2. The Permittee must keep records on the Refinery control plans and compliance schedules. 3. The Permittee must keep records in the form and with the accessibility needed for EPA and MPCA staff inspection. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.10		Recordkeeping for Property Boundary Fencing and Gates: The Permittee shall maintain records of each inspection of the fencing and gates as required. In addition, the Permittee shall

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			maintain records of each maintenance activity and each repair activity as required. The Permittee shall retain each inspection, maintenance and repair record for a minimum of five years from the date the record was generated, despite any Permittee document retention policy to the contrary. These records shall be kept at the Refinery. 1. The inspection records shall include: the date of inspection; name of the person conducting the inspection; identification of each section of fence and each gate inspected; and identification of each location where repair or maintenance is required. The inspection report shall be certified as accurate in writing by the person conducting each inspection. 2. The maintenance and repair records shall include: the dates of the repairs or maintenance; a description of the repair and maintenance conducted; and the locations where they occurred. The maintenance and repair records shall be certified as accurate by the person(s) overseeing each maintenance or repair action. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.11		Unless otherwise prohibited by a unit specific fuel restriction, any fuel gas combustion unit may burn refinery fuel gas not taken from the refinery fuel gas system provided that the Permittee install, operate, and maintain a hydrogen sulfide continuous emission monitoring system (CEMS) and flow meter at the fuel gas combustion unit in accordance with the requirements below whenever burning refinery fuel gas not taken directly from the refinery fuel gas system; or as an alternative, combustion units may burn refinery fuel gas not taken from the refinery fuel gas system if sulfur dioxide emissions are monitored under an EPA-approved Alternative Monitoring Plan (AMP), or are categorically exempt, or are inherently low in sulfur content in accordance with NSPS J (or Ja version) 40 CFR 60.104 and/or 60.105 (40 CFR 60.102a and/or 60.107a). [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.12		RECORDKEEPING REQUIREMENTS FOR SIP The Permittee shall maintain for the Refinery a copy of the records required pursuant to the SIP. Records shall be retained at the Refinery. 1. Permanent Records The Permittee shall permanently maintain the following information together with all amendments, revisions, and modifications to this information. a) Design, Construction and Operation Information. The Permittee shall maintain information on the design, construction and operation of each emission facility, emission source, fuel system, stack, structures pertinent to modeling for downwash in Appendix B, and any other information required to conduct sulfur dioxide ambient air quality modeling of emissions from the Refinery. These records shall also include all information required to demonstrate that the equipment

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			identified in Appendix B is installed as described in that Appendix B. Where an activity has been undertaken for changes not requiring a SIP modification, the records shall include a description of each activity and all information required to demonstrate that the activity complies with each applicable requirement pursuant to changes not requiring a SIP modification. The records shall also identify and provide information on the design, construction and operation of each modification or new installation at the Refinery as required by the SIP. b) Information on Sulfur Dioxide Emission Limits, Operational Requirements, and Modeling Parameters. The Permittee shall maintain records at the Refinery. These records include all applicable SIP requirements. 2. Non-Permanent Records The Permittee shall retain the information identified below for a minimum of five years following the date on which the information was obtained, despite any document retention policy to the contrary. This retention period shall be automatically extended upon the Commissioner's written request. a) Monitoring, Testing, and Other Records. The Permittee shall maintain records of all measurements, including: all continuous monitoring system and continuous monitoring device measurements; all performance stack testing measurements and operating conditions during the performance stack tests; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; all adjustments and maintenance performed on these systems or devices; and all other information required or applicable to verify compliance with the SIP. The Permittee shall prepare and maintain records of the one-hour averages for stack sulfur dioxide concentration (ppm); stack diameter, stack velocity and stack temperature; and the sulfur dioxide emission rate in lb/hr to determine compliance with refinery fuel gas SIP emission limitations listed in this Permit. The Permittee shall prepare and maintain records of the one-hour averages of the refinery fuel gas sulfur concentration and fuel gas flow rate to determine compliance with the refinery fuel gas SIP emission limit. Using the one-hour averages, FHR shall calculate the three-hour, twenty four-hour, and annual rolling averages corresponding to the SIP emission limits referenced in the permit. b) Sulfur Dioxide Emissions, Fuel Records and Operations Records. The Permittee shall maintain records to demonstrate compliance with the sulfur dioxide emissions limitations, and fuel use and quality restrictions and operational requirements. These records shall be designed, and the information shall be maintained in a form suitable for the Commissioner to quickly determine compliance with each of the emission limitations, fuel restrictions, and operational requirements of the SIP.

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			(continued below). [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.13		(continued from above) c) Startup, Shutdown, Bypass, and Breakdown Records. The Permittee shall maintain records for each startup, shutdown, bypass and breakdown for each piece of process equipment, control equipment, fuel supply system, emission stack, monitoring system and any other piece of equipment as applicable. These records shall include the date and time of the start and stop of each event. d) Excess Emissions, Exceedances of Fuel Usage and Quality Restrictions and Non-Compliance with Operational Requirements Records. The Permittee shall maintain a record of each exceedance of an emission limitation, fuel use restriction and fuel quality requirement, and operational requirement at the Refinery for each emission point and fuel system subject to the emission limitations, fuel restrictions, and operational requirements of the SIP. The record shall include for each period of exceedance a description of the exceedance, its cause, the magnitude of the exceedance, and the date and time of commencement and cessation of the exceedance. e) Operations Records for CEMs and CMSs. The Permittee shall maintain an operations record for each CEM and CMS used to establish compliance with the terms and conditions of this Order. The operations record shall specify each date and time the CEM or CMS was inoperative and the nature of the CEM or CMS repairs or adjustments. The operations record shall include for each calendar quarter, the percent of time the CEM or CMS was operating and the percent of time the CEM or CMS was not operating. The Permittee shall also record for each calendar quarter, the amount of time the process associated with the CEM or CMS was operated. 3. Record Maintenance The Permittee shall maintain all required documents, records, reports and plans in a format suitable for determination of FHR's compliance with SIP requirements by EPA or MPCA staff. The Permittee shall maintain the information in a form that is easily accessible for inspection by EPA or MPCA staff, and that is available for inspection at all reasonable times. [Title I Condition: 40 CFR 50.4(SO₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.14		REPORTING REQUIREMENTS FOR SIP A. Notifications for SIP Requirements 1. Notification of Process or Control Equipment Shutdown: The Permittee shall notify the Commissioner of shutdown of any control equipment or process equipment governed SIP in accordance with Minn. R. 7019.1000, subp 3. 2. Notification of Process or Control Equipment Breakdown: The Permitt shall notify the Commissioner of breakdowns of control equipment or process equipment governed SIP in

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			accordance with Minn. R. 7019.1000, subp. 2. 3. Notification of CEM or CMS Breakdown: The Permittee shall notify the Commissioner of a breakdown or malfunction of any CEM or CMS used to demonstrate compliance with the terms and conditions of this Permit in the next air quality quarterly report (NSPS excess emissions and 1989 Stipulation Agreement quarterly report) following the breakdown or malfunction. The Permittee shall include the information identified in Minn. R. 7017.1110, subp. 2(B). 4. Notification of CEM or CMS Certification Test and Quality Assurance Audit Test: The Permittee shall notify the Commissioner in writing at least 30 days prior to conducting any CEM or CMS certification test for any CEM or CMS required to be certified pursuant to SIP requirements. The Permittee may request a pretest meeting with the MPCA staff by making the request at least seven days prior to conducting any CEM or CMS certification test for the CEMs or CMS required pursuant to the SIP requirements. The Permittee shall notify the Commissioner in writing at least seven days prior to conducting calendar quarter quality assurance audit test procedures for those CEMs or CMSs required. Exceptions to these deadlines may be approved by MPCA on a case-by-case basis. 5. Notification of Performance Tests: The Permittee shall notify the Commissioner of its intent to conduct performance stack tests required pursuant to this Order not less than 30 days prior to conducting each performance stack test as required by Minn. R. 7017.2030. The Permittee may request a pretest meeting with the MPCA staff by making the request at least seven days prior to conducting a performance stack test. The test date is subject to the Commissioner's approval and shall be approved by the Commissioner at least 15 days before the planned test date. Exceptions to these deadlines may be approved by MPCA on a case-by-case basis. 6. Notification of Regularly Scheduled Turnaround on any Tail Gas Treating (TGTU) Unit: The Permittee shall notify the Commissioner in writing 30 days prior to performing regularly scheduled turnaround (scheduled unit shutdown for maintenance) on any TGTU Unit. (continued below). [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.15		(continued from above) B. Quarterly Reports The Permittee shall submit to the Commissioner each calendar quarter, a report that contains the following information: sulfur dioxide emissions, refinery fuel gas sulfur content or equivalent stack gas SO2 concentration (in a form that allows direct comparison with the requirements of the SO2 SIP); a record of each steam-air decoke event; a record of each startup, shutdown, bypass and breakdown of process and

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			control equipment that results in a deviation from the requirements of the SO₂ SIP; a summary record of excess sulfur dioxide emissions, exceedances of fuel usage and quality requirements and noncompliance with operational requirements, or the Permittee shall state if no exceedances or noncompliance conditions occurred in the quarter; a summary of CEM and CMS operation records including the amount of time the process equipment was operated; and, any quality assurance test results that do not meet the requirements of 40 CFR pt. 60, Appendix F (2010). Quarterly reports shall be postmarked within 30 days following the end of each calendar quarter. Upon written notification by the Commissioner, the Permittee may cease including sulfur dioxide emissions, fuel usage and quality, records of data used in calculating, and calculations of sulfur dioxide emissions, and fuel usage and quality in the quarterly reports. However, the Permittee shall submit this data within 30 days of receipt of a written request by the Commissioner. C. Performance Stack Tests Reports The Permittee shall submit to the Commissioner, reports of each performance stack test conducted pursuant to this order. Performance stack test reports shall be postmarked no later than 45 days following completion of the performance stack test, unless otherwise approved by the MPCA. D. CEM Certification Test Results The Permittee shall submit to the Commissioner, the results of each CEM certification test required pursuant to the SIP. Certification test reports shall be postmarked no later than 45 days after the CEM certification test date, unless otherwise approved by the MPCA. E. CEM and CMS Audit Test Results The Permittee shall submit to the Commissioner, the results of quarterly cylinder gas audits and annual relative accuracy tests. Submitted results of quarterly audits and annual relative accuracy tests shall be included in the quarterly report for the quarter in which they were conducted. [Title I Condition: 40 CFR 50.4(SO₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.16		GENERAL CONDITIONS FOR SIP REQUIREMENTS A. Before the Permittee begins operation of new or modified equipment not specifically allowed by the SIP and which results in additional sulfur dioxide emissions, or changes to sulfur dioxide emission patterns assumed in the modeling presented in Appendix B, the Permittee shall obtain a modification to this Permit; B. The SIP is meant to delineate Minnesota's strategy for attainment in the Pine Bend area from the present into the future, and is not an admission that the restrictions in 40 CFR Sections 52.24 (a) and (b) (1991) previously applied or currently apply to the Pine Bend area. C. This permit does not relieve FHR of the obligation in undertaking all actions required by the SIP provisions, to

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			comply with all applicable local, State and Federal laws and regulations, including, but not limited to, federal new source performance standards, and laws and regulations related to occupational safety and health. In the event there is a conflict in applicable federal or state or local laws or regulations, the more stringent of the conflicting provisions shall apply. D. The MPCA, EPA or their authorized representatives shall have authority to enter all property of the Permittee in Rosemount, Minnesota, at all reasonable times for the purposes of inspecting records, operating logs and contracts related to the Permittee's compliance with SIP Conditions; reviewing the progress of the Permittee in implementing of the SIP Conditions; conducting such tests as the EPA or MPCA deem necessary to determine compliance with SIP; and verifying the data submitted to the EPA and MPCA by the Permittee. The Permittee shall honor all reasonable requests for such access by the EPA or MPCA staff, conditioned only upon presentation of proper credentials. This section does not limit any other right of entry and inspection held by the EPA and MPCA pursuant to applicable federal or state laws, rules or permits. E. The Title I SIP Conditions in this Permit shall be binding upon the Permittee and its respective officers, employees, successors and assigns. FHR shall provide a copy of this Permit to any successor in interest prior to transfer of that interest, and shall simultaneously inform the MPCA that this notice has been given. Should the Permittee sell or otherwise convey or assign any of its right, title or interest in the Refinery, such conveyance shall not release the Permittee from any obligation imposed SIP Conditions, unless the party to whom the right, title or interest has been transferred or assigned agrees in writing to fulfill the obligations of this Permit and the MPCA finds that the new owner has the ability to fulfill the obligations of this Permit, and approves such transfer or assignment. F. The SIP mandates actions and establishes limits necessary to attain, maintain and verify compliance with the federal sulfur dioxide NAAQS by FHR. To the extent that any federal or state statute, rule, permit, order, stipulation agreement, consent decree or schedule of compliance now in force or subsequently issued imposes limits and requires actions additional to or more stringent than those required in the Permit, FHR shall also comply with the requirements of the federal or state statute, rule, permit, order, stipulation agreement, consent decree or schedule of compliance. G. Once US EPA approves this Permit as part of the Minnesota SIP, this Permit shall supersede the requirements of all previous SIP revisions, as they apply to FHR. [Title I Condition: 40 CFR 50.4(SO₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.1.17		Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply

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			with all requirements contained in Appendices A (Insignificant Activities and Likely Applicable Requirements); C (Consent Decree); E (Mr. Greg Nizich's e-mail EPA referred to MACT GGGGG NOCS Report dated 11/3/2006); F (FUGI9 PM, PM10, PM2.5 Calculations); G (COMG103 VOC Calculations); H (Subject Item Details Report). Modeling parameters in Appendices B (Title I Conditions: Stack Parameters Relied Upon in the Modeling to Demonstrate Compliance with the National Ambient Air Quality Standards for Sulfur Dioxide (SO₂)); and D (Stack Parameters Relied Upon in the Modeling to Demonstrate Compliance with the National Ambient Air Quality Standards for Particulate Matter less than 10 microns (PM₁₀)) are included for reference only as described elsewhere in this permit. [Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M), Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-7009.0080, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.18		List of Insignificant Activities Required to be Listed: Appendix A includes activities and sources at the facility that have been determined to be insignificant activities under Minn. R. 7007.1300. This list is subject to change. [Minn. R. 7007.0800, subp. 2, Minn. R. 7007.1300]
	5.1.19		Recordkeeping for Non-Contact Cooling Water: Maintain plans and specifications showing non-contact cooling water does not contact hydrocarbons or oily water and is not recirculated through a cooling tower if excluding cooling water system from 40 CFR pt. 60, subp. QQQ requirements. [40 CFR 60.692-1(d)(2)-(4), Minn. R. 7011.1435, subp. C]
	5.1.20		Fuel Restriction: The Permittee shall not combust refinery fuel oil in any process heater or boiler located at the refinery. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.1.21		MAAQS Compliance: The Permittee shall maintain or support ambient air H ₂ S or TRS monitoring near the facility to demonstrate compliance with the H ₂ S MAAQS. Investigate and report any potential deviations from the H ₂ S standard along with any needed changes to the H ₂ S Management plan in the quarterly report that is due 3 months after receipt of qualified data. If the Permittee elects to discontinue ambient air monitoring for H ₂ S, the Permittee shall submit a dispersion model that demonstrates compliance with the MAAQS. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M), Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-7009.0080, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.22		PERMIT SHIELD: Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of

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			each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements. This permit shall not alter or affect the liability of the Permittee for any violation of applicable requirements prior to or at the time of permit issuance. [Minn. R. 7007.1800, (A)(2)]
	5.1.23		Comply with Fugitive Emission Control Plan: The Permittee shall follow the actions and recordkeeping specified in the control plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors as requested by the Commissioner. This requirement applies to the paved roads at the ATS Storage Terminal only and is effective on startup of the ATS Storage Terminal. [Minn. R. 7007.0100, Minn. R. 7007.0800, subp. 2, Minn. R. 7009.0020, Minn. R. 7011.0150, Minn. Stat. 116.07, subd. 4a]
	5.1.24		These requirements apply if a reasonable possibility (RP) as defined in 40 CFR Section 52.21(r)(6)(vi) exists that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test (either by itself or as part of the hybrid test at Section 52.21(a)(2)(iv)(f)) and found to not be part of a major modification, may result in a significant emissions increase (SEI). If the ATPA test is not used for the project, or if there is no RP that the proposed project could result in a SEI, these requirements do not apply to that project. The Permittee is only subject to the Preconstruction Documentation requirement for a project where a RP occurs only within the meaning of Section 52.21(r)(6)(vi)(b). Even though a particular modification is not subject to New Source Review (NSR), or where there isn't a RP that a proposed project could result in a SEI, a permit amendment, recordkeeping, or notification may still be required by Minn. R. 7007.1150 - 7007.1500. [Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000]
	5.1.25		Preconstruction Documentation -- Before beginning actual construction on a project, the Permittee shall document the following: 1. Project description 2. Identification of any emission unit whose emissions of an NSR pollutant could be affected 3. Pre-change potential emissions of any affected existing emission unit, and the projected post-change potential emissions of any affected existing or new emission unit.

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			4. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded due to increases not associated with the modification and that the emission unit could have accommodated during the baseline period, an explanation of why the amounts were excluded, and any creditable contemporaneous increases and decreases that were considered in the determination. The Permittee shall maintain records of this documentation. [Minn. R. 7007.0800, subps. 4-5, Minn. R. 7007.1200, subp. 4, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000]
	5.1.26		The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using the ATPA test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using potential emissions in the hybrid test. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if the hybrid test was used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000]
	5.1.27		The Permittee must submit a report to the Agency if the annual summed (actual, plus potential if used in hybrid test) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain: a. The name and ID number of the Facility, and the name and telephone number of the Facility contact person. b. The annual emissions (actual, plus potential if any part of the project was analyzed using the hybrid test) for each pollutant for which the preconstruction projection and significant emissions increase are exceeded c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000]
	5.1.28		The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA. [Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M), Minn. R. 7007.0800, subp. 4, Minn. R.

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			7007.0800, subps. 1-2, Minn. R. 7009.0010-7009.0080, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.29		Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted. [Minn. R. 7011.0020]
	5.1.30		Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in this permit. [Minn. R. 7007.0800, subp. 16(J), Minn. R. 7007.0800, subp. 2]
	5.1.31		Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation. [Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 16(J)]
	5.1.32		Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate. [Minn. R. 7019.1000, subp. 4]
	5.1.33		Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150. [Minn. R. 7011.0150]
	5.1.34		Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7030.0010-7030.0080]
	5.1.35		Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A). [Minn. R. 7007.0800, subp. 9(A)]
	5.1.36		The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16. [Minn. R. 7007.0800, subp. 16]
	5.1.37		Malfunction: Any sudden, infrequent, and not reasonably

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			preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. [40 CFR 60.2, Minn. R. 7011.0050]
	5.1.38		Operation requirement for NSPS Sources: at all times, including periods of startup, shutdown, and malfunction, the Permittee shall maintain and operate any affected facility in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015]
	5.1.39		Operation requirement for NESHAP FF Sources: at all times, including startup, shutdown, and malfunction, the Permittee shall maintain and operate the source, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the source. [40 CFR 61.12(c), Minn. R. 7011.9900]
	5.1.40		Air Pollution Control Equipment: The following control equipment downtime of TREA24-36, TREA49, TREA50, TREA83, TREA87, TREA88, is not itself a deviation during downtime if the applicable permit limit requirement is met. The Permittee shall keep a record of the duration of downtime. [Minn. R. 7007.0800, subp. 16(J), Minn. R. 7007.0800, subp. 2]
	5.1.41		Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in this permit. [Minn. R. ch. 7017]
	5.1.42		Performance Test Notifications and Submittals Performance Tests are due as outlined in this permit. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test The Notification, Test Plan, and Test Report may be submitted in an alternative format as allowed by Minn. R. 7017.2018. [Minn. R. 7017.2018, Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2]
	5.1.43		Limits set as a result of a performance test (conducted before

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			or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change. [Minn. R. 7017.2025, subp. 3]
	5.1.44		Opacity Performance Testing: As provided in Minn. R. 7017.2020, subp. 2, the Permittee may conduct performance testing required by this permit as included in an approved performance test plan. The Permittee shall be certified in Method 9. The number of tests shall be determined by the Permittee and MPCA. [Minn. R. ch. 7017]
	5.1.45		Visible Emission Monitoring: The Permittee shall submit to the MPCA a 30-day notification if the Permittee has to perform a Method 9 test based on periodic visible emission monitoring unless more immediate testing is required by this permit. The Method 9 test shall be conducted for a minimum of 1-hour. [Minn. R. 7007.0800, subp. 6]
	5.1.46		The Permittee is authorized to install a CEM on any emission unit subject to this permit, and, once certified, utilize that CEM to demonstrate compliance with any applicable limit. Once the CEM is installed and certified, any duty limits established pursuant to stack tests utilized to demonstrate compliance with a relevant limit shall no longer apply. For any such CEM, the Permittee shall follow the CEM requirements at Minn. Rs. 7017.1010, 7017.1090 and 7017.1160, and shall submit an administrative permit amendment to incorporate such requirements for the particular emission unit where the CEM is being utilized. [Minn. R. 7017.1006]
	5.1.47		Monitoring Equipment Calibration - The Permittee shall either: 1. Calibrate or replace required monitoring equipment every 12 months; or 2. Calibrate at the frequency stated in the manufacturer's specifications. For each monitor, the Permittee shall maintain a record of all calibrations, including the date conducted, and any corrective action that resulted. The Permittee shall include the calibration frequencies, procedures, and manufacturer's specifications (if applicable) in the Operations and Maintenance Plan. Any requirements applying to continuous emission monitors are listed separately in this permit. [Minn. R. 7007.0800, subp. 4(D)]
	5.1.48		Operation of Monitoring Equipment: Unless noted elsewhere in this permit, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system. [Minn. R. 7007.0800, subp. 4(D)]
	5.1.49		Recordkeeping: Retain all records at the stationary source,

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			unless otherwise specified within this permit, for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A). [Minn. R. 7007.0800, subp. 5(C)]
	5.1.50		Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes. [Minn. R. 7007.0800, subp. 5(B)]
	5.1.51		If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format. [Minn. R. 7007.1200, subp. 4]
	5.1.52		Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over. [Minn. R. 7019.1000, subp. 3]
	5.1.53		Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the

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			cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over. [Minn. R. 7019.1000, subp. 2]
	5.1.54		Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment. [Minn. R. 7019.1000, subp. 1]
	5.1.55		Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. [Minn. R. 7019.1000, subp. 1]
	5.1.56		Fugitive Emissions Control Plan: The Permittee shall submit a fugitive emissions control plan for the paved roads at the ATS Storage Terminal location within 60 days of the date of permit no. 03700011-012 issuance for review and approval by the Commissioner. The plan will become effective on startup of the ATS Storage Terminal. The plan shall identify all road fugitive emission sources, primary and contingent control measures and record keeping. The Permittee shall follow the actions and record keeping specified in the control plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive emission control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors. [Minn. R. 7009.0020, Minn. R. 7007.0800, subp. 2, Minn. R. 7007.0100, Minn. R. 7011.0150, Minn. Stat. 116.07, subd. 4a]
	5.1.57		Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed. Upon adoption of a new or amended federal applicable requirement, and if there are more than 3 years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150 -

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			7007.1500]
	5.1.58		Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H). [Minn. R. 7007.1400, subp. 1(H)]
	5.1.59		Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner. [Minn. R. 7019.3000-7019.3100]
	5.1.60		Emission Fees: due 30 days after receipt of an MPCA bill. [Minn. R. 7002.0005-7002.0095]
	5.1.61		The Permittee must submit a Risk Management Plan (RMP) under 40 CFR pt. 68. Each owner or operator of a stationary source, at which a regulated substance is present above a threshold quantity in a process, shall design and implement an accidental release prevention program. An initial RMP must be submitted no later than the latest of the following dates: 1) June 21, 1999; 2) Three years after the date on which a regulated substance is first listed under 40 CFR Section 68.130; or 3) The date on which a regulated substance is first present above a threshold quantity in a process. A full update and resubmission of the RMP is required at least once every five years. The five-year anniversary date is reset whenever the Permittee fully updates and resubmits their RMP. Submit RMPs to the Risk Management Plan Reporting Center, P.O. Box 1515, Lanham-Seabrook, Maryland 20703-1515. RMP information may be obtained at http://www.epa.gov/swercepp or by calling 1-800-424-9346. [40 CFR pt. 68]
	5.1.62		The Permittee shall comply with the requirements of National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR pt. 63, subp. DDDDD, if applicable, as specified under 40 CFR Section 63.7490, by the applicable deadlines as specified under 40 CFR Section 63.7495. Compliance date for existing sources is January 31, 2016 or as subsequently modified by applicable regulatory amendment or judicial order. [40 CFR pt. 63, subp. DDDDD, Minn. R. 7011.7050]
	5.1.63		Equipment subject to National Emission Standards for Hazardous Air Pollutants for Site Remediation, 40 CFR pt. 63, subp. GGGGG following 40 CFR pt. 61, subp. FF for compliance is required to follow the general provisions of 40 CFR pt. 61, subp. A, not 40 CFR pt. 63, subp. A. Such equipment is therefore exempt from Startup, Shutdown and Malfunction plans and related documentation and reporting requirements. (See 10/31/2006 email from Mr. Greg Nizich USEPA

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			referenced in MACT GGGGG NOCS report dated 11/3/2006, Appendix E.). [40 CFR pt. 63, subp. GGGGG, Minn. R. 7011.8010]
	5.1.64		When transferring remediation material off-site the Permittee must transfer the remediation material to a facility that meets the requirements in 40 CFR Section 63.7936(b). The Permittee must record the name, street address, and telephone number of the facility where the remediation material was sent. [40 CFR 63.7936(a)&(b), Minn. R. 7011.8010]
	5.1.65		Each shipment of remediation material that is being transferred off-site must include a notice with each shipment that states the remediation material contains organic HAP that are to be treated according to the provisions of this subpart. Receiving facility must have submitted to the EPA a written certification that the facility will manage remediation material according to the requirements of 40 CFR Sections 63.7885 through 63.7957. [40 CFR 63.7936(b)(3), Minn. R. 7011.8010]
	5.1.66		For changes that do not require a permit amendment but are subject to section 112(j) of the Clean Air Act: 1. The Permittee shall submit a Part 1 MACT application within 30 days of startup of any 112(j) affected source. The application shall meet the requirements of 40 CFR Section 63.53(a). 2. The Permittee shall submit a Part 2 MACT application within 90 days of startup of any 112(j) affected source. The application shall meet the requirements of 40 CFR Section 63.53(b). The definition of a 112(j) affected source is found at 40 CFR Section 63.51. As of permit issuance, 112(j) affected sources include the following: a. brick and structural clay products manufacturing; and b. clay ceramics manufacturing. [40 CFR 63.52(b)(1), 40 CFR 63.52(e)(1)]
	5.1.67		Benzene Waste Streams: The Permittee shall control benzene waste streams per 40 CFR pt. 61, subp. FF standards and install, operate, and maintain a treatment process to remove or destroy benzene to less than 10 ppmw. [40 CFR 61.342(c), 40 CFR 61.348(b)(1), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.1.68		The Permittee must determine flow-weighted annual average benzene concentration in the stream by collecting samples and analyzing waste streams or utilizing knowledge of the waste per 40 CFR Section 61.355(c). [40 CFR 61.355(c), 40 CFR 61.356(b), Minn. R. 7011.9930(E)]
	5.1.69		Records: The Permittee shall maintain records for NESHAP, Subpart FF equipment. [40 CFR 61.342(g), 40 CFR 61.356, Minn. R. 7011.9930(E)]
	5.1.70		Under 40 CFR pt. 61, subp. FF, the affected source is the entire facility. The Permittee may modify equipment within the facility and add/remove/modify control equipment without additional prior approval consistent with 40 CFR pt. 61, subp.

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			FF. Note, Subpart FF does not require that all benzene waste streams be controlled as long as they are accounted for properly under the rule. [40 CFR 61.05, 40 CFR 61.15, Minn. R. 7011.9900]
	5.1.71		NESHAP, Subpart FF Quarterly Reports: The Permittee shall prepare and submit quarterly NESHAP inspection and certification report due 30 days after end of each calendar quarter. [40 CFR 61.357, 40 CFR 63.655, Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.1.72		NESHAP, Subpart FF Annual Corrective Report: due by April 7th of each year. [40 CFR 61.357(d)(8), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.1.73		Notification: The Permittee shall notify the Administrator within 30 days of a change in the information submitted in the initial notification of applicability of 40 CFR pt. 61, subp. FF if change would affect determination of applicability. [40 CFR 61.10(a)-(d), Minn. R. 7019.0100]
	5.1.74		(Portable Diesel Engines) Power output from portable diesel engines: less than or equal to 6.3696 MMhp-hr per year using a 12-month rolling sum from the sum of all non-exempt portable diesels. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.1.75		The Permittee shall notify the Administrator of intent to conduct a required performance test at least 30 days before the performance test is scheduled. [40 CFR 61.13(c), Minn. R. 7017.2015]
	5.1.76		A final determination to deny any request for a waiver will be in writing and will set forth the specific grounds on which the denial is based. The final determination will be made within 60 days after presentation of additional information or argument; or within 60 days after the final date specified for the presentation if no presentation is made. [40 CFR 60.11(e)(6)-(8), 40 CFR 60.4(a), 40 CFR 60.4(b)(Y), Minn. R. 7017.2015]
	5.1.77		Unless otherwise specified in an applicable subpart, samples shall be analyzed and emissions determined within 30 days after each emission test has been completed. The Permittee shall report the determinations of the emission test to the Administrator by a registered letter sent before the close of business on the 31st day following the completion of the emission test. [40 CFR 61.13(f), Minn. R. 7017.2015]
	5.1.78		Leaks into Cooling Towers: The Permittee shall follow the requirements set forth in Paragraphs 69 (b) and 74 (e) of the Consent Decree between FHR, EPA and MPCA (United States and State of Minnesota v. Koch Petroleum Group, L.P. (now Flint Hills Resources Pine Bend, LLC), Civil Action No. 00-2756, United States District Court for the District of Minnesota), as amended and as applicable to the Pine Bend refinery, for addressing any benzene associated with leaks of process fluids into cooling tower systems for the purpose of compliance with the Benzene Waste NESHAP. Consequently, the point of waste generation under 40 CFR Section 61.341 of any cooling tower

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			subject to these requirements shall be the point where the water is blown down to a sewer drain or other wastewater conveyance. See Appendix C. [40 CFR pt. 61, subp. FF, Minn. R. 7011.9930(E)]
	5.1.79		(Portable Diesel Engines) In the event that a portable diesel engine no longer meets the definition of a nonroad engine, the portable diesel engine shall comply with the applicable provisions of 40 CFR 60 subp. IIII, and 40 CFR 63 subp. ZZZZ stationary compression ignition engine regulations. The Permittee shall maintain a log of the engines that identifies the applicability of 40 CFR 60 subp. IIII, and 40 CFR 63 subp. ZZZZ requirements. [40 CFR pt. 60, subp. IIII, 40 CFR pt. 63, subp. ZZZZ, Minn. R. 7011.2305, Minn. R. 7011.8150]
	5.1.80		(Portable Diesel Engines) The Permittee shall limit Sulfur Dioxide $\leq$ 0.50 pounds per million Btu heat input 3-hour rolling average (Compliance with the fuel sulfur content standard will demonstrate compliance with this requirement). [Minn. R. 7011.2300, subp. 2]
	5.1.81		(Portable Diesel Engines) The Permittee shall limit Opacity $\leq$ 20 percent opacity once operating temperatures have been attained. (visible air contaminants). [Minn. R. 7011.2300, subp. 1]
	5.1.82		(Portable Diesel Engines) Diesel Engines Allowed: The Permittee may bring new portable diesels on-site, remove existing portable diesels, and modify existing portable diesels without applying for a permit amendment. (Limit for NOx Emissions). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.1.83		(Portable Diesel Engines) If and where the Permittee utilizes portable diesel engines according to the definition of nonroad engine per 40 CFR Section 89.2, and chooses not to track such engines against the 6.3696 MMhp-hr limit then: The Permittee shall keep records for each nonroad engine that will include: 1) Date that the nonroad engine is brought onsite. 2) Date that the nonroad engine is taken offsite and/or moved to a different location. 3) Identification number. 4) Rated capacity of the nonroad engine. 5) The model year and date of manufacture (as defined by the applicable nonroad engine rule). 6) Which nonroad provision that the nonroad engine is certified under. 7) Rental company information. 8) Function of the nonroad engine. While on site, each engine shall be labeled in such way that it can be determined that it is a nonroad engine and not one of the permitted engines covered by this air permit. [Minn. R. 7007.0800, subps. 4-5]
	5.1.84		(Portable Diesel Engines) For a nonroad engine that is

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			excluded from any requirements of 40 CFR pt.1068 because it is a stationary engine, the Permittee may not move it or install it in any mobile equipment, except as allowed by the provisions of 40 CFR pt. 1068. The Permittee may not circumvent or attempt to circumvent the residence-time requirements of paragraph (2)(iii) of the nonroad engine definition in 40 CFR Section 1068.30. [40 CFR 1068.101(b)(3)]
	5.1.85		(Portable Diesel Engines) Unless tracked against the 6.3696 MMhp-hr limit, the Permittee shall not have nonroad engines in one location for more than 12 consecutive months. Any engine, or engines, that replaces an engine at a location and that is intended to perform the same or similar function as the engine it replaced will be included in calculating the consecutive time period. [40 CFR 1068.30(nonrd engn)(2)(iii)]
	5.1.86		(Portable Diesel Engines) Definition of Mobile Source, Construction and Maintenance Activities: Diesel engines used to power a mobile source or used for construction or maintenance or repair activities are exempt from the 6.3696 MMhp-hr limit and the nonroad engine requirements of this permit and air permitting amendments. Mobile Source - includes cranes, fork trucks, man lifts, trucks, back hoes, and front end loaders. A diesel located on a mobile source for which the primary activity of the engine is to power equipment other than the mobile source is not covered by this exemption. Maintenance or Repair Activity - includes welders, light plant sandblasters, waterblasters (used to clean heat exchanger bundles), and generators/compressors that are used to operate tools to perform maintenance or repairs. Construction Activity - diesel driven units used temporarily to construct or modify refinery equipment and structures. Diesel driven units that are hooked up to the refinery equipment in order to aid or direct the refinery process, even if it temporary action due to equipment malfunction, are not covered by this exemption. [Minn. R. 7007.1150(B)]
	5.1.87		(Portable Diesel Engines) Recordkeeping: The Permittee shall calculate and record the monthly and the 12-month rolling sum of the total power output from portable diesel engines (MMhp-hr/month and MMhp-hr/yr) by the 28th day of each month for the period with the preceding month. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.1.88		(Portable Diesel Engines) Recordkeeping: Calculate and record the monthly hours of operation in hours per month. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.1.89		(Portable Diesel Engines) Report: due 30 days after end of each calendar quarter following permit issuance if there are

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			any exceedances of MMhp-hr per month and per year. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
COMG 1	GP077	Junction Boxes receiving Wastewater from NSPS QQQ Units not subject to NESHAPs FF	
	5.2.1		Junction box covers shall have a tight seal around the edge and shall be kept in place at all times, except during inspection and maintenance. [40 CFR 60.692-2(b)(2), Minn. R. 7011.1435(C)]
	5.2.2		Junction boxes shall be equipped with a cover and may have an open vent pipe. The vent pipe shall be at least 90 cm (3 ft) in length and shall not exceed 10.2 cm (4 in) in diameter. [40 CFR 60.692-2(b)(1), Minn. R. 7011.1435(C)]
	5.2.3		Junction boxes shall be visually inspected initially and semiannually thereafter to ensure that the cover is in place and to ensure that the cover has a tight seal around the edge. [40 CFR 60.692-2(b)(3), Minn. R. 7011.1435(C)]
	5.2.4		Delayed Repairs: Delay of repair of facilities that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown. Repair of such equipment shall occur before the end of the next refinery or process unit shutdown. [40 CFR 60.692-6(a)-(b), Minn. R. 7011.1435(C)]
	5.2.5		Repair junction boxes: If a broken seal or gap is identified, first effort at repair shall be made as soon as practicable, but not later than 15 calendar days after the broken seal or gap is identified unless qualifying for delay of repair. [40 CFR 60.692-2(b)(4), Minn. R. 7011.1435(C)]
	5.2.6		Record information from drain inspections. [Minn. R. 7011.1435(C)]
	5.2.7		Record: For junction boxes; the location, date, and corrective action shall be recorded for inspections when a broken seal, gap, or other problem is identified that could result in VOC emissions. [40 CFR 60.697(b)(2), Minn. R. 7011.1435(C)]
	5.2.8		Recordkeeping: (1) A copy of the design specifications for all equipment used to comply with the provisions of this subpart shall be kept for the life of the source in a readily accessible location. (2) The following information pertaining to the design specifications shall be kept. (i) Detailed schematics, and piping and instrumentation diagrams. (ii) The dates and descriptions of any changes in the design specifications. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.697(f)(1)-(2)(i)-(ii), Minn. R. 7011.1435(C)]

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	5.2.9		Recordkeeping: (1) If an emission point cannot be repaired or corrected without a process unit shutdown, the expected date of a successful repair shall be recorded. (2) The reason for the delay shall be recorded if an emission point or equipment problem is not repaired or corrected in the specified amount of time. (3) The signature of the Permittee (or designee) whose decision it was that repair could not be effected without refinery or process shutdown shall be recorded. (4) The date of successful repair or corrective action shall be recorded. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.697(e)(1)-(4), Minn. R. 7011.1435(C)]
COMG 2	GP052	Tanks NSPS QQQ	
	5.3.1		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions). [Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit fully satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks.]. [40 CFR 60.11(d), 40 CFR 60.690-699, 40 CFR 63.640(o)(1), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7017.2015]
COMG 3	GP003	ULSD Project CO Emissions	
	5.4.1		The Permittee shall limit Carbon Monoxide <= 66.1 tons per year 365-day rolling sum (EQUI469, EQUI470 and EQUI471). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.4.2		CO Analyzer: The Permittee shall install, calibrate, maintain and operate an analyzer to continuously monitor the CO concentration in the Pressure Swing Adsorption (PSA) feed stream. [Minn. R. 7007.0800, subp. 4]
	5.4.3		Flow Meter: The Permittee shall install, calibrate, maintain and operate one or more flow meter(s) to continuously measure the flow(s) of the "hot" and "cold" vents (upstream and downstream) of the PSA system upon startup of EQUI471. [Minn. R. 7007.0800, subp. 4]
	5.4.4		Bypass Valve Status Monitor: The Permittee shall install, calibrate, maintain and operate monitors to determine bypass valve status and continuously determine whether the bypass valves are open or closed. [Minn. R. 7007.0800, subp. 4]
	5.4.5		Monitoring Equipment Calibration: Calibrate and/or maintain CO analyzer, flow meters and bypass valve according to manufacturer specifications. Maintain documentation showing that the calibrations and/or maintenance has been completed. [Minn. R. 7007.0800, subp. 4(D)]
	5.4.6		CO Calculations and Recordkeeping: The Permittee shall calculate and record the daily and 365-day rolling sum CO emissions from the listed emissions units above. The records may be maintained in either electronic or paper format, unless

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			electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.4.7		CO Calculations: When a bypass valve is open, the flow meter shall be used to monitor the flow to the PSA unit and the CO analyzer shall be used to monitor the CO concentration in the PSA feed stream. [Minn. R. 7007.0800, subp. 5]
	5.4.8		Recordkeeping: The Permittee shall record the daily and the 365-day rolling sum of CO emissions from the PSA bypass vents. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
COMG 4	GP004	ULSD Project VOC Emissions	
	5.5.1		The Permittee shall limit Volatile Organic Compounds $\leq$ 25.7 tons per year 12-month rolling sum (EQUI469, EQUI470, EQUI471, EQUI1131, EQUI1138, FUGI94, and FUGI127). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.5.2		VOC Calculations and Recordkeeping: By the 28th day of each month, the Permittee shall sum and record VOC emissions from the listed emission units for each preceding month and for the previous 12 months (12-month rolling sum). Emissions shall be calculated using the most current AP-42 emission factor for uncontrolled combustion of natural gas unless a different emission factor is developed by the Permittee and approved by the MPCA in accordance with Minn. Rs. 7019.3040 to 7019.3100. Fugitive emissions will be determined on a semi-annual basis after all required monitoring is completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
COMG 5	GP056	Storage Tank Heaters built after June 11, 1973	
	5.6.1		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)(1)]
	5.6.2		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)(2)]
	5.6.3		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with

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			the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.6.4		Fuel Restriction: Authorized to burn natural gas only. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.6.5		Recordkeeping: Record and maintain records of type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
COMG 6	GP080	Stormwater Sewers	
	5.7.1		Record: For stormwater sewer systems subject to the exclusion in 40 CFR Section 60.692-1(d)(1), the Permittee shall keep for the life of the facility in a readily accessible location, plans or specifications which demonstrate that ancillary equipment does not come in contact with or store oily wastewater. [40 CFR 60.697(h), Minn. R. 7011.1435(C)]
COMG 7	GP089	Fugitive LDAR Emission Sources not in VOC or HAP Service	
	5.8.1		Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log or database that is kept in a readily accessible location. [40 CFR pt. 70 (Consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(i)(3), Minn. R. 7007.0800, subp. 2]
COMG 8	GP007	Tanks subject to NSPS UU (each tank)	
	5.9.1		After the compliance dates specified in 40 CFR Section 63.640(h) (8/18/98), a Group 1 or Group 2 storage vessel that is part of an existing source and is also subject to the provisions of 40 CFR pt. 60, subp. Kb is required to comply only with the requirements of 40 CFR pt. 60, subp. Kb. [40 CFR 63.640(n)(1), 40 CFR pt. 60, subp. Kb, 40 CFR pt. 63, subp. CC, Minn. R. 7011.1520, Minn. R. 7011.7280(A)]
	5.9.2		Standards for these tanks only apply while they are storing asphalt. [40 CFR 60.11(d), 40 CFR 60.470(a), Minn. R. 7011.0950, Minn. R. 7017.2015]
	5.9.3		Opacity: Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility, no Permittee subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any asphalt storage tank exhaust gases with opacity greater than 0 percent, except for one consecutive 15-minute period in any 24-hour period when the transfer lines are being blown for clearing. The control device shall not be bypassed during this

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			15-minute period. The Permittee is allowed to undertake preventative maintenance on tank demister control equipment while tank is in service. This is not considered a deviation as long as the opacity standard is met. Limit does not apply during periods of startup, shutdown, and malfunction. [40 CFR 60.11(c), 40 CFR 60.472(c), Minn. R. 7011.0950, Minn. R. 7017.2015]
	5.9.4		In conducting performance tests required in 40 CFR Section 60.8(b), the Permittee shall use as reference methods and procedures the test methods in Appendix A of this part or other methods and procedures so specified in the section, except as provided in 40 CFR Section 60.8(b). [40 CFR 60.474(b), Minn. R. 7011.0950]
	5.9.5		Method 9 and the procedures in 40 CFR Section 60.11 shall be used to determine opacity. [40 CFR 60.474(c)(5), Minn. R. 7011.0950]
	5.9.6		A Permittee subject to the provisions of this subpart and using a control device not mentioned in 40 CFR Section 60.473(a) and (b) shall provide to the Administrator information describing the operation of the control device and the process parameter(s) which would indicate proper operation and maintenance of the device. The Administrator may require continuous monitoring and will determine the process parameters to be monitored. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.473(c), Minn. R. 7011.0950]
	5.9.7		The industry is exempted from the quarterly reports required under 40 CFR Section 60.7(c). The Permittee is required to record and report the operating temperature of the control device during the performance test and, as required by 40 CFR Section 60.7(d), maintain a file of the temperature monitoring results for at least two years. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.473(d), Minn. R. 7011.0950]
	5.9.8		Report: May apply to change opacity standard. [40 CFR 60.11(e)(6)-(8), 40 CFR 60.4(a), 40 CFR 60.4(b)(Y)]
COMG 9	GP009	Tanks subject to VOC Limit (CFP)	
	5.10.1		The Permittee shall limit Volatile Organic Compounds <= 411 tons per year 12-month rolling sum all the tanks listed above. (Netting Limit). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.10.2		Recordkeeping: The Permittee shall record product throughput in barrels (bbl). The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 4]
	5.10.3		Recordkeeping: The Permittee shall record the total VOC emissions from listed tanks in tons/yr as a 12-month rolling average. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly

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			prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
COMG 10	GP115	Sulfur Degassing System	
	5.11.1		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 10 tons per year 12-month rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.11.2		Hydrogen Sulfide: The Permittee shall calculate and record the 12-month rolling sum H ₂ S emissions for the listed units using engineering calculations based on degas operational parameters and annual product sulfur sampling to support these calculations. The records may be maintained in either electronic or paper format, unless electronic or paper record is expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
COMG 11	GP114	Fugitive LDAR Connectors, Misc. All FS numbers are included in this group.	
	5.12.1		If an instrument reading of 500 ppm or greater is measured, a leak is detected. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.12.2		Except for connectors in heavy liquid service, the Permittee shall implement a program to monitor all applicable accessible connectors of 2.0 inches nominal diameter or greater once every four years, with a portion of that facility-wide monitoring to occur annually. This program does not apply to inaccessible or unsafe to monitor connectors, as defined in 40 CFR Section 63.174. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.12.3		If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service, the Permittee shall follow either one of the following procedures: (1) The Permittee shall monitor the equipment within 5 days by the method specified in 40 CFR Section 60.485a(b) and shall comply with the requirements of 40 CFR Section 60.482-8a(b) through (d). (2) The Permittee shall eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection. (b) The Company is required to meet a 500 ppm leak definition as noted in condition 1 for this group. (c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR Section 60.482-9a.

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			(2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected. (d) First attempts at repair include, but are not limited to, the best practices described under 40 CFR Sections 60.482-2a(c)(2) and 60.482-7a(e). [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-8a, Minn. R. 7007.0800, subp. 2]
	5.12.4		Connectors in gas/vapor or light liquid service are exempt from the requirements in 40 CFR Section 60.482-11a, provided the Permittee complies with 40 CFR Section 60.482-8a for all connectors, not just those in heavy liquid service. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.593a(g), Minn. R. 7007.0800, subp. 2]
COMG 13	GP071	Drains subject to NSPS QQQ (sealed w/plug)	
	5.13.1		Each drain must be tightly capped when not in use. May use capped/plugged drains for 40 CFR pt. 60, subp. QQQ compliance if drains are used infrequently; otherwise water/lube oil or equivalent seal drains are required. (EPA ADI 0400030 & 0400031). [40 CFR 60.692-2(a)(4), Minn. R. 7011.1435(C)]
	5.13.2		Inspect: Conduct semi-annual visually inspection of capped or plugged drains. Inspect to ensure caps or plugs are in place and properly installed. [40 CFR 60.692-2(a)(4), Minn. R. 7011.1435(C)]
	5.13.3		Repair: Delay of repair of facilities that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown. Repair of such equipment shall occur before the end of the next refinery or process unit shutdown. [40 CFR 60.692-6(a)-(b), Minn. R. 7011.1435(C)]
	5.13.4		Repairs: Whenever missing or improperly installed caps or plugs are identified, first efforts at repair shall be made as soon as practicable but not later than 24 hours after detection unless qualifying for delay of repair. [40 CFR 60.692-2(a)(5), Minn. R. 7011.1435(C)]
	5.13.5		Record: For individual drain systems, the location, date, and corrective action shall be recorded for each drain when a drain cap or plug is missing or improperly installed, or other problem is identified that could result in VOC emissions, as determined during the periodic visual or physical inspection. [40 CFR 60.697(b)(1), Minn. R. 7011.1435(C)]
	5.13.6		Record: (1) A copy of the design specifications for all equipment shall be kept for the life of the source in a readily accessible location.

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			(2) The following information pertaining to the design specifications shall be kept. (i) Detailed schematics, and piping and instrumentation diagrams and (ii) The dates and descriptions of any changes in the design specifications. [40 CFR 60.697(f)(1)-(2)(i)-(ii), Minn. R. 7011.1435(C)]
	5.13.7		Recordkeeping: (1) If an emission point cannot be repaired or corrected without a process unit shutdown, the expected date of a successful repair shall be recorded. (2) The reason for the delay shall be recorded if an emission point or equipment problem is not repaired or corrected in the specified amount of time. (3) The signature of the Permittee (or designee) whose decision it was that repair could not be effected without refinery or process shutdown shall be recorded. (4) The date of successful repair or corrective action shall be recorded. [40 CFR 60.697(e)(1)-(4), Minn. R. 7011.1435(C)]
COMG 14	GP072	Drains subject to NSPS QQQ active (water seal, lube oil or equivalent)	
	5.14.1		For drains with a water seal/lube oil or equivalent seal at the junction box, flush liquid to the affected junction box via any listed drain cup to verify a water seal/lube oil or equivalent seal. (EPA Approval of Alternate Monitoring Plan dated 4/29/2004). [40 CFR 60.692-2(a)(2), 40 CFR 60.692-2(a)(5), Minn. R. 7011.1435(C)]
	5.14.2		Monthly Inspections: Visually inspect water sealed/lube oil or equivalent sealed drains in active service. Inspect monthly for indications of low liquid levels, cracks, gaps, or leaks that could result in VOC emissions or in lieu of inspection, add water/lube oil or equivalent to the cup. (EPA Approval of Alternate Monitoring Plan dated 4/29/2004). [40 CFR 60.692-2(a)(2), Minn. R. 7011.1435(C)]
	5.14.3		Repair: Delay of repair of facilities that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown. Repair of such equipment shall occur before the end of the next refinery or process unit shutdown. [40 CFR 60.692-6(a)-(b), Minn. R. 7011.1435(C)]
	5.14.4		Repairs: Whenever low liquid levels are identified, liquid shall be added or first efforts at repair shall be made as soon as practicable, but not later than 24 hours after detection. [40 CFR 60.692-2(a)(5), Minn. R. 7011.1435(C)]
	5.14.5		Records: For individual drain systems; the location, date, and corrective action shall be recorded for each drain when the water seal/lube oil or equivalent seal is dry or otherwise breached, when a drain cap or plug is missing or improperly installed, or other problem is identified that could result in

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			VOC emissions, as determined during the initial and periodic visual or physical inspection. [40 CFR 60.697(b)(1), Minn. R. 7011.1435(C)]
	5.14.6		Record: (1) A copy of the design specifications for all equipment used to comply with the provisions of this subpart shall be kept for the life of the source in a readily accessible location. (2) The following information pertaining to the design specifications shall be kept. (i) Detailed schematics, and piping and instrumentation diagrams. (ii) The dates and descriptions of any changes in the design specifications. [40 CFR 60.697(f)(1)-(2)(i)-(ii), Minn. R. 7011.1435(C)]
	5.14.7		In lieu of using water to seal the water sealed drains referenced in COMG14, clean (new) lube oil may be utilized for repair to ensure an emission seal remains in place. [40 CFR 60.692-2(a)(1), Minn. R. 7011.1435(C)]
COMG 15	GP075	Drains subject to NSPS QQQ inactive (equipped with plugs water seal or equivalent)	
	5.15.1		Inspect: Each drain out of active service shall be checked by visual or physical inspection initially and weekly thereafter for indications of low water levels or other problems that could result in VOC emissions. In lieu of inspection, add water/ lube oil or equivalent to the cup. Or alternatively, install a tightly sealed cap or plug over a drain that is out of active service and conduct inspections initially and semiannually to ensure caps or plugs are in place and properly installed. (EPA Approval of Alternate Monitoring Plan dated 4/29/2004). [40 CFR 60.692-2(a)(2)-(4), Minn. R. 7011.1435(C)]
	5.15.2		For drains with a water seal/ lube oil or equivalent seal at the junction box, flush liquid to the affected junction box via any listed drain cup to verify a water seal/ lube oil or equivalent seal. (EPA Approval of Alternate Monitoring Plan dated 4/29/2004). [40 CFR 60.692-2(a)(2), 40 CFR 60.692-2(a)(5), Minn. R. 7011.1435(C)]
	5.15.3		Repair: Delay of repair of facilities that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown. Repair of such equipment shall occur before the end of the next refinery or process unit shutdown. [40 CFR 60.692-6(a)-(b), Minn. R. 7011.1435(C)]
	5.15.4		Record: (1) A copy of the design specifications for all equipment used to comply with the provisions of this subpart shall be kept for the life of the source in a readily accessible location. (2) The following information pertaining to the design

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			specifications shall be kept. (i) Detailed schematics, and piping and instrumentation diagrams. (ii) The dates and descriptions of any changes in the design specifications. [40 CFR 60.697(f)(1)-(2)(i)-(ii), Minn. R. 7011.1435(C)]
	5.15.5		Record: For individual drain systems, the location, date, and corrective action shall be recorded for each drain when a drain cap or plug is missing or improperly installed, or other problem is identified that could result in VOC emissions, as determined during the periodic visual or physical inspection. [40 CFR 60.697(b)(1), Minn. R. 7011.1435(C)]
	5.15.6		Repair: Whenever low liquid levels or missing or improperly installed caps or plugs are identified, water, lube oil or equivalent shall be added or first efforts at repair shall be made as soon as practicable, but not later than 24 hours after detection, unless qualifying for delay of repair. [40 CFR 60.692-2(a)(5), Minn. R. 7011.1435(C)]
	5.15.7		If the Permittee elects to install a tightly sealed cap or plug over a drain that is out of active service, the Permittee shall keep for the life of a facility in a readily accessible location, plans or specifications which indicate the location of such drains. [40 CFR 60.697(g), Minn. R. 7011.1435(C)]
COMG 16	GP058	Equipment subject to both NESH FF controls and NSPS QQQ	
	5.16.1		Subject to 40 CFR pt. 61, subps. A and FF requirements. Compliance with 40 CFR pt. 61, subp. FF and 40 CFR pt. 61, subp. A requirements as listed in this permit fully satisfies 40 CFR pt. 60, subps. A and QQQ, 40 CFR pt. 63, subps. A and CC requirements. [40 CFR 60.690-699, 40 CFR 60.692-3(a)(4)-(5), 40 CFR 60.692-3(b), 40 CFR 60.692-3(c)(2), 40 CFR 60.692-3(d)-(e), 40 CFR 60.692-5(a), 40 CFR 63.640(o)(1), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A)]
COMG 17	GP132	Fugitive Equipment in Natural Gas (non-VOC) Service	
	5.17.1		For new fugitive equipment in natural gas service added to FUGI82, FUGI127 and FUGI75 authorized by the #3 Crude/Coker Improvements Permit, and FUGI122 for the Combined Heat and Power Plant, and FUGI132 for the Pine Bend Technology and Efficiency Improvement Projects, comply with the LDAR requirements in COMG 11, COMG84, COMG85, COMG86, COMG87 and COMG92. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
COMG 22	GP062	Oil/water separators w/fixed roof subject to NSPS QQQ and NESH FF	

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		w/CVS & control device	
	5.18.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.18.2		The Permittee shall install, operate, and maintain a fixed-roof and closed-vent system that routes all organic vapors vented from the oil-water separator to a control device. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.692-3(a), 40 CFR 60.692-3(b), 40 CFR 61.347(a)(1), 40 CFR 61.352(b), Minn. R. 7011.1435(C), Minn. R. 7011.9930(E)]
	5.18.3		Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the oil-water separator except when it is necessary to use the opening for waste sampling or removal, or for equipment inspection, maintenance, or repair. [40 CFR 61.347(a)(1)(i)(B), Minn. R. 7011.9930(E)]
	5.18.4		The cover and all openings (e.g., access hatches, sampling ports, and gauge wells) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv initially and annually by Method 21 monitoring. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.347(a)(1)(i)(A), Minn. R. 7011.9930(E)]
	5.18.5		The Permittee shall test equipment for compliance with no detectable emissions as required in accordance with the following requirements: (1) Monitoring shall comply with Method 21 from Appendix A of 40 CFR pt. 60. (2) The detection instrument shall meet the performance criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. (5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum

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			concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 61.355(h), 40 CFR 61.356(h), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.18.6		Delayed Repairs: Delay of repair of facilities or units that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 60.692-6, 40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.18.7		Repairs: When a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification unless qualifying for delay or repair. [40 CFR 60.692-3(a)(5), 40 CFR 61.347(c), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.18.8		Quarterly Inspection: Each cover, seal and access hatch and all other openings shall be visually inspected quarterly to ensure that no cracks or gaps occur between the cover and oil-water separator wall and that access hatches and other openings are closed and gasketed properly. [40 CFR 60.692-3(a)(4), 40 CFR 61.347(b), 40 CFR 61.356(g), 40 CFR 61.357(d)(8), Minn. R. 7011.1435(C), Minn. R. 7011.9930(E)]
	5.18.9		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. The Permittee shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.697(c), 40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.18.10		Maintain records of the following:

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			(1) The date, location, and corrective action for each visual inspection required by 40 CFR Section 60.693-2(a)(5), during which a broken seal, gap, or other problem is identified that could result in benzene emissions. (2) Results of the seal gap measurements required by 40 CFR Section 60.693-2(a). [40 CFR 61.356(l), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 23	GP128	Stationary Diesels (Spark Ignition 4SRB) Subject to MACT ZZZZ	
	5.19.1		At all times, including periods of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1), 40 CFR 63.6605, 40 CFR 63.8(c), Minn. R. 7011.8150]
	5.19.2		By the compliance date of May 3, 2013, the Permittee must comply with the requirements for existing SI Stationary RICE as outlined in 40 CFR pt. 63, subp. ZZZZ, Table 2c. [40 CFR 63.6600, 40 CFR 63.6602, 40 CFR 63.6640, 40 CFR pt. 63, subp. ZZZZ(Table 2c), Minn. R. 7011.8150]
	5.19.3		By the compliance date of May 3, 2013, the Permittee has the option of utilizing an oil analysis program rather than following the requirements in 40 CFR pt. 63, subp. ZZZZ, Table 2c or 2d. [40 CFR 63.6625(j), Minn. R. 7011.8150]
COMG 24	GP104	Refinery Emergency Flares and Flare System (for Consent Decree Flare Policy)	
	5.20.1		The Permittee shall limit Opacity <= 0 percent opacity from flares except a total 5 minutes in any 2 consecutive hours; limit does not apply during the periods of startup, shutdown, or malfunction. [40 CFR 60.11(c), 40 CFR 60.18(c), 40 CFR 60.482-10a(d), 40 CFR 60.485a(g), 40 CFR 60.692-5(c), 40 CFR 61.349(a)(2)(iii)&(d), 40 CFR 63.11(b)(4), Minn. R. 7011.0050, Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.2015]
	5.20.2		Operation Limit: Flares must meet maximum velocity and minimum heat content requirements. [40 CFR 60.18, 40 CFR 60.482-10a(d), 40 CFR 60.485a(g), 40 CFR 60.692-5(c), 40 CFR 61.349(a)(2)(iii), 40 CFR 61.349(d), Minn. R. 7011.0050, Minn. R. 7011.1435(C), Minn. R. 7011.9930(E)]
	5.20.3		Control device and closed vent system: shall be operated at all times when waste is placed in the waste management unit vented to the control device except when maintenance or repair of the waste management unit cannot be completed without a shutdown of the control device. [40 CFR 61.349(b), 40 CFR 61.654(a), Minn. R. 7011.9930(E)]
	5.20.4		All flares must be steam-assisted, air-assisted, or non-assisted.

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			[40 CFR 60.18(c)(3), 40 CFR 60.692-5(c), 40 CFR 63.11(b)(2), Minn. R. 7011.0050, Minn. R. 7011.1435(C), Minn. R. 7011.7000]
	5.20.5		Hydrocarbon Flare Systems: The refinery flare system and associated controls, which include flare gas recovery compressors, shall be designed, maintained, and operated in accordance with a refinery flare policy for the control of refinery gases from unplanned and infrequent events (i.e., malfunctions) in a safe manner and to ensure that gases resulting from refinery operations, including gases from scheduled startups and shutdowns of refinery process units, shall not be flared except during unplanned and infrequent events. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.20.6		The associated items of COMG24 may not receive gases from Refinery operations unless the gases are from pressure relief, are from upsets of Refinery process equipment, or are required for equipment maintenance which includes startup and shutdown. Compliance with this requirement is shown by complying with the Hydrocarbon Flare Systems requirement above. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.20.7		Fuel Restriction: The Permittee shall use only commercial natural gas or nitrogen for purge system and commercial natural gas at the pilot flame in all flares. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.20.8		Flares shall be operated with pilot flame present at all times when emissions may be vented to them. [40 CFR 60.18, 40 CFR 60.482-10a(d), 40 CFR 60.485a(g), 40 CFR 60.692-5(c), 40 CFR 61.12(a), 40 CFR 61.349(a)(2)(iii), 40 CFR 61.354(c)(3), 40 CFR 63.11(b)(3)&(5), Minn. R. 7011.0050, Minn. R. 7011.1435(C), Minn. R. 7011.7000, Minn. R. 7011.9900, Minn. R. 7011.9930(E)]
	5.20.9		Operate the flare system in conformance with the Flare Policy. Operation of the flare system in conformance with the Flare Policy constitutes good air pollution control practices pursuant to 40 CFR Section 60.11(d) and ensures that Hydrocarbon Flaring is not subject to the emission limitation monitoring, or other requirements for refinery fuel gas found in 40 CFR Sections 60.100-60.109. (2001 EPA Consent Decree as amended). [40 CFR 60.105(a)(4), CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7011.1435(A)]
	5.20.10		Conduct performance test if requested by Administrator per section 114 of the Clean Air Act, as amended. [40 CFR 61.13, 40 CFR 63.7(a)(3), Minn. R. 7017.2015]
	5.20.11		Monitor existence of flare pilot flame with thermocouple or equivalent device to detect the presence of a flame. [40 CFR 60.18(f), 40 CFR 60.482-10a(d), 40 CFR 60.485a(g), 40 CFR 60.692-5(c), 40 CFR 63.11, Minn. R. 7011.0050, Minn. R. 7011.1435(C), Minn. R. 7011.7000, Minn. R. 7017.1010, subp.

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	5.20.12		Closed vent system and control device shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv initially and annually by Method 21 monitoring. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(a)(1)(i), 40 CFR 61.349(a)(1)(i), 40 CFR 61.355(h), 40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.20.13		The Permittee shall test equipment for compliance with no detectable emissions as required in accordance with the following requirements: (1) Monitoring shall comply with Method 21 from appendix A of 40 CFR pt. 60. (2) The detection instrument shall meet the performance criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. (5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 61.355(h), 40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.20.14		Each closed-vent system and control device shall be visually inspected initially and quarterly. The visual inspection shall include inspection of ductwork and piping and connections to covers and control devices for evidence of visible defects such as holes in ductwork or piping and loose connections. [40 CFR 60.482-10a(f)(1)(ii), (g)(1), (g)(2), (k)(5), 40 CFR 61.349(f), 40 CFR 61.356(g), 40 CFR 61.356(h), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.20.15		For each control device, maintain documentation that includes the following information regarding the control device operation: (1) Dates of startup and shutdown of the closed-vent system and control device; (2) A description of the operating parameter (or parameters) to be monitored to ensure that the control device will be operated in conformance with these standards and the control device's design specifications and an explanation of the criteria

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			used for selection of that parameter (or parameters). This documentation shall be kept for the life of the control device; and (3) Periods when the closed-vent system and control device are not operated as designed including all periods and the duration when: Any valve car-seal or closure mechanism is broken or the by-pass line valve position has changed and The flow monitoring devices indicate that vapors are not routed to the control device as required. [40 CFR 61.356(j), 40 CFR 61.356(j)(1), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.20.16		(a) Delay of repair of facilities or units will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. (b) Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.20.17		If visible defects are observed during an inspection, or if other problems are identified, or if detectable emissions are measured, a first effort to repair the closed-vent system and control device shall be made as soon as practicable but no later than 5 calendar days after detection. Repair shall be completed no later than 15 calendar days after the emissions are detected or the visible defect is observed. [40 CFR 61.349(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.20.18		Retain at the source and make available, upon request, for inspection by the Administrator, for a minimum of 2 years, records of emission test results and other data needed to determine emissions. [40 CFR 61.13(g), 40 CFR 61.356, 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.2015]
	5.20.19		The owner or operator of a control device that is used to comply with the provisions of this section shall monitor the control device in accordance with 40 CFR Section 61.354(c). [40 CFR 61.349(h), 40 CFR 61.354(c), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.20.20		Submit Quarterly Air Quality and Excess Emissions Report. Cover letter, certification, and summary of exceedances shall be submitted in hardcopy or electronic format; all other information may be submitted electronically. [40 CFR 60.18(c)(1) & (2), 40 CFR 60.4(a) & (b)(Y), 40 CFR 60.952-5(c), Minn. R. 7007.0500, subp. 3]
	5.20.21		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Section 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the

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			corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. The Permittee shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.20.22		Maintain continuous records of the flare pilot flame monitoring and records of all periods during which the pilot flame is absent. [40 CFR 61.356(i)(7), Minn. R. 7011.9930(E)]
	5.20.23		Maintain and implement a written flare management plan that includes the information in 40 CFR Section 60.103a(a)(1) through (a)(7) by November 11, 2015. Plan must be submitted to the Administrator and EPA. [40 CFR 60.103a(a)(1)-(7), 40 CFR 60.103a(b)(1)-(3)]
	5.20.24		Conduct a root cause analysis and corrective action analysis for the conditions given in 40 CFR Section 60.103a(1) through (3) after November 11, 2015 for this part. [40 CFR 60.103a(c)(1)-(3)]
	5.20.25		Implement corrective actions identified within the timeframes given after November 11, 2015. [40 CFR 60.103a(e)(1)-(3)]
	5.20.26		Determine the total reduced sulfur concentration of flare gas for applicable flares by one of the methods provided by November 11, 2015. [40 CFR 60.107a(e)(1)-(3)]
	5.20.27		Install, operate, calibrate and maintain a CPMS to measure and record the flow rate of gas discharged to the flare by November 11, 2015. [40 CFR 60.107a(f)(1)-(2)]
	5.20.28		Flares that can be classified as emergency, secondary, or are equipped with flare gas recovery to capture all flows except those resulting from startup, shutdown or malfunction, (less than five reportable events in any 365 consecutive calendar days) may use the alternative methods to sulfur and flow monitoring requirements by November 11, 2015. [40 CFR 60.107a(g)(1)-(7)]
	5.20.29		Maintain Records and report as given per the relevant flare requirements of 40 CFR Section 60.108a(c) after November 11, 2015. [40 CFR 60.108a(c)]
COMG 25	GP059	Containers subject to NESH FF; w/vac trucks to	

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		haul NESH FF waste	
	5.21.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.21.2		The Permittee shall install, operate, and maintain a cover on each container used to handle, transfer, or store waste in accordance with the following requirements: each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the container except when it is necessary to use the opening for waste loading, removal, inspection, or sampling. [40 CFR 61.345(a)(1), 40 CFR 61.345(a)(1)(ii), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.21.3		When a waste is transferred into a container by pumping, the Permittee shall perform the transfer using a submerged fill pipe. The submerged fill pipe outlet shall extend to within two fill pipe diameters of the bottom of the container while the container is being loaded. During loading of the waste, the cover shall remain in place and all openings shall be maintained in a closed, sealed position except for those openings required for the submerged fill pipe, those openings required for venting of the container to prevent physical damage or permanent deformation of the container or cover, and any openings complying with 40 CFR Section 60.345(a)(4). [40 CFR 61.345(a)(2), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.21.4		Treatment of a waste in a container, including aeration, thermal or other treatment, must be performed by the Permittee in a manner such that while the waste is being treated the container meets the standards specified in 40 CFR Section 61.345(a)(3)(i) through (iii), except for covers and closed-vent systems that meet the requirements in 40 CFR Section 61.345(a)(4). [40 CFR 61.345(a)(3), Minn. R. 7011.9930(E)]
	5.21.5		The Permittee transferring the waste offsite to another facility where the waste is treated shall: (1) Comply with the NESHAP FF standards for each waste management unit that receives or manages the waste prior to shipment of the waste offsite. (2) Include with each offsite waste shipment a notice stating that the waste contains benzene which is required to be managed and treated. [40 CFR 61.342(f)(2), 40 CFR 61.355(k)(2)(iii), 40 CFR 61.356(c), Minn. R. 7011.9930(E)]
	5.21.6		The Permittee shall test equipment for compliance with no detectable emissions as required in accordance with the following requirements: (1) Monitoring shall comply with Method 21 from appendix A of 40 CFR pt. 60. (2) The detection instrument shall meet the performance

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			criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. (5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 61.355(h), 40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.21.7		Delayed Repairs: Delay of repair of facilities or units that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.21.8		Repairs: when a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification. [40 CFR 61.345(c), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.21.9		The cover and all openings (e.g., bungs, hatches, and sampling ports) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv initially and annually by Method 21 monitoring. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.354(a)(1)(i), Minn. R. 7011.9930(E)]
	5.21.10		Quarterly Inspection: Each cover and all openings shall be visually inspected quarterly to ensure that they are closed and gasketed properly. [40 CFR 61.345(b), 40 CFR 61.356(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.21.11		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the

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			corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 61.356(g), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.21.12		The Permittee shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 27	GP135	Combustion Turbine and Duct Burners	
	5.22.1		The Permittee shall limit Nitrogen Oxides ≤ 27.7 tons per year 365-day rolling sum. For the first 364 days after initial certification of the NOx CEMS, NOx emissions are limited as determined by the following equation: $E = 27.7 \times [0.15 + 0.85(D/365)]$ where E = NOx emissions in total tons D = number of days after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.2		The Permittee shall limit Nitrogen Oxides ≤ 25 parts per million 30-day rolling average at 15 percent O ₂ or 150 ng/J of useful output (1.2 lb/MWh). when EQUI367 is operating at 75% load or greater and at temperatures greater than 0 degrees F. For purposes of determining compliance with the NOx limits on a ppm basis, the procedures specified in 40 CFR pt. 60, subp. KKKK shall be used. The Permittee shall calculate a new 30-day average for each unit operating day which is the average of all hourly NOx emissions rates for the preceding 30 unit operating days in which a valid NOx emission rate is obtained for at least 75 percent of all operating hours. For operating periods during which the two different limits apply, the allowable emission rate is the average of the applicable limit during each hour. The higher limit applies for the hour if any point in the hour, the unit was subject to the higher limit. [40 CFR 60.4320(a), 40 CFR 60.4380(b)(1), 40 CFR 60.4380(b)(3), 40 CFR pt. 60, subp. KKKK(Table 1)]
	5.22.3		The Permittee shall limit Nitrogen Oxides ≤ 96 parts per million 30-day rolling average at 15 percent O ₂ or 590 ng/J of

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			useful output (4.7 lb/MWh) when EQUI367 is operating at less than 75% load or less than 0 degrees F. For purposes of determining compliance with the NOx limits on a ppm basis, the procedures specified in 40 CFR pt. 60, subp. KKKK shall be used. The Permittee shall calculate a new 30-day average for each unit operating day which is the average of all hourly NOx emissions rates for the preceding 30 unit operating days in which a valid NOx emission rate is obtained for at least 75 percent of all operating hours. For operating periods during which the two different limits apply, the allowable emission rate is the average of the applicable limit during each hour. The higher limit applies for the hour if any point in the hour, the unit was subject to the higher limit. [40 CFR 60.4320(a), 40 CFR 60.4380(b)(1), 40 CFR 60.4380(b)(3), 40 CFR pt. 60, subp. KKKK (Table 1)]
	5.22.4		The Permittee shall limit Carbon Monoxide ≤ 66.9 tons per year 365-day rolling sum. For the first 364 days after initial certification of the CO CEMS, CO emissions are limited as determined by the following equation: $E = 66.9 \times [0.15 + 0.85(D/365)]$ where E = CO emissions in total tons D = number of days after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.5		The Permittee shall limit Volatile Organic Compounds ≤ 28.0 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.6		The Permittee shall limit PM < 10 micron ≤ 0.0057 pounds per million Btu heat input 3-hour average as demonstrated by the performance test requirements set forth below in Section 6 of the Subject Item (COMG27). (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.22.7		The Permittee shall limit PM < 10 micron ≤ 3.8 pounds per hour 3-hour average measured as filterable and condensable PM using Method 5 and 201A for filterable PM and Method 202 for condensable PM as demonstrated by the performance test requirements set forth below in Section 6 of the Subject Item (COMG27). (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.22.8		The Permittee shall limit PM < 2.5 micron ≤ 0.0057 pounds per million Btu heat input 3-hour average as demonstrated by the performance test requirements set forth below in Section 6 of the Subject Item (COMG27). (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.22.9		The Permittee shall limit PM < 2.5 micron ≤ 3.8 pounds per hour 3-hour average measured as filterable and condensable PM using Method 5 and 201A for filterable PM and Method 202 for condensable PM as demonstrated by the performance test requirements set forth below in Section 6 of the Subject

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			Item (COMG27). (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.22.10		The Permittee shall limit Carbon Dioxide Equivalent ≤ 1000 pounds per megawatt-hour 12-month rolling average gross output, where gross output is determined by the following equation: $P_{gross} = (P_{ect} + P_{est}) / 0.95 + 0.75 * P_t$ where P_{ect} = electric output of combustion turbine in MWh P_{est} = electric output of steam turbine in MWh P_t = useful thermal energy output in MWh The first full compliance period will be 365 days after initial startup of EQUI367 and EQUI368. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.22.11		The Permittee shall limit Sulfur Dioxide ≤ 110 nanograms per joule heat input (0.90 lb/MWh) gross output or the Permittee must not burn any fuel in EQUI367 which contains total potential sulfur emissions in excess of 26 ng SO ₂ /J (0.060 lb SO ₂ /MMBtu) heat input. [40 CFR 60.4330(a)]
	5.22.12		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. The PTE of this source is 0.0014 lb/mmBtu. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.22.13		The Permittee shall limit Total Particulate Matter ≤ 0.1 pounds per million Btu heat input 3-hour rolling average (0.18 grams per million cal). The PTE of this source is 0.0057 lb/mmBtu. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(C)(1)]
	5.22.14		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 27 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(C)(2)]
	5.22.15		Use methods in 40 CFR pt. 98, subp. C including flow monitoring of fuel usage and fuel gas analysis. Calculate emissions following procedures specified in 40 CFR pt. 98, subp. C with a conversion from metric tons to short tons. The Permittee shall calculate and record the monthly and 12-month Rolling Sum of CO _{2e} emissions and gross output by the 28th day of each month for the 12-month Rolling Sum periods ending on the last day of the preceding month. [40 CFR pt. 98, subp. C, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.22.16		Fuel Restriction: Authorized to burn pipeline natural gas as defined in 40 CFR Section 72.2 only. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.22.17		Fuel Flowrate: The Permittee shall calibrate, operate and maintain a continuous monitoring system (CMS) that records

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			the fuel flowrate to EQUI367 and EQUI368. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.18		Recordkeeping for NOx Emissions: The Permittee shall calculate and record the daily and 365-day Rolling Sum of NOx emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.19		Recordkeeping for CO Emissions: The Permittee shall calculate and record the daily and 365-day Rolling Sum of CO emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.20		Compliance with the CO limit indicated by the CO CEMS demonstrates compliance with the VOC limit. The Permittee shall record and compare CO CEMS emissions data during VOC performance testing of COMG27, with results of the VOC testing. This compliance demonstration method shall be valid only if testing demonstrates that VOC emissions comply with the applicable VOC limit at the same time that CO emissions (measured by the CO CEMS) comply with the applicable CO limit, and the CO CEMS certification testing has been satisfactorily completed. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.21		Recordkeeping: The Permittee shall maintain records verifying use of pipeline natural gas as defined in 40 CFR Section 72.2. Normal business records may be utilized for this purpose. [40 CFR 72.2, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.22.22		The Permittee must comply with the Initial Notification requirements set forth in 40 CFR Section 63.6145 but need not comply with any other requirements of 40 CFR pt. 63, subp. YYYY until EPA takes final action to require compliance and publishes a document in the Federal Register. [40 CFR 63.6095(d), Minn. R. 7011.8120]
	5.22.23		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.22.24		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.22.25		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.22.26		The Permittee shall install, calibrate, operate and maintain NOx and O2 CEMS in accordance with 40 CFR pt. 60, Appendix

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			B and Appendix F. [40 CFR 60.4340(b)(1), Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.27		The Permittee shall install, operate, and maintain CO and O2 CEMS in accordance with 40 CFR pt. 60, Appendix B and Appendix F. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.22.28		Nitrogen Oxides: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a NOx continuous emissions monitoring system (CEMS). [CAAA of 1990, Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.22.29		Carbon Monoxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a CO continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.22.30		Nitrogen Oxides: Emissions Measuring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU89. [Minn. R. 7017.1006]
	5.22.31		Carbon Monoxide: Emissions Measuring: The Permittee shall use a CO CEMS to measure CO emissions from STRU89. [Minn. R. 7017.1006]
	5.22.32		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160]
	5.22.33		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.22.34		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.22.35		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.22.36		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information

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			required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.22.37		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.22.38		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.22.39		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.22.40		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.22.41		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.22.42		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.22.43		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the

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			part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.22.44		O2 QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.22.45		Each NOx diluent CEMS must be installed and certified according to Performance Specification 2 (PS 2) in 40 CFR pt. 60, Appendix B, except the 7-day calibration drift is based on unit operating days, not calendar days. With state approval, Procedure 1 in 40 CFR pt. 60, Appendix F is not required. Alternatively, a NOx diluent CEMS that is installed and certified according to 40 CFR pt. 75, Appendix A is acceptable for use. The relative accuracy test audit (RATA) of the CEMS shall be performed on a lb/mmBtu basis. [40 CFR 60.4345(a)]
	5.22.46		As specified in 40 CFR Section 60.13(e)(2), during each full unit operating hour, both the NOx monitor and the diluent monitor must complete a minimum of one cycle of operation (sampling, analyzing and data recording) for each 15-minute quadrant of the hour, to validate the hour. For partial unit operating hours, at least one valid data point must be obtained with each monitor for each quadrant of the hour in which the unit operates. For unit operating hours in which required quality assurance and maintenance activities are performed on the CEMS, a minimum of two valid data points (one in each of two quadrants) are required for each monitor to validate the NOx emission rate for the hour. [40 CFR 60.4345(b)]
	5.22.47		Each fuel flowmeter shall be installed, calibrated, maintained and operated according to the manufacturer's instructions. Alternatively, with state approval, fuel flowmeters that meet the installation, certification and quality assurance requirements of 40 CFR pt. 75, Appendix D are acceptable for use. [40 CFR 60.4345(c)]
	5.22.48		Each watt meter, steam flow meter and each pressure or temperature measurement device shall be installed, calibrated, maintained and operated according to the manufacturer's instructions. [40 CFR 60.4345(d)]
	5.22.49		The Permittee shall develop and keep on-site a quality assurance (QA) plan for all of the continuous monitoring equipment described in 40 CFR Section 60.4345(a), (c) and (d). For the CEMS and fuel flow meters, the Permittee may, with state approval, satisfy the requirements of 40 CFR Section 60.4345(e) by implementing the QA program and plan described in section 1 of 40 CFR pt. 75, Appendix B. [40 CFR 60.4345(e)]
	5.22.50		For combined cycle and combined heat and power units with

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			heat recovery, use the calculated hourly average emission rates from 40 CFR Section 60.4350(f) to assess excess emissions on a 30 unit operating day rolling average basis, as described in 40 CFR Section 60.4380(b)(1). [40 CFR 60.4350(h)]
	5.22.51		The Permittee must monitor the total sulfur content of the fuel being fired in EQUI367, except as provided in 40 CFR Section 60.4365. The sulfur content of the fuel must be determined using total sulfur methods described in 40 CFR Section 60.4415. Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than half the applicable limit, ASTM D4084, D4810, D5504 or D6228, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see 40 CFR Section 60.17), which measure the major sulfur compounds, may be used. [40 CFR 60.4360]
	5.22.52		The Permittee may elect not to monitor the total sulfur content of the fuel combusted in EQUI367, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO ₂ /J (0.060 lb SO ₂ /mmBtu) heat input for units located in continental areas and 180 ng SO ₂ /J (0.42 lb SO ₂ /mmBtu) heat input for units located in noncontinental areas or a continental area that the Administrator determines does not have access to natural gas and that the removal of sulfur compounds would cause more environmental harm than benefit. The Permittee must use one of the following sources of information to make the required demonstration: (a) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total sulfur content for oil use in continental areas is 0.05 weight percent (500 ppmw) or less and 0.4 weight percent (4000 ppmw) or less for noncontinental areas, the total sulfur content for natural gas use in continental areas is 20 grains of sulfur or less per 100 standard cubic feet and 140 grains of sulfur or less per 100 standard cubic feet for noncontinental areas, has potential sulfur emissions of less than 26 ng SO ₂ /J (0.060 lb SO ₂ /mmBtu) heat input for continental areas and has potential sulfur emissions of less than 180 ng SO ₂ /J (0.42 lb SO ₂ /mmBtu) heat input for noncontinental areas; or (b) Representative fuel sampling data which show that the sulfur content of the fuel does not exceed 26 ng SO ₂ /J (0.060 lb SO ₂ /MMBtu) heat input for continental areas or 180 ng SO ₂ /J (0.42 lb SO ₂ /MMBtu) heat input for noncontinental areas. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 of this chapter is required. [40 CFR 60.4365]
	5.22.53		The Permittee shall install, calibrate and maintain an ambient temperature monitor per manufacturer's instruction. Alternatively, the Permittee may rely on National Weather Service temperature data from Minneapolis St. Paul International Airport to determine applicable NO _x concentration requirement under 40 CFR pt. 60, subp. KKKK

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			Table 1. [40 CFR pt. 60, subp. KKKK(Table 1)]
	5.22.54		All continuous monitoring systems (CMS) required under 40 CFR pt. 60, subp. KKKK shall be subject to the provisions of this section upon promulgation of performance specifications for CMS under 40 CFR pt. 60, Appendix B and, if the CMS is used to demonstrate compliance with emission limits on a continuous basis, 40 CFR pt. 60, Appendix F, unless otherwise specified in an applicable subpart or by the Administrator. [40 CFR 60.13(a), Minn. R. 7017.1010]
	5.22.55		All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests under 40 CFR Section 60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device. [40 CFR 60.13(b), Minn. R. 7017.1010]
	5.22.56		Except as provided in 40 CFR Section 60.13(c)(1), the Permittee shall furnish the Administrator within 60 days of completion two or, upon request, more copies of a written report of the results of the performance evaluation. [40 CFR 60.13(c)(2), Minn. R. 7017.1010]
	5.22.57		The Permittee must check the zero (or low level value between 0 and 20% of span value) and span (50 to 100% of span value) calibration drifts at least once daily in accordance with a written procedure. The zero and span must, as a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit of the applicable performance specification in 40 CFR pt. 60, Appendix B. The system must allow the amount of excess zero and span drift to be recorded and quantified whenever specified. The Permittee must automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. [40 CFR 60.13(d)(1), Minn. R. 7017.1010]
	5.22.58		Except for system breakdowns, repairs, calibration checks and zero and span adjustments required under 40 CFR Section 60.13(d), all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows: All CMS referenced by 40 CFR Section 60.13(c) for measuring emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing and data recording) for each successive 15-minute period. [40 CFR 60.13(e), Minn. R. 7017.1010]
	5.22.59		All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of 40 CFR pt. 60, Appendix B shall be used. [40 CFR 60.13(f), Minn. R. 7017.1010]

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	5.22.60		(i) Except as provided under 40 CFR Section 60.13(h)(2)(iii), for a full operating hour (any clock hour with 60 minutes of unit operation), at least four valid data points are required to calculate the hourly average, i.e. one data point in each of the 15-minute quadrants of the hour. (ii) Except as provided under 40 CFR Section 60.13(h)(2)(iii), for a partial operating hour (any clock hour with less than 60 minutes of unit operation), at least one valid data point in each 15-minute quadrant of the hour in which the unit operates is required to calculate the hourly average. (iii) For any operating hour in which required maintenance or quality assurance activities are performed: (A) If the unit operates in two or more quadrants of the hour, a minimum of two valid data points, separated by at least 15 minutes, is required to calculate the hourly average, or (B) If the unit operates in only one quadrant of the hour, at least one valid data point is required to calculate the hourly average. (iv) If a daily calibration error check is failed during any operating hour, all data for that hour shall be invalidated, unless a subsequent calibration error test is passed in the same hour and the requirements of 40 CFR Section 60.13(h)(2)(iii) are met, based solely on valid data recorded after the successful calibration. (v) For each full or partial operating hour, all valid data points shall be used to calculate the hourly average. (vi) Except as provided under 40 CFR Section 60.13(h)(2)(vii), data recorded during periods of continuous monitoring system breakdown, repair, calibration checks and zero and span adjustments shall not be included in the data averages computed under this paragraph. (vii) Permittees complying with the requirements of 40 CFR Section 60.7(f)(1) or (2) must include any data recorded during periods of monitor breakdown or malfunction in the data averages. (viii) When specified in an applicable subpart, hourly averages for certain partial operating hours shall not be computed or included in the emission averages (e.g. hours with < 30 minutes of unit operation under 40 CFR Section 60.47b(d)). (ix) Either arithmetic or integrated averaging of all data may be used to calculate the hourly averages. The data may be recorded in reduced or nonreduced form (e.g. ppm pollutant and percent O₂ or ng/J of pollutant). [40 CFR 60.13(h)(2)(i)-(ix), Minn. R. 7017.1010]
	5.22.61		All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in the applicable subpart. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the applicable subpart to specify the emission limit. [40 CFR 60.13(h)(3), Minn. R. 7017.1010]
	5.22.62		The initial performance test required under 40 CFR Section 60.8 may be performed in the following alternative manner:

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			a) Perform a minimum of nine RATA reference method runs, with a minimum time per run of 21 minutes, at a single load level, within plus or minus 25% of 100% peak load. The ambient temperature must be greater than 0 deg F during the RATA runs. b) For each RATA run, concurrently measure the heat input to the unit using a fuel flow meter (or flow meters) and measure the electrical and thermal output from the unit. c) Use the test data both to demonstrate compliance with the applicable NOx emission limit under 40 CFR Section 60.4320 and to provide the required reference method data for the RATA of the CEMS described under 40 CFR Section 60.4335. d) Compliance with the applicable emission limit in 40 CFR Section 60.4320 is achieved if the arithmetic average of all of the NOx emission rates for the RATA runs, expressed in ppm or lb/MWh, does not exceed the emission limit. [40 CFR 60.4405]
	5.22.63		The Permittee must submit reports of excess emissions and monitor downtime, in accordance with 40 CFR Section 60.7(c). Excess emissions must be reported for all periods of unit operation, including start-up, shutdown and malfunction. [40 CFR 60.4375]
	5.22.64		The Permittee shall submit a notification of any physical or operational change to EQUI367 or EQUI368 which increases emission rate: due 60 days (or as soon as practical) before the change is commenced. [40 CFR 60.7(a)(4), Minn. R. 7019.0100, subp. 1]
	5.22.65		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]
	5.22.66		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the Administrator on a case-by-case basis, determines that more frequent reporting is necessary. All reports shall be postmarked by the 30th day following the end of each six-month period and shall include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.4395, 40 CFR 60.7(c), Minn. R. 7019.0100, subp. 1]
	5.22.67		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the

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			total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100, subp. 1]
	5.22.68		The Permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR pt. 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records except as described in paragraphs (1) and (2) of 40 CFR Section 60.7(f). [40 CFR 60.7(f), Minn. R. 7019.0100, subp. 1]
	5.22.69		If notification substantially similar to that in 40 CFR Section 60.7(a) is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of 40 CFR Section 60.7(a). [40 CFR 60.7(g), Minn. R. 7019.0100, subp. 1]
	5.22.70		Individual subparts of 40 CFR pt. 60 may include specific provisions which clarify or make inapplicable the provisions set forth in this section. [40 CFR 60.7(h), Minn. R. 7019.0100, subp. 1]
	5.22.71		At all times, including periods of startup, shutdown and malfunction, the Permittee shall, to the extent possible, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015]
	5.22.72		For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed. [40 CFR 60.11(g), Minn. R. 7017.2015]
	5.22.73		Unless the Permittee has requested and received prior permission from the Administrator to submit less than the information in 40 CFR Section 63.5(d), the notification must include the information required on the application for approval of construction as specified in 40 CFR Section 63.5(d)(1)(i). [40 CFR 63.9(b)(5)(iii), Minn. R. 7019.0100]
	5.22.74		The Permittee shall maintain files of all information required

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			by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks or on microfiche. [40 CFR 63.10(b), Minn. R. 7019.0100]
	5.22.75		The Permittee must submit all of the notifications in 40 CFR Sections 63.7(b) and (c), 63.8(e), 63.8(f)(4) and 63.9(b) and (h) that apply by the dates specified. [40 CFR 63.6145(a), Minn. R. 7011.8120]
	5.22.76		As specified in 40 CFR Section 63.9(b), the Permittee must submit an Initial Notification not later than 120 days after becoming subject to 40 CFR pt. 63, subp. YYYY. [40 CFR 63.6145(c), Minn. R. 7011.8120]
COMG 28	GP011	Diesel Engines with SIP Conditions and <83.3 hr/mon	
	5.23.1		The Permittee shall limit Sulfur Dioxide $\leq$ 0.50 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel sulfur content standard will demonstrate compliance with this requirement. [Minn. R. 7011.2300, subp. 2]
	5.23.2		The Permittee shall limit Opacity $\leq$ 20 percent opacity once operating temperatures have been attained. (visible air contaminants). [Minn. R. 7011.2300, subp. 1]
	5.23.3		The Permittee shall limit Sulfur Dioxide $\leq$ 0.002 pounds per hour 3-hour rolling average. This limit applies to EQUI328. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.4		The Permittee shall limit Sulfur Dioxide $\leq$ 0.002 pounds per hour 24-hour rolling average. This limit applies to EQUI328. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.5		The Permittee shall limit Sulfur Dioxide $\leq$ 0.009 tons per year 12-month rolling average. This limit applies to EQUI328. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.6		The Permittee shall limit Sulfur Dioxide $\leq$ 0.004 pounds per hour 3-hour rolling average. This limit applies to EQUI326. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]

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	5.23.7		The Permittee shall limit Sulfur Dioxide <= 0.004 pounds per hour 24-hour rolling average. This limit applies to EQUI326. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.8		The Permittee shall limit Sulfur Dioxide <= 0.02 tons per year 12-month rolling average. This limit applies to EQUI326. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.9		The Permittee shall limit Sulfur Dioxide <= 0.004 pounds per hour 1-hour average. This limit applies to EQUI326. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.23.10		The Permittee shall limit Sulfur Dioxide <= 0.016 pounds per hour 3-hour rolling average. This limit applies to EQUI514. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.11		The Permittee shall limit Sulfur Dioxide <= 0.016 pounds per hour 24-hour rolling average. This limit applies to EQUI514. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.12		The Permittee shall limit Sulfur Dioxide <= 0.07 tons per year 12-month rolling average. This limit applies to EQUI514. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.13		The Permittee shall limit Sulfur Dioxide <= 0.016 pounds per hour 1-hour average. This limit applies to EQUI514. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.23.14		The Permittee shall limit Sulfur Dioxide <= 0.008 pounds per hour 3-hour rolling average. This limit applies individually to EQUI486, EQUI489, EQUI497, EQUI502, EQUI567, EQUI325, EQUI327, EQUI329, EQUI365 and EQUI366. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.15		The Permittee shall limit Sulfur Dioxide <= 0.008 pounds per hour 24-hour rolling average. This limit applies individually to EQUI486, EQUI489, EQUI497, EQUI502, EQUI567, EQUI325, EQUI327, EQUI329, EQUI365 and EQUI366. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.16		The Permittee shall limit Sulfur Dioxide <= 0.04 tons per year 12-month rolling average. This limit applies individually to EQUI486, EQUI489, EQUI497, EQUI502, EQUI567, EQUI325, EQUI327, EQUI329, EQUI365 and EQUI366. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.17		The Permittee shall limit Sulfur Dioxide <= 0.008 pounds per

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			hour 1-hour average. This limit applies individually to EQUI486, EQUI489, EQUI497, EQUI502, EQUI567, EQUI325, EQUI327, EQUI329, EQUI365 and EQUI366. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.23.18		The Permittee shall limit Operating Hours <= 1000 hours per year 12-month rolling sum. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.19		The Permittee shall limit Sulfur Content of Fuel <= 0.0015 percent by weight of diesel fuel. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.20		Fuel Restriction: Authorized to burn diesel fuel only. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.21		Total power output from COMG28 diesel engines: less than or equal to 0.23 MMhp-hr per month using a 12-month rolling average. (Netting Limit for NOx). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.23.22		Recordkeeping of Hours of Operation: By the 28th day of each month, record the hours of operation for each engine for the previous month. Sum the hours of operation for the previous 12 months and record the 12-month rolling sum for the period ending with the preceding month. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.23		Diesel Fuel Certification: The Permittee shall retain records demonstrating sulfur content is less than 0.0015 percent by weight. Certificates of Analysis retained onsite demonstrating generally that all FHR diesel meets the federal ULSD standard satisfies this requirement. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.24		Recordkeeping for NOx Netting Limit: The Permittee shall calculate and record the monthly and the 12-month rolling average of the total power output from COMG28 engines (MMhp-hr/month) by the 28th day of each month. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.23.25		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of

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			hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.23.26		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
COMG 29	GP015	FCC Catalyst Transfers	
	5.24.1		The Permittee shall limit Total Particulate Matter ≤ 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. [Minn. R. 7011.0710, subp. 1(A)]
	5.24.2		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This emission limit applies to each Subject Item in this group. [Minn. R. 7011.0710, subp. 1(B)]
COMG 32	GP057	Emission Units subject to Minn. R. built after June 11, 1973	
	5.25.1		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), Minn. R. 7011.1435(A), Minn. R. 7011.1490, subp. 2]
	5.25.2		The Permittee shall limit Total Particulate Matter ≤ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)(1)]
	5.25.3		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)(2)]
	5.25.4		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per

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			million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.25.5		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.25.6		Recordkeeping: Record and maintain records of type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
COMG 34	GP032	NSPS K Tanks w/fixed roof & CVS/CD & > 40,000 gals	
	5.26.1		If storing a petroleum liquid, and if the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia) the storage vessel shall be equipped with a floating roof, a vapor recovery system or their equivalents. [40 CFR 60.112(a)(1), Minn. R. 7011.1520(A)]
	5.26.2		If storing a petroleum liquid, and if the true vapor pressure of the petroleum liquid, as stored, is greater than 570 mm Hg (11.1psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent. [40 CFR 60.112(a)(2), Minn. R. 7011.1520(A)]
	5.26.3		May not store a material that is >4% organic HAPs (annual average) per Table 1 of 40 CFR pt. 63, subp. CC AND has an annual average true vapor pressure >8.3kPa. [40 CFR 63.641, Minn. R. 7011.1520(A), Minn. R. 7011.7280(A)]
COMG 35	GP044	Tanks MN R 1969-73 and > 65,000 gals	
	5.27.1		For tanks storing petroleum liquids listed in Minn. R. 7011.1500, subp. 8, the Permittee shall comply with the following requirements: (1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 128 mm Hg (2.5 psia) but not greater than 642 mm Hg (12.5 psia) the storage vessel shall be equipped with a floating roof, a vapor recovery system or their equivalents. (2) If the true vapor pressure of the petroleum liquid, as stored, is greater than 642 mm Hg (12.5 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent. [Minn. R. 7011.1505, subp. 2(C)]
COMG 36	GP045	Tanks MN R 1969-73 and > 2,000-65,000 gals	
	5.28.1		For tanks storing petroleum liquids listed in Minn. R. 7011.1500, subp. 8, the Permittee shall equip the storage vessel (as defined in Minn. R. 7011.1500, subp. 10) with a permanent submerged fill pipe or comply with the following requirements:

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			(1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents. (2) If the true vapor pressure of the petroleum liquid as stored is greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent. [Minn. R. 7011.1500, subp. 10, Minn. R. 7011.1505, subp. 2(B)]
COMG 37	GP047	Tanks MN R post 1973 and >2,000 - 40,000 gals	
	5.29.1		For tanks storing petroleum liquids listed in Minn. R. 7011.1500, subp. 8, the Permittee shall equip the storage vessel (as defined in Minn. R. 7011.1500, subp. 10) with a permanent submerged fill pipe or comply with the following requirements: (1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents. (2) If the true vapor pressure of the petroleum liquid as stored is greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent. [Minn. R. 7011.1500, subp. 10, Minn. R. 7011.1505, subp. 3(B), Minn. R. 7011.1505, subp. 3(C)]
COMG 38	GP053	EFR tank/basin subject to NESHAPs FF following the requirements of Kb	
	5.30.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.30.2		As an alternative to the standards for tanks specified in 40 CFR Section 61.343; the Permittee may elect to comply with one of the following: (1) A fixed roof and internal floating roof meeting the requirements in 40 CFR Section 60.112b(a)(1); (2) An external floating roof meeting the requirements of 40 CFR Section 60.112b (a)(2); or (3) An alternative means of emission limitation as described in 40 CFR Section 60.114b. If the Permittee elects to comply with the provisions of this section, then the Permittee is exempt from the provisions of 40 CFR Section 61.343 of this subpart applicable to the same facilities. [40 CFR 61.351(a)(1), 40 CFR 61.351(b), 40 CFR 61.356(k), 40 CFR 61.357(f), 40 CFR 63.655(a), Minn. R.

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			7011.7280(A), Minn. R. 7011.9930(E)]
	5.30.3		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions). Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit fully satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks. [40 CFR 61.351(a)(1), 40 CFR 63.640(o)(1), 40 CFR 63.647(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.30.4		Comply with requirements of COMG72 (NSPS, subp. Kb for External Floating Roof Tanks). [40 CFR 61.351(a), 40 CFR 61.351(a)(1), 40 CFR 61.351(b), 40 CFR 61.356(k), 40 CFR 61.357(f), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 41	GP112	Sulfur Recovery Units	
	5.31.1		The Permittee shall limit Sulfur Dioxide $\leq$ 428 tons per year 365-day rolling sum. Emissions from acid gas flaring incidents are not included in the calculations of emissions against the caps. Effective 10/2/04 and for the first 365 days after this date, SO ₂ emissions in tons/year are limited as determined by the following equation: $E = 428[0.15 + 0.85(D/365)]$ where E = SO ₂ emissions in total tons since 10/2/04 D = number of days since 10/2/04. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.31.2		The Permittee shall limit Carbon Monoxide $\leq$ 608 tons per year 365-day rolling sum. Emissions from acid gas flaring incidents are not included in the calculations of emissions against the caps. Effective 10/2/04 and for the first 365 days after this date, CO emissions in tons/year are limited as determined by the following equation: $E = 608[0.15 + 0.85(D/365)]$ where E = CO emissions in total tons since 10/2/04 D = number of days since 10/2/04. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.31.3		SO ₂ and CO Recordkeeping: The Permittee shall record the hourly, daily, and 365-day rolling average emission rate of SO ₂ and CO for No. 3, 4 and 5 sulfur recovery units and tail gas treatment units. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]

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	5.31.4		CEMS requirements for CO (See additional CEMS requirements under STRU83, STRU139 and STRU140). [Minn. R. 7007.0800, subp. 2]
	5.31.5		Emissions Monitoring: The Permittee shall calibrate, operate and maintain CO continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.31.6		CO Emissions Measuring: The Permittee shall use a CO CEMS to measure sulfur recovery units (No. 3, 4 and 5) emissions from STRU83 and STRU139. [Minn. R. 7017.1006]
	5.31.7		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160]
	5.31.8		The Permittee shall meet the requirements for bypass lines set forth in 40 CFR Section 63.1569. [40 CFR 63.1569(a)&(c), Minn. R. 7011.7280(B)]
	5.31.9		Comply with the provisions of the Alternative Work Practice Plans for Bypass Lines and Sulfur Pits - Alternative Work Practice Plans approved by EPA on 5/27/2005 and 11/10/2008 or as subsequently approved. [40 CFR 63.1569(a)(2), Minn. R. 7011.7280(B)]
	5.31.10		Prepare and implement an operation, maintenance, and monitoring plan according to the requirements in 40 CFR Section 63.1574(f) and operate at all times according to the procedures in the plan. [40 CFR 63.1568(a)(3), 40 CFR 63.1574(f), Minn. R. 7011.7280(B)]
	5.31.11		At all times, including periods of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1)(i)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280, Minn. R. 7017.2015, subp. 2(A)&(B)]
	5.31.12		Correct malfunctions as soon as practicable in accordance with the startup, shutdown, and malfunction plan. [40 CFR 63.6(e)(1)(ii)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.31.13		Record occurrence of startup, shutdown, and malfunction of process equipment or of malfunction or maintenance of air pollution control equipment. Document conformance with or deviation from startup/shutdown/malfunction plan. [40 CFR 63.10(b)(2)(i)-(v), 40 CFR 63.1570(d), 40 CFR 63.6(e)(3)(iii)-(iv), Minn. R. 7011.7000, Minn. R. 7011.7280(B), Minn. R. 7019.0100]
	5.31.14		Maintain up-to-date startup, shutdown, malfunction plan (SSMP). [40 CFR 63.6(e)(1)(iii), 40 CFR 63.6(e)(2), 40 CFR 63.6(e)(3)(i)-(ii), 40 CFR 63.6(e)(3)(v)-(vii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.31.15		If a malfunction occurs that was not addressed in the startup, shutdown, and malfunction plan (SSMP), revise the SSMP within 45 days after the event. [40 CFR 63.6(e)(3)(viii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
COMG 43	GP122	Liquid Butane Storage Facility	

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	5.32.1		(i) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in 40 CFR pt. 60, subp. VVa, 40 CFR Section 60.485a(b). A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. (ii) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements 40 CFR Section 60.18 of the General Provisions. [40 CFR 60.112b(a)(3)(i)-(ii), 40 CFR 60.112b(b)(1), 40 CFR pt. 60, subp. VVa, Minn. R. 7011.1520(C)]
	5.32.2		The owner or operator of each source that is equipped with a closed vent system and control device as required in 40 CFR Section 60.112b(a)(3) or (b)(2) (other than a flare) is exempt from 40 CFR Section 60.8 of the General Provisions. [40 CFR 60.113b(c), Minn. R. 7011.1520(C)]
	5.32.3		Submit for approval by the Administrator as an attachment to the notification required by 40 CFR Section 60.7(a)(1) or, if the facility is exempt from 40 CFR Section 60.7(a)(1), as an attachment to the notification required by 40 CFR Section 60.7(a)(2), an operating plan containing the information listed below. (i) Documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions. This documentation is to include a description of the gas stream which enters the control device, including flow and VOC content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If the control device or the closed vent capture system receives vapors, gases, or liquids other than fuels from sources that are not designated sources under this subpart, the efficiency demonstration is to include consideration of all vapors, gases, and liquids received by the closed vent capture system and control device. If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of 816 degrees C is used to meet the 95 percent requirement, documentation that those conditions will exist is sufficient to meet the requirements of this paragraph. (ii) A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and an explanation of the criteria used for selection of that parameter (or parameters). [40 CFR 60.113b(c)(1)(i)-(ii), Minn. R. 7011.1520(C)]
	5.32.4		Operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance with the operating plan submitted to the

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			Administrator in accordance with 40 CFR Section 60.113b(c)(1), unless the plan was modified by the Administrator during the review process. In this case, the modified plan applies. [40 CFR 60.113b(c)(2), Minn. R. 7011.1520(C)]
	5.32.5		Monitor presence of the flame and record data in a data acquisition system. In the event that the data acquisition system is down due to maintenance or malfunction, daily operator rounds to monitor the presence of the flame will be conducted to ensure a flame is present. FHR NSPS Kb Operating Plan for Liquid Butane Storage Facility. [Minn. R. 7007.0800, subp. 2]
	5.32.6		The owner or operator of each storage vessel as specified in 40 CFR Section 60.112b(a) shall keep records and furnish reports as required by 40 CFR Section 60.115b(c). The Permittee shall keep copies of all reports and records required by 40 CFR Section 60.115b, except for the record required by 40 CFR Section 60.115b(c)(1), for at least 2 years. The record required by 40 CFR Section 60.115b(c)(1) will be kept for the life of the control equipment. [40 CFR 60.115b, Minn. R. 7011.1520(C)]
	5.32.7		The Permittee shall keep the following records. (1) A copy of the operating plan. (2) A record of the measured values of the parameters monitored in accordance with 40 CFR Section 60.113b(c)(2). [40 CFR 60.115b(c)(1)-(2), Minn. R. 7011.1520(C)]
	5.32.8		The Permittee shall keep copies of all records required by 40 CFR Section 60.116b except for the record required by 40 CFR Section 60.116b(b), for at least 2 years. The record required by 40 CFR Section 60.116b(b) will be kept for the life of the source. [40 CFR 60.116b(a), Minn. R. 7011.1520(C)]
	5.32.9		The owner or operator of each storage vessel as specified in 40 CFR Section 60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. [40 CFR 60.116b(b), Minn. R. 7011.1520(C)]
	5.32.10		Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below. (1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service. (2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following: (i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517

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			(incorporated by reference, see 40 CFR Section 60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s). (ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa. (3) For other liquids, the vapor pressure: (i) May be obtained from standard reference texts, or (ii) Determined by ASTM D2879-83, 96, or 97 (incorporated by reference, see 40 CFR Section 60.17); or (iii) Measured by an appropriate method approved by the Administrator; or (iv) Calculated by an appropriate method approved by the Administrator. [40 CFR 60.116b(e)(1), 40 CFR 60.116b(e)(2)(i)-(ii), 40 CFR 60.116b(e)(3)(i)-(iv), Minn. R. 7011.1520(C)]
	5.32.11		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions). Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit fully satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks. [40 CFR 63.640(n)(1), Minn. R. 7011.7280(A), Minn. R. 7019.0100, subp. 2]
	5.32.12		At all times, including period of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1)(i)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280(A), Minn. R. 7017.2015, subp. 2(A)-(B)]
	5.32.13		Correct malfunctions as soon as practicable in accordance with the startup, shutdown, and malfunction plan (SSMP). [40 CFR 63.6(e)(1)(ii)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280(A)]
	5.32.14		Record occurrence of startup, shutdown, and malfunction of process equipment or of malfunction or maintenance of air pollution control equipment. Document conformance with or deviation from SSMP. [40 CFR 63.10(b)(2)(i)-(v), 40 CFR 63.6(e)(3)(iii)-(iv), 40 CFR pt. 63, subp. CC(Table 6), Minn. R. 7011.7000, Minn. R. 7011.7280(A), Minn. R. 7019.0100]
	5.32.15		Maintain up-to-date SSMP. [40 CFR 63.6(e)(1)(iii), 40 CFR 63.6(e)(2), 40 CFR 63.6(e)(3)(i)-(ii), 40 CFR 63.6(e)(3)(v)-(vii), Minn. R. 7011.7000, Minn. R. 7011.7280(A)]
	5.32.16		If a malfunction occurs that was not addressed in the SSMP, revise the SSMP within 45 days after the event. [40 CFR 63.6(e)(3)(viii), Minn. R. 7011.7000, Minn. R. 7011.7280(A)]
COMG 44	GP123	Equipment subject to NSPS NNN	
	5.33.1		Emission Standard: Reduce emissions of TOC (less methane

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			and ethane) by 98 weight percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater. [40 CFR 60.662(a), Minn. R. 7011.2900(C)]
	5.33.2		Monitoring of emissions and operations: Follow monitoring requirements of 40 CFR pt. 60, subp. RRR as alternative means of demonstrating compliance with 40 CFR pt. 60, subp. NNN in accordance with Alternative Monitoring Plan (AMP) approval. USEPA approved the AMP dated December 21, 2009). (1) Any potential bypass lines must be car sealed/lock and key; (2) Visually inspect monthly any car seals that have been installed; (3) Introduce vent stream into boiler/process heater with the primary fuel. [40 CFR 60.663(b)(2), 40 CFR 60.663(c)(1)-(3), 40 CFR 60.703(c)(1)(i)-(ii), Minn. R. 7011.2900(C), Minn. R. 7011.3430]
	5.33.3		In such cases, the Permittee shall keep up-to-date, readily accessible records of all monthly visual inspections of the seals as well as readily accessible records of all periods and the duration when the seal mechanism is broken, the bypass line valve position has changed, the serial number of the broken car-seal has changed, or when the key for a lock-and-key type configuration has been checked out. [40 CFR 60.665(d), 40 CFR 60.705(d)(1)-(2), Minn. R. 7011.2900(C), Minn. R. 7011.3430]
	5.33.4		The Permittee must maintain on file a schematic diagram of the affected vent streams, collection system(s), fuel system(s), control device(s), and bypass system(s) as part of the initial report. This schematic diagram must be retained for the life of the system. [40 CFR 60.705(s), Minn. R. 7011.3430]
	5.33.5		All periods and duration recorded under 40 CFR Section 60.705(d) when the vent stream is diverted from the control device to the atmosphere. [40 CFR 60.665(l), 40 CFR 60.705(l)(2)&(7), Minn. R. 7011.2900(C), Minn. R. 7011.3430]
	5.33.6		Flare requirements (control device) for instances in which gas is disposed of within flare system. [40 CFR 60.18, Minn. R. 7011.0050]
COMG 48	GP079	Non-contact Cooling Water Systems	
	5.34.1		Record: For non-contact cooling water systems subject to the exclusion, the Permittee shall keep for the life of the facility in a readily accessible location, plans or specifications which demonstrate that the cooling water does not contact hydrocarbons or oily wastewater and is not recirculated through a cooling tower. [40 CFR 60.697(j), Minn. R. 7011.1435(C)]
COMG 49	GP088	Fugitive LDAR in Vacuum	

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		Service	
	5.35.1		A list of identification numbers for equipment in vacuum service shall be recorded in a log or database that is kept in a readily accessible location. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(e)(5), Minn. R. 7007.0800, subp. 2]
COMG 50	GP118	Temporary Portable Coke Crushers	
	5.36.1		The Permittee shall limit Operating Hours <= 4380 hours per year 12-month rolling sum. This limit applies individually to each subject item. [Minn. R. 7007.0800, subp. 2]
	5.36.2		The Permittee shall limit Total Particulate Matter <= 38.59 pounds per hour. This limit applies to EQUI527. PTE of EQUI527 is 3.00 lb/hr based on emission factors from AIRS, March 1990, EPA 450/4-90-003. Compliance is inherent to the design of the equipment. Based on published emission factors and the maximum design of the equipment, emissions will be well below the industrial process equipment rule. [Minn. R. 7011.0715, subp. 1(A)]
	5.36.3		The Permittee shall limit Total Particulate Matter <= 36.11 pounds per hour. This limit applies to EQUI528. PTE of EQUI528 is 2.00 lb/hr based on emission factors from AIRS, March 1990, EPA 450/4-90-003. Compliance is inherent to the design of the equipment. Based on published emission factors and the maximum design of the equipment, emissions will be well below the industrial process equipment rule. [Minn. R. 7011.0715, subp. 1(A)]
	5.36.4		The Permittee shall limit Opacity <= 20 percent opacity. This limit applies individually to each subject item. [Minn. R. 7011.0715, subp. 1(B)]
	5.36.5		Recordkeeping: Monthly records of hours of operation for the month and 12-month rolling sum by the 28th of the month for the previous month. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
COMG 51	GP124	Drains subject to NESH FF only and equipped w/water seal or equivalent	
	5.37.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.37.2		Monthly inspection: Visually inspect water sealed/ lube oil or equivalent sealed drains in active service. Inspect monthly for indications of low liquid levels, cracks, gaps, or leaks that could result in VOC emissions or in lieu of inspection, add water/ lube oil or equivalent to the cup. (EPA approval of alternate

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			monitoring plan dated 4/29/04). (2001 Consent Order 71(a)). [40 CFR 60.692-2(a)(2), 40 CFR 61.346(b)(4), 40 CFR 63.655(a), CAAA of 1990, Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.37.3		For drains with a water seal/ lube oil or equivalent seal at the junction box, flush liquid to the affected junction box via any listed drain cup to verify a water seal/ lube oil or equivalent seal. (2001 Consent Order 71(a)). [40 CFR 60.692-2(a)(2), 40 CFR 61.346(b)(4), 40 CFR 63.655(a), CAAA of 1990, Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.37.4		Conduct monthly visual inspection of water/lube/equivalent seal drains for indication of low liquid levels or other conditions that would reduce effectiveness. (2001 Consent Order 71(a)). [40 CFR 60.692-2(a)(2), 40 CFR 61.346(b)(4), 40 CFR 63.655(a), CAAA of 1990, Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.37.5		Repairs: Whenever low liquid levels are identified, water, lube oil, or equivalent shall be added or first efforts at repair shall be made within 24 hours of detection unless qualifying for delay of repair. [40 CFR 60.692-2, 40 CFR 61.346(b)(5), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.37.6		Delay of repair will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown. Repair shall occur before the end of the next refinery or process unit shutdown. [40 CFR 60.692-6, 40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.37.7		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.697(b)(1), 40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 52	GP127	Stationary Diesels (Compression Ignition) Subject to MACT ZZZZ	
	5.38.1		Any diesels in COMG52 deemed existing nonemergency stationary CI RICE greater than 500 HP: (1) Comply with the applicable portions of 40 CFR pt. 63, subp. ZZZZ, Table 2b (applicability depends on whether or not an oxidation catalyst is used). (2) Comply with the applicable portions of 40 CFR pt. 63, subp.

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			ZZZZ, Table 2c. [40 CFR 63.6600, 40 CFR pt. 63, Subp. ZZZZ(Table 2b)(Table 2c), Minn. R. 7011.8150]
	5.38.2		Any diesel engine in COMG52 deemed existing nonemergency stationary CI RICE less than 500 HP must comply with the applicable portions of 40 CFR pt. 63, subp. ZZZZ, Table 2c. [40 CFR 63.6602, 40 CFR pt. 63, Subp. ZZZZ(Table 2c), Minn. R. 7011.8150]
	5.38.3		(a) The Permittee must be in compliance with the applicable emission limitations and operating limitations at all times; and (b) At all times, the Permittee must operate and maintain the generator and any associated air pollution control equipment and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by the standard have been achieved. Determination of whether such O&M procedures are being used will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review of O&M procedures, review of O&M records, and inspection of the source. [40 CFR 63.6604, 40 CFR 80.510(b), Minn. R. 7011.8150]
	5.38.4		Initial performance test: (Where required) due 180 days after 05/03/2013, according to the requirements of Table 4 and 5 (that apply) of 40 CFR pt. 63, subp. ZZZZ, and 40 CFR Section 63.6620(d)-(g). During the initial performance test, the Permittee must establish each applicable operating limitation in Table 2b of 40 CFR pt. 63, subp. ZZZZ. [40 CFR 63.6612, Minn. R. 7011.8150]
	5.38.5		Subsequent Performance Tests: (Where required) Conduct subsequent performance tests semiannually (After the Permittee has demonstrated compliance for two consecutive tests, the Permittee may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or the Permittee deviates from any of the operating limitations, the Permittee must resume semiannual performance tests.). [40 CFR 63.6615, 40 CFR 63.6620, 40 CFR pt. 63, Subp. ZZZZ(Table 3), Minn. R. 7011.8150]
	5.38.6		If the facility owns or operates non-operational stationary RICE that is subject to performance testing, the facility does not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again. [40 CFR 63.6620, Minn. R. 7011.8150]
	5.38.7		Monitoring, Installation, Collection, Operation, Maintenance Requirements: By the compliance date of 5/3/2013, each diesel shall comply with the appropriate monitoring, installation, collection, operation, and maintenance requirements for the given size

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			and operational characteristic (emergency/nonemergency) as outlined in 40 CFR Section 63.6625 and 40 CFR Section 63.8(c) through (d). [40 CFR 63.6625, 40 CFR 63.8, 40 CFR pt. 63, subp. ZZZZ(Table 5), Minn. R. 7011.8150, Minn. R. 7017.1010]
	5.38.8		The Permittee shall monitor and collect data according to the following: Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the Permittee must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data average and calculations used to report emission or operating levels. The Permittee must, however, use all the valid data collected during all other periods. [40 CFR 63.6635, Minn. R. 7011.8150]
	5.38.9		Continuous compliance demonstration: The Permittee shall demonstrate compliance with each emission limitation and operating limitation that apply from 40 CFR pt. 63, subp. ZZZZ, Tables 2a, 2b, 2c, 2d according to applicable methods specified within Table 6. [40 CFR 63.6640(a), Minn. R. 7011.8150]
	5.38.10		Continuous compliance demonstration (limit deviations): Report instances in which emission limitation and operating limitations that apply from 40 CFR pt. 63, subp. ZZZZ, Tables 2a, 2b, 2c, 2d were not met, in accordance with 40 CFR Section 63.6650. If the facility changes the catalyst, the facility must reestablish the values of the operating parameters measured during the initial performance test. When the facility reestablishes the values of the operating parameters, the facility must also conduct a performance test to demonstrate that the facility is meeting the required emission limitation applicable to the stationary RICE. [40 CFR 63.6640(b), Minn. R. 7011.8150]
	5.38.11		Continuous compliance demonstration (emergency RICE): If the facility owns or operates an emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that was installed prior to June 12, 2006, the facility must operate the engine according to the conditions described in 40 CFR Section 63.6640(f)(2)(i) through (iii). If the facility does not operate the engine according to the requirements in 40 CFR Section 63.6640 (f)(2)(i) through (iii), the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines. (i) There is no time limit on the use of emergency stationary RICE in emergency situations. (ii) The Permittee may operate the emergency stationary RICE

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			for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance. (iii) The Permittee may operate the emergency stationary RICE for an additional 50 hours per year in non-emergency situations. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 63.6640(f), Minn. R. 7011.8150]
	5.38.12		The Permittee must meet the requirements for continuous emission limitations, operating limitations, work practices and management practices as outlined in 40 CFR pt. 63, subp. ZZZZ, Table 6. [40 CFR 63.6640, 40 CFR pt. 63, subp. ZZZZ(Table 6), Minn. R. 7011.8150]
	5.38.13		Notifications: Submit all applicable notifications as listed in 40 CFR Section 63.6645(a) according to applicable status of the RICE. [40 CFR 63.6645, Minn. R. 7011.8150]
	5.38.14		Notification Submittals: Submit a Notification of Intent to conduct a performance test and site-specific performance evaluation test plan at least 60 days before the performance test is scheduled to begin as required in 40 CFR Section 63.7(b)(1) or as required by delegated authority (MPCA). [40 CFR 63.6645(a), 40 CFR 63.6645(g), 40 CFR 63.7(b), 40 CFR 63.8(e)(2), 40 CFR 63.9(e), Minn. R. 7011.8150, Minn. R. 7017.1010, Minn. R. 7017.2015, Minn. R. 7019.0100]
	5.38.15		Reporting: The Permittee must meet the requirements for reports as outlined in applicable portions of 40 CFR pt. 63, subp. ZZZZ, Table 7. [40 CFR 63.6650, 40 CFR pt. 63, subp. ZZZZ(Table 7), Minn. R. 7011.8150]
	5.38.16		General Recordkeeping Requirements: The Permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR pt. 63, subp. ZZZZ, recorded in a form suitable and readily available for expeditious inspection and review including all information required by 40 CFR Section 63.10(b). The files shall be kept for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report or record. [40 CFR 63.10(b), 40 CFR 63.6655, 40 CFR 63.6660, Minn. R. 7011.8150, Minn. R. 7019.0100]
COMG 53	GP023	NSPS K Tanks w/ fixed roof > 40,000 gals without CVS/CD	
	5.39.1		May not store benzene waste as defined in 40 CFR Section 61.341 UNLESS that waste is exempted from control under 40 CFR Section 61.342. [40 CFR 61.342(c)(1)(ii), Minn. R.

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	5.39.2		May not store a material that is >4% organic HAPs (annual average) per Table 1 of 40 CFR pt. 63, subp. CC AND has an annual true vapor pressure >8.3kPa. [40 CFR 63.641, 40 CFR pt. 63, subp. CC(Table 1), Minn. R. 7011.7280(A)]
	5.39.3		The owner or operator of any storage vessel to which this subpart applies shall store petroleum liquids as follows: (1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents. (2) If the true vapor pressure of the petroleum liquid as stored is greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent. [40 CFR 60.112(a)(1)-(2), Minn. R. 7011.1520(A)]
	5.39.4		Except as provided in 40 CFR Section 60.113(d), the Permittee shall maintain a record of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period. [40 CFR 60.113(a), Minn. R. 7011.1520(A)]
	5.39.5		Available data on the typical Reid vapor pressure and the maximum expected storage temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517, unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s). [40 CFR 60.113(b), Minn. R. 7011.1520(A)]
	5.39.6		The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa (2.0 psia) or whose physical properties preclude determination by the recommended method is to be determined from available data and recorded if the estimated true vapor pressure is greater than 6.9 kPa (1.0 psia). [40 CFR 60.113(c), Minn. R. 7011.1520(A)]
	5.39.7		The following are exempt from the requirements of 40 CFR Section 60.113: (1) Each owner or operator of each affected facility which stores petroleum liquids with a Reid vapor pressure of less than 6.9 kPa (1.0 psia) provided the maximum true vapor pressure does not exceed 6.9 kPa (1.0 psia). (2) Each owner or operator of each affected facility equipped with a vapor recovery and return or disposal system in accordance with the requirements of 40 CFR Section 60.112. [40 CFR 60.113(d), Minn. R. 7011.1520(A)]
COMG 54	GP126	Affected Sources at the refinery under MACT GGGGG	
	5.40.1		Comply with the applicable emissions limitations and work practice standards for NESHAP, Subpart FF controlled

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			equipment under 40 CFR pt. 61, except during periods of start up, shutdown, and malfunction. The NESHAP, Subpart FF 2Mg uncontrolled exemption does not apply for remediation material management under 40 CFR pt. 63, subp. GGGGG. [40 CFR 63.7885(b)(3), 40 CFR 63.7886(b)(3), 40 CFR 63.7935(a), Minn. R. 7011.8010]
	5.40.2		At all times, including periods of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1)(i)-(iii), 40 CFR 63.7935(b), Minn. R. 7011.7000, Minn. R. 7011.8010, Minn. R. 7017.2015, subp. 2(A)&(B)]
COMG 56	GP055	Emission Units subject to Minn. R. built before June 11, 1973	
	5.41.1		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1405, subp. 2). [40 CFR 60.104(a)(1), Minn. R. 7011.1435(A)]
	5.41.2		The Permittee shall limit Total Particulate Matter ≤ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(A)]
	5.41.3		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(B)]
	5.41.4		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 2]
	5.41.5		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.41.6		Recordkeeping: Record and maintain records of type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
COMG 57	GP010	Tanks/Basins subject to NESHAP FF w/vapor recovery & control device	
	5.42.1		Standard: Maintain compliance with design, equipment, work practice, operational standards.

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			A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.42.2		All equipment that contains waste subject to NESHAP FF standards: The cover and all openings (e.g., access hatches, sampling ports, and gauge wells) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, as determined initially and thereafter at least once per year by the methods specified in 40 CFR Section 61.355(h). A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.343(a)(1)(i), 40 CFR 61.343(a)(1)(i)(B), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.42.3		Install, operate, and maintain a fixed-roof and closed-vent system that routes all organic vapors vented from the tank to a control device. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.343(a)(1), 40 CFR 61.343(a)(1)(i), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.42.4		Measuring: The Permittee shall test equipment for compliance with no detectable emissions in accordance with the following requirements: (1) Monitoring shall comply with Method 21 from appendix A of 40 CFR part 60. (2) The detection instrument shall meet the performance criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. (5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 61.343(a)(1)(i)-(i)(A), 40 CFR 61.355(h)(1)-(7), 40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.42.5		Visual Inspections: Each fixed-roof, seal, access door, and all

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			other openings shall be checked by visual inspection initially and quarterly thereafter to ensure that no cracks or gaps occur and that access doors and other openings are closed and gasketed properly. [40 CFR 61.343(c), 40 CFR 61.356(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.42.6		Except as provided in 40 CFR Section 61.350, repair any problems found during NESHAP visual inspections per the repair deadlines for the applicable tank type in COMG71, COMG72, COMG74 and COMG75. [40 CFR 61.351, 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.42.7		Delay of repair of facilities or units that are subject to the provisions of this subpart will be allowed: (1) If the repair is technically impossible without a complete or partial facility or unit shutdown. (2) Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.42.8		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Section 61.343 through 40 CFR Section 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The Permittee shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 58	GP060	Oil/water separators w/floating roof subject to NSPS QQQ and NESHAP FF	
	5.43.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not

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			considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.43.2		Oil-water separator must have external floating roof meeting the specifications: Each floating roof shall be equipped with a closure device between the wall of the separator and the roof edge. The closure device is to consist of a primary seal and a secondary seal. (i) The primary seal shall be a liquid-mounted seal or a mechanical shoe seal. (A) A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the separator and the floating roof. A mechanical shoe seal means a metal sheet held vertically against the wall of the separator by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof. (B) The gap width between the primary seal and the separator wall shall not exceed 3.8 cm (1.5 in.) at any point. (C) The total gap area between the primary seal and the separator wall shall not exceed 67 cm²/m (3.2 in.²/ft) of separator wall perimeter. (ii) The secondary seal shall be above the primary seal and cover the annular space between the floating roof and the wall of the separator. (A) The gap width between the secondary seal and the separator wall shall not exceed 1.3 cm (0.5 in.) at any point. (B) The total gap area between the secondary seal and the separator wall shall not exceed 6.7 cm²/m (0.32 in.²/ft) of separator wall perimeter. (iii) The maximum gap width and total gap area shall be determined by the methods and procedures specified in 40 CFR Section 60.696(d). A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.693-2(a)(1), 40 CFR 60.693-2(d), 40 CFR 61.352(a)(1), 40 CFR 61.352(c), 40 CFR 61.356(l), Minn. R. 7011.1435(C), Minn. R. 7011.9930(E)]
	5.43.3		Repair: The Permittee shall make necessary repairs within 30 calendar days of identification of seals not meeting the requirements or roof openings not meeting requirements unless delay of repair provisions are invoked. [40 CFR 60.693-2(a)(1)(iv), 40 CFR 60.693-2(a)(5)(ii), Minn. R. 7011.1435(C)]
	5.43.4		Each opening in the roof shall be equipped with a gasketed cover, seal, or lid, which shall be maintained in a closed position at all times, except during inspection and maintenance. [40 CFR 60.693-2(a)(2), Minn. R. 7011.1435(C)]
	5.43.5		The roof shall be floating on the liquid (i.e., off the roof supports) at all times except during abnormal conditions (i.e., low flow rate). [40 CFR 60.693-2(a)(3), Minn. R. 7011.1435(C)]

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	5.43.6		Monitor: Measurement of primary seal gaps shall be performed within 60 calendar days after initial installation of the floating roof and introduction of refinery wastewater and once every 5 years thereafter. [40 CFR 60.693-2(a)(1)(iii)(A), Minn. R. 7011.1435(C)]
	5.43.7		Monitor: Measurement of secondary seal gaps shall be performed within 60 calendar days of initial introduction of refinery wastewater and once every year thereafter. [40 CFR 60.693-2(a)(1)(iii)(B), Minn. R. 7011.1435(C)]
	5.43.8		The maximum gap widths and maximum gap areas between the primary seal and the separator wall and between the secondary seal and the separator wall shall be determined individually within 60 calendar days of the initial installation of the floating roof and introduction of refinery wastewater or 60 calendar days after the equipment is placed back into service using the following procedure when the separator is filled to the design operating level and when the roof is floating off the roof supports. (i) Measure seal gaps around the entire perimeter of the separator in each place where a 0.32 cm (0.125 in.) diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the wall of the separator and measure the gap width and perimetrical distance of each such location. (ii) The total surface area of each gap shall be determined by using probes of various widths to measure accurately the actual distance from the wall to the seal and multiplying each such width by its respective perimetrical distance. (iii) Add the gap surface area of each gap location for the primary seal and the secondary seal individually, divide the sum for each seal by the nominal perimeter of the separator basin and compare each to the maximum gap area as specified in 40 CFR Section 60.693-2. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.696(d)(1)(i)-(iii), Minn. R. 7011.1435(C)]
	5.43.9		The floating roof may be equipped with one or more emergency roof drains for removal of stormwater. Each emergency roof drain shall be fitted with a slotted membrane fabric cover that covers at least 90 percent of the drain opening area or a flexible fabric sleeve seal. [40 CFR 60.693-2(a)(4), Minn. R. 7011.1435(C)]
	5.43.10		Access doors and other openings shall be visually inspected initially and semiannually thereafter to ensure that there is a tight fit around the edges and to identify other problems that could result in VOC emissions. [40 CFR 60.693-2(a)(5)(i), Minn. R. 7011.1435(C)]
	5.43.11		(a) Delay of repair of facilities or units that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial facility or

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			unit shutdown. (b) Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 60.692-6(a)-(b), 40 CFR 61.350(a)-(b), Minn. R. 7011.1435(C), Minn. R. 7011.9930(E)]
	5.43.12		Records required for visual inspections: The date, location, and corrective action for each visual inspection during which there is not a tight fit or there is a broken seal or gasket on an access door or other opening or other problem is identified that could result in benzene emissions. [40 CFR 61.356(l)(1), Minn. R. 7011.9930(E)]
	5.43.13		Record secondary seal measurements, location, date and corrective actions, if any, annually. [40 CFR 61.356(l)(2), Minn. R. 7011.9930(E)]
	5.43.14		Record primary seal measurements, location, date and corrective actions, if any, every 5 years. Maintain records for at least 10 years. [40 CFR 61.356(l)(2), Minn. R. 7011.9930(E)]
COMG 59	GP065	Treatment Processes to meet destruction req. NESH FF	
	5.44.1		Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.44.2		Control benzene waste streams per 40 CFR pt. 61, subp. FF standards and install, operate and maintain a treatment process to remove or destroy benzene to less than 10 ppmw. [40 CFR 61.348(a)(1)(i), 40 CFR 61.348(a)(5), 40 CFR 61.348(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.44.3		Each treatment process shall be designed and operated in accordance with the appropriate waste management standards. [40 CFR 61.348(a)(2), Minn. R. 7011.9930(E)]
	5.44.4		The owner or operator of a treatment process or wastewater treatment system unit that is used to comply with the provisions of this section shall monitor the unit in accordance with the applicable requirements in 40 CFR Section 61.354. [40 CFR 61.348(g), 40 CFR 61.354(b)(2), 40 CFR 61.355(a), 40 CFR 61.355(g), 40 CFR 61.356(b)(6), 40 CFR 61.356(i)(4), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.44.5		All openings (e.g., access doors, hatches, etc) shall be sealed (e.g., gasketed, latched, etc.) and kept closed at all times when waste is being treated, except during inspection and maintenance. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.348(e), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]

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	5.44.6		Conduct initial and quarterly visual inspections on each seal, access door, and all other openings to ensure that no cracks or gaps occur and that openings are closed and gasketed properly. [40 CFR 61.348(e)(1), Minn. R. 7011.9930(E)]
	5.44.7		Monitoring: Each applicable potential leak point must be monitored using Method 21 on an annual basis. [40 CFR 61.348(a)(2), Minn. R. 7011.9930(E)]
	5.44.8		Repairs: when a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification. [40 CFR 61.345(c), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.44.9		The Permittee shall test equipment for compliance with no detectable emissions as required in accordance with the following requirements: (1) Annual monitoring shall comply with Method 21 from Appendix A of 40 CFR pt. 60. (2) The detection instrument shall meet the performance criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. (5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 61.355(h)(1)-(7), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.44.10		Delayed Repairs: Delay of repair of facilities or units that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.44.11		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic

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			or paper format, unless it is expressly prohibited. An owner or operator shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 60	GP068	Drains subject to NESH FF equipped with plugs	
	5.45.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.45.2		Quarterly NESHAP visual inspection: Each drain using tightly fitting cap or plug for control shall be checked by visual or physical inspection initially and quarterly to ensure caps or plugs are in place and properly installed. [40 CFR 61.346(b)(4)(ii), 40 CFR 61.357(d)(8), Minn. R. 7011.9930(E)]
	5.45.3		Repairs: When a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification. [40 CFR 61.346(b)(5), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.45.4		Delayed Repairs: Delay of repair of facilities or units that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.45.5		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be

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			maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 61	GP017	Loading Rack Activities in CFP group limit	
	5.46.1		The Permittee shall limit Volatile Organic Compounds <= 100 tons per year 365-day rolling sum. Applies to the subject items listed in this component group. (Netting Limit). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.46.2		VOC Recordkeeping and Calculations: The Permittee shall calculate and record the VOC emissions from the listed subject items for each day and the previous 365 days (365-day rolling average). The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
COMG 62	GP024	NSPS Ka Tanks w/fixed roof > 40,000 gals	
	5.47.1		May not store benzene waste as defined in 40 CFR Section 61.341 UNLESS that waste is exempted from control under 40 CFR Section 61.342. [40 CFR 61.342(c)(1)(ii), Minn. R. 7011.9930(E)]
	5.47.2		May not store a material that is >4% organic HAPs (annual average) per Table 1 of 40 CFR pt. 63, subp. CC AND has an annual true vapor pressure >8.3kPa. [40 CFR 63.641, 40 CFR pt. 63, subp. CC(Table 1), Minn. R. 7011.7280(A)]
	5.47.3		If a storage vessel contains a petroleum liquid which, as stored, has a true vapor pressure equal to or greater than 10.3 Kpa (1.5 psia) but not greater than 76.6 kPa (11.1 psia) the storage vessel shall be equipped with an external floating roof per 40 CFR Section 60.112a(a)(1)(i)-(iv), internal floating roof per 40 CFR Section 60.112a(a)(2), a vapor recovery system per 40 CFR Section 60.112a(a)(3) or a system equivalent to those described in 40 CFR Section 60.112a(a)(1), (a)(2) or (a)(3) as provided in 40 CFR Section 60.114a. [40 CFR 60.112a(a), 40 CFR 60.112a(a)(4), Minn. R. 7011.1520(B)]
	5.47.4		Except as provided in 40 CFR Section 60.115a(d), the Permittee subject to this subpart shall maintain a record of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period. [40 CFR 60.115a(a), Minn. R. 7011.1520(B)]
	5.47.5		Available data on the typical Reid vapor pressure and the maximum expected storage temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517, unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and

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			the Reid vapor pressure determined from the sample(s). [40 CFR 60.115a(b), Minn. R. 7011.1520(B)]
	5.47.6		The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa (2.0 psia) or whose physical properties preclude determination by the recommended method is to be determined from available data and recorded if the estimated true vapor pressure is greater than 6.9 kPa (1.0 psia). [40 CFR 60.115a(c), Minn. R. 7011.1520(B)]
	5.47.7		The following are exempt from the requirements of 40 CFR Section 60.115a: (1) Each owner or operator of each storage vessel storing a petroleum liquid with a Reid vapor pressure of less than 6.9 kPa (1.0 psia) provided the maximum true vapor pressure does not exceed 6.9 kPa (1.0 psia). (2) The owner or operator of each storage vessel equipped with a vapor recovery and return or disposal system in accordance with the requirements of 40 CFR Section 60.112a(a)(3) and (b), or a closed vent system and control device meeting the specifications of 40 CFR Section 65.42(b)(4), (b)(5), or (c). [40 CFR 60.115a(d)(1)-(2), Minn. R. 7011.1520(B)]
COMG 63	GP037	IFR tank/basin subject to NESHAPs FF following the requirements of Kb	
	5.48.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.48.2		As an alternative to the standards for tanks specified in 40 CFR Section 61.343; the Permittee may elect to comply with one of the following: (1) A fixed roof and internal floating roof meeting the requirements in 40 CFR Section 60.112b(a)(1); (2) An external floating roof meeting the requirements of 40 CFR Section 60.112b (a)(2); or (3) An alternative means of emission limitation as described in 40 CFR Section 60.114b. If the Permittee elects to comply with the provisions of this section, then the Permittee is exempt from the provisions of 40 CFR Section 61.343 of this subpart applicable to the same facilities. [40 CFR 61.351(a)(1), 40 CFR 61.351(b), 40 CFR 61.356(k), 40 CFR 61.357(f), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.48.3		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions). Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit fully satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks. [40 CFR

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			61.351(a)(1), 40 CFR 63.640(o)(1), 40 CFR 63.647(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.48.4		Comply with requirements of COMG71 (NSPS, Subpart Kb for Internal Floating Roof Tanks). [40 CFR 61.351(a), 40 CFR 61.351(a)(1), 40 CFR 61.351(b), 40 CFR 61.356(k), 40 CFR 61.357(f), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 65	GP116	Refinery Fuel Gas SO2 Emissions	
	5.49.1		The Permittee shall limit Sulfur Dioxide <= 638 tons per year 365-day rolling sum from all refinery fuel gas. This limit expires upon startup of the modified EQUI376, new EQUI406 or new EQUI407, as part of the #3 Crude/Coker Improvements permit, whichever is first. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.49.2		The Permittee shall limit Sulfur Dioxide <= 270 tons per year 365-day rolling sum from all refinery fuel gas combustion. Effective upon startup of the modified EQUI376, new EQUI406 or new EQUI407, as part of the #3 Crude/Coker Improvements permit, whichever is first. For the first 364 days after the reduced limit becomes effective, SO2 emissions are limited as determined by the following equation: $E = 270 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.49.3		Install, operate, and maintain a Total Sulfur CEMS on the 41 unit refinery fuel gas mix drum in accordance with 40 CFR pt. 60, Appendix B and Appendix F. Install, operate, and maintain flow meters on each refinery fuel gas mix drum or each combustion device firing fuel gas from the 41 unit refinery fuel gas mix drum. [Minn. R. 7007.0800, subp. 4, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.49.4		Daily Recordkeeping for 41 Unit: The Permittee shall maintain daily records of all monitoring data and calculations of SO2 to show continuous compliance with the applicable emission limits. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 4, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.49.5		Install, operate, and maintain SO2 and O2 CEMS on two heaters firing refinery fuel gas in accordance with 40 CFR pts.

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			60, Appendix B and Appendix F, and comply with the requirements of EQUI283, EQUI24, EQUI25, and EQUI29. Alternative to the SO ₂ and O ₂ CEMS, install, operate and maintain a total sulfur CEMS on the 45 unit refinery fuel gas mix drum in accordance with 40 CFR pt. 60, Appendix B and Appendix F, and comply with the requirements of EQUI312. Install, operate, and maintain flow meters on each refinery fuel gas mix drum or each combustion device firing fuel gas from the 45 unit refinery fuel gas mix drum. [Minn. R. 7007.0800, subp. 4, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.49.6		Daily Recordkeeping for 45 Unit: The Permittee shall maintain daily records of all monitoring data and calculations of SO ₂ to show continuous compliance with the applicable emission limits. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 4, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.49.7		Recordkeeping for SO ₂ limit based on a 365-day Rolling Sum: The Permittee shall calculate and record the rolling sum each calendar day based on data from the refinery fuel gas flow meters and either the total sulfur CEMS or the SO ₂ CEMS and O ₂ CEMS. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.49.8		See EQUIS 19, 24, 25, 29, 283 and 312 for monitoring requirements. [Minn. R. 7007.0800, subp. 2]
COMG 66	GP002	Cooling Towers (#1, #3, #4, #5, #6 and #7) and associated Heat Exchange Systems	
	5.50.1		The Permittee shall limit Total Particulate Matter ≤ 5.5 tons per year 365-day rolling sum for FUGI98. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.2		The Permittee shall limit PM < 10 micron ≤ 2.4 tons per year 365-day rolling sum for FUGI98. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.3		The Permittee shall limit Total Particulate Matter ≤ 4.3 tons per year 365-day rolling sum for FUGI99. This limit becomes effective upon startup of EQUI471. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.4		The Permittee shall limit PM < 10 micron ≤ 1.9 tons per year 365-day rolling sum for FUGI99. This limit becomes effective

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			upon startup of EQUI471. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.5		The Permittee shall limit Total Particulate Matter <= 4.3 tons per year 365-day rolling sum for FUGI100. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.6		The Permittee shall limit PM < 10 micron <= 1.9 tons per year 365-day rolling sum for FUGI100. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.7		The Permittee shall limit Total Particulate Matter <= 5.7 tons per year 365-day rolling sum for FUGI101. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.8		The Permittee shall limit PM < 10 micron <= 2.5 tons per year 365-day rolling sum for FUGI101. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.9		The Permittee shall limit Volatile Organic Compounds <= 11.96 tons per year 365-day rolling sum for FUGI101, if modified as part of the #3 Crude/Coker Improvements permit. This limit is effective upon startup of FUGI101 following modifications made as part of the #3 Crude/Coker Improvements permit. [Minn. R. 7007.0800, subp. 2]
	5.50.10		The Permittee shall limit Volatile Organic Compounds <= 7.36 tons per year 365-day rolling sum for FUGI96, upon startup. [Minn. R. 7007.0800, subp. 2]
	5.50.11		PM and PM10 Emission Calculations: For FUGI97, FUGI98, FUGI99, FUGI100 and FUGI101, the Permittee shall use the following to calculate PM and PM10 emissions, unless an alternative calculation method is proposed by the Permittee and approved by the MPCA in accordance with Minn. R. 7019.3100: $\text{PM Emissions (tons/day)} = [\text{PRR} \times \text{D} \times \text{TDS} \times 60 \text{ min/hr} \times 8.3 \text{ lb/gal} \times (1 \text{ part} / 1,000,000 \text{ parts}) \times (24 \text{ hr/day})] / (2000 \text{ lb/ton})$ where PRR = Average daily pump recirculation rate (gallons/minute) D = Drift specification in percent drift (maximum of 0.001%) TDS = Total dissolved solids concentration in cooling water in parts per million $\text{PM10 Emissions (tons/day)} = \text{PM Emissions (tons/day)} \times 0.47.$ [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.50.12		PM and PM10 Recordkeeping: For FUGI97, FUGI98, FUGI99, FUGI100 and FUGI101, the Permittee shall calculate and record the daily and 365-day rolling sum PM/PM10 emissions from each cooling tower. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]

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	5.50.13		For heat exchange systems submit Periodic Reports that include the information found in 40 CFR Section 63.655(g)(9)(i) through (vi). [40 CFR 63.655(g)(9), Minn. R. 7011.7280(A)]
	5.50.14		The owner operator of a heat exchange system shall comply with recordkeeping requirements of 40 CFR Section 63.655(i)(4)(i) through (vi). [40 CFR 63.655, Minn. R. 7011.7280(A)]
	5.50.15		The Permittee shall determine compliance with the VOC limits for FUGI101 and FUGI96 if actual emissions, as calculated using the "Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources (January 2003)", and calculation basis from MACT CC and length of time to repair from the time of sampling, are at or below these limits. Specifically, FHR shall apply the emission rate (calculated from the sampling results and cooling tower recirculation rate) from the time sampled until the next sample that changes the Modified El Paso based emission rate. Samples shall be taken at least monthly, but may be taken more frequently at the discretion of FHR. [Minn. R. 7007.0800, subp. 2, 4]
	5.50.16		Recordkeeping: The Permittee shall calculate and record the daily and 365-day Rolling Sum of VOC emissions at FUGI101 and FUGI96 by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. These records shall be maintained for at least five (5) years. This requirement is effective for FUGI101 upon startup following the modifications made as part of the #3 Crude/Coker Improvements permit and for FUGI96 upon startup. [Minn. R. 7007.0800, subp. 5]
	5.50.17		Reporting: The Permittee shall report, in its Quarterly Air Quality and Excess Emissions Report, the rolling 365-day average of VOC emissions at FUGI101 and FUGI96, for each day in the reporting period. This requirement is effective for FUGI101 upon startup following modifications made as part of the #3 Crude/Coker Improvements permit and for FUGI96 upon startup. [Minn. R. 7007.0800, subp. 6]
	5.50.18		The Permittee shall analyze cooling tower water for chromium if requested by the Administrator or the MPCA. [40 CFR 63.404, Minn. R. 7011.7160]
	5.50.19		The Permittee shall retain copy of Initial Notification and Notification of Compliance status on-site for a minimum of 5 years. [40 CFR 63.10, 40 CFR 63.405, 40 CFR 63.406, 40 CFR 63.9, Minn. R. 7011.7160, Minn. R. 7011.7280, Minn. R. 7019.0100]
	5.50.20		Perform monthly monitoring to identify leaks of total strippable volatile organic compound (VOC) from each heat exchange system subject to the requirements of 40 CFR Section 63.654 according to the procedures in 63.654(c)(1) and (2). [40 CFR 63.654(c), Minn. R. 7011.7280(A)]
	5.50.21		If a leak is detected, the Permittee must repair the leak to reduce the measured concentration to below the applicable

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			action level as soon as practicable, but no later than 45 days after identifying the leak, except as specified in 40 CFR Section 63.645(e) and (f). Alternatively the leaking exchanger may be isolated, bypassed, or otherwise removed from service until it is otherwise repaired. [40 CFR 63.654(d)(1)-(5), Minn. R. 7011.7280(A)]
	5.50.22		If a leak is detected when monitoring a cooling tower return line, additional monitoring may be conducted to identify leaks of total strippable VOC emissions using Modified El Paso Method from each heat exchanger or group of heat exchangers in organic HAP service associated with the heat exchange system for which the leak was detected. If the additional monitoring shows that the total strippable VOC concentration in the stripped air at the heat exchanger exit line for each heat exchanger in organic HAP service is less than 6.2 ppmv for existing sources or less than 3.1 ppmv for new sources, the heat exchange system is excluded from repair requirements. [40 CFR 63.654(e), Minn. R. 7011.7280(A)]
	5.50.23		Delay of Repair: A leaking heat exchanger may be placed on delay of repair within 45 days of leak identification if the repair is technically infeasible without a shutdown and the total strippable VOC concentration (as methane) is initially and remains less than 62 ppmv for all monthly monitoring periods during the delay of repair. Repair must be conducted during the next scheduled shutdown of the heat exchange system and within 30 days of the monitoring event in which the leak was 62 ppmv or greater total strippable VOC (as methane). [40 CFR 63.654(f)(1), Minn. R. 7011.7280(A)]
	5.50.24		Delay of Repair: A leaking heat exchanger may be placed on delay of repair within 45 days of leak identification if the necessary equipment, parts, or personnel are not available and the total strippable VOC concentration (as methane) is initially and remains less than 62 ppmv for all monthly monitoring periods during the delay of repair. Repair must occur within 120 calendar days of being placed on Delay of Repair and within 30 days of a monitoring event in which the leak was 62 ppmv or greater total strippable VOC (as methane). [40 CFR 63.654(f)(1), Minn. R. 7011.7280(A)]
	5.50.25		For heat exchange systems placed on Delay of Repair: Record the reasons for delaying repair, a schedule for completing the repair as soon as practical, the date and concentration of the leak as first identified and the results of all subsequent monthly monitoring events during the delay of repair and an estimate of the potential emissions from the leaking heat exchange system or heat exchanger per 40 CFR Section 63.654(g)(4)(i) and (g)(4)(ii). [40 CFR 63.654(f)(2), Minn. R. 7011.7280(A)]
	5.50.26		Submit a Notification of Compliance Status report per the requirements specified in 40 CFR Section 63.655(f). [40 CFR 63.655(f)(1)&(g)(9), Minn. R. 7011.7280(A)]
	5.50.27		The point of waste generation under 40 CFR Section 61.431 of any of the FHR cooling tower systems affected by the Consent

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			Decree shall be considered to the point where the water is blown down to the sewer drain or other wastewater conveyance. For the avoidance of doubt, this means that so long as the facility is complying with the monitoring and repair requirements of subparagraph (b), cooling tower water combined with process fluids that have leaked into the cooling tower system shall not be considered a waste stream until after such water has been blown down to a wastewater conveyance. (Reference 2001 Consent Decree 69(b)). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.50.28		Recordkeeping for FUGI101 and FUGI96 BACT Limits: The Permittee shall maintain cooling tower drift eliminators in accordance with good operation and maintenance practices. The cooling towers shall be inspected from safely accessible external access points not less than semiannually to inspect the drift eliminators that are visible to determine if the drift eliminators are in good working order. A complete inspection of all cooling tower drift eliminators shall be completed during scheduled internal maintenance downtime events. Limit is effective upon startup of the cooling towers following modifications made as part of the #3 Crude/Coker Improvements permit. This limit shall not apply to FUGI101 if the modifications to FUGI101 are not completed. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.50.29		Design liquid drift rate shall be specified to meet 0.0005% drift. This limit is applicable to all Cooling Tower No. 7 (FUGI96) cells and existing cells of Cooling Tower No. 6 (FUGI101). Limit is effective upon startup of the cooling towers following modifications made as part of the #3 Crude/Coker Improvements permit. This limit shall not apply to FUGI101 if the modifications to FUGI101 are not completed. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.50.30		Design liquid drift rate shall be specified to meet 0.0050% drift. This limit is applicable to new "helper cells" of Cooling Tower No. 6 (FUGI101). Limit is effective upon startup of the cooling tower following modifications made as part of the #3 Crude/Coker Improvements permit. This limit shall not apply if the modifications to FUGI101 are not completed. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.50.31		The Notification of Compliance Status must: (i) Be signed by a responsible official who also certifies the accuracy of the report; (ii) Certify that source has complied with Section 63.402 of this subpart; and (iii) Include the information required in 40 CFR Section 63.405(a)(1)(iv). (iv) Include the following statement: "I certify that no chromium-based water treatment chemicals have been introduced since (the initial compliance date) into any IPCT located within the facility for any purpose. [40 CFR 63.405(b)(2), Minn. R. 7011.7160]
	5.50.32		Upon initial startup, no chromium-based water treatment

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			chemicals shall be used in the cooling tower. [40 CFR 63.402, 40 CFR 63.403(c), 40 CFR 63.6(b)(2), Minn. R. 7011.7000, Minn. R. 7011.7160]
	5.50.33		The Permittee shall maintain files of all information required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks or on microfiche. [40 CFR 63.10(b), 40 CFR 63.404, Minn. R. 7011.7160, Minn. R. 7019.0100]
	5.50.34		To demonstrate continuing compliance with 40 CFR Section 63.402, the Permittee shall maintain copies of the initial notification and the notification of compliance status as required by 40 CFR Section 63.405 for a period of at least 5 years onsite. This requirement is applicable to FUGI96. [40 CFR 63.406, Minn. R. 7011.7160]
COMG 67	GP133	Emergency Propane Generators	
	5.51.1		The Permittee shall limit Carbon Monoxide <= 519 grams per kilowatt-hour. This limit is applicable to EQUI408 and EQUI409. Compliance with this emission limit is demonstrated by purchasing an engine that is certified by the manufacturer to meet this limit. [40 CFR 90.103 Table 1]. [40 CFR 60.4231(c), 40 CFR 60.4233(c), 40 CFR 60.4243(a), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.2		The Permittee shall limit HC + NOx <= 13.4 grams/kilowatt-hour. This limit is applicable to EQUI408 and EQUI409. Compliance with this emission limit is demonstrated by purchasing an engine that is certified by the manufacturer to meet this limit. [40 CFR 90.103 Table 1]. [40 CFR 60.4231(c), 40 CFR 60.4233(c), 40 CFR 60.4243(a), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.3		The Permittee shall limit Carbon Monoxide <= 4.4 grams per kilowatt-hour for transient testing. This limit is applicable to EQUI410. Compliance with this emission limit is demonstrated by purchasing an engine that is certified by the manufacturer to meet this limit. [40 CFR 1048.101 Table 1]. [40 CFR 60.4231(c), 40 CFR 60.4233(c), 40 CFR 60.4243(a), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.4		The Permittee shall limit HC + NOx <= 2.7 grams/kilowatt-hour for transient testing. This limit is applicable to EQUI410. Compliance with this emission limit is demonstrated by purchasing an engine that is certified by the manufacturer to meet this limit. [40 CFR 1048.101 Table 1]. [40 CFR 60.4231(c), 40 CFR 60.4233(c), 40 CFR 60.4243(a), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]

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	5.51.5		The Permittee shall limit Carbon Monoxide $\leq$ 6.5 grams per kilowatt-hour for field testing. This limit is applicable to EQUI410. Compliance with this emission limit is demonstrated by purchasing an engine that is certified by the manufacturer to meet this limit. [40 CFR 1048.101 Table 3]. [40 CFR 60.4231(c), 40 CFR 60.4233(c), 40 CFR 60.4243(a), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.6		The Permittee shall limit HC + NOx $\leq$ 3.8 grams/kilowatt-hour for field testing. This limit is applicable to EQUI410. Compliance with this emission limit is demonstrated by purchasing an engine that is certified by the manufacturer to meet this limit. [40 CFR 1048.101 Table 3]. [40 CFR 60.4231(c), 40 CFR 60.4233(c), 40 CFR 60.4243(a), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.7		The Permittee shall limit Sulfur Dioxide $\leq$ 0.50 pounds per million Btu heat input 3-hour rolling average. Compliance with this limit can be demonstrated by firing strictly commercial-grade propane. [Minn. R. 7011.2300, subp. 2]
	5.51.8		The Permittee shall limit Opacity $\leq$ 20 percent opacity once operating temperatures have been attained. Compliance with this limit can be demonstrated by firing strictly commercial-grade propane. [Minn. R. 7011.2300, subp. 1]
	5.51.9		The Permittee shall maintain documentation onsite that each unit listed in this group is an emergency generator by design that qualifies under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995, limiting operation to 500 hours per year using a 12-Month Rolling Sum for each individual emergency generator in COMG67. [Minn. R. 7007.0800, subps. 4-5]
	5.51.10		Fuel Restriction: Authorized to burn commercial-grade propane only. [Minn. R. 7005.0100, subp. 35a]
	5.51.11		The Permittee shall purchase engines that are certified to the emission standards in 40 CFR Section 60.4231(a) through (c), as applicable, for the same engine class and maximum engine power. In addition, the Permittee shall keep records of conducted maintenance to demonstrate compliance and meet the requirements as specified in 40 CFR pt. 1068, subparts A through D as applicable. If the Permittee adjusts the engine settings according to and consistent with the manufacturer's instructions, the stationary SI internal combustion engine (ICE) will not be considered out of compliance. [40 CFR 60.4243(a)(1), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.12		Operation of Emergency Stationary ICE: (1) There is no time limit on the use of emergency stationary ICE in emergency situations. (2) The Permittee may operate the emergency stationary ICE for any combination of the purposes specified in 40 CFR Section 60.42243(d)(2)(i) through (iii) for a maximum of 100 hours per calendar year. Any operation for non-emergency

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			situations as allowed by 40 CFR Section 60.4243(d)(3) counts as part of the 100 hours per calendar year allowed by 40 CFR Section 60.4243(d)(2). (i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The Permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year. (iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency. (3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in 40 CFR Section 60.4243(d)(2). Except as provided in 40 CFR Section 60.4243(d)(3)(i), the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial agreement with another entity. [40 CFR 60.4243(d)(1)-(3), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.13		Monitoring - Hours of Operation: The Permittee shall install non-resettable hour meters prior to startup of EQUI408, EQUI409 and EQUI410. [40 CFR 60.4237, 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.14		The Permittee shall keep records of the hours of operation of EQUI408, EQUI409 and EQUI410 that is recorded through the non-resettable hour meters. The Permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. This documentation shall be completed by the 28th day of each month for the preceding month. [40 CFR 60.4245(b), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.15		The Permittee shall keep records of conducted maintenance on each engine in COMG67. This documentation shall be completed by the 28th day of each month for the preceding month. [40 CFR 60.4243(a)(1), 40 CFR 60.4245(a)(2), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.16		The Permittee shall keep documentation from the manufacturer that each engine in COMG67 is certified to meet the emission standards and information as required in 40 CFR

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			parts 90, 1048, 1054 and 1060, as applicable. [40 CFR 60.4245(a)(3), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.51.17		The Permittee shall meet the requirements of 40 CFR pt. 63, subp. ZZZZ by meeting the requirements of 40 CFR pt. 60, subp. JJJJ, as a new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions. [40 CFR 63.6590(c)(4), Minn. R. 7011.8150]
COMG 68	GP117	Limit that Applies to Gas Oil HDS Heaters (EU084 and EU085)	
	5.52.1		The Permittee shall limit Sulfur Dioxide < 167.6 tons per year 365-day rolling sum from both EQUI541 and EQUI559. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.52.2		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions in tons/year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
COMG 69	GP131	RGP Vapor Combustion Unit	
	5.53.1		Maintain a pilot flame at all times that emissions may be vented to the VCU (EQUI405). [40 CFR 60.18, 40 CFR 60.482-10a(d), Minn. R. 7011.0050, Minn. R. 7011.0075]
	5.53.2		The Permittee shall limit Hydrogen Sulfide (H2S) <= 162 parts per million 3-hour rolling average, determined hourly. The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt from this limit. [40 CFR 60.103a(h)]
	5.53.3		The Permittee shall limit Opacity <= 0 percent opacity except for periods not to exceed a total of 5 minutes during any two consecutive hours; limit does not apply during periods of startup, shutdown or malfunction. [40 CFR 60.18(c), 40 CFR 60.482-10a(d), Minn. R. 7011.0050]
	5.53.4		Operation Limit: Flares must meet maximum velocity and minimum heat content requirements. [40 CFR 60.18(c), 40 CFR 60.482-10a(d), Minn. R. 7011.0050]
	5.53.5		All flares must be steam-assisted, air-assisted, or non-assisted. [40 CFR 60.18(c), 40 CFR 60.482-10a(d), Minn. R. 7011.0050]
	5.53.6		Temperature measurements shall be maintained at temperatures indicating presence of a pilot flame (i.e. above ambient) at all times that emissions may be vented to the VCU (EQUI405). [40 CFR 60.18, 40 CFR 64.3(a)(2), Minn. R. 7011.0050, Minn. R. 7011.0075, Minn. R. 7011.0080, Minn. R.

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			7017.0200]
	5.53.7		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot (230 mg/dscm) H ₂ S content in the fuel. This limit does not apply during periods of startup, shutdown, or malfunction. Compliance with the flare H ₂ S standard in 40 CFR pt. 60, subp. Ja demonstrates compliance with this limit. [Minn. R. 7011.1410, subp. 2]
	5.53.8		Monitor and record temperature at least once every 15 minutes indicating presence or absence of a flame at all times that emissions may be vented to the VCU (EQUI405). [40 CFR 60.18, 40 CFR 64.3(b)(4)(ii), Minn. R. 7011.0050, Minn. R. 7011.0080, Minn. R. 7017.0200]
	5.53.9		Combustion of streams in the VCU that are exempt from CEMS monitoring without exemption application: Streams combusted in the RGP VCU are exempt from CEMS requirements if streams are exempt per 40 CFR Section 60.102a(g)(1)(iii) describing exempt emissions including tank degassing and cleaning, exempt per 40 CFR Section 60.103a(h) describing exempt flaring including gases from process upsets, relief valve leakage, or emergency relief streams meeting one of the following requirements: (i) Pilot gas for heaters and flares. (ii) Fuel gas streams that meet a commercial-grade product specification for sulfur content of 30 ppmv or less. In the case of a liquefied petroleum gas (LPG) product specification in the pressurized liquid state, the gas phase sulfur content should be evaluated assuming complete vaporization of the LPG and sulfur containing-compounds at the product specification concentration. (iii) Fuel gas streams produced in process units that are intolerant to sulfur contamination, such as fuel gas streams produced in the hydrogen plant, catalytic reforming unit, isomerization unit and HF alkylation process units. [40 CFR 60.107a(a)(3)]
	5.53.10		Combustion of streams in the VCU that are exempt from CEMS monitoring requiring with an exemption application: The Permittee may also demonstrate that the stream to the RGP VCU is low-sulfur and exempt from CEMS monitoring requirements by applying for an exemption in accord with procedures in 40 CFR Section 60.107a(b). The effective date of the exemption is the date of the submission of the required information. No further action is required unless refinery operating conditions change in such a way that affects the exempt fuel gas stream/system (e.g., the stream composition changes). If such a change occurs, the Permittee shall follow the procedures in 40 CFR Section 60.107a(b)(3). [40 CFR 60.107a(b)]
	5.53.11		Alternative to low sulfur exemption: As an alternative to the planned low sulfur monitoring compliance demonstration requirements, the Permittee may demonstrate compliance with the limits in 40 CFR Section 60.103a(h) with a H ₂ S CEMS meeting the requirements of 40 CFR Section 60.107a(a). [40

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			CFR 60.107a(a)]
	5.53.12		Flow Monitoring: The Permittee shall install, operate, calibrate, and maintain a CPMS to measure and record the flow rate of gas discharged to the flare in accordance with manufacturer's specifications and 40 CFR Section 60.107a(f)(1). A visual inspection shall be performed at least quarterly of all components of the monitor for physical and operational integrity and all electrical connections for oxidation and galvanic corrosion if the flow monitor is not equipped with a redundant flow sensor. The flow meter shall be calibrated in accordance with the manufacturer's procedures and specifications biennially (every two years) or at the frequency specified by the manufacturer. [40 CFR 60.107a(f)]
	5.53.13		Check daily, or as required by the manufacturing specification, monitoring equipment that is related to maintaining VCU control efficiency, for example: pressure gauges, chart recorders, temperature indicators and recorders. [40 CFR 64.3, Minn. R. 7011.0075, Minn. R. 7017.0200]
	5.53.14		Inspect monthly, or as required by the manufacturing specification, components that are subject to wear or plugging that are related to maintaining VCU control efficiency, for example: bearings, belts, hoses, fans, nozzles, orifices and ducts. [40 CFR 64.3, Minn. R. 7011.0075, Minn. R. 7017.0200]
	5.53.15		Inspect quarterly, or as required by the manufacturing specification, components that are not subject to wear including structural components, housings, ducts and hoods that are related to the VCU control device (TREA74). [40 CFR 64.3, Minn. R. 7011.0075, Minn. R. 7017.0200]
	5.53.16		Thoroughly inspect the VCU (EQUI405) at least annually, or as required by the manufacturing specification (this often requires shutting down temporarily). [40 CFR 64.3, Minn. R. 7011.0075, Minn. R. 7017.0200]
	5.53.17		Calibrate once every calendar year, or as required by the manufacturing specification, all monitoring equipment that is related to maintaining control efficiency. [40 CFR 64.3, Minn. R. 7011.0075, Minn. R. 7017.0200]
	5.53.18		The Permittee shall calculate valid 1-hour averages for the flare flow CPMS. [40 CFR 60.13(h)]
	5.53.19		RCFA and Corrective Action Requirements: The Permittee shall conduct a root cause analysis of any emission limit exceedance or process startup, shutdown, upset or malfunction that exceeds permitted SO ₂ emissions by 227 kilograms (kg) (500 lb) in any 24-hour period, or any discharge to the flare in excess of 14,160 standard cubic meters (m ³) (500,000 standard cubic feet (scf)) above the baseline flow in any 24-hour period. Engineering calculations shall be used to calculate the SO ₂ emissions in the event of a discharge that may trigger a root cause analysis. For any root cause analysis performed, the Permittee shall record the identification of the affected facility, the date and

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			duration of the discharge, the results of the root cause analysis and the action taken as a result of the root cause analysis. All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR Section 60.108a(c)(6)(ix). For corrective actions that cannot be fully implemented within 45 days following the discharge for which the root cause and corrective action analyses were required, the Permittee shall develop an implementation schedule to complete the corrective action(s) as soon as practicable. No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed date, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR Section 60.108a(c)(6)(x). [40 CFR 60.103a(c)-(e), 40 CFR 60.107a(e)(4)]
	5.53.20		The Permittee shall maintain an inventory of spare parts for the control equipment that are subject to frequent replacement, as required by the manufacturing specification or documented in maintenance records. [Minn. R. 7011.0075]
	5.53.21		The Permittee shall train staff on the operation and monitoring of control equipment and troubleshooting, and train and require staff to respond to indications of malfunctioning equipment, including alarms and other indicators of abnormal operation. [Minn. R. 7011.0075]
	5.53.22		Flare Management Plan: The Permittee shall develop, implement, and submit a written flare management plan following the requirements of 40 CFR Section 60.103a(a)-(b) immediately upon startup of the VCU (EQUI405) except as otherwise allowed by 40 CFR Section 60.103a(a)-(b). The flare management plan should be updated periodically for changes such as new connections to the flare or with the installation of a flare gas recovery system but the plan must be resubmitted only if the Permittee adds or revises baseline flow rates, installs a flare gas recovery system, or adopts the alternative monitoring methods of 40 CFR Section 60.107a(g) for flares with water seals. [40 CFR 60.103a(a)-(b)]
	5.53.23		Flare Initial Performance Test: Within 60 days after achieving 10,000 barrels per calendar day of propylene railcar loading, but not later than 180 days after initial startup of such facility, the Permittee shall conduct any required performance testing. Due to inherently low sulfur content of this fuel stream, the Permittee plans to satisfy the performance test requirement for 40 CFR Section 60.8 for the flare H₂S limit by applying for an exemption from monitoring and testing by applying in accord with procedures in 40 CFR Section 60.107a(b). [40 CFR 60.104a(a), 40 CFR 60.18, 40 CFR 60.8, Minn. R. 7011.0050,

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			Minn. R. 7017.2015]
	5.53.24		Temperatures outside of a range indicating the presence of a flame during times when emissions are vented to the VCU shall be reported in semiannual deviation reports. [Minn. R. 7007.0080, subp. 6(A)2, Minn. R. 7011.0075, subp. 5]
	5.53.25		Recordkeeping for Flare Management Plan: The Permittee shall maintain a copy of the flare management plan. [40 CFR 60.108a(c)(1)]
	5.53.26		Recordkeeping for streams utilizing the low sulfur monitoring exemption: For each fuel gas stream to which one of the exemptions listed in 40 CFR Section 60.107a(a)(3) applies, records of the specific exemption determined to apply for each fuel stream. If the Permittee applies for the exemption described in 40 CFR Section 60.107a(a)(3)(iv), the Permittee must keep a copy of the application as well as the letter from the Administrator granting approval of the application. [40 CFR 60.108a(c)(5)]
	5.53.27		RCFA and Corrective Action Recordkeeping: The Permittee shall maintain records of required root cause analyses and corrective actions as required per 40 CFR Section 60.108a(c)(6). [40 CFR 60.108a(c)(6)]
	5.53.28		Maintain records of monitoring inspections with dates and any corrective actions. [Minn. R. 7011.0075]
	5.53.29		Maintain records of parts replaced, repaired or modified for the previous five years. [Minn. R. 7011.0075]
COMG 71	GP039	NSPS Kb Tanks w/internal floating roof > 39,890 gals	
	5.54.1		Maintain records of current applicability of NSPS, Subpart Kb control requirements and NESHAP, Subpart FF control requirements for each tank on-site. Records may be electronic. [40 CFR 60.112b(a), 40 CFR 61.342(c)(1)(ii), Minn. R. 7011.1520(C), Minn. R. 7011.9930(E)]
	5.54.2		If storing VOL with max TVP equal to or greater than 0.75 psia and less than 11.1 psia, comply with the requirements listed within this group. [40 CFR 60.112b(a), Minn. R. 7011.1520(C)]
	5.54.3		If storing benzene waste as defined in 40 CFR Section 61.341 and either not exempting that waste from control under 40 CFR Section 61.342, or classifying the waste as controlled, comply with the requirements listed within this group regardless of vapor pressure. [40 CFR 61.342(c)(1)(ii), 40 CFR 63.647(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.54.4		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions). Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit fully satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks. [40 CFR 61.342(c)(1)(ii), 40 CFR 61.351(a), Minn. R. 7011.1520(C), Minn. R. 7011.9930(E)]
	5.54.5		The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside

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			a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible. [40 CFR 60.112b(a)(1)(i), Minn. R. 7011.1520(C)]
	5.54.6		Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof: (A) A foam- or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank. (B) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous. (C) A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.112b(a)(1)(ii)(A)-(C), Minn. R. 7011.1520(C)]
	5.54.7		Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.112b(a)(1)(iii), Minn. R. 7011.1520(C)]
	5.54.8		Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.112b(a)(1)(iv), Minn. R. 7011.1520(C)]

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	5.54.9		Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.112b(a)(1)(v), Minn. R. 7011.1520(C)]
	5.54.10		Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.112b(a)(1)(vi), Minn. R. 7011.1520(C)]
	5.54.11		Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.112b(a)(1)(vii), Minn. R. 7011.1520(C)]
	5.54.12		Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.112b(a)(1)(viii), Minn. R. 7011.1520(C)]
	5.54.13		Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.112b(a)(1)(ix), Minn. R. 7011.1520(C)]
	5.54.14		Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the Permittee shall repair the items before filling the storage vessel. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.113b(a)(1), Minn. R.

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			7011.1520(C)]
	5.54.15		For vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the Permittee shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, the Permittee may utilize up to two extensions of up to 30 additional calendar days each. Pursuant to 40 CFR Section 63.640(n)(8)(iii), the Permittee is not required to provide a request for the extension to the Administrator. Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible. [40 CFR 60.113b(a)(2), 40 CFR 60.113b(a)(3)(ii), 40 CFR 63.640(n)(8)(iii), Minn. R. 7011.1520(C), Minn. R. 7011.7280(A)]
	5.54.16		For vessels equipped with a double seal system as specified in 40 CFR Section 60.112b(a)(1)(ii)(B): (i) visually inspect the vessel as specified in 40 CFR 60.113b(a)(4) at least every 5 years; or (ii) visually inspect the vessel as specified in 40 CFR Section 60.113b(a)(2). [40 CFR 60.113b(a)(3)(i)-(ii), Minn. R. 7011.1520(C)]
	5.54.17		Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the Permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of vessels conducting the annual visual inspection as required by 40 CFR Section 60.113b(a)(2) and (a)(3)(ii) and at intervals no greater than 5 years in the case of vessels

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			specified in 40 CFR Section 60.113b(a)(3)(ii). [40 CFR 60.113b(a)(4), Minn. R. 7011.1520(C)]
	5.54.18		The sliding cover shall be in place over the slotted guidepole opening through the floating roof at all times except when the sliding cover must be removed for access. If the control technology used includes a guidepole float, the float shall be floating within the guidepole at all times except when it must be removed for access to the stored liquid or when the tank is empty. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [STERP Agreement March 2001 Slotted Guidepoles]. [Minn. R. 7007.0800, subp. 2]
	5.54.19		Visually inspect the deck fitting for the slotted guidepole deck fitting at least once every 10 years and each time the vessel is emptied and degassed. If the slotted guidepole deck fitting or control devices have defects, or if a gap of > 1/8" exists between any gasket required for control of the slotted guidepole deck fitting and any surface it is intended to seal, such items shall be repaired before filling or refilling the storage vessel with regulated material. Tanks taken out of hydrocarbon service, for any reason, do not have to have any controls in place during the time they are out of service. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [STERP Agreement March 2001 Slotted Guidepoles]. [Minn. R. 7007.0800, subp. 2]
	5.54.20		If the tank is in service, all slotted guidepole deck fitting or control device defects or gaps >1/8" on gaskets or seals required for control must be repaired within 45 days of inspection. If necessary, the Permittee may utilize up to two extensions of up to 30 additional calendar days each. Pursuant to 40 CFR Section 63.640(n)(8)(iii), the Permittee is not required to provide a request for the extension to the Administrator. [STERP Agreement March 2001 Slotted Guidepoles]. [Minn. R. 7007.0800, subp. 2]
	5.54.21		Double wiper seals are approved control technology for slotted ladders under FHR's Storage Tank Emission Partnership Agreement. [May 24, 2004, Letter from James K. Jackson, U. S. EPA]. [Minn. R. 7007.0800, subp. 2]
	5.54.22		The owner or operator of each storage vessel as specified in 40 CFR Section 60.112b(a) shall keep records and furnish reports as required by 40 CFR Section 60.115b(a). The Permittee shall keep copies of all reports and records required by this section for at least 2 years. [40 CFR 60.115b, Minn. R. 7011.1520(C)]
	5.54.23		Furnish the Administrator with a report that describes the control equipment and certifies that the control equipment meets the specifications of 40 CFR Section 60.112b(a)(1) and 40 CFR Section 60.113b(a)(1). This report shall be an attachment to the notification required by 40 CFR Section

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			60.7(a)(3). [40 CFR 60.115b(a)(1), Minn. R. 7011.1520(C)]
	5.54.24		The Permittee shall keep copies of all records required by this section, except for the record required by 40 CFR Section 60.116b(b) for at least 2 years. The record required by 40 CFR Section 60.116b(b) will be kept for the life of the source. [40 CFR 60.116b(a), Minn. R. 7011.1520(C)]
	5.54.25		The owner or operator of each storage vessel as specified in 40 CFR Section 60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. [40 CFR 60.116b(b), Minn. R. 7011.1520(C)]
	5.54.26		Except as provided in 40 CFR Section 60.116b(f) and (g), the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m3 storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m3 but less than 151 m3 storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period. [40 CFR 60.116b(c), Minn. R. 7011.1520(C)]
	5.54.27		Keep a record of each inspection performed as required by 40 CFR Section 60.113b(a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings). [40 CFR 60.115b(a)(2), Minn. R. 7011.1520(C)]
	5.54.28		Notify the Administrator in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by 40 CFR Section 60.113b(a)(1) and (a)(4) to afford the Administrator the opportunity to have an observer present. If the inspection required by 40 CFR Section 60.113b(a)(4) is not planned and the Permittee could not have known about the inspection 30 days in advance or refilling the tank, the Permittee shall notify the Administrator at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to the refilling. [40 CFR 60.113b(a)(5), 40 CFR 60.19(b)-(c), 40 CFR 60.4(a), 40 CFR 60.4(b)(Y), Minn. R. 7011.1520(C)]
	5.54.29		If any of the conditions described in 40 CFR Section 60.113b(a)(2) are detected during the annual visual inspection required by 40 CFR Section 60.113b(a)(2), a report shall be furnished to the Administrator within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made.

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			After each inspection required by 40 CFR Section 60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in 40 CFR 60.113b(a)(3)(ii), a report shall be furnished to the Administrator within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of 40 CFR Section 61.112b(a)(1) or 40 CFR Section 60.113b(a)(3) and list each repair made. [40 CFR 60.115b(a)(3)-(4), 40 CFR 60.19(b)-(c), 40 CFR 60.4(a), 40 CFR 60.4(b)(Y), Minn. R. 7011.1520(C)]
	5.54.30		Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below. (1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service. (2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following: (i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from monographs contained in API Bulletin 2517 (incorporated by reference, see 40 CFR Section 60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s). (ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa. (3) For other liquids, the vapor pressure: (i) May be obtained from standard reference texts, or (ii) Determined by ASTM D2879-83, 96, or 97 (incorporated by reference, see 40 CFR Section 60.17); or (iii) Measured by an appropriate method approved by the Administrator; or (iv) Calculated by an appropriate method approved by the Administrator. [40 CFR 60.116b(e)(1), 40 CFR 60.116b(e)(2)(i)-(ii), 40 CFR 60.116b(e)(3)(i)-(iv), Minn. R. 7011.1520(C)]
	5.54.31		The owner or operator of each vessel storing a waste mixture of indeterminate or variable composition shall be subject to the following requirements. (1) Prior to the initial filling of the vessel, the highest maximum true vapor pressure for the range of anticipated liquid compositions to be stored will be determined using the

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			methods described in 40 CFR Section 60.116b(e). (2) For vessels in which the vapor pressure of the anticipated liquid composition is above the cutoff for monitoring but below the cutoff for controls as defined in 40 CFR Section 60.112b(a), an initial physical test of the vapor pressure is required; and a physical test at least once every 6 months thereafter is required as determined by the following methods: (i) ASTM D2879-83, 96, or 97 (incorporated by reference, see 40 CFR Section 60.17); or (ii) ASTM D323-82 or 94 (incorporated by reference, see 40 CFR Section 60.17); or (iii) As measured by an appropriate method as approved by the Administrator. [40 CFR 60.116b(f)(1)-(2)(i)-(iii), Minn. R. 7011.1520(C)]
COMG 72	GP019	External Floating Tanks NSPS Kb > 39,890 gals	
	5.55.1		Maintain records of current applicability of NSPS, Subpart Kb control requirements and NESHAP, Subpart FF control requirements for each tank on-site. Records may be electronic. [40 CFR 60.112b(a), 40 CFR 61.342(c)(1)(ii), Minn. R. 7011.1520(C), Minn. R. 7011.9930(E)]
	5.55.2		If storing VOL with max TVP equal to or greater than 0.75 psia and less than 11.1 psia, comply with the requirements listed within this group. [40 CFR 60.112b(a), Minn. R. 7011.1520(C)]
	5.55.3		If storing benzene waste as defined in 40 CFR Section 61.341 and either not exempting that waste from control under 40 CFR Section 61.342, or classifying the waste as controlled, comply with the requirements listed within this group regardless of vapor pressure. [40 CFR 61.342(c)(1)(ii), 40 CFR 63.647(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.55.4		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions). Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks. [40 CFR 61.342(c)(1)(ii), 40 CFR 61.351(a), Minn. R. 7011.1520(C), Minn. R. 7011.9930(E)]
	5.55.5		An external floating roof. An external floating roof means a pontoon-type or double-deck type cover that rests on the liquid surface in a vessel with no fixed roof. Each external floating roof must meet the following specifications: (i) Each external floating roof shall be equipped with a closure device between the wall of the storage vessel and the roof edge. The closure device is to consist of two seals, one above the other. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal. (A) The primary seal shall be either a mechanical shoe seal or a liquid-mounted seal. Except as provided in 60 CFR Section 60.113b(b)(4), the seal shall completely cover the annular

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			space between the edge of the floating roof and tank wall. (B) The secondary seal shall completely cover the annular space between the external floating roof and the wall of the storage vessel in a continuous fashion except as allowed in 40 CFR Section 60.113b(b)(4). (ii) Except for automatic bleeder vents and rim space vents, each opening in a noncontact external floating roof shall provide a projection below the liquid surface. Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is to be equipped with a gasketed cover, seal, or lid that is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. Automatic bleeder vents are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. Rim vents are to be set to open when the roof is being floated off the roof legs supports or at the manufacturer's recommended setting. Automatic bleeder vents and rim space vents are to be gasketed. Each emergency roof drain is to be provided with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening. (iii) The roof shall be floating on the liquid at all times (i.e., off the roof leg supports) except during initial fill until the roof is lifted off leg supports and when the tank is completely emptied and subsequently refilled. The process of filling, emptying, or refilling when the roof is resting on the leg supports shall be continuous and shall be accomplished as rapidly as possible. A departure from this equipment specification is not considered a permit deviation as long as it is corrected within the time frame specified by regulation. [40 CFR 60.112b(a)(2)(i)-(iii), Minn. R. 7011.1520(C)]
	5.55.6		Make necessary repairs or empty the storage vessel within 45 days of identification in any inspection for seals not meeting the requirements listed in 40 CFR Section 60.113(b)(4) (i) and (ii). (i) The accumulated area of gaps between the tank wall and the mechanical shoe or liquid-mounted primary seal shall not exceed 212 cm² per meter of tank diameter, and the width of any portion of any gap shall not exceed 3.81 cm. (A) One end of the mechanical shoe is to extend into the stored liquid, and the other end is to extend a minimum vertical distance of 61 cm above the stored liquid surface. (B) There are to be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope. (ii) The secondary seal is to meet the following requirements: (A) The secondary seal is to be installed above the primary seal so that it completely covers the space between the roof edge and the tank wall except as provided in 40 CFR Section 60.113(b)(b)(2)(iii). (B) The accumulated area of gaps between the tank wall and

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			the secondary seal shall not exceed 21.2 cm² per meter of tank diameter, and the width of any portion of any gap shall not exceed 1.27 cm. (C) There are to be no holes, tears, or other openings in the seal or seal fabric. A departure from this equipment specification is not considered a permit deviation as long as it is corrected within the time frame specified by regulation. [40 CFR 60.113b(b)(4)(i)(A)-(B), 40 CFR 60.113b(b)(4)(ii)(A)-(C), Minn. R. 7011.1520(C)]
	5.55.7		Determine the gap areas and maximum gap widths, between the primary seal and the wall of the storage vessel and between the secondary seal and the wall of the storage vessel according to the following frequency. (i) Measurements of gaps between the tank wall and the primary seal (seal gaps) shall be performed during the hydrostatic testing of the vessel or within 60 days of the initial fill with VOL and at least once every 5 years thereafter. (ii) Measurements of gaps between the tank wall and the secondary seal shall be performed within 60 days of the initial fill with VOL and at least once per year thereafter. (iii) If any source ceases to store VOL for a period of 1 year or more, subsequent introduction of VOL into the vessel shall be considered an initial fill for the purposes of 40 CFR Section 60.113b(b)(1)(i) and (b)(1)(ii). [40 CFR 60.113b(b)(1)(i)-(iii), Minn. R. 7011.1520(C)]
	5.55.8		Determine gap widths and areas in the primary and secondary seals individually by the following procedures: (i) Measure seal gaps, if any, at one or more floating roof levels when the roof is floating off the roof leg supports. (ii) Measure seal gaps around the entire circumference of the tank in each place where a 0.32-cm diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the wall of the storage vessel and measure the circumferential distance of each such location. (iii) The total surface area of each gap described in 40 CFR Section 60.113b(b)(2)(ii) shall be determined by using probes of various widths to measure accurately the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance. [40 CFR 60.113b(b)(2)(i)-(iii), Minn. R. 7011.1520(C)]
	5.55.9		Add the gap surface area of each gap location for the primary seal and the secondary seal individually and divide the sum for each seal by the nominal diameter of the tank and compare each ratio to the respective standards in 40 CFR Section 60.113b(b)(4). [40 CFR 60.113b(b)(3), Minn. R. 7011.1520(C)]
	5.55.10		Visually inspect the external floating roof, the primary seal, secondary seal, and fittings each time the vessel is emptied and degassed. (i) If the external floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the

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			seal or the seal fabric, the Permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before filling or refilling the storage vessel with VOL. (ii) For all the inspections required by 40 CFR Section 60.113b(b)(6), the Permittee shall notify the Administrator in writing at least 30 days prior to the filling or refilling of each storage vessel to afford the Administrator the opportunity to inspect the storage vessel prior to refilling. If the inspection required by 40 CFR Section 60.113b(b)(6) is not planned and the Permittee could not have known about the inspection 30 days in advance of refilling the tank, the Permittee shall notify the Administrator at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to the refilling. A departure from this equipment specification is not considered a permit deviation as long as it is corrected within the time frame specified by regulation. [40 CFR 60.113b(b)(6)(i)-(ii), Minn. R. 7011.1520(C)]
	5.55.11		If the Permittee determines that it is unsafe to perform the seal gap measurements required in 40 CFR Section 60.113b(b) of subpart Kb or to inspect the vessel to determine compliance with 40 CFR Section 60.113b(a) of subpart Kb because the roof appears to be structurally unsound and poses an imminent danger to inspecting personnel, the Permittee shall comply with the requirements in either 40 CFR Section 63.120(b)(7)(i) or 40 CFR Section 63.120(b)(7)(ii) of subpart G. [40 CFR 63.640(n)(8)(ii), Minn. R. 7011.7280(A)]
	5.55.12		The sliding cover shall be in place over the slotted guidepole opening through the floating roof at all times except when the sliding cover must be removed for access. If the control technology used includes a guidepole float, the float shall be floating within the guidepole at all times except when it must be removed for access to the stored liquid or when the tank is empty. A departure from this equipment specification is not considered a permit deviation as long as it is corrected within the time frame specified by regulation. [STERP Agreement March 2001 Slotted Guidepoles]. [Minn. R. 7007.0800, subp. 2]
	5.55.13		Visually inspect the deck fitting for the slotted guidepole deck fitting at least once every 10 years and each time the vessel is emptied and degassed. If the slotted guidepole deck fitting or control devices have defects, or if a gap of > 1/8" exists between any gasket required for control of the slotted guidepole deck fitting and any surface it is intended to seal, such items shall be repaired before filling or refilling the storage vessel with regulated material. Tanks taken out of

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			hydrocarbon service, for any reason, do not have to have any controls in place during the time they are out of service. A departure from this equipment specification is not considered a permit deviation as long as it is corrected within the time frame specified by regulation. [STERP Agreement March 2001 Slotted Guidepoles]. [Minn. R. 7007.0800, subp. 2]
	5.55.14		If the tank is in service, all slotted guidepole deck fitting or control device defects or gaps >1/8" on gaskets or seals required for control must be repaired within 45 days of inspection. If necessary, the Permittee may utilize up to two extensions of up to 30 additional calendar days each. Pursuant to 40 CFR Section 63.640(n)(8)(iii), the Permittee is not required to provide a request for the extension to the Administrator. [STERP Agreement March 2001 Slotted Guidepoles]. [Minn. R. 7007.0800, subp. 2]
	5.55.15		Double wiper seals are approved control technology for slotted ladders under FHR's Storage Tank Emission Partnership Agreement for new and existing tanks. [May 24, 2004, letter from James K. Jackson, U.S. EPA]. [Minn. R. 7007.0800, subp. 2]
	5.55.16		The owner or operator of each storage vessel as specified in 40 CFR Section 60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. [40 CFR 60.116b(b), Minn. R. 7011.1520(C)]
	5.55.17		Except as provided in 40 CFR Section 60.116b(f) and (g), the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m3 storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m3 but less than 151 m3 storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period. [40 CFR 60.116b(c), Minn. R. 7011.1520(C)]
	5.55.18		Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below. (1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service. For crude oil or refined petroleum products the vapor pressure may be obtained by the following: (i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor

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			pressure from nomographs contained in API Bulletin 2517 (incorporated by reference 40 CFR Section 60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s). (ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa. For other liquids, the vapor pressure: (i) May be obtained from standard reference texts, or (ii) Determined by ASTM D2879-83, 96, or 97 (incorporated by reference see 40 CFR Section 60.17); or (iii) Measured by an appropriate method approved by the Administrator; or (iv) Calculated by an appropriate method approved by the Administrator. [40 CFR 60.116b(e)(1), 40 CFR 60.116b(e)(2)(i)-(ii), 40 CFR 60.116b(e)(3)(i)-(iv), Minn. R. 7011.1520(C)]
	5.55.19		Keep a record of each gap measurement performed as required by 40 CFR Section 60.113b(b). Each record shall identify the storage vessel in which the measurement was performed and shall contain: (i) The date of measurement. (ii) The raw data obtained in the measurement. (iii) The calculations described in 40 CFR Sections 60.113b(b)(2) and (b)(3). [40 CFR 60.115b(b)(3)(i)-(iii), Minn. R. 7011.1520(C)]
	5.55.20		If a failure that is detected during inspections required in 40 CFR Section 60.113b(b)(1) cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, the Permittee may utilize up to two extensions of up to 30 additional calendar days each. Pursuant to 40 CFR Section 63.640(n)(8)(iii), the Permittee is not required to provide a request for the extension to the Administrator. [40 CFR 60.113b(b)(4)(iii), 40 CFR 60.19(b)-(c), 40 CFR 60.4(a), 40 CFR 60.4(b)(Y), 40 CFR 63.640(n)(8)(iii), Minn. R. 7011.1520(C), Minn. R. 7011.7280(A)]
	5.55.21		Notify the Administrator 30 days in advance of any gap measurements required by 40 CFR Section 60.113b(b)(1) to afford the Administrator the opportunity to have an observer present. [40 CFR 60.113b(b)(5), 40 CFR 60.19(b), 40 CFR 60.19(c), 40 CFR 60.4(a), 40 CFR 60.4(b)(Y), Minn. R. 7011.1520(C)]
	5.55.22		Furnish the Administrator with a report that describes the control equipment and certifies that the control equipment meets the specifications of 40 CFR Section 60.112b(a)(2) and 40 CFR Sections 60.113b(b)(2), (b)(3), and (b)(4). This report shall be an attachment to the notification required by 40 CFR Section 60.7(a)(3). [40 CFR 60.115b(b)(1), Minn. R. 7011.1520(C)]

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	5.55.23		Within 60 days of performing the seal gap measurements required by 40 CFR Section 60.113(b)(1) furnish the Administrator with a report that contains: (i) The date of measurement. (ii) The raw data obtained in the measurement. (iii) The calculations described in 40 CFR Section 60.113b(b)(2) and (b)(3). [40 CFR 60.115b(b)(2)(i)-(iii), 40 CFR 60.19(b)-(c), 40 CFR 60.4(a), 40 CFR 60.4(b)(Y), Minn. R. 7011.1520(C)]
	5.55.24		After each seal gap measurement that detects gaps exceeding the limitations specified by 40 CFR Section 60.113b(b)(4), submit a report to the Administrator within 30 days of the inspection. The report will identify the vessel and contain the information specified in 40 CFR Section 60.115(b)(2) and the date the vessel was emptied or the repairs made and date of repair. [40 CFR 60.115b(b)(4), 40 CFR 60.19(b), 40 CFR 60.19(c), 40 CFR 60.4(a), 40 CFR 60.4(b)(Y), Minn. R. 7011.1520(C)]
	5.55.25		The Permittee shall keep copies of all records required by this section, except for the record required by 40 CFR Section 60.116b(b) for at least 2 years. The record required by 40 CFR Section 60.116b(b) will be kept for the life of the source. [40 CFR 60.116b(a), Minn. R. 7011.1520(C)]
	5.55.26		The owner or operator of each vessel storing a waste mixture of indeterminate or variable composition shall be subject to the following requirements. (1) Prior to the initial filling of the vessel, the highest maximum true vapor pressure for the range of anticipated liquid compositions to be stored will be determined using the methods described in 40 CFR Section 60.116b(e). (2) For vessels in which the vapor pressure of the anticipated liquid composition is above the cutoff for monitoring but below the cutoff for controls as defined in 40 CFR Section 60.112b(a), an initial physical test of the vapor pressure is required; and a physical test at least once every 6 months thereafter is required as determined by the following methods: (i) ASTM D2879-83, 96, or 97 (incorporated by reference, see 40 CFR Section 60.17); or (ii) ASTM D323-82 or 94 (incorporated by reference, see 40 CFR Section 60.17); or (iii) As measured by an appropriate method as approved by the Administrator. [40 CFR 60.116b(f)(1)-(2)(i)-(iii), Minn. R. 7011.1520(C)]
COMG 74	GP034	NSPS Kb Tanks w/fixed roof & CVS/CD > 39,890 gals	
	5.56.1		Maintain records of current applicability of NSPS, Subpart Kb control requirements and NESHAP, Subpart FF control requirements for each tank on-site. Records may be electronic. [40 CFR 60.112b(a)-(b), 40 CFR 61.342(c)(1)(ii), Minn. R. 7011.1520(C), Minn. R. 7011.9930(E)]

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	5.56.2		If storing VOL with max TVP greater than 0.75 psia, comply with requirements listed within this group. [40 CFR 60.112b(a), Minn. R. 7011.1520(C)]
	5.56.3		If storing benzene waste as defined in 40 CFR Section 61.341 and either not exempting that waste from control under 40 CFR Section 61.342 or classifying the waste as controlled, comply with the requirements listed within this group regardless of vapor pressure. [40 CFR 61.342(c)(1)(ii), 40 CFR 63.647(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.56.4		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions). Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit fully satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks. [40 CFR 61.342(c)(1)(ii), 40 CFR 61.351(a), Minn. R. 7011.1520(C), Minn. R. 7011.9930(E)]
	5.56.5		A closed vent system and control device meeting the following specifications: (i) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in 40 CFR pt. 60, subpart VVa, 40 CFR Section 60.485a(b). (ii) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements 40 CFR Section 60.18 of the General Provisions. [40 CFR 60.112b(a)(3)(i)-(ii), 40 CFR 60.112b(b)(1), 40 CFR pt. 60, subp. VVa, Minn. R. 7011.1520(C)]
	5.56.6		The owner or operator of each source that is equipped with a closed vent system and control device as required in 40 CFR Section 60.112b(a)(3) or (b)(2) (other than a flare) is exempt from 40 CFR Section 60.8 of the General Provisions. [40 CFR 60.113b(c), Minn. R. 7011.1520(C)]
	5.56.7		Submit for approval by the Administrator as an attachment to the notification required by 40 CFR Section 60.7(a)(1) or, if the facility is exempt from 40 CFR Section 60.7(a)(1), as an attachment to the notification required by 40 CFR Section 60.7(a)(2), an operating plan containing the information listed below. (i) Documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions. This documentation is to include a description of the gas stream which enters the control device, including flow and VOC content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If the control device or the closed vent capture system receives vapors, gases, or liquids other than fuels from sources that are not designated sources under this subpart, the efficiency demonstration is to

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			include consideration of all vapors, gases, and liquids received by the closed vent capture system and control device. If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of 816 degrees C is used to meet the 95 percent requirement, documentation that those conditions will exist is sufficient to meet the requirements of this paragraph. (ii) A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and an explanation of the criteria used for selection of that parameter (or parameters). [40 CFR 60.113b(c)(1)(i)-(ii), Minn. R. 7011.1520(C)]
	5.56.8		Operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance with the operating plan submitted to the Administrator in accordance with 40 CFR Section 60.113b(c)(1), unless the plan was modified by the Administrator during the review process. In this case, the modified plan applies. [40 CFR 60.113b(c)(2), Minn. R. 7011.1520(C)]
	5.56.9		The owner or operator of each source that is equipped with a closed vent system and a flare to meet the requirements in 40 CFR Section 60.112b(a)(3) or (b)(2) shall meet the requirements as specified in the general control device requirements, 40 CFR Section 60.18(e) and (f). [40 CFR 60.113b(d), Minn. R. 7011.1520(C)]
	5.56.10		The owner or operator of each storage vessel as specified in 40 CFR Section 60.112b(a) shall keep records and furnish reports as required by 40 CFR Section 60.115b(c). The Permittee shall keep copies of all reports and records required by 40 CFR Section 60.115b, except for the record required by 40 CFR Section 60.115b(c)(1), for at least 2 years. The record required by 40 CFR Section 60.115b(c)(1) will be kept for the life of the control equipment. [40 CFR 60.115b, Minn. R. 7011.1520(C)]
	5.56.11		The Permittee shall keep the following records. (1) A copy of the operating plan. (2) A record of the measured values of the parameters monitored in accordance with 40 CFR Section 60.113b(c)(2). [40 CFR 60.115b(c)(1)-(2), Minn. R. 7011.1520(C)]
	5.56.12		After installing a closed vent system and flare to comply with 40 CFR Section 60.112b, the Permittee shall meet the following requirements. (1) A report containing the measurements required by 40 CFR Section 60.18(f) (1), (2), (3), (4), (5), and (6) shall be furnished to the Administrator as required by 40 CFR Section 60.8 of the General Provisions. This report shall be submitted within 6 months of the initial start-up date. (2) Records shall be kept of all periods of operation during which the flare pilot flame is absent. (3) Semiannual reports of all periods recorded under 40 CFR Section 60.115b(d)(2) in which the pilot flame was absent shall be furnished to the Administrator. [40 CFR 60.115b(d)(1)-(3),

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			Minn. R. 7011.1520(C)]
	5.56.13		The Permittee shall keep copies of all records required by 40 CFR Section 60.116b except for the record required by 40 CFR Section 60.116b(b), for at least 2 years. The record required by 40 CFR Section 60.116b(b) will be kept for the life of the source. [40 CFR 60.116b(a), Minn. R. 7011.1520(C)]
	5.56.14		The owner or operator of each storage vessel as specified in 40 CFR Section 60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. [40 CFR 60.116b(b), Minn. R. 7011.1520(C)]
	5.56.15		Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below. (1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service. (2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following: (i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517 (incorporated by reference, see 40 CFR Section 60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s). (ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa. (3) For other liquids, the vapor pressure: (i) May be obtained from standard reference texts, or (ii) Determined by ASTM D2879-83, 96, or 97 (incorporated by reference, see 40 CFR Section 60.17); or (iii) Measured by an appropriate method approved by the Administrator; or (iv) Calculated by an appropriate method approved by the Administrator. [40 CFR 60.116b(e)(1), 40 CFR 60.116b(e)(2)(i)-(ii), 40 CFR 60.116b(e)(3)(i)-(iv), Minn. R. 7011.1520(C)]
	5.56.16		The owner or operator of each vessel storing a waste mixture of indeterminate or variable composition shall be subject to the following requirements. (1) Prior to the initial filling of the vessel, the highest maximum true vapor pressure for the range of anticipated liquid

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			compositions to be stored will be determined using the methods described in 40 CFR Section 60.116b(e). (2) For vessels in which the vapor pressure of the anticipated liquid composition is above the cutoff for monitoring but below the cutoff for controls as defined in 40 CFR Section 60.112b(a), an initial physical test of the vapor pressure is required; and a physical test at least once every 6 months thereafter is required as determined by the following methods: (i) ASTM D2879-83, 96, or 97 (incorporated by reference, see 40 CFR Section 60.17); or (ii) ASTM D323-82 or 94 (incorporated by reference, see 40 CFR Section 60.17); or (iii) As measured by an appropriate method as approved by the Administrator. [40 CFR 60.116b(f)(1)-(2)(i)-(iii), Minn. R. 7011.1520(C)]
COMG 75	GP026	NSPS Kb Tanks w/fixed roof & CVS/CD 19,813-39,890 gals	
	5.57.1		Maintain records of current applicability of NSPS, Subpart Kb control requirements and NESHAP, Subpart FF control requirements for each tank on-site. Records may be electronic. [40 CFR 60.112b(a), 40 CFR 61.342(c)(1)(ii), Minn. R. 7011.1520(C), Minn. R. 7011.9930(E)]
	5.57.2		If storing VOL with max TVP greater than 4.0 psia, comply with requirements listed within this group. [40 CFR 60.112b(a), Minn. R. 7011.1520(C)]
	5.57.3		If storing benzene waste as defined in 40 CFR Section 61.341 and either not exempting that waste from control under 40 CFR Section 61.342 or classifying the waste as controlled, comply with the requirements listed within this group regardless of the vapor pressure. [40 CFR 61.342(c)(1)(ii), 40 CFR 63.647(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.57.4		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions). Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit fully satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks. [40 CFR 61.342(c)(1)(ii), 40 CFR 61.351(a), Minn. R. 7011.1520(C), Minn. R. 7011.9930(E)]
	5.57.5		Frac tanks are exempt from NSPS, subp. Kb. [September 2, 2004, Letter to FHR from Mr. George T. Czerniak, Chief, Air Enforcement and Compliance Assurance Branch, U.S. EPA]. [Minn. R. 7008.0800, subp. 2]
	5.57.6		A closed vent system and control device meeting the following specifications: (i) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background

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			and visual inspections, as determined in 40 CFR pt. 60, subpart VVa, 40 CFR Section 60.485a(b). (ii) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements 40 CFR Section 60.18 of the General Provisions. [40 CFR 60.112b(a)(3)(i)-(ii), 40 CFR 60.112b(b)(1), 40 CFR pt. 60, subp. VVa, Minn. R. 7011.1520(C)]
	5.57.7		The owner or operator of each source that is equipped with a closed vent system and control device as required in 40 CFR Section 60.112b(a)(3) or (b)(2) (other than a flare) is exempt from 40 CFR Section 60.8 of the General Provisions. [40 CFR 60.113b(c), Minn. R. 7011.1520(C)]
	5.57.8		Submit for approval by the Administrator as an attachment to the notification required by 40 CFR Section 60.7(a)(1) or, if the facility is exempt from 40 CFR Section 60.7(a)(1), as an attachment to the notification required by 40 CFR Section 60.7(a)(2), an operating plan containing the information listed below. (i) Documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions. This documentation is to include a description of the gas stream which enters the control device, including flow and VOC content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If the control device or the closed vent capture system receives vapors, gases, or liquids other than fuels from sources that are not designated sources under this subpart, the efficiency demonstration is to include consideration of all vapors, gases, and liquids received by the closed vent capture system and control device. If an enclosed combustion device with a minimum residence time of 0.75 sec and a minimum temperature of 816 degrees C is used to meet the 95% requirement, documentation that those conditions will exist is sufficient to meet the requirements of this paragraph. (ii) A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and an explanation of the criteria used for selection of that parameter (or parameters). [40 CFR 60.113b(c)(1)(i)-(ii), Minn. R. 7011.1520(C)]
	5.57.9		Operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance with the operating plan submitted to the Administrator in accordance with 40 CFR Section 60.113b(c)(1), unless the plan was modified by the Administrator during the review process. In this case, the modified plan applies. [40 CFR 60.113b(c)(2), Minn. R. 7011.1520(C)]
	5.57.10		The owner or operator of each source that is equipped with a closed vent system and a flare to meet the requirements in 40

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			CFR Section 60.112b(a)(3) or (b)(2) shall meet the requirements as specified in the general control device requirements, 40 CFR Section 60.18(e) and (f). [40 CFR 60.113b(d), Minn. R. 7011.1520(C)]
	5.57.11		The owner or operator of each storage vessel as specified in 40 CFR Section 60.112b(a) shall keep records and furnish reports as required by 40 CFR Section 60.115b(c). The Permittee shall keep copies of all reports and records required by 40 CFR Section 60.115b, except for the record required by 40 CFR Section 60.115b(c)(1), for at least 2 years. The record required by 40 CFR Section 60.115b(c)(1) will be kept for the life of the control equipment. [40 CFR 60.115b, Minn. R. 7011.1520(C)]
	5.57.12		The Permittee shall keep the following records. (1) A copy of the operating plan. (2) A record of the measured values of the parameters monitored in accordance with 40 CFR Section 60.113b(c)(2). [40 CFR 60.115b, 40 CFR 60.115b(c)(1)-(2), Minn. R. 7011.1520(C)]
	5.57.13		After installing a closed vent system and flare to comply with 40 CFR Section 60.112b, the Permittee shall meet the following requirements. (1) A report containing the measurements required by 40 CFR Section 60.18(f) (1), (2), (3), (4), (5), and (6) shall be furnished to the Administrator as required by 40 CFR Section 60.8 of the General Provisions. This report shall be submitted within 6 months of the initial start-up date. (2) Records shall be kept of all periods of operation during which the flare pilot flame is absent. (3) Semiannual reports of all periods recorded under 40 CFR Section 60.115b(d)(2) in which the pilot flame was absent shall be furnished to the Administrator. [40 CFR 60.115b(d)(1)-(3), Minn. R. 7011.1520(C)]
	5.57.14		The Permittee shall keep copies of all records required by 40 CFR Section 60.116b except for the record required by 40 CFR Section 60.116b(b), for at least 2 years. The record required by 40 CFR Section 60.116b(b) will be kept for the life of the source. [40 CFR 60.116b(a), Minn. R. 7011.1520(C)]
	5.57.15		The owner or operator of each storage vessel as specified in 40 CFR Section 60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. [40 CFR 60.116b(b), Minn. R. 7011.1520(C)]
	5.57.16		Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below. (1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.

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			(2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following: (i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517 (incorporated by reference, see 40 CFR Section 60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s). (ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa. (3) For other liquids, the vapor pressure: (i) May be obtained from standard reference texts, or (ii) Determined by ASTM D2879-83, 96, or 97 (incorporated by reference, see 40 CFR Section 60.17); or (iii) Measured by an appropriate method approved by the Administrator; or (iv) Calculated by an appropriate method approved by the Administrator. [40 CFR 60.116b(e)(1), 40 CFR 60.116b(e)(2)(i)-(ii), 40 CFR 60.116b(e)(3)(i)-(iv), Minn. R. 7011.1520(C)]
	5.57.17		The owner or operator of each vessel storing a waste mixture of indeterminate or variable composition shall be subject to the following requirements. (1) Prior to the initial filling of the vessel, the highest maximum true vapor pressure for the range of anticipated liquid compositions to be stored will be determined using the methods described in 40 CFR Section 60.116b(e). (2) For vessels in which the vapor pressure of the anticipated liquid composition is above the cutoff for monitoring but below the cutoff for controls as defined in 40 CFR Section 60.112b(a), an initial physical test of the vapor pressure is required; and a physical test at least once every 6 months thereafter is required as determined by the following methods: (i) ASTM D2879-83, 96, or 97 (incorporated by reference, see 40 CFR Section 60.17); or (ii) ASTM D323-82 or 94 (incorporated by reference, see 40 CFR Section 60.17); or (iii) As measured by an appropriate method as approved by the Administrator. [40 CFR 60.116b(f)(1)-(2)(i)-(iii), Minn. R. 7011.1520(C)]
COMG 78	GP042	MACT CC Group 1 Tank Requirements, satisfied by NSPS Kb	
	5.58.1		Subject to 40 CFR pt. 60, subps. Kb and A (general provisions).

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			Compliance with 40 CFR pt. 60, subps. Kb and A as listed in this permit fully satisfies the requirements of 40 CFR pt. 63, subps. A and CC, 40 CFR pt. 60, subps. K, Ka, and QQQ, 40 CFR pt. 61, subps. A and FF, as applicable, for these tanks. [40 CFR 63.640(n)(1), Minn. R. 7011.7280(A), Minn. R. 7019.0100, subp. 2(A)-(D)]
	5.58.2		If storing HAP (per the MACT requirement) comply with the requirements listed under COMG72 for EFR tanks, COMG71 for IFR tanks, COMG74 for FR tanks except comply with COMG41 for EQUI1143 and associated equipment. [40 CFR 63.640(a)(2), 40 CFR 63.640(c)(2), Minn. R. 7011.7280(A)]
	5.58.3		At all times, including periods of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1)(i)-(iii), Minn. R. 7011.7000, Minn. R. 7017.2015, subp. 2(A)-(B)]
	5.58.4		Correct malfunctions as soon as practicable in accordance with the startup, shutdown, and malfunction plan. [40 CFR 63.6(e)(1)(ii)-(iii), Minn. R. 7011.7000]
	5.58.5		Record occurrence of startup, shutdown, and malfunction of process equipment or of malfunction or maintenance of air pollution control equipment. Document conformance with or deviation from startup/shutdown/malfunction plan (SSMP). [40 CFR 63.10(b)(2)(i)-(v), 40 CFR 63.6(e)(3)(iii)-(iv), 40 CFR pt. 63, subp. CC(Table 6), Minn. R. 7011.7000, Minn. R. 7011.7280(A), Minn. R. 7019.0100]
	5.58.6		Maintain up-to-date SSMP. [40 CFR 63.6(e)(1)(iii), 40 CFR 63.6(e)(2), 40 CFR 63.6(e)(3)(i)&(iii), 40 CFR 63.6(e)(3)(v)-(vii), Minn. R. 7011.7000]
	5.58.7		If a malfunction occurs that was not addressed in the SSMP, revise the SSMP within 45 days after the event. [40 CFR 63.6(e)(3)(viii), Minn. R. 7011.7000]
COMG 79	GP046	Tanks MN R post 1973 and > 40,000 gals	
	5.59.1		The requirements in this COMG79 only apply to tanks storing petroleum liquids as defined in Minn. R. 7011.1500, subp. 8. [Minn. R. 7011.1500, subp. 11, Minn. R. 7011.1500, subp. 8]
	5.59.2		For tanks storing petroleum liquids listed in Minn. R. 7011.1500, subp. 8, the Permittee shall comply with the following requirements: (1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia) the storage vessel shall be equipped with a floating roof, a vapor recovery system or their equivalents. (2) If the true vapor pressure of the petroleum liquid, as stored, is greater than 570 mm Hg (11.1psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent. [Minn. R. 7011.1510, subp. 3]

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	5.59.3		Records: The Permittee shall for each storage tank: Maintain a file of each type of petroleum liquid stored, of the typical Reid vapor pressure of each type of petroleum liquid stored, of the dates of storage and withdrawals, and of the date on which the storage vessel is empty. [Minn. R. 7011.1510, subp. 1(A)]
	5.59.4		Records: The Permittee shall for each storage tank: Determine and record the average monthly storage temperature and true vapor pressure of the petroleum liquid stored at such temperature if: (1) the petroleum liquid has a true vapor pressure, as stored, greater than 26 mm Hg (0.5 psia) but less than 78 mm Hg (1.5 psia) and is stored in a storage vessel other than one equipped with a floating roof, a vapor recovery system or their equivalents; or (2) the petroleum liquid has a true vapor pressure, as stored, greater than 470 mm Hg (9.1 psia) and is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent. [Minn. R. 7011.1510, subp. 1(B)]
	5.59.5		Calculation: The average monthly storage temperature is an arithmetic average calculated for each calendar month, or portion thereof if storage is for less than a month, from bulk liquid storage temperatures determined at least once every seven days. [Minn. R. 7011.1510, subp. 2]
	5.59.6		Vapor pressure determination. The true vapor pressure shall be determined by the procedure in American Petroleum Institute Bulletin 2517. This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the Agency or the Commissioner requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, that Reid vapor pressure may be used. For other liquids, supporting analytical data must be made available on request of the Agency or the Commissioner when typical Reid vapor pressure is used. [Minn. R. 7011.1510, subp. 3]
COMG 80	GP067	All equipment included in individual drain system subject to NSPS QQQ or NESHAPs FF	
	5.60.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.60.2		Drains in active service subject to 40 CFR pt. 60, subp. QQQ shall be equipped with water seal/lube oil or equivalent

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			controls. 40 CFR pt. 60, QQQ drains out of active service may be equipped with water seal/lube oil or equivalent controls, or be equipped with a tightly sealed cap or plug. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.692-2(a)(1), 40 CFR 60.692-2(a)(3), 40 CFR 60.692-2(a)(4), Minn. R. 7011.1435(C)]
	5.60.3		Drains subject to 40 CFR pt. 61, subp. FF control shall be equipped with water/lube oil seal or equivalent controls or a tightly sealed cap or plug. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(b)(1), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.60.4		For drains subject only to 40 CFR pt. 61, subp. FF control requirements, comply with COMG51 for water/lube oil seal or equivalent seal drains and COMG60 for capped/plugged drains. [40 CFR 61.346, Minn. R. 7011.9930(E)]
	5.60.5		For drains subject only to 40 CFR pt. 60, subp. QQQ requirements, comply with COMG14 for water/lube oil seal or equivalent seal drains, COMG13 for capped/plugged drains that are used infrequently, and COMG15 for inactive capped/plugged drains. [40 CFR 60.692-2, Minn. R. 7011.1435(C)]
	5.60.6		For drains subject to both 40 CFR pt. 61, subp. FF and 40 CFR pt. 60, subp. QQQ control requirements, comply with COMG81 for water/lube oil seal or equivalent seal drains and COMG94 for capped/plugged drains. [40 CFR 60.692-2, 40 CFR 61.346, Minn. R. 7011.1435(C), Minn. R. 7011.9930(E)]
	5.60.7		For unburied sewer lines subject to 40 CFR pt. 61, subp. FF or 40 CFR pt. 60, subp. QQQ, comply with FUG1124. [40 CFR 60.692-2, 40 CFR 61.346, Minn. R. 7011.1435(C), Minn. R. 7011.9930(E)]
	5.60.8		For junction boxes subject to 40 CFR pt. 61, subp. FF control requirements, comply with COMG82. [40 CFR 61.346, Minn. R. 7011.9930(E)]
	5.60.9		For junction boxes subject to 40 CFR pt. 60, subp. QQQ requirements, comply with COMG1. [40 CFR 60.692-2, Minn. R. 7011.1435, subp. C]
COMG 81	GP069	Drains subject to NESH FF and also subject to NSPS QQQ (water seal; lube oil or equivalent)	
	5.61.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame

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			specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.61.2		Monthly inspection: Visually inspect water sealed/ lube oil or equivalent sealed drains in active service. Inspect monthly for indications of low liquid levels, cracks, gaps, or leaks that could result in VOC emissions or in lieu of inspection, add water/ lube oil or equivalent to the cup. EPA approval of alternate monitoring plan dated 4/29/04. (2001 EPA Consent Decree, as amended). [40 CFR 60.692-2(a)(2), 40 CFR 61.346(b)(4), 40 CFR 63.655(a), CAAA of 1990, Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.61.3		For drains with a water seal/ lube oil or equivalent seal at the junction box, flush liquid to the affected junction box via any listed drain cup to verify a water seal/ lube oil or equivalent seal. EPA approval of alternate monitoring plan dated 4/29/04. (2001 EPA Consent Decree, as amended). [40 CFR 60.692-2(a)(2), 40 CFR 61.346(b)(4), 40 CFR 63.655(a), CAAA of 1990, Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.61.4		Repairs: Whenever low liquid levels are identified, water, lube oil, or equivalent shall be added or first efforts at repair shall be made within 24 hours of detection unless qualifying for delay of repair. [40 CFR 60.692-2, 40 CFR 61.346(b)(5), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.61.5		Delay of repair will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown. Repair shall occur before the end of the next refinery or process unit shutdown. [40 CFR 60.692-6, 40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.61.6		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.697(b)(1), 40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 82	GP076	Junction Boxes subject to NESH FF when equipped with carbon canisters	
	5.62.1		All equipment that contains waste subject to NESHAP FF standards must maintain openings (e.g. hatches, covers, lids, etc.) in a closed, sealed position. A departure from this equipment specification is not

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			considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(a)(1)(i), 40 CFR 61.346(a)(1)(i)(B), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.62.2		Standard: Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.62.3		Install, operate and maintain a cover and closed vent system that routes all organic vapors vented from the waste management until to a control device or junction box vent pipe meets requirements in 40 CFR Section 61.346(b)(2). A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(a)(1), 40 CFR 61.346(a)(1)(i), 40 CFR 61.346(b)(2), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.62.4		The cover and all openings (e.g., access hatches, sampling ports) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, initially and annual by Method 21. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(a)(1)(i), 40 CFR 61.349(a)(1)(i), 40 CFR 61.355(h), 40 CFR 61.356(h), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.62.5		The Permittee shall test equipment for compliance with no detectable emissions as required in accordance with the following requirements: (1) Monitoring shall comply with Method 21 from appendix A of 40 CFR pt. 60. (2) The detection instrument shall meet the performance criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. (5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum

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			concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 61.346(a)(1)(i)(A), 40 CFR 61.355(h), 40 CFR 61.355(h)(1)-(7), 40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.62.6		Quarterly NESHAP visual inspection: Each cover seal, access hatch and all other openings shall be checked by visual inspection initially and quarterly to ensure that no cracks or gaps occur and that access hatches and other openings are closed and gasketed properly. For junction boxes complying with 40 CFR Section 61.346(b), each junction box shall be visually inspected initially and quarterly to ensure that the cover is in place and ensure that the cover has a tight seal around the edge. [40 CFR 61.346(a)(2), 40 CFR 61.346(b)(4)(iii), 40 CFR 61.356(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.62.7		Delayed Repairs: Delay of repair of facilities or units that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.62.8		Repairs: when a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification. [40 CFR 61.346(a)(3), 40 CFR 61.346(b)(5), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.62.9		Records: The Permittee shall maintain a record for each visual inspection that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The Permittee shall maintain a record for each test of no detectable emissions. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. [40 CFR 60.697(d), 40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]

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COMG 83	GP082	Fugitive Compressors LDAR Requirements	
	5.63.1		Each compressor that is not exempt from LDAR requirements in COMG97, Fugitive Compressors Exempt from LDAR Requirements must meet the requirements in COMG85, Fugitive LDAR Equipment Designated Non-detectable. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.63.2		If leak repair requires the shutdown of a compressor and no permanent spare is available, then criteria for partial unit shutdown is met, and delay of repair is allowed. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-9a(a), Minn. R. 7007.0800, subp. 2]
	5.63.3		Include in the semi-annual LDAR Report: Number of compressors for which leaks were detected. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.487a(c)(2)(v), Minn. R. 7007.0800, subp. 2]
	5.63.4		Include in the semi-annual LDAR Report: Number of compressors for which leaks were not repaired within 15 calendar days or put on the delay of repair list. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.487a(c)(2)(vi), Minn. R. 7007.0800, subp. 2]
COMG 84	GP087	Fugitive LDAR All Equipment in VOC or HAP Service	
	5.64.1		Regulated equipment in VOC or organic HAP service (>10 wt% VOC per 40 CFR Section 60.481a or >5 wt% organic HAPs listed in Table 1 of 40 CFR pt. 63, subp. CC) must comply with the leak detection and repair (LDAR) provisions of this permit. Compliance with these provisions constitutes full and complete compliance with otherwise applicable requirements of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J, and V; 40 CFR pt. 63, subps. A and CC; the LDAR provisions of the 2001 Consent Order (U.S. v. Koch Petroleum Group, Court file No. 00-CCU-2756, U.S. Dist of MN); Clean Fuels Permit 106A-92-I/O-32; and related Minnesota rules. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.64.2		LDAR programs shall be implemented refinery-wide, including all components within all contiguous areas that are owned and

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			maintained by the refinery. As referenced in this Section, "components" shall mean applicable regulated equipment as defined in 40 CFR pt. 60, subp. GGGa, and 40 CFR pt. 63, subp. CC, except that components located outside of process unit boundaries shall not be excluded from applicability by using the definition of "process unit". [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.481a, Minn. R. 7007.0800, subp. 2]
	5.64.3		The Permittee shall have the option of monitoring all components within a process unit within 30 days after the startup of the process unit after the turnaround without having the results of the monitoring used in the leak rate determination. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.64.4		The Permittee shall calculate percent leaking valves on a process unit by process unit basis. This rate is used to determine monitoring frequency for units utilizing skip monitoring frequencies. Storage tanks are considered separate process units under the consolidated LDAR program implemented consistent with the Consent Decree, the Clean Fuels permit, and state/federal regulations. The leak rates for components in these groups are calculated separately and are not included in the leak rates calculated for other process units. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.483-1a, 40 CFR 60.483-2a, Minn. R. 7007.0800, subp. 2]
	5.64.5		When a leak is detected, repair as soon as practicable. Make first attempt at repair no later than 5 days after the leak is detected. Make final repair and monitoring as soon as practical but no later than 15 calendar days after it is detected unless delay of repair provisions are invoked. First attempts at repair include, but are not limited to, the best practices described under 40 CFR Section 60.482-7a(e). [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-10a(g), 40 CFR 60.482-11a(d), 40 CFR 60.482-2a(c), 40 CFR 60.482-3a(g), 40 CFR 60.482-7a(d), 40 CFR 60.482-8a(c), Minn. R. 7007.0800, subp. 2]
	5.64.6		Delay of repair allowed. Repair must typically be completed before the end of the next process unit shutdown and the following criteria must be met: Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service. Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the

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			process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-9a, Minn. R. 7007.0800, subp. 2]
	5.64.7		Tag leaking equipment. (1) A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment. (2) The identification on non-valve equipment may be removed after it has been repaired. The identification on a valve may be removed after it has been monitored for 2 successive months as specified in 40 CFR Section 60.482-7a(c) and no leak has been detected during those 2 months. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(b), Minn. R. 7007.0800, subp. 2]
	5.64.8		Record date, tag number, and leak data when a leak is detected. When each leak is detected as specified in 40 CFR Section 60.482-2a, 40 CFR Section 60.482-3a, 40 CFR Section 60.482-7a, 40 CFR Section 60.482-8a, 40 CFR Section 60.482-11a, 40 CFR Section 60.483-2a, the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location: (1) The instrument and operator identification numbers and the equipment identification number, except when indications of liquids dripping from a pump are designated as a leak. (2) The date the leak was detected and the dates of each attempt to repair the leak. (3) Repair methods applied in each attempt to repair the leak. (4) Maximum instrument reading measured by Method 21 of appendix A-7 of this part at the time the leak is successfully repaired or determined to be nonrepairable, except when a pump is repaired by eliminating indications of liquids dripping. (5) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak. (6) The signature of the Permittee (or designate) whose decision it was that repair could not be effected without a process shutdown. (7) The expected date of successful repair of the leak if a leak is not repaired within 15 days. (8) Dates of process shutdowns that occur while the equipment is unrepaired. (9) The date of successful repair of the leak. A departure from this equipment specification is not

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			considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(e), Minn. R. 7007.0800, subp. 2]
	5.64.9		Document applicability determination for all LDAR equipment. The Permittee shall demonstrate that a piece of equipment is in light liquid service by showing that all the following conditions apply: (1) The vapor pressure of one or more of the organic components is greater than 0.3 kPa at 20 Celsius, Standard reference texts or ASTM D-2879 (incorporated by reference see 40 CFR Section 60.17) shall be used to determine the vapor pressures. (2) The total concentration of the pure organic components having a vapor pressure greater than 0.3 kPa at 20 Celsius is equal to or greater than 20 percent by weight. (3) The fluid is a liquid at operating conditions. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.485a(e), Minn. R. 7007.0800, subp. 2]
	5.64.10		Document applicability determination for all LDAR equipment. Include (1) the dates of each required initial compliance test as required in 40 CFR Section 60.482-2a(e), 40 CFR Section 60.482-3a(i), 40 CFR Section 60.482-4a, and 40 CFR Section 60.482-7a(f); (2) The background level measured during each compliance test; and (3) The maximum instrument reading measured at the equipment during each compliance test. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.60.486a(e)(4), Minn. R. 7007.0800, subp. 2]
	5.64.11		Report: Provide a listing of those units that became subject to more frequent monitoring for valves during the reporting interval. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.487a, Minn. R. 7007.0800, subp. 2]
	5.64.12		Submit semi-annual LDAR Report to the Administrator beginning six months after the initial startup date and due 30 days after reporting period thereafter. All semi-annual reports to the Administrator shall include the following information, summarized from the information in 40 CFR Section 60.486a: (1) Process unit identification. (2) For each month during the semi-annual reporting period: (i) Number of valves for which leaks were detected as

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			described in 40 CFR Section 60.482-7a(b) or 40 CFR Section 60.483-2a; (ii) Number of valves for which leaks were not repaired as required in 40 CFR Section 60.482-7a(d)(1); (iii) Number of pumps for which leaks were detected as described in 40 CFR Sections 60.482-2a(b), (d)(4)(ii)(A) or (B), or (d)(5)(iii) (iv) Number of pumps for which leaks were not repaired as required in 40 CFR Section 60.482-2a(c)(1) and 40 CFR Section 60.482-2a(d)(6); (v) Number of compressors for which leaks were detected as described in 40 CFR Section 60.482-3a(f); (vi) Number of compressors for which leaks were not repaired as required in 40 CFR Section 60.482-3a(g)(1); and (ix) The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible. (3) Dates of process unit shutdowns which occurred within the semi-annual reporting period. (4) Revisions to items reported in the initial report. Also include frequency of monitoring for process units utilizing skip period monitoring. Include the results of all performance tests in accordance with 40 CFR Section 60.8 of the General Provisions. The provisions of 40 CFR Section 60.8(d) do not apply to affected facilities subject to the provisions of this subpart except that an owner or operator must notify the Administrator of the schedule for the initial performance tests at least 30 days before the initial performance tests. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.487a(c), Minn. R. 7007.0800, subp. 2]
	5.64.13		Storage tanks are considered separate process units under the consolidated LDAR program implemented consistent with the Consent Decree, the Clean Fuels permit, and state/federal regulations. Any storage tank system components must either be included in these FUGIs or others as referenced in 40 CFR Section 60.482-1a(g). [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.481a, 40 CFR 60.482-1a(g), 40 CFR 60.591a, Minn. R. 7007.0800, subp. 2]
	5.64.14		Monitoring to verify repair on delay-of-repair equipment must occur within 15 days after startup of the process unit. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-9a(a), Minn. R. 7007.0800, subp. 2]
	5.64.15		Use calibration gases and follow test methods and procedures as referenced in 40 CFR Section 60.485a(b). [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61,

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			subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.485a(b), Minn. R. 7007.0800, subp. 2]
	5.64.16		Comply with recordkeeping requirements for equipment calibrations and monitoring events as referenced in 40 CFR Section 60.486a(a)(3) (i.e. instrument, equipment, operator, date, and reading), 40 CFR Section 60.486a(c) (i.e. equipment, operator, date of leak and repair, repair method, max reading, reason for delay, signature, date of repair and unit shutdown), 40 CFR Section 60.486(e)(7) (i.e. weekly visual pump inspection), 40 CFR Section 60.486a(e)(10) (i.e. releases from PSVs), and 40 CFR Section 60.486(e)(8) (i.e. instrument calibrations) The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(a)(3), 40 CFR 60.486a(c), 40 CFR 60.486a(c)(8), 40 CFR 60.486a(e), 40 CFR 60.486a(e)(107), 40 CFR 60.486a(e)(4), Minn. R. 7007.0800, subp. 2]
COMG 85	GP090	Fugitive LDAR Equipment Designated Non-detectable emissions (NDE)	
	5.65.1		If an instrument reading of 500 ppm or greater is measured, a leak is detected. If a leak is detected, then follow the repair requirements in COMG84. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-2a(e), 40 CFR 60.482-3a(i), 40 CFR 60.482-7a(f), Minn. R. 7007.0800, subp. 2]
	5.65.2		Pumps designated for no detectable emissions must meet specifications: Any pump that is designated for no detectable emission is exempt from barrier system requirements if the pump: (1) Has no externally actuated shaft penetrating the pump housing. (2) Is demonstrated to be operating with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as measured by Method 21. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-2a(e), Minn. R. 7007.0800, subp. 2]
	5.65.3		Compressors designated for no detectable emissions must meet specifications. The compressor must be demonstrated to be operating with no detectable emissions, as indicated by an

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			instrument reading of less than 500 ppm above background, as measured by Method 21. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-3a(i), Minn. R. 7007.0800, subp. 2]
	5.65.4		Valves designated for no detectable emissions must meet specifications: The valve must: (1) Have no external actuating mechanism in contact with the process fluid. (2) Be operated with emissions less than 500 ppm above background as determined by Method 21. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-7a(f), Minn. R. 7007.0800, subp. 2]
	5.65.5		Measure for detectable emissions using Method 21. Test for compliance with 40 CFR Section 60.482-7a(f)(2) initially upon designation, annually, and at other times requested by the Administrator. The Permittee shall determine compliance with the no detectable emission standards in 40 CFR Section 60.482-2a(e), 40 CFR Section 60.482-3a(i), 40 CFR Section 60.482-4a, 40 CFR Section 60.482-7a(f), and 40 CFR Section 60.482-10a(e) as follows: (1) The requirements of 40 CFR Section 60.482-7a(b) shall apply. (2) Method 21 shall be used to determine the background level. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentrations indicates by the instrument and the background level is compared with 500 ppm for determining compliance. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.485a(c), Minn. R. 7007.0800, subp. 2]
	5.65.6		Measure for detectable emissions upon Administrator's request. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-2a(e), 40 CFR 60.482-3a(i), 40 CFR 60.482-7a(f), Minn. R. 7007.0800, subp. 2]
	5.65.7		Document applicability determination for all LDAR equipment in light liquid service. Include a list of identification numbers

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			for equipment that are designated for no detectable emissions. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(e)(2), Minn. R. 7007.0800, subp. 2]
COMG 86	GP091	Fugitive LDAR Open-ended Lines	
	5.66.1		With the exception of asphalt lines, open-ended lines must be sealed by a cap, blind flange, plug or second valve at all times except during operations requiring flow through the line. Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in 40 CFR Section 60.482-6a(a) through (c) are exempt from the requirements of 40 CFR Section 60.482-6a(a) through (c). (a)(1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in 40 CFR Section 60.482-1a(c), 40 CFR Section 60.482-6a(d), and 40 CFR Section 60.482-6a(e). A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by permit. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-6a(a)(1), 40 CFR 60.593a(f), Minn. R. 7007.0800, subp. 2]
	5.66.2		(2) The cap, blind flange, or second valve shall seal the open end at all times except during operations requiring fluid flow through the open-ended valve or line. (b) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed. (c) When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with 40 CFR Section 60.482-6a(a) at all other times. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by permit. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-6a(a)(2)-(c), Minn. R. 7007.0800, subp. 2]
	5.66.3		A leak is detected if an open-ended line is found and not immediately repaired. If a leak is detected, then follow the repair requirements in COMG84. A departure from this equipment specification is not

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			considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by permit. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.66.4		FHR's consolidated LDAR program establishes a compliance plan which sets 5- and 15-day repair deadlines for open-ended lines and allows delay of repair for any open-ended lines that would otherwise require significant process changes or a shutdown to fix. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.593a(f), Minn. R. 7007.0800, subp. 2]
COMG 87	GP093	Fugitive LDAR PSV to Atmosphere in Gas/Vapor Service	
	5.67.1		After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in 40 CFR Section 60.482-9a. No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, using Method 21 per the requirements stated in COMG85. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-4a(b), Minn. R. 7007.0800, subp. 2]
	5.67.2		Document applicability determination for all LDAR pressure relief devices. Include a list of equipment identification numbers for pressure relief devices subject to LDAR provisions. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(e)(4), Minn. R. 7007.0800, subp. 2]
COMG 88	GP095	Fugitive LDAR Pumps In Heavy Liquid Service	
	5.68.1		If an instrument reading of 1,000 ppm or greater is measured, a leak is detected. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.68.2		If evidence of a potential leak is found by visual, audible,

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			olfactory, or any other detection method at pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service, the Permittee shall follow either one of the following procedures: (1) The Permittee shall monitor the equipment within 5 days by the method specified in 40 CFR Section 60.485a(b) and shall comply with the requirements of 40 CFR Section 60.482-8a(b) through (d). (2) The Permittee shall eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-8a(a), Minn. R. 7007.0800, subp. 2]
COMG 89	GP096	Fugitive LDAR Light Liquid Pumps	
	5.69.1		Monitor pumps for leaks using Method 21. If an instrument reading of 1000 ppm or greater is measured, a leak is detected. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-2a, Minn. R. 7007.0800, subp. 2]
	5.69.2		Weekly visually inspect pumps for indications of liquids dripping from the pump seal. If there are indications of liquids dripping from the pump seal, either: (i) Monitor the pump within 5 days using Method 21 to determine whether a leak is detected, or (ii) Designate the visual indications of liquids dripping as a leak, and repair the leak using either the procedures in 40 CFR Section 60.482-2a(c) or by eliminating the visual indications of liquids dripping. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-2a(b)(2), Minn. R. 7007.0800, subp. 2]
	5.69.3		Reciprocating pumps in light liquid service are exempt from LDAR monitoring and repair requirements if recasting the distance piece or replacing the reciprocating pump is required to meet the standards. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.69.4		Monitor unsafe-to-monitor pumps per the written inspection plan. No plan is required if no components are on the unsafe-to-monitor list. Plan must require monitoring of the pump as frequently as practicable during safe-to-monitor times but not more frequently than the periodic monitoring schedule otherwise applicable, and repair of the pump if a leak is detected. [40 CFR pt. 70 (consolidated LDAR requirements

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			based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-2a(g)(2), 40 CFR 60.485a(f), Minn. R. 7007.0800, subp. 2]
	5.69.5		Delay of repair allowed. Repair must typically be completed before the end of the next process unit shutdown and the following criteria must be met: (1) Repair requires the use of dual mechanical seal system that includes a barrier fluid system, and (2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-9a(d), Minn. R. 7007.0800, subp. 2]
	5.69.6		A pump that begins operation in light liquid service after the initial startup date for the process unit must be monitored for the first time within 30 days after the end of its startup period, except for a pump that replaces a leaking pump. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-2a(a)(1), Minn. R. 7007.0800, subp. 2]
COMG 90	GP099	Fugitive LDAR Sample Stations	
	5.70.1		Sampling systems, as defined in 40 CFR Section 60.481a, except in situ sampling systems and sampling systems without purges, in VOC or HAP service shall be equipped with a closed-purge, closed-loop, or a closed-vent system. Each closed-purge, closed-loop, or closed-vent system shall comply with one of the following requirements: (1) Gases displaced during filling of the sample container are not required to be collected or captured. (2) Containers that are part of a closed-purge system must be covered or closed when not being filled or emptied. (3) Gases remaining in the tubing or piping between the closed-purge system valve(s) and sample container valve(s) after the valves are closed and the sample container is disconnected are not required to be collected or captured. (4) Each closed-purge, closed-loop, or closed-vent system shall be designed and operated to: (i) Return the purged process fluid directly to the process line. (ii) Collect and recycle the purged process fluid to a process. (iii) Capture and transport all the purged process fluid to a control device that complies with the requirements of 40 CFR Section 60.482-10a. (iv) Collect, store, and transport the purged process fluid to any of the following systems or facilities: (A) A waste management unit as defined in 40 CFR Section 63.111, if the waste management unit is subject to and operated in compliance with the provisions of 40 CFR pt. 63,

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			subpart G, applicable to Group 1 wastewater streams; (B) A treatment, storage, or disposal facility subject to regulation under 40 CFR pts. 262, 264, 265, or 266; (C) A facility permitted, licensed, or registered by a state to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR part 261; (D) A waste management unit subject to and operated in compliance with the treatment requirements of 40 CFR Section 61.348(a), provided all waste management units that collect, store, or transport the purged process fluid to the treatment unit are subject to and operated in compliance with the management requirements of 40 CFR Sections 61.343 through 40 CFR 61.347; or (E) A device used to burn off-specification used oil for energy recovery in accordance with 40 CFR pt. 279, subp. G, provided the purged process fluid is not hazardous waste as defined in 40 CFR pt. 261. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-5a, Minn. R. 7007.0800, subp. 2]
COMG 91	GP100	Fugitive LDAR Heavy Liquid Valves and PSVs (in LL/HL Service)	
	5.71.1		If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service, the Permittee shall follow either one of the following procedures: (1) The Permittee shall monitor the equipment within 5 days by the method specified in 40 CFR Section 60.485a(b) and if an instrument reading of 500 ppm or greater is measured, a leak is detected. If a leak is detected, then follow the repair requirements in COMG84. (2) The Permittee shall eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-8a(a), Minn. R. 7007.0800, subp. 2]
COMG 92	GP101	Fugitive LDAR Valves in Light Liquid Service	
	5.72.1		If an instrument reading of 500 ppm or greater is measured, a leak is detected. If a leak is detected, then follow the repair requirements in COMG84. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-7a(b), Minn. R. 7007.0800, subp. 2]

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	5.72.2		Sustainable skip period monitoring: At process units that have less than 2 percent leaking valves for 2 consecutive months, the Permittee shall monitor each valve once every calendar quarter, beginning with the next quarter. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.3		Sustainable skip period monitoring: At process units that have less than or equal to 1 percent leaking valves for 2 consecutive quarters, the Permittee may elect to monitor each valve once every 2 calendar quarters. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.4		Sustainable skip period monitoring: At process units that have less than or equal to 0.5 percent leaking valves for 3 consecutive calendar semi-annual periods, the Permittee may elect to monitor each valve once every 4 calendar quarters. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.5		Sustainable skip period monitoring: At process units on a calendar quarterly, semiannual, or annual monitoring schedule that have greater than or equal to 2 percent leaking valves in any single detection period, the Permittee shall monitor each valve no less than every month, but can once again elect to advance to less frequent monitoring pursuant to the schedule above. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.6		Sustainable skip period monitoring: At process units on a calendar semi-annual or annual monitoring schedule that have greater than or equal to 1 percent but less than 2 percent leaking valves in any single detection period, the Permittee shall monitor each valve no less than every calendar quarter, but can again elect to advance to less frequent monitoring pursuant to the schedule above. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.7		Sustainable skip period monitoring: At process units on a calendar annual monitoring schedule that have greater than or equal to 0.5 percent but less than 1 percent leaking valves in any single detection period, the Permittee shall monitor each valve no less than semi-annually, but can again elect to advance to less frequent monitoring pursuant to the schedule above. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and

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			GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.8		Monitor difficult-to-monitor valves once per calendar year using Method 21. A valve may be designated as difficult-to-monitor if the Permittee demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-7a(h), Minn. R. 7007.0800, subp. 2]
	5.72.9		Document applicability determination for all LDAR difficult-to-monitor valves. Document the following information: A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(f)(2), Minn. R. 7007.0800, subp. 2]
	5.72.10		Monitor unsafe-to-monitor valves per the written inspection plan. No plan is required if no components are on the unsafe-to-monitor list. Any valve that is designated, as described in 40 CFR Section 60.486a(f)(1) as an unsafe-to-monitor valve is exempt from routine monitoring requirements if: (1) The Permittee demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of routine monitoring and (2) The Permittee adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times, if any. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-7a(g), Minn. R. 7007.0800, subp. 2]
	5.72.11		Document applicability determination for all LDAR difficult-to-monitor and unsafe-to monitor valves. Document the following information: A list of identification numbers for valves that are designated as unsafe-to-monitor, and explanation for each valve stating why the valve is unsafe-to-monitor, and the plan for monitoring each valve. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.486a(f)(1), Minn. R. 7007.0800, subp. 2]
	5.72.12		Report: Provide a listing of those units that became subject to more frequent monitoring for valves during the reporting interval. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.487, Minn. R. 7007.0800, subp.

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	5.72.13		The Permittee shall designate each process unit as either quarterly monitoring or part of the sustainable skip program. It is allowed to switch between quarterly monitoring and the sustainable skip period program provided that process units monitored in the skip period alternative method may not revert to quarterly monitoring if the most recent monitoring period demonstrates that more than 2% of the valves found leaking under the internal leak definition. Pursuant to 40 CFR Section 60.488(d), the Administrator shall be notified of the switch in monitoring frequency option 90 days prior to implementing the provision. Quarterly monitoring must be followed unit-wide if selected, and must continue unless the sustainable skip monitoring is selected and implemented for that unit. Quarterly frequency does not take into account valve leak rate. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.14		The percent of valves leaking shall be determined using the following equation: $\%VL = (VL / VT) * 100$ Where: %VL= Percent leaking valves. VL= Number of valves found leaking. VT= The sum of the total number of valves monitored. (2) The total number of valves monitored shall include difficult-to-monitor and unsafe-to-monitor valves only during the monitoring period in which those valves are monitored. (3) The number of valves leaking shall include valves for which repair has been delayed. (4) Any new valve that is not monitored within 30 days of being placed in service shall be included in the number of valves leaking and the total number of valves monitored for the monitoring period in which the valve is placed in service. (5) If the process unit has been subdivided in accordance with 40 CFR Section 60.482-7a(c)(1)(ii), the sum of valves found leaking during a monitoring period includes all subgroups. (6) The total number of valves monitored does not include a valve monitored to verify repair. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.485a(h), Minn. R. 7007.0800, subp. 2]
	5.72.15		Valves on the delay of repair list that are determined to be leaking greater than 50,000 ppmv will undertake one heroic repair attempt (i.e. drill and tap, wire wrap, etc.) within 45-days of detection unless there is a safety or environmental concern posed by repairing the leak in this matter. [40 CFR pt. 70 (consolidated LDAR requirements based on various

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			applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.16		Valves on the delay of repair list shall continue to be monitored in the same frequency as the process unit. If a leak reaches 50,000 ppm, and cannot be reduced to less than 50,000 ppm, one heroic repair attempt (i.e. drill and tap, wire wrap, etc.) will be attempted within 45-days unless there is a safety or environmental concern posed by repairing the leak in this matter. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.17		If valve is on the delay of repair list for longer than 36 months, then one heroic repair (i.e. drill and tap, wire wrap. etc.) will be attempted unless there is a safety or environmental concern posed by repairing the leak in this matter. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.18		If a valve underwent a legitimate repair attempt during a process unit shutdown, and if the repair attempt is unsuccessful and continues to leak after the startup of the process unit, then the leak is considered a new leak with regards to the repair timeline. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.19		If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service, the Permittee shall follow either one of the following procedures: (1) The Permittee shall monitor the equipment within 5 days by the method specified in 40 CFR Section 60.485a(b) and if an instrument reading of 500 ppm or greater is measured, a leak is detected. If a leak is detected, then follow the repair requirements in COMG84. (2) The Permittee shall eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [Minn. R. 7007.0800, subp. 2]
	5.72.20		A valve (not replacing a leaking valve) that begins operation in gas/vapor service or light liquid service after the initial startup date for the process unit must be monitored according to 40 CFR Section 60.482-7a(a)(2)(i) or (ii). (i) The valve must be monitored for the first time within 30 days after the end of its startup period to ensure proper

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			installation. (ii) If the existing valves in the process unit are monitored in accordance with 40 CFR Section 60.483-1a or 40 CFR Section 60.483-2a, count the new valve as leaking when calculating the percentage of valves leaking as described in 40 CFR Section 60.483-2a(b)(5). If less than 2.0 percent of the valves are leaking for that process unit, the valve must be monitored for the first time during the next scheduled monitoring event for existing valves in the process unit or within 90 days, whichever comes first. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-7a(a)(2), Minn. R. 7007.0800, subp. 2]
	5.72.21		Any valve for which a leak is not detected for 2 successive months may be monitored quarterly, beginning with the next calendar quarter (consistent with the unit monitoring schedule), until a leak is detected. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-7a(c), Minn. R. 7007.0800, subp. 2]
COMG 93	GP102	Units where carbon canisters may be used to meet NESHAP FF Requirements	
	5.73.1		The Permittee shall install, operate, and maintain on each drain system opening a cover and closed-vent system that routes all organic vapors vented from the drain system to a control device. Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the drain system except when it is necessary to use the opening for waste sampling or removal, or for equipment inspection, maintenance, or repair. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(a)(1)(i), 40 CFR 61.346(a)(1)(i)(B), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.2		Control device and closed vent system must be operated at all times when waste is in the waste management unit vented to the control device except when maintenance or repair of the waste management unit cannot be completed without a shutdown of the control device or during maintenance/change out of the carbon canisters. [40 CFR 61.349(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.3		Carbon canister control device system shall recover or control the organic emissions vented to it with an efficiency of 95 weight percent or greater, or shall recover or control the benzene emissions vented to it with an efficiency of 98 weight

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			percent or greater. [40 CFR 61.349(a)(2), 40 CFR 61.349(a)(2)(ii), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.4		At all times, including periods of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures and inspection of the source. [40 CFR 61.12(c), Minn. R. 7011.9900]
	5.73.5		Closed vent system and control device shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv initially and annually by Method 21 monitoring. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(a)(1)(i), 40 CFR 61.355(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.6		Measure VOC or benzene concentration at outlet of 1st carbon canister in carbon adsorption system when the source is connected to the carbon canister, and during periods of normal operation in accordance with the frequency specified in 40 CFR Section 61.354(d). (2001 EPA Consent Decree as amended). [40 CFR 61.349(h), 40 CFR 61.354(d), 40 CFR 63.655(a), CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.7		Compliance demo: Replace existing primary carbon container with fresh carbon container within 24 hours for a 2-canister system when carbon breakthrough is detected. (2001 EPA Consent Decree as amended). [40 CFR 61.354(d), CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7011.9930(E)]
	5.73.8		Install primary and secondary carbon canisters and operate them in series. (2001 EPA Consent Decree as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.73.9		Breakthrough shall be defined as a condition where the outlet of the primary canister is >100 ppmv VOC or >20 ppmv benzene, and the primary canister is providing a reduction of < 95% VOC or < 98% benzene. (2001 EPA Consent Decree as amended). [40 CFR 61.354(d), CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7011.9930(E)]
	5.73.10		Record date of carbon containers change-outs. [40 CFR 61.356(j)(10), Minn. R. 7011.9930(E)]
	5.73.11		If using PID for Method 21 measurement, then follow manufacturer calibration procedures. (2001 EPA Consent Decree as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]

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	5.73.12		Conduct initial and quarterly visually inspections of the closed vent system and control devices. The visual inspection shall include inspection of ductwork and piping and connections to covers and control devices for evidence of visible defects such as holes in ductwork or piping and loose connections. [40 CFR 61.346(a)(2), 40 CFR 61.349(f), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.13		For conservation vents located on closed vent systems in FHR's WWTP, follow the Alternative Monitoring Plan pursuant to EPA correspondence dated 1/1/2005 which requires quarterly visual inspection and semi-annual Method 21 NDE monitoring of these components. If a defect or leak is identified, follow the repair requirements listed in this group (COMG93). (EPA ADI Z050006). [Minn. R. 7007.0800, subp. 2]
	5.73.14		Repair defects or other problems found during visual inspections or detectable emissions identified via Method 21 NDE monitoring. A first effort to repair must be made within 5 calendar days and final repair shall be completed within 15 calendar days of the initial inspection date unless qualifying for delay of repair. [40 CFR 61.349(g), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.15		Per 40 CFR Section 61.356, maintain required records for NESHAP, Subpart FF equipment. [40 CFR 61.356, 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.16		Car seal or lock and key any bypass line that could divert stream away from carbon canister except during maintenance of carbon canister system or other safety reason. [40 CFR 61.349(a)(1)(ii)(B), Minn. R. 7011.9930(E)]
	5.73.17		Demonstrate that each control device achieves the appropriate conditions specified in 40 CFR Section 61.349(a)(2)(ii) by using engineering calculations in accordance with requirements specified in 40 CFR Section 61.356(f). [40 CFR 61.349(c), Minn. R. 7011.9930(E)]
	5.73.18		Permittees using a closed-vent system that contains any bypass line that could divert a vent stream from a control device shall do the following: (1) Visually inspect the bypass line valve at least once every month, checking the position of the valve and the condition of the car-seal or closure mechanism required under 40 CFR Section 61.349(a)(1)(ii) to ensure that the valve is maintained in the closed position and the vent stream is not diverted through the bypass line. [40 CFR 61.354(f), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.73.19		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the

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			corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. The Permittee shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 61.356(g)-(h), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 94	GP125	Drains subject to NESH FF and NSPS QQQ sealed with plugs	
	5.74.1		Standard: Maintain compliance with design, equipment, work practice, operational standards. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.74.2		Each drain must be tightly capped when not in use. May use capped/plugged drains for 40 CFR pt. 60, subp. QQQ compliance if drains are used infrequently or are inactive; otherwise water/lube oil or equivalent seal drains are required. (EPA ADI 0400030 & 0400031). [40 CFR 60.692-2(a)(3)-(4), Minn. R. 7011.1435(C)]
	5.74.3		Quarterly visual inspection: Each drain using tightly fitting cap or plug for control shall be checked by visual or physical inspection initially and quarterly to ensure caps or plugs are in place and properly installed. [40 CFR 60.692-2(a)(4), 40 CFR 61.346(b)(4)(ii), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.74.4		Repairs: Whenever missing or improperly installed caps or plugs are identified, first efforts at repair shall be made as soon as practicable, but not later than 24 hours after detection, unless qualifying for delay of repair. [40 CFR 60.692-2, 40 CFR 61.346(b)(5), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.74.5		Repair: Delay of repair of facilities that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown. Repair of such equipment shall occur before the end of the next refinery or process unit shutdown. [40 CFR 60.692-6(a)-(b), Minn. R. 7011.1435(C)]

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	5.74.6		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.697(b)(1), 40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
COMG 95	GP106	Control Equipment Used to Meet Requirements of MACT CC	
	5.75.1		Conduct performance test if requested by Administrator per section 114 of the Clean Air Act, as amended. [40 CFR 61.13, 40 CFR 63.7(a)(3), Minn. R. 7017.2015]
	5.75.2		Operate vapor processing system in a manner not to exceed operating parameter value. [40 CFR 63.6(f)(1), 40 CFR 63.644(e), Minn. R. 7011.7000, Minn. R. 7011.7280(A)]
	5.75.3		Correct malfunctions as soon as practicable in accordance with the startup, shutdown, and malfunction plan (SSMP). [40 CFR 63.6(e)(1)(ii)-(iii), 40 CFR pt. 63, subp. CC(Table 6), Minn. R. 7011.7000, Minn. R. 7011.7280(A)]
	5.75.4		Record occurrence of startup, shutdown, and malfunction of process equipment or of malfunction or maintenance of air pollution control equipment. Document conformance with or deviation from SSMP. [40 CFR 63.10(b)(2)(i)-(v), 40 CFR 63.6(e)(3)(iii)-(iv), 40 CFR pt. 63, subp. CC(Table 6), Minn. R. 7011.7000, Minn. R. 7011.7280(A), Minn. R. 7019.0100]
	5.75.5		Maintain up-to-date SSMP. [40 CFR 63.6(e)(1)(iii), 40 CFR 63.6(e)(2), 40 CFR 63.6(e)(3)(i)-(ii), 40 CFR 63.6(e)(3)(v)-(vii), 40 CFR pt. 63, subp. CC(Table 6), Minn. R. 7011.7000, Minn. R. 7011.7280(A)]
	5.75.6		If a malfunction occurs that was not addressed in the SSMP, revise the SSMP within 45 days after the event. [40 CFR 63.6(e)(3)(viii), 40 CFR pt. 63, subp. CC(Table 6), Minn. R. 7011.7000, Minn. R. 7011.7280(A)]
COMG 96	GP111	Fuel Gas Supply Systems	
	5.76.1		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 90 parts per million 365-day rolling average by volume in refinery fuel gas measured at the 41 Unit refinery gas mix drum and at the 45 Unit refinery gas mix drum. Existing continuous monitoring systems and best engineering judgment shall be used to estimate hydrogen sulfide concentration to quantify emissions for purposes of compliance with the fuel gas concentration limits. (Limit for SO ₂). [Title I Condition: Avoid major

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			modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.76.2		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. Limit applies to each system. [40 CFR 60.104(a)(1), 40 CFR 60.105(e)(3)(ii), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.76.3		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.186 grains per dry standard cubic foot (300 ppm). This is a state-only requirement and, pursuant to Minn. R. 7007.1750, it is not enforceable by the EPA administrator or citizens under the Clean Air Act. Limit applies to each system. [Minn. R. 7009.0080]
	5.76.4		Recordkeeping of Fuel Gas Flow Rate for SO ₂ limit: The Permittee shall record the hourly average fuel gas flow rate. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.76.5		Recordkeeping: The Permittee shall record and maintain the hourly, daily, and 365-day rolling average H ₂ S concentration at the 41 Unit refinery fuel gas mix drum and at the 45 Unit refinery fuel gas mix drum. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.76.6		Recordkeeping of the High Heating Value (HHV) for SO ₂ limit: The Permittee shall calculate and record daily the average HHV in BTU/SCF per mix drum. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.76.7		Conduct Root Cause Failure Analysis (RCFA): The Permittee shall comply with the RCFA requirements as required by 2000 Global Consent Decree. [Minn. R. 7007.0800, subp. 2]
	5.76.8		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.76.9		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.76.10		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.76.11		Hydrogen Sulfide (H ₂ S): Emissions Monitoring: The Permittee shall install, operate and use a hydrogen sulfide (H ₂ S) CEMS to

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			measure H2S emissions from the 41 Unit refinery fuel gas mix drum and the 45 Unit refinery fuel gas mix drum. [40 CFR pt. 60, subps. J & Ja, Minn. R. 7007.0800, subp. 4, Minn. R. 7011.1435(A), Minn. R. 7017.1006]
	5.76.12		Hydrogen Sulfide (H2S): Content in Refinery Gas: The Permittee shall calibrate, operate and maintain a CEMS to determine the H2S content of the refinery gas. The CEMS shall provide a continuous record of H2S in ppm. [40 CFR 60.105(a)(4), 40 CFR 60.107a(a)(2), Minn. R. 7011.1435(A), Minn. R. 7017.1006]
	5.76.13		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160]
	5.76.14		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.76.15		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.76.16		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.76.17		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.76.18		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC

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			program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.76.19		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.76.20		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.76.21		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.76.22		Fuel Flowrate: The Permittee shall calibrate, operate and maintain CMS that record the fuel flowrate for each fuel combustion devices with flowmeters. [Minn. R. 7007.0800, subp. 4]
	5.76.23		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
COMG 97	GP081	Fugitive Compressors Exempt from LDAR Requirements	
	5.77.1		Compressors in hydrogen service are exempt from LDAR monitoring and repair requirements, if the Permittee demonstrates that a compressor is in hydrogen service. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.593a(b)(1), Minn. R. 7007.0800, subp. 2]
	5.77.2		When the Permittee and the Administrator do not agree on whether a piece of equipment is in hydrogen service, the procedures in 40 CFR Section 60.593a(b)(2) shall be used to resolve the disagreement. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.593a(b)(2), Minn. R. 7007.0800, subp. 2]
	5.77.3		Each compressor is presumed not to be in hydrogen service unless the Permittee demonstrates that the piece of equipment is in hydrogen service. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of

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			40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.593a(b)(2), Minn. R. 7007.0800, subp. 2]
	5.77.4		For a piece of equipment to be considered in hydrogen service, it must be determined that the percentage hydrogen content can be reasonably expected always to exceed 50 percent by volume. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.593a(b)(2), Minn. R. 7007.0800, subp. 2]
	5.77.5		For purposes of determining the percentage hydrogen content in the process fluid that is contained in or contacts a compressor, the Permittee shall use either procedures that conform to those specified in 40 CFR Section 60.593a(b)(2) or engineering judgment provided the engineering judgment demonstrates that the content clearly exceeds 50 percent by volume. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.593a(b)(2), Minn. R. 7007.0800, subp. 2]
	5.77.6		Components that are integral to the compressor, are considered part of the compressor, and thus exempt from LDAR monitoring and repair requirements if the compressor is in hydrogen service. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.593a(b)(2), Minn. R. 7007.0800, subp. 2]
	5.77.7		Any existing reciprocating compressors are exempt from seal requirements, which is, 40 CFR Section 60.482-3a(a) through (e) and (h). Provided the Permittee demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 60.482-3a(j), Minn. R. 7007.0800, subp. 2]
COMG 98	GP094	Fugitive LDAR PSV with Upstream Rupture Disks	
	5.78.1		Per 40 CFR Section 60.482-4a(d)(2) after each pressure release, a new rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in 40 CFR Section 60.482-9a. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGGa; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR

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			60.482-4a(d)(2), Minn. R. 7007.0800, subp. 2]
COMG 99	GP136	Sour Water Tanks	
	5.79.1		The Permittee shall limit Volatile Organic Compounds ≤ 28.0 tons per year 12-month rolling sum effective upon startup of EQUI1020 or EQUI1455, whichever is first, as part of the Tier 3 Clean Fuels Projects permit. For the first 11 months after the limit is effective, VOC emissions are limited as determined by the following equation: $E = 28.0 \times [0.15 + 0.85(M/12)]$ where E = emissions in tons M = number of months after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.79.2		Emissions at these tanks shall be calculated both for normal operations with the floating roof and for planned maintenance and cleaning activities when the floating roof is not resting on the liquid surface. If a carbon adsorption system is used to control VOC emissions during periods of planned maintenance or cleaning activities and if the Permittee complies with the carbon system breakthrough demonstration requirements in COMG93, then actual emissions calculated during these periods for purposes of compliance with the limit above shall be reduced to reflect a level of control consistent with 40 CFR pt. 61, subp. FF, although these tank controls are not required by 40 CFR pt. 61, subp. FF. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.79.3		Recordkeeping: The Permittee shall calculate and record the 12-month Rolling Sum of VOC emissions by the 28th day of each month for the preceding month. Unless a different emission factor is developed by the Permittee and approved by the MPCA in accordance with Minn. R. 7019.3040 - 7019-3100, emissions shall be calculated as follows: (1) During normal operation with the floating roof and during planned standing idle and filling/refilling activities when the roof is not resting on the liquid surface, emissions shall be calculated using the equations in EPA AP-42, Chapter 7, November 2006. (2) During planned tank degassing activities when the roof is not resting on the liquid surface, emissions shall be calculated using the equations in the American Petroleum Institute (API) Technical Report 2568, Evaporative Loss from the Cleaning of Storage Tanks, November 2007. If a carbon system is used for emissions control and the Permittee demonstrates compliance with the carbon system breakthrough requirements in COMG93, then the calculated emissions shall be reduced to a level of control consistent with 40 CFR pt. 61, subp. FF. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
COMG 100	GP054	Storage Tank Heaters built before June 11, 1973	
	5.80.1		The Permittee shall limit Total Particulate Matter ≤ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(A)]
	5.80.2		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(B), Minn. R. 7011.1410, subp. 3(B)2]
	5.80.3		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 2]
	5.80.4		Fuel Restriction: Authorized to burn natural gas only. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.80.5		Recordkeeping: Record and maintain records of type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
COMG 103		#4 Coker VOC Emissions	
	5.81.1		The Permittee shall limit Volatile Organic Compounds ≤ 17.0 tons per year 12-month rolling sum effective upon startup of EQUI1456, EQUI1457 or FUGI132, whichever is first, as part of the Pine Bend Technology and Efficiency Improvement Projects. For the first 11 months after the limit is effective, VOC emissions are limited as determined by the following equation: $E = 17.0 \times [0.25 + 0.75(M/12)]$ where E = emissions in tons M = number of months after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.81.2		Recordkeeping: The Permittee shall calculate and record the 12-month rolling sum of VOC emissions by the 28th day of each month for the preceding month. Unless a different emission factor is developed by the Permittee and approved by the MPCA in accordance with Minn. R. 7019.3040 - 7019.3100, emissions shall be calculated using the methods described in Appendix G. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
COMG 104		Non-Process Boilers Supporting Administrative Buildings	
	5.82.1		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with this limit is inherently met through equipment design by firing natural gas only. [Minn. R. 7011.1410, subp. 3(A)]
	5.82.2		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. Compliance with this limit is inherently met through equipment design by firing natural gas only. [Minn. R. 7011.1410, subp. 3(B)(1)]
	5.82.3		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with this limit is inherently met through equipment design by firing natural gas only. [Minn. R. 7011.1410, subp. 3(B)(2)]
	5.82.4		Fuel Restriction: Authorized to burn natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.82.5		The Permittee shall meet each emission limit and work practice standard in Tables 1 through 3, and 11 through 13 to 40 CFR pt. 63, subp. DDDDD that applies to EQUI1472 and EQUI1473, except as provided under 40 CFR Section 63.7522. [40 CFR 63.7500(a)(1), Minn. R. 7011.7050]
	5.82.6		At all times, the Permittee shall operate and maintain any affected source (as defined in 40 CFR Section 63.7490), in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.7500(a)(3), Minn. R. 7011.7050]
	5.82.7		Boilers in the units designed to burn gas 1 fuels subcategory with a heat input capacity of less than or equal to 5 million Btu per hour must complete a tune-up every 5 years as specified in 40 CFR Section 63.7540. [40 CFR 63.7500(e), 40 CFR pt. 63, subp. DDDDD(Table 3), Minn. R. 7011.7050]
	5.82.8		These standards apply at all times that EQUI1472 and EQUI1473 are operating, except during periods of startup and shutdown during which time the Permittee must comply only with 40 CFR pt. 63, subp. DDDDD Table 3. [40 CFR 63.7500(f), Minn. R. 7011.7050]
	5.82.9		The Permittee shall be in compliance with the emission limits, work practice standards, and operating limits in 40 CFR pt. 63, subp. DDDDD. These limits apply at all times EQUI1472 and EQUI1473 are operating except for the periods noted in 40 CFR Section 63.7500(f). [40 CFR 63.7505(a), Minn. R. 7011.7050]

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	5.82.10		The Permittee shall demonstrate continuous compliance with the work practice standards in 40 CFR pt. 63, subp. DDDDD Table 3 according to the methods specified in 40 CFR pt. 63, subp. DDDDD Table 8 and 40 CFR Section 63.7540(a)(1) through (19). [40 CFR 63.7540(a), Minn. R. 7011.7050]
	5.82.11		i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the Permittee may delay the burner inspection until the next scheduled unit shutdown). ii) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available. iii) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the Permittee may delay the inspection until the next scheduled unit shutdown). iv) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NOx requirement to which the unit is subject. v) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. vi) Maintain on-site and submit, if requested by the Administrator, an annual report containing the following information: A) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater. B) A description of any corrective actions taken as a part of the tune-up. The Permittee shall conduct a tune-up of each boiler every 5 years to demonstrate continuous compliance as specified in 40 CFR Section 63.7540(a)(10)(i) through (vi). The Permittee may delay the burner inspection specified in 40 CFR Section 63.7540(a)(10)(i) until the next scheduled or unscheduled unit shutdown, but the Permittee must inspect each burner at least once every 72 months. [40 CFR 63.7540(a)(10)(i-vi), 40 CFR 63.7540(a)(12), Minn. R. 7011.7050]
EQUI 19	MR156	41 Unit Fuel Gas Mix Drum Total Sulfur	
	5.83.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.83.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]

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	5.83.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.83.4		Sulfur, Total: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from [SI being monitored]. [40 CFR pt. 60, subp. [], Minn. R. 7017.1010, subp 1]
	5.83.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.83.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.83.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.83.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.83.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]

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	5.83.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.83.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.83.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 24	MR161	45 Mix Drum Fuel Gas Combustion SO2 Monitor at 25H3	
	5.84.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.84.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.84.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.84.4		Sulfur Dioxide: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI501. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.84.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.84.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2.

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			[40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.84.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.84.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.84.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.84.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.84.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.84.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 25	MR162	45 SO2 Monitor at 29H1/2	
	5.85.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.85.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after

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			end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.85.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.85.4		Sulfur Dioxide: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from STRU70. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.85.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.85.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.85.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.85.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.85.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60,

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			Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.85.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.85.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.85.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 29	MR166	45 Mix Drum Fuel Gas Combustion O2 Monitor at 29H1/2	
	5.86.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.86.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.86.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.86.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from STRU70. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.86.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.86.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test.

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			Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.86.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.86.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.86.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.86.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.86.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.86.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 30	MR167	27H-101 CO Monitor	
	5.87.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30

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			days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.87.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.87.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.87.4		Carbon Monoxide: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI505. [Minn. R. 7017.1010, subp 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.87.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.87.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.87.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.87.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.87.9		CEMS QA/QC: The owner or operator of an affected facility is

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			subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.87.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.87.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.87.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 31	MR168	27H-101 NOx Monitor	
	5.88.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.88.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.88.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.88.4		Nitrogen Oxides: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI505. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.88.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.88.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test.

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			Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.88.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.88.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.88.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.88.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.88.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.88.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 32	MR170	71B6 NOx Monitor	
	5.89.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30

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			days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.89.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.89.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.89.4		Nitrogen Oxides: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI323. [40 CFR pt. 60, subp. Db, CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7011.0565, Minn. R. 7017.1010, subp. 1]
	5.89.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.89.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.89.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.89.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.89.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt.

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			60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.89.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.89.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.89.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 33	MR171	71B6 CO Monitor	
	5.90.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.90.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.90.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.90.4		Carbon Monoxide: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI323. [Minn. R. 7017.1010, subp 1]
	5.90.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.90.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted

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			in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.90.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.90.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.90.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.90.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.90.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.90.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 34	MR172	71B6 O2 Monitor	
	5.91.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]

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	5.91.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.91.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.91.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI323. [40 CFR pt. 60, subp. Db, CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7011.0565, Minn. R. 7017.1010, subp 1]
	5.91.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.91.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.91.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.91.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.91.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60,

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			Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.91.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.91.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.91.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 58	MR154	O2 Monitor at 25H4	
	5.92.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.92.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.92.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.92.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI526 and STRU12. [Minn. R. 7017.1010, subp 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.92.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.92.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2.

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			[40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.92.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.92.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.92.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.92.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.92.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.92.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 60	MR152	NOx Monitor at 25H4	
	5.93.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.93.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after

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			end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.93.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.93.4		Nitrogen Oxides: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI526 and STRU12. [Minn. R. 7017.1010, subp 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.93.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.93.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.93.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.93.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.93.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60,

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			Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.93.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.93.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.93.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 61	MR153	CO Monitor at 25H4	
	5.94.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.94.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.94.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.94.4		Carbon Monoxide: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI526 and STRU12. [Minn. R. 7017.1010, subp 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.94.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.94.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted

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			in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.94.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.94.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.94.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.94.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.94.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.94.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 71	MR045	27H-1 O2 Analyzer	
	5.95.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]

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	5.95.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.95.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.95.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI543. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.95.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.95.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.95.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.95.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.95.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each

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			CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.95.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.95.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.95.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 72	MR047	27H-102 O2 Analyzer	
	5.96.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.96.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.96.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.96.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI542. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.96.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.96.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test.

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			The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.96.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.96.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.96.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.96.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.96.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.96.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 80	MR061	28H-1 O2 Analyzer	
	5.97.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was

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			conducted. [Minn. R. 7017.1180, subp. 3]
	5.97.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.97.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.97.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI544. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.97.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.97.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.97.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.97.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.97.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each

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			CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.97.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.97.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.97.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 84	MR069	34H3 SO2 Analyzer	
	5.98.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.98.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.98.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.98.4		SO2 Emissions Monitoring: The Permittee shall calibrate, operate and maintain SO2 Continuous Emissions Monitoring System (CEMS). [CAAA of 1990, Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.98.5		SO2 Emissions Measuring: The Permittee shall use a sulfur dioxide CEMS to measure sulfur dioxide emissions from STRU117. [Minn. R. 7017.1006]
	5.98.6		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.98.7		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test.

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			Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.98.8		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.98.9		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.98.10		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.98.11		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.98.12		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.98.13		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]

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EQUI 135	MR093	71B8 O2 Analyzer to Monitor NOx Emissions	
	5.99.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.99.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.99.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.99.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI371. [40 CFR pt. 60, subp. Db, Minn. R. 7011.0565, Minn. R. 7017.1010, subp 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.99.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.99.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.99.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.99.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare

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			parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.99.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.99.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.99.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.99.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 222	MR004	VOC Monitor at Bottom Loading Unit	
	5.100.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.100.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.100.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.100.4		Volatile Organic Compounds: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI483. [40 CFR pt. 63, subp. CC, Minn. R. 7011.7280(A), Minn. R. 7017.1010, subp 1]
	5.100.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.100.6		Certification Test Plan due 30 days before Certification Test.

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			Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.100.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.100.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.100.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.100.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.100.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.100.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]

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EQUI 245	MR027	23H-2 O2 Analyzer	
	5.101.1		Monitoring Data: All data points collected by a CEMS shall be used to calculate individual hourly emission averages unless another applicable requirement requires more frequent averaging. In order for an hour of data to be considered, it must contain the following minimum number of data points: A. four data points, equally spaced, if the emission unit operated during the entire hour; B. two data points, at least 15 minutes apart, during periods of monitor calibration or routine maintenance; C. one data point if the emission unit operated for 15 minutes or less during the hour. [Minn. R. 7017.1160, subp. 1, Minn. R. 7017.1160, subp. 2]
	5.101.2		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.101.3		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.101.4		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.101.5		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI496. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.101.6		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.101.7		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.101.8		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS

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			must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.101.9		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.101.10		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.101.11		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.101.12		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.101.13		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 283	MR033	25H-3 O2 Analyzer	
	5.102.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.102.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.102.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]

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	5.102.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from EQUI501. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.102.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.102.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.102.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.102.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.102.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.102.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be

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			used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.102.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.102.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 287	MR181	29H-1/2 O2 Monitor	
	5.103.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.103.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.103.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.103.4		Oxygen: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from STRU70. [Minn. R. 7017.1010, subp 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.103.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.103.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.103.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to

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			bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.103.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.103.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.103.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.103.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.103.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 288	MR182	27H-101 O2 Monitor	
	5.104.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.104.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.104.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.104.4		Oxygen: Emissions Monitoring: The owner or operator shall

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			use a CEMS to measure emissions from EQUI505. [Minn. R. 7017.1010, subp 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.104.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.104.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.104.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.104.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.104.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.104.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR

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			60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.104.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.104.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 296	MR179	29H-1/2 NOx Monitor	
	5.105.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.105.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.105.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.105.4		Nitrogen Oxides: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from STRU70. [Minn. R. 7017.1010, subp 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.105.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.105.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.105.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant

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			equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.105.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.105.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.105.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.105.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.105.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 297	MR180	29H-1/2 CO Monitor	
	5.106.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.106.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.106.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.106.4		Carbon Monoxide: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from STRU70.

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			[Minn. R. 7017.1010, subp 1]
	5.106.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.106.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.106.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.106.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.106.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.106.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]

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	5.106.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.106.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 312	MR196	45 Unit Fuel Gas Mix Drum Total Sulfur	
	5.107.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.107.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.107.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.107.4		Nitrogen Oxides: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from [SI being monitored]. [40 CFR pt. 60, subp. [], Minn. R. 7017.1010, subp 1]
	5.107.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.107.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.107.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]

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	5.107.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.107.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.107.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.107.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.107.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
EQUI 323	EU126	Steam Boiler No. 6 at Boilerhouse - Boiler	
	5.108.1		The Permittee shall limit Nitrogen Oxides $\leq$ 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.108.2		The Permittee shall limit Nitrogen Oxides $\leq$ 0.10 pounds per million Btu heat input 30-day rolling average (expressed as NO ₂), low heat release rate. A "low heat release rate" is defined as a heat release rate of 70,000 Btu/hr-cubic foot or less. The 30-day rolling average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day period. A new 30-day rolling average emission rate is calculated each steam generating unit operating day. [40 CFR 60.44b(a), Minn. R. 7011.0565]

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	5.108.3		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 90 parts per million 365-day rolling average by volume. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.108.4		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies to the hydrogen sulfide content of fuel gas burned in the units. Existing continuous H ₂ S monitoring systems on the existing refinery gas mix drums will be used to demonstrate compliance with this limit. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.108.5		The Permittee shall limit Sulfur Dioxide ≤ 5.1 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.108.6		The Permittee shall limit Sulfur Dioxide ≤ 5.1 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.108.7		The Permittee shall limit Sulfur Dioxide ≤ 12.0 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.108.8		The Permittee shall limit Sulfur Dioxide ≤ 5.1 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.108.9		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.108.10		The Permittee shall limit Total Particulate Matter ≤ 0.030 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. This limit is more stringent than Minn. R. 7011.1410, subp.3(B)(1). [40 CFR 60.43b(h)(1), Minn. R. 7011.0565, Minn. R. 7011.1410, subp. 3(B)(1)]
	5.108.11		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(A), Minn. R. 7011.1410, subp. 3(B)(2)]
	5.108.12		Fuel Restriction: Authorized to burn refinery fuel gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.108.13		Recordkeeping: Record and maintain records of each type of

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			fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.108.14		Emissions Monitoring: The Permittee shall use a nitrogen oxides (NOx) CEMS to measure NOx emissions from EQUI323. Specifications for the operation of the monitoring equipment are in 40 CFR Section 60.48b(c), (d), (e), (f), and Appendix B. [40 CFR 60.48b, Minn. R. 7011.0565, Minn. R. 7017.1006]
	5.108.15		Installation of CEMS: The Permittee shall install and operate a NOx CEMS. The installation and operation of the CEMS will meet the performance requirements as specified in 40 CFR Section 60.46b. [Minn. R. 7017.1006]
	5.108.16		See additional NOx CEMS requirements at EQUI32. [Minn. R. 7007.0800, subp. 2]
	5.108.17		Records of Startup, Shutdown, or Malfunction: Any Permittee subject to the provisions of 40 CFR pt. 60, subp. Db, shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.108.18		Maintain records of the following information: (1) Calendar date. (2) The average hourly nitrogen oxides emission rates (expressed as NO ₂) (ng/J or lb/million Btu heat input) measured or predicted. (3) The 30-day average nitrogen oxides emission rates (lb/mmBtu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days. (4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under 40 CFR Section 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken. (5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.49b(g), Minn. R. 7011.0565]
	5.108.19		The Permittee may submit electronic quarterly reports for NOx in lieu of submitting the written reports. The format of each quarterly electronic report shall be coordinated with the MPCA. The electronic report(s) shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the Permittee, indicating whether compliance with the applicable emission

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			standards and minimum data requirements of 40 CFR pt. 60, subp. Db was achieved during the reporting period. Before submitting reports in the electronic format, the Permittee shall coordinate with the MPCA to obtain their agreement to submit reports in this alternative format. [40 CFR 60.49b(v), Minn. R. 7011.0565]
	5.108.20		The Permittee shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for each fuel combusted for the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 60.49b(d), Minn. R. 7011.0565]
	5.108.21		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.108.22		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 324	EU127	Plant Air Compressor Diesel Engine - Reciprocating IC Engine	
	5.109.1		The Permittee shall limit Nitrogen Oxides $\leq$ 17.4 pounds per hour 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.109.2		The Permittee shall limit Sulfur Dioxide $\leq$ 0.008 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.109.3		The Permittee shall limit Sulfur Dioxide $\leq$ 0.008 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.109.4		The Permittee shall limit Sulfur Dioxide $\leq$ 0.04 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2

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			SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.109.5		The Permittee shall limit Sulfur Dioxide $\leq$ 0.008 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.109.6		The Permittee shall limit Sulfur Dioxide $\leq$ 0.50 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel sulfur content standard set forth below will demonstrate compliance with this requirement. [Minn. R. 7011.2300, subp. 2]
	5.109.7		The Permittee shall limit Opacity $\leq$ 20 percent opacity once operating temperatures have been attained. (visible air contaminants). [Minn. R. 7011.2300, subp. 1]
	5.109.8		The Permittee shall limit Operating Hours $\leq$ 2500 hours per year 12-month rolling sum. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.109.9		The Permittee shall limit Sulfur Content of Fuel $\leq$ 0.0015 percent by weight of diesel fuel. Certificate of Analysis retained onsite to meet ULSD standard satisfies this requirement. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.109.10		Emission Calculation and Recordkeeping for NOx BACT Limit: The Permittee shall calculate and record the 1-hour average (arithmetic mean) in 24-hour period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.109.11		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.109.12		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.109.13		Recordkeeping of Hours of Operation for SO2 SIP Limit: By the

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			28th day of each month, the Permittee shall record and sum the hours of operation for EQUI324 for each month and for the previous 12 months and record the 12-month rolling sum. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.109.14		Diesel Fuel Certification: The Permittee shall retain written documentation of each shipment of diesel fuel oil received for the diesel engine. The Permittee shall retain records demonstrating sulfur contents is less than 0.0015 percent by weight. Certificates of Analysis retained onsite to meet demonstrating generally that all FHR diesel meets the federal ULSD standard satisfies this requirement. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 371	EU204	Steam Boiler #8 - Boiler	
	5.110.1		The Permittee shall limit Nitrogen Oxides < 39.9 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.110.2		The Permittee shall limit Nitrogen Oxides <= 0.20 pounds per million Btu heat input 30-day rolling average (expressed as NO ₂), high heat release rate. A "high heat release rate" is defined as a heat release rate greater than 70,000 Btu/hr-cubic foot. The 30-day rolling average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day period. A new 30-day rolling average emission rate is calculated each steam generating unit operating day. [40 CFR 60.40b, 40 CFR 60.44b, Minn. R. 7011.0565]
	5.110.3		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average. Limit does not apply during startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), 40 CFR 60.40b(c), 40 CFR 60.8(c), Minn. R. 7011.0565, Minn. R. 7017.2015]
	5.110.4		The Permittee shall limit Total Particulate Matter <= 0.030 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. This limit is more stringent than Minn. R. 7011.1410, subp. 3(B)(1). [40 CFR 60.43b(h)(1), Minn. R. 7011.0565, Minn. R. 7011.1410, subp. 3(B)(1)]
	5.110.5		The Permittee shall limit Sulfur Dioxide <= 14.3 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt.

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			52, subp. Y]
	5.110.6		The Permittee shall limit Sulfur Dioxide $\leq$ 14.3 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.110.7		The Permittee shall limit Sulfur Dioxide $\leq$ 50.0 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.110.8		The Permittee shall limit Sulfur Dioxide $\leq$ 14.3 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.110.9		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.110.10		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.110.11		Fuel Restriction: Authorized to burn natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.110.12		The Permittee shall limit Heat Input $\leq$ 158.5 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NO _x . [Minn. R. 7017.2025, subp. 3]
	5.110.13		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.110.14		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.110.15		Monitoring for NO _x emissions: The Permittee shall continuously monitor fuel combustion rate and stack O ₂ and use the most recent correlation based on performance test

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			results to determine NOx lb/mmBtu emissions. [40 CFR 60.13, 40 CFR 60.46b, 40 CFR 60.49b, Minn. R. 7011.0565, Minn. R. 7017.1010, subp. 1]
	5.110.16		NOx Recordkeeping: The Permittee shall calculate and record daily and 365-day rolling sum NOx emissions in tons/yr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.110.17		Recordkeeping: The Permittee shall record daily total amounts of each fuel combusted in the unit. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.48b, 40 CFR 60.49b, Minn. R. 7011.0565]
	5.110.18		Recordkeeping of the Annual Capacity Factor: The Permittee shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for natural gas for the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.49b(d), Minn. R. 7011.0565]
	5.110.19		NOx Recordkeeping: The Permittee shall calculate and record the daily and 30-day rolling average NOx emissions in lb/MMBtu. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.13(i), 40 CFR 60.46b, 40 CFR 60.49b, Minn. R. 7011.0565]
	5.110.20		Recordkeeping: The Permittee shall record average hourly NOx emissions in lb/MMBtu for each steam operating day. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.13(i), 40 CFR 60.46b, 40 CFR 60.49b, Minn. R. 7011.0565]
	5.110.21		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.110.22		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be

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			maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.110.23		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.110.24		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.110.25		O ₂ QA Plan: Develop and implement a written quality assurance plan that covers the O ₂ Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.110.26		O ₂ QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O ₂ monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
EQUI 375	EU209	Track 8 Rail Loading - Loading-Unloading Equipment	
	5.111.1		See CAM and pollution control equipment requirements under TREA61. [Minn. R. 7007.0800, subp. 2]
EQUI 376	EU212	11H-6 - Refining Equipment	
	5.112.1		The Permittee shall limit Carbon Dioxide Equivalent $\leq$ 219,660 tons per year 365-day rolling sum. For the first 364 days after start-up following modifications to the heater made as part of the #3 Crude/Coker Improvements permit, CO ₂ e emissions are limited as determined by the following equation: $E = 219,660 \times [0.15 + 0.85(D/365)]$

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			where E=emissions in total tons D=number of days after limit is effective (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.112.2		The Permittee shall limit Carbon Dioxide Equivalent $\leq$ 126.3 pounds per million Btu heat input 12-month rolling average. This limit is effective following modifications to EQUI376 as part of the #3 Crude/Coker Improvements permit. Compliance with this limit can be demonstrated by firing strictly natural gas or by quantifying the average lb/mmBtu of the gaseous fuels fired over the operating period. [Minn. R. 7007.0800, subp. 2]
	5.112.3		The Permittee shall limit Total Particulate Matter $\leq$ 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.112.4		The Permittee shall limit PM < 10 micron $\leq$ 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.112.5		The Permittee shall limit PM < 2.5 micron $\leq$ 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.112.6		The Permittee shall limit Sulfur Dioxide $\leq$ 25.2 tons per year 365-day rolling sum (Netting Limit) (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.112.7		The Permittee shall limit Sulfur Dioxide $\leq$ 16.5 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.112.8		The Permittee shall limit Sulfur Dioxide $\leq$ 16.5 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.112.9		The Permittee shall limit Sulfur Dioxide $\leq$ 39.0 tons per year

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			12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.112.10		The Permittee shall limit Sulfur Dioxide $\leq$ 16.5 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.112.11		The Permittee shall limit Nitrogen Oxides $\leq$ 76.9 tons per year 365-day rolling sum. This limit expires upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.112.12		The Permittee shall limit Nitrogen Oxides $\leq$ 16.5 tons per year 365-day rolling sum. This limit is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. For the first 364 days after start-up following modifications to the heater, NO_x emissions are limited as determined by the following equation: $E = 16.5 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after the limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.112.13		The Permittee shall limit Nitrogen Oxides $\leq$ 60 parts per million 30-day rolling average (dry basis, corrected to 0 percent excess air) determined daily. [40 CFR 60.102a(g)(2)(ii)(A)]
	5.112.14		The Permittee shall limit Carbon Monoxide $\leq$ 10.0 tons per year 365-day rolling sum, effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. For the first 364 days after start-up following modifications to the heater, CO emissions are limited as determined by the following equation: $E = 10.0 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.112.15		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp.

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			3(A)). This limit expires upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. [40 CFR 60.104(a)(1), 40 CFR 60.105(e)(3)(ii), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.112.16		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.186 grains per dry standard cubic foot (300 ppm). This is a state-only requirement and it is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.112.17		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 162 parts per million 3-hour rolling average, determined hourly. This limit does not apply during periods of startup, shutdown or malfunction. Limit is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit; and, [40 CFR 60.102a(g)(1)(ii), 40 CFR 60.8(c), Minn. R. 7017.2015]
	5.112.18		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 60 parts per million 365-day rolling average, determined daily. This limit does not apply during periods of startup, shutdown or malfunction. Limit is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. [40 CFR 60.102a(g)(1)(ii), 40 CFR 60.8(c), Minn. R. 7017.2015]
	5.112.19		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.112.20		The Permittee shall limit Total Particulate Matter ≤ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.0075 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.112.21		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.112.22		The Permittee shall limit Stack Temperature < 350 degrees Fahrenheit 365-day rolling average excluding hourly periods of startup, shutdown, and low firing rates less than 246 mmBtu/hr HHV input (< 60% of maximum design capacity). This limit is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.112.23		The Permittee shall limit Heat Input ≤ 293.4 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time.

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			The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and MPCA staff determine compliance at that rate for the emission unit. [Minn. R. 7017.2025, subp. 3]
	5.112.24		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.112.25		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.112.26		Recordkeeping: The Permittee shall calculate and record the daily and 365-day Rolling Sum of NOx emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.112.27		Recordkeeping: The Permittee shall calculate and record the daily and 365-day Rolling Sum of CO emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. This recordkeeping is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.112.28		SO2 Emission Calculation and Recordkeeping: The Permittee shall calculate and record daily and 365-day rolling sum SO2 emissions from EQUI376. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.112.29		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.112.30		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.112.31		Use methods in 40 CFR pt. 98, subp. C including flow

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			monitoring of fuel usage and fuel gas analysis. Calculate emissions following procedures specified in 40 CFR pt. 98, subp. C with a conversion from metric tons to short tons. The Permittee shall calculate and record the daily and 365-day Rolling Sum of CO ₂ e emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. This calculation and recordkeeping of daily and 365-day Rolling Sum of CO ₂ e emissions in short tons is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. [40 CFR pt. 98, subp. C, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.112.32		The Permittee shall conduct tune-ups in accordance with 40 CFR pt. 63, subp. DDDDD. Actions taken during each tune-up (burner inspection and cleaning, flame inspection and optimization, air-to-fuel ratio, CO optimization) will follow the schedule specified in Subpart DDDDD. The Permittee shall maintain records of heater tuning performed for compliance and may utilize normal business records for this purpose. This requirement is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. (BACT Limit) The initial tune-up shall be performed within 365 days of the effective date of this requirement. [40 CFR 63.7540(a)(10)(i)-(vi) & (12), Minn. R. 7011.7050, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.112.33		Recordkeeping: The Permittee shall record and maintain records of each fuel combusted in the unit on a monthly basis. For lbs CO ₂ e/mmBtu heat input, use fuel gas analysis to calculate, record, and maintain the CO ₂ e emissions value on a monthly average and 12-month rolling average basis, unless natural gas is fired strictly during the 12-month period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.112.34		RCFA and Corrective Action Requirements: The Permittee shall conduct a root cause analysis of any emission limit exceedance or process startup, shutdown, upset or malfunction that exceeds permitted SO ₂ emissions by 227 kilograms (kg) (500 lb) in any 24-hour period. For any root cause analysis performed, the Permittee shall record the identification of the affected facility, the date and duration of the discharge, the results of the root cause analysis and the action taken as a result of the root cause analysis. All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR Section 60.108a(c)(6)(ix). For corrective actions that cannot be fully implemented within

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			45 days following the discharge for which the root cause and corrective action analyses were required, the Permittee shall develop an implementation schedule to complete the corrective action(s) as soon as practicable. No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed date, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR Section 60.108a(c)(6)(x). This requirement is effective upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit. [40 CFR 60.103a(c)-(e)]
	5.112.35		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.112.36		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.112.37		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.112.38		Nitrogen Oxides: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a NOx continuous emissions monitoring system (CEMS). [CAAA of 1990, Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.112.39		Carbon Monoxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a CO continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.112.40		Nitrogen Oxides: Emissions Measuring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU82. [Minn. R. 7017.1006]
	5.112.41		Carbon Monoxide: Emissions Measuring: The Permittee shall use a CO CEMS to measure CO emissions from STRU82. [Minn. R. 7017.1006]
	5.112.42		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160, subps. 1-3]
	5.112.43		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.112.44		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test.

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			Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.112.45		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.112.46		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.112.47		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.112.48		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.112.49		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.112.50		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.112.51		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R.

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			7007.0800, subp. 4]
	5.112.52		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.112.53		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.112.54		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.112.55		See H2S monitor requirements at COMG96. [Minn. R. 7007.0800, subp. 2]
	5.112.56		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.112.57		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the Administrator on a case-by-case basis, determines that more frequent reporting is necessary. All reports shall be postmarked by the 30th day following the end of each six-month period and include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.7(c), Minn. R. 7019.0100]
	5.112.58		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be

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			submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100]
	5.112.59		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of NO_x emissions into the atmosphere according to the requirements below. The monitor must include an O₂ monitor for correcting the data for excess air. (1) Except as provided in 40 CFR Section 60.107a(c)(6), the Permittee shall install, operate and maintain each NO_x monitor according to Performance Specification 2 of Appendix B to pt. 60. The span value of this NO_x monitor must be between 2 and 3 times the applicable emissions limit, inclusive. (2) The Permittee shall conduct performance evaluations of each NO_x monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 2 of Appendix B to pt. 60. The Permittee shall use Methods 7, 7A, 7C, 7D or 7E of Appendix A-4 to pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60. (3) The Permittee shall install, operate and maintain each O₂ monitor according to Performance Specification 3 of Appendix B to pt. 60. The span value of this O₂ monitor must be selected between 10 and 25 percent, inclusive. (4) The Permittee shall conduct performance evaluations of each O₂ monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 3 of Appendix B to pt. 60. Method 3, 3A or 3B of Appendix A-2 to pt. 60 shall be used for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60. (5) The Permittee shall comply with the quality assurance requirements in Procedure 1 of Appendix F to pt. 60 for each NO_x and O₂ monitor, including quarterly accuracy demonstrations for NO_x monitors, annual accuracy determinations for O₂ monitors and daily calibration drift tests. [40 CFR 60.107a(c)]
	5.112.60		Excess Emissions: Excess emissions are defined as specified in 40 CFR Section 60.107a(i)(1) through (5). Determine a rolling 3-hour or a rolling daily average as the arithmetic average of the applicable 1-hour averages. Determine a rolling 30-day or a rolling 365-day average as the arithmetic average of the applicable daily averages. For H₂S limits in 40 CFR Section 60.102a(g)(1)(ii), each rolling 3-hour period during which the average H₂S concentration as

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			measured by the CMS required under 40 CFR Section 60.107a(a)(2) exceeds 162 ppmv and each rolling 365-day period during which the average H2S concentration as measured by the CMS required under 40 CFR Section 60.107a(a)(2) exceeds 60 ppmv. Each rolling 30-day period during which the average NOx concentration as measured by the NOx CMS required under 40 CFR Section 60.107a(c) or (d) exceeds: (ii) for a forced draft process heater, 60 ppmv and, if monitored, 0.060 lb/mmBtu (iv) the site-specific limit determined by the Administrator under 40 CFR Section 60.102a(i). Each day during which the concentration of NOx as measured by the NOx CMS required under 40 CFR Section 60.107a(d) exceeds the daily average emissions limit calculated using Equation 3 in 40 CFR Section 60.102a(g)(2)(iii)(B) or Equation 4 in 40 CFR Section 60.102a(g)(2)(iv)(B). Each day during which the concentration of O2 as measured by the O2 CMS required under 40 CFR Section 60.107a(c)(6) exceeds the O2 operating limit or operating curve determined during the most recent biennial performance test. [40 CFR 60.107a(i)(1)-(5)]
	5.112.61		Stack Temperature Monitoring for STRU82 BACT Limit: Upon startup of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements permit, the Permittee shall monitor stack temperature by doing all of the following: 1) Continuously monitor the stack exit temperature; 2) Consider a stack exit temperature above 350 degrees F on a 24-hour average basis, excluding hourly periods of startup, shutdown and low firing rates less than 246 mmBtu/hr HHV input (< 60% of maximum design capacity), as an excursion that requires corrective action; 3) Upon detecting a stack exit temperature above 350 degrees F on a 24-hour average basis, FHR shall restore operation of the heater to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing the period of any excursion and taking any necessary corrective actions to restore normal operation. Such actions may include heater adjustments or equipment maintenance; 4) Keep records of the continuous stack temperature measurements for at least five years and report excursions and a summary of response actions in FHR's Quarterly Air Quality and Excess Emissions Report. Excursions are events that require a response. Excursions are not violations and FHR shall not be considered out of compliance with the limit unless the stack exit temperature is above 350 degrees F on a 365-day rolling average basis, excluding hourly periods of startup, shutdown and low firing rates less than 246 mmBtu/hr HHV input (< 60% of maximum design capacity). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 377	EU213	#3 H2 Heater - Process	

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		Heater	
	5.113.1		The Permittee shall limit Nitrogen Oxides $\leq$ 19.95 pounds per hour 30-day rolling average. This limit applies at all times. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.113.2		The Permittee shall limit Nitrogen Oxides $\leq$ 0.036 pounds per million Btu heat input 30-day rolling average. This limit does not apply during periods of startup, shutdown, or during periods when the PSA purge gas is not available. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.113.3		The Permittee shall limit Nitrogen Oxides $\leq$ 0.042 pounds per million Btu heat input 24-hour block average. This limit does not apply during periods of startup, shutdown, or during periods when the PSA purge gas is not available. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.113.4		The Permittee shall limit PM $<$ 10 micron $\leq$ 3.13 pounds per hour 30-day rolling average. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.113.5		The Permittee shall limit Sulfur Dioxide $\leq$ 4.54 pounds per hour 30-day rolling average (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.113.6		The Permittee shall limit Sulfur Dioxide $\leq$ 36.6 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.113.7		The Permittee shall limit Sulfur Dioxide $\leq$ 36.6 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.113.8		The Permittee shall limit Sulfur Dioxide $\leq$ 128.4 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.113.9		The Permittee shall limit Sulfur Dioxide $\leq$ 36.6 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.113.10		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.113.11		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.113.12		The Permittee shall limit Total Particulate Matter $\leq$ 0.40

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			pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.113.13		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.113.14		Fuel Restriction: Authorized to burn PSA purge gas, refinery fuel gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.113.15		The Permittee shall limit Heat Input $\leq$ 449.5 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. [Minn. R. 7017.2025, subp. 3]
	5.113.16		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.113.17		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.113.18		Weekly Measurement of PSA Purge Gas: The Permittee shall measure higher heating value (HHV) of PSA purge gas during the initial testing schedule. If the standard deviation in HHV content is less than 10% after 3 months of sampling, the Permittee shall go to monthly sampling. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.113.19		Monthly Measurement of PSA Purge Gas: The Permittee shall measure higher heating value (HHV) of PSA purge gas. If the standard deviation in HHV content is less than 10% after 3 months of weekly sampling and if the standard deviation in HHV content is less than 10% after 12 months of monthly sampling, go to semi-annual sampling. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.113.20		Every Six (6) months Measurement of PSA Purge Gas: The Permittee shall measure higher heating value (HHV) of PSA purge gas during the final testing schedule. After 12 months of monthly sampling, if the standard deviation in HHV content is less than 10%, the Permittee shall use semi-annual sampling thereafter. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R.

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			7007.3000]
	5.113.21		NOx Emission Recordkeeping: The Permittee shall maintain records of the calculated NOx emissions hourly average of NOx emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.113.22		NOx Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 24-hour average lb/MMBtu of NOx using all of the 1-hour averages obtained during the previous 24-hour period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.113.23		PM10 Emission Calculation and Recordkeeping: The Permittee shall calculate and record daily PM10 emissions in lb/hr using performance test results. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.113.24		SO2 Emission Calculation and Recordkeeping: The Permittee shall calculate and record daily SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.113.25		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.113.26		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.113.27		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.113.28		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted.

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			[Minn. R. 7017.1180, subp. 1]
	5.113.29		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.113.30		Nitrogen Oxides: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a NOx continuous emissions monitoring system (CEMS). [CAAA of 1990, Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.113.31		Carbon Monoxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a CO continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.113.32		Nitrogen Oxides: Emissions Measuring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU172. [Minn. R. 7017.1006]
	5.113.33		Carbon Monoxide: Emissions Measuring: The Permittee shall use a CO CEMS to measure CO emissions from STRU172. [Minn. R. 7017.1006]
	5.113.34		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160]
	5.113.35		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.113.36		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.113.37		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.113.38		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information

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			required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.113.39		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.113.40		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.113.41		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.113.42		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.113.43		Firebox O2: The Permittee shall operate and maintain a CMS that records the firebox O2 at 27H501. Alternatively, FHR may install, certify, and operate a stack O2 CEMS in accordance with all requirements under MN Rules and Appendix B and Appendix F of 40 CFR pt. 60. [Minn. R. 7007.0800, subp. 4]
	5.113.44		O2 QA/QC: The Permittee shall follow manufacturer's recommendations for preventative maintenance and periodic monitoring to ensure analyzer reliability including but not limited to annual calibrations. [Minn. R. 7007.0800, subp. 4]
	5.113.45		Fuel Flowrate: The Permittee shall calibrate, operate and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.113.46		CMS QA/QC: The Permittee shall follow manufacturer's recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 406	EU352	23H3 Heater - Process Heater	

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	5.114.1		The Permittee shall limit Nitrogen Oxides ≤ 11.0 tons per year 365-day rolling sum. For the first 364 days after initial certification of the NO_x CEMS, NO_x emissions are limited as determined by the following equation: $E = 11.0 \times [0.15 + 0.85(D/365)]$ where E=NO_x emissions in total tons D=number of days after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.114.2		The Permittee shall limit Nitrogen Oxides ≤ 40 parts per million 30-day rolling average (dry basis, corrected to 0 percent excess air) determined daily. [40 CFR 60.102a(g)(2)(i)(A)]
	5.114.3		The Permittee shall limit Carbon Dioxide Equivalent $\leq 135,795$ tons per year 365-day rolling sum. For the first 364 days after initial start-up of the heater, CO₂e emissions are limited as determined by the following equation: $E = 135,795 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after limit is effective (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.114.4		The Permittee shall limit Carbon Dioxide Equivalent ≤ 117.4 pounds per million Btu heat input 12-month rolling average. Compliance with this limit can be demonstrated by firing strictly natural gas or by quantifying the average lb/mmBtu of the gaseous fuels fired over the operating period. [Minn. R. 7007.0800, subp. 2]
	5.114.5		The Permittee shall limit Total Particulate Matter ≤ 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI406. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.114.6		The Permittee shall limit PM < 10 micron ≤ 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI406. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.114.7		The Permittee shall limit PM < 2.5 micron ≤ 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI406. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.114.8		The Permittee shall limit Hydrogen Sulfide (H₂S) ≤ 162 parts

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			per million 3-hour rolling average, determined hourly. This limit does not apply during periods of startup, shutdown or malfunction; and, [40 CFR 60.102a(g)(1)(ii), 40 CFR 60.8(c), Minn. R. 7017.2015]
	5.114.9		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 60 parts per million 365-day rolling average, determined daily. This limit does not apply during periods of startup, shutdown or malfunction. [40 CFR 60.102a(g)(1)(ii), 40 CFR 60.8(c), Minn. R. 7017.2015]
	5.114.10		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies to the hydrogen sulfide content of fuel gas burned in EQUI406. Existing continuous H ₂ S monitoring systems (EQUI87 and EQUI128) on the refinery gas mix drums will be used to demonstrate compliance with this limit. [Minn. R. 7011.1410, subp. 2]
	5.114.11		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. The total emissions of sulfur dioxide from all existing and new fuel gas combustion devices and indirect heating equipment shall be divided by the total heat input of all such devices and equipment to determine compliance with this part; provided that no Permittee shall cause to be discharged from any one unit of new indirect heating equipment any gases which contain sulfur dioxide in excess of 3.0 lbs/million Btu heat input. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.114.12		The Permittee shall limit Sulfur Dioxide ≤ 2.28 pounds per hour 1-hour average, effective upon initial start-up of EQUI406. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.114.13		The Permittee shall limit Total Particulate Matter ≤ 0.4 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.0075 lbs/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.114.14		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.114.15		The Permittee shall limit Stack Temperature < 350 degrees Fahrenheit 365-day rolling average excluding hourly periods of startup, shutdown, and low firing rates less than 158 mmBtu/hr HHV input (< 60% of maximum design capacity). (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.114.16		Fuel Restriction: Authorized to burn refinery fuel gas and natural gas only. [Minn. R. 7007.0800, subp. 2]

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	5.114.17		Recordkeeping: The Permittee shall calculate and record the hourly SO ₂ emissions from refinery fuel gas and natural gas combustion by the 28th day of each month for the hourly periods ending on the last day of the preceding month. This requirement applies for hourly periods when any amount of refinery fuel gas is combusted. For hourly periods when only natural gas is fired, combustion of natural gas only shall constitute compliance with this requirement. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.114.18		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.114.19		Fuel Flowrate: The Permittee shall calibrate, operate and maintain a continuous monitoring system (CMS) that records the fuel flowrate. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.114.20		Recordkeeping: The Permittee shall calculate and record the daily and 365-day Rolling Sum of NO _x emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.114.21		Use methods in 40 CFR pt. 98, subp. C including flow monitoring of fuel usage and fuel gas analysis. Calculate emissions following procedures specified in 40 CFR pt. 98, subp. C with a conversion from metric tons to short tons. The Permittee shall calculate and record the daily and 365-day Rolling Sum of CO ₂ e emissions by the 28th day of each month for the 365-day rolling sum periods ending on the last day of the preceding month. [40 CFR pt. 98, subp. C, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.114.22		The Permittee shall conduct tune-ups in accordance with 40 CFR pt. 63, subp. DDDDD. Actions taken during each tune-up (burner inspection and cleaning, flame inspection and optimization, air-to-fuel ratio, CO optimization) will follow the schedule specified in Subpart DDDDD. The Permittee shall maintain records of heater tuning performed for compliance and may utilize normal business records for this purpose. This requirement is effective upon startup. (BACT Limit) The initial tune-up shall be performed within 365 days of startup. [40 CFR 63.7540(a)(10)(i)-(vi) & (12), Minn. R. 7011.7050, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.114.23		Recordkeeping: The Permittee shall record and maintain records of each fuel combusted in the unit on a monthly basis. For lbs CO ₂ e/mmBtu heat input, use fuel gas analysis to calculate, record, and maintain the CO ₂ e emissions value on a monthly average and 12-month rolling average basis, unless natural gas is fired strictly during the 12-month period. The records may be maintained in either electronic or paper

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			format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.114.24		RCFA and Corrective Action Requirements: The Permittee shall conduct a root cause analysis of any emission limit exceedance or process startup, shutdown, upset or malfunction that exceeds permitted SO₂ emissions by 227 kilograms (kg) (500 lb) in any 24-hour period. For any root cause analysis performed, the Permittee shall record the identification of the affected facility, the date and duration of the discharge, the results of the root cause analysis and the action taken as a result of the root cause analysis. All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR Section 60.108a(c)(6)(ix). For corrective actions that cannot be fully implemented within 45 days following the discharge for which the root cause and corrective action analyses were required, the Permittee shall develop an implementation schedule to complete the corrective action(s) as soon as practicable. No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed date, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR Section 60.108a(c)(6)(x). [40 CFR 60.103a(c)-(e)]
	5.114.25		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.114.26		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.114.27		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.114.28		The Permittee shall install, operate and maintain NO _x and O ₂ CEMS in accordance with 40 CFR pt. 60, Appendix B and Appendix F. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.114.29		Nitrogen Oxides: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a NO _x continuous emissions monitoring system (CEMS). [CAAA of 1990, Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.114.30		Carbon Monoxide: Emissions Monitoring: The Permittee shall

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			calibrate, operate and maintain a CO continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.114.31		Nitrogen Oxides: Emissions Measuring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU65. [Minn. R. 7017.1006]
	5.114.32		Carbon Monoxide: Emissions Measuring: The Permittee shall use a CO CEMS to measure CO emissions from STRU65. [Minn. R. 7017.1006]
	5.114.33		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160, subps. 1-3]
	5.114.34		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.114.35		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.114.36		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.114.37		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.114.38		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR

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			60.13(a), 40 CFR pt. 60, Appendix F]
	5.114.39		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.114.40		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.114.41		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.114.42		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.114.43		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.114.44		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.114.45		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.114.46		See H2S monitor requirements at COMG96. [Minn. R. 7007.0800, subp. 2]
	5.114.47		The Permittee shall conduct an initial compliance performance

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			demonstration for the NOx limits in 40 CFR Section 60.102a(g)(2)(ii) following approved methods in Appendix A. The Permittee shall determine initial compliance with the NOx limits in 40 CFR Section 60.102a(g)(2)(ii) according to the following test methods and procedures: (1) Method 1 of Appendix A-1 to pt. 60 for sample and velocity traverses; (2) Method 2 of Appendix A-1 to pt. 60 for velocity and volumetric flow rate; (3) Method 3, 3A or 3B of Appendix A-2 to pt. 60 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60; (5) Method 7, 7A, 7C, 7D or 7E of Appendix A-4 to pt. 60 for moisture content and for the concentration of NOx calculated as NO2; the duration of each test run must be no less than 4 hours. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 7 or 7C of Appendix A-4 to pt. 60. (7) The Permittee that elects to demonstrate continuous compliance with a maximum excess O2 limit shall determine heat input in mmBtu/hr during each performance test run by measuring fuel gas flow rate and heating value content. (8) The Permittee shall use Equation 8 of this section to adjust pollutant concentrations to 0% O2 or 0% excess air. [40 CFR 60.104a(i)(1)-(8)]
	5.114.48		The Permittee shall determine compliance with the applicable H2S emissions limit in 40 CFR Section 60.103a(g)(1)(ii) according to the following test methods and procedures: (1) Method 1 of Appendix A-1 to pt. 60 for sample and velocity traverses; (2) Method 2 of Appendix A-1 to pt. 60 for velocity and volumetric flow rate; (3) Method 3, 3A or 3B of Appendix A-2 to pt. 60 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60; (4) If monitoring is conducted at a single point in a common source of fuel gas as allowed under 40 CFR Section 60.107a(a)(2)(iv), only one performance test is required. That is, performance tests are not required when a new affected fuel gas combustion device or flare is added to a common source of fuel gas that previously demonstrated compliance. [40 CFR 60.104a(j)(1)-(4)]
	5.114.49		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H2S in the fuel gases before being burned in any fuel gas combustion device. (i) Install, operate and maintain each H2S monitor according to Performance Specification 7 of Appendix B to pt. 60. The span value is 300 ppmv H2S. (ii) Conduct performance evaluations for each H2S monitor

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			according to the requirements of 40 CFR Section 60.13(c) and Performance Specification 7 of Appendix B to pt. 60. Use Method 11, 15 or 15A of Appendix A-5 to pt. 60 or Method 16 of Appendix A-6 to pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 15A of Appendix A-5 to pt. 60. (iii) Comply with the applicable quality assurance procedures in Appendix F to pt. 60 for each H₂S monitor. (iv) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel gas being burned in the respective fuel gas combustion devices. [40 CFR 60.107a(a)(2)]
	5.114.50		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of NO_x emissions into the atmosphere according to the requirements below. The monitor must include an O₂ monitor for correcting the data for excess air. (1) Except as provided in 40 CFR Section 60.107a(c)(6), the Permittee shall install, operate and maintain each NO_x monitor according to Performance Specification 2 of Appendix B to pt. 60. The span value of this NO_x monitor must be between 2 and 3 times the applicable emissions limit, inclusive. (2) The Permittee shall conduct performance evaluations of each NO_x monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 2 of Appendix B to pt. 60. The Permittee shall use Methods 7, 7A, 7C, 7D or 7E of Appendix A-4 to pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60. (3) The Permittee shall install, operate and maintain each O₂ monitor according to Performance Specification 3 of Appendix B to pt. 60. The span value of this O₂ monitor must be selected between 10 and 25 percent, inclusive. (4) The Permittee shall conduct performance evaluations of each O₂ monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 3 of Appendix B to pt. 60. Method 3, 3A or 3B of Appendix A-2 to pt. 60 shall be used for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60. (5) The Permittee shall comply with the quality assurance requirements in Procedure 1 of Appendix F to pt. 60 for each NO_x and O₂ monitor, including quarterly accuracy demonstrations for NO_x monitors, annual accuracy determinations for O₂ monitors and daily calibration drift tests. [40 CFR 60.107a(c)]

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	5.114.51		Excess Emissions: Excess emissions are defined as specified in 40 CFR Section 60.107a(i)(1) through (5). Determine a rolling 3-hour or a rolling daily average as the arithmetic average of the applicable 1-hour averages. Determine a rolling 30-day or a rolling 365-day average as the arithmetic average of the applicable daily averages. For H2S limits in 40 CFR Section 60.102a(g)(1)(ii), each rolling 3-hour period during which the average H2S concentration as measured by the CMS required under 40 CFR Section 60.107a(a)(2) exceeds 162 ppmv and each rolling 365-day period during which the average H2S concentration as measured by the CMS required under 40 CFR Section 60.107a(a)(2) exceeds 60 ppmv. Each rolling 30-day period during which the average NOx concentration as measured by the NOx CMS required under 40 CFR Section 60.107a(c) or (d) exceeds: (i) for a natural draft process heater, 40 ppmv and, if monitored, 0.040 lb/mmBtu. (iv) the site-specific limit determined by the Administrator under 40 CFR Section 60.102a(i). Each day during which the concentration of NOx as measured by the NOx CMS required under 40 CFR Section 60.107a(d) exceeds the daily average emissions limit calculated using Equation 3 in 40 CFR Section 60.102a(g)(2)(iii)(B) or Equation 4 in 40 CFR Section 60.102a(g)(2)(iv)(B). Each day during which the concentration of O2 as measured by the O2 CMS required under 40 CFR Section 60.107a(c)(6) exceeds the O2 operating limit or operating curve determined during the most recent biennial performance test. [40 CFR 60.107a(i)(1)-(5)]
	5.114.52		Stack Temperature Monitoring for STRU65 BACT Limit: The Permittee shall monitor stack temperature by doing all of the following: (1) Continuously monitor the stack exit temperature; (2) Consider a stack exit temperature above 350 degrees F on a 24-hour average basis, excluding hourly periods of startup, shutdown and low firing rates less than 158 mmBtu/hr HHV input (< 60% of maximum design capacity), as an excursion that requires corrective action; (3) Upon detecting a stack exit temperature above 350 degrees F on a 24-hour average basis, FHR shall restore operation of the heater to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing the period of any excursion and taking any necessary corrective actions to restore normal operation. Such actions may include heater adjustments or equipment maintenance; (4) Keep records of the continuous stack temperature measurements for at least five years and report excursions and a summary of response actions in FHR's Quarterly Air Quality and Excess Emissions Report. Excursions are events that require a response. Excursions are

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			not violations and FHR shall not be considered out of compliance with the limit unless the stack exit temperature is above 350 degrees F on a 365-day rolling average basis, excluding hourly periods of startup, shutdown and low firing rates less than 158 mmBtu/hr HHV input (< 60% of maximum design capacity). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.114.53		EQUI406 shall be in compliance with all applicable requirements of 40 CFR pt. 63, subp. DDDDD upon the date of startup. [40 CFR 63.6(b)(2), 40 CFR 63.7495, Minn. R. 7011.7000, Minn. R. 7011.7050]
	5.114.54		At all times, the Permittee must operate and maintain any affected source (as defined in 40 CFR Section 63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source. [40 CFR 63.7500(a)(3), Minn. R. 7011.7050]
	5.114.55		The Permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in 40 CFR Section 63.7540(a)(10)(i) through (vi). This frequency does not apply to limited-use boilers and process heaters, as defined in 40 CFR Section 63.7575, or units with continuous oxygen trim systems that maintain an optimum air to fuel ratio. (i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the Permittee may delay the burner inspection until the next scheduled shutdown). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment; (ii) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available; (iii) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the Permittee may delay the inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection; (iv) Optimize total emissions of CO. This optimization should

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			be consistent with the manufacturer's specifications, if available, and with any NOx requirement to which the unit is subject; (v) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer; and (vi) Maintain on-site and submit, if requested by the Administrator, an annual report containing the information in 40 CFR Section 63.7540(a)(10)(vi)(A) through (C), (A) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater; (B) A description of any corrective actions taken as part of the tune-up; and (C) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit. [40 CFR 63.7540(a)(10), Minn. R. 7011.7050]
	5.114.56		If EQUI406 has a continuous oxygen trim system that maintains an optimum air-to-fuel ratio, or a heat input capacity of less than or equal to 5 million Btu per hour and the unit is in the units designed to burn gas 1; units designed to burn gas 2 (other); or units designed to burn light liquid subcategories, or meets the definition of limited-use boiler or process heater in 40 CFR Section 63.7575, the Permittee must conduct a tune-up of the boiler or process heater every 5 years as specified in 40 CFR Section 63.7540(a)(10)(i) through (vi) to demonstrate continuous compliance. The Permittee may delay the burner inspection specified in 40 CFR Section 63.7540(a)(10)(i) until the next scheduled or unscheduled unit shutdown, but the Permittee must inspect each burner at least once every 72 months. [40 CFR 63.7540(a)(12), Minn. R. 7011.7050]
	5.114.57		If EQUI406 is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. [40 CFR 63.7540(a)(13), Minn. R. 7011.7050]
	5.114.58		The Permittee shall report each instance in which the Permittee did not meet each emission limit and operating limit in 40 CFR pt. 63, subp. DDDDD Tables 1 through 4 or 11 through 13 that are applicable. These instances are deviations from the emission limits or operating limits, respectively, in this subpart. These deviations must be reported according to the requirements in 40 CFR Section 63.7550. [40 CFR 63.7540(b), Minn. R. 7011.7050]
	5.114.59		Unless the EPA Administrator has approved a different schedule for submission of reports under 40 CFR Section

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			63.10(a), the Permittee must submit each report, according to 40 CFR Section 63.7550(h), by the date in 40 CFR pt. 63, subp. DDDDD Table 9 and according to the requirements in 40 CFR Section 63.7550(b)(1) through (4). For units that are subject only to a requirement to conduct an annual, biennial, or 5-year tune-up according to 40 CFR Section 63.7540(a)(10), (11), or (12), respectively, and not subject to emission limits or operating limits, the Permittee may submit only an annual, biennial, or 5-year compliance report, as applicable, as specified in 40 CFR Section 63.7550(b)(1) through (4), instead of a semiannual compliance report. (1) The first compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in 40 CFR Section 63.7495 and ending on July 31 or January 31, whichever date is the first date that occurs at least 180 days (or 1, 2, or 5 years, as applicable, if submitting an annual, biennial, or 5-year compliance report) after the compliance date that is specified for your source in 40 CFR Section 63.7495. (2) The first compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for each boiler or process heater in 40 CFR Section 63.7495. The first annual, biennial, or 5-year compliance report must be postmarked or submitted no later than January 31. (3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual, biennial, and 5-year compliance reports must cover the applicable 1-, 2-, or 5-year periods from January 1 to December 31. (4) Each subsequent compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period. Annual, biennial, and 5-year compliance reports must be postmarked or submitted no later than January 31. [40 CFR 63.7550(b), 40 CFR pt. 63, subp. DDDDD(Table 9), Minn. R. 7011.7050]
	5.114.60		The compliance report must contain the following information in 40 CFR Section 63.7550(c)(5)(i) through (iii), (xiv) and (xvii): (1) Company and Facility name and address. (2) Process unit information, emissions limitations, and operating parameter limitations. (3) Date of report and beginning and ending dates of the reporting period. (4) Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual, biennial, or 5-year tune-up according to 40 CFR Section 63.7540(a)(10), (11), or (12), respectively. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the

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			next scheduled or unscheduled unit shutdown. (5) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report. [40 CFR 63.7550(c), Minn. R. 7011.7050]
	5.114.61		The Permittee shall keep the following records: (1) A copy of each notification and report submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report submitted, according to the requirements in 40 CFR Section 63.10(b)(2)(xiv). (2) Records of performance tests, fuel analyses or other compliance demonstrations and performance evaluations as required in 40 CFR Section 63.10(b)(2)(viii). [40 CFR 63.7555, Minn. R. 7011.7050]
	5.114.62		The Permittee shall maintain files of all information (including all reports and notifications) required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, or computer floppy disks, on magnetic tape disks or on microfiche. [40 CFR 63.10(b), 40 CFR 63.7560, 40 CFR 63.7565, Minn. R. 7011.7050, Minn. R. 7019.0100]
	5.114.63		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.114.64		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the Administrator on a case-by-case basis, determines that more frequent reporting is necessary. All reports shall be postmarked by the 30th day following the end of each six-month period and include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.7(c), Minn. R. 7019.0100]
	5.114.65		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the

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			total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100]
	5.114.66		The Permittee shall maintain files of all information required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks or on microfiche. [40 CFR 63.10(b), Minn. R. 7019.0100]
	5.114.67		The Permittee shall submit reports to the Administrator in accordance with the reporting requirements in the relevant standard(s). [40 CFR 63.10(d), Minn. R. 7019.0100]
EQUI 407	EU353	25H2 Heater - Process Heater	
	5.115.1		The Permittee shall limit Nitrogen Oxides ≤ 10.9 tons per year 365-day rolling sum. For the first 364 days after initial certification of the NOx CEMS, NOx emissions are limited as determined by the following equation: $E = 10.9 \times [0.15 + 0.85(D/365)]$ where E=NOx emissions in total tons D=number of days after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.115.2		The Permittee shall limit Nitrogen Oxides ≤ 60 parts per million 30-day rolling average (dry basis, corrected to 0 percent excess air) determined daily. [40 CFR 60.102a(g)(2)(ii)(A)]
	5.115.3		The Permittee shall limit Carbon Dioxide Equivalent $\leq 167,066$ tons per year 365-day rolling sum. For the first 364 days after initial start-up of the heater, CO ₂ e emissions are limited as determined by the following equation: $E = 167,066 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after limit is effective (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.115.4		The Permittee shall limit Carbon Dioxide Equivalent ≤ 117.0 pounds per million Btu heat input 12-month rolling average. Compliance with this limit can be demonstrated by firing strictly natural gas. [Minn. R. 7007.0800, subp. 2]
	5.115.5		The Permittee shall limit Total Particulate Matter ≤ 0.0075

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			pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI407. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.115.6		The Permittee shall limit PM < 10 micron <= 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI407. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.115.7		The Permittee shall limit PM < 2.5 micron <= 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. This limit is effective upon startup of EQUI407. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.115.8		The Permittee shall limit Sulfur Dioxide <= 1.75 pounds per million Btu heat input 3-hour rolling average. The total emissions of sulfur dioxide from all existing and new fuel gas combustion devices and indirect heating equipment shall be divided by the total heat input of all such devices and equipment to determine compliance with this part; provided that no Permittee shall cause to be discharged from any one unit of new indirect heating equipment any gases which contain sulfur dioxide in excess of 3.0 lbs/million Btu heat input. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.115.9		The Permittee shall limit Total Particulate Matter <= 0.4 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.0075 lbs/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.115.10		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.115.11		The Permittee shall limit Stack Temperature < 350 degrees Fahrenheit 365-day rolling average excluding hourly periods of startup, shutdown, and low firing rates less than 196 mmBtu/hr HHV input (< 60% maximum design capacity). (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.115.12		The Permittee shall limit Heat Input <= 289.0 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a

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			performance test is conducted at a higher rate and MPCA staff determine compliance at that rate for the emission unit. [Minn. R. 7017.2025, subp. 3]
	5.115.13		Fuel Restriction: Authorized to burn natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.115.14		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.115.15		Fuel Flowrate: The Permittee shall calibrate, operate and maintain a continuous monitoring system (CMS) that records the fuel flowrate. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.115.16		Recordkeeping: The Permittee shall calculate and record the daily and 365-day Rolling Sum of NOx emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.115.17		Use methods in 40 CFR pt. 98, subp. C including flow monitoring of fuel usage and fuel gas analysis. Calculate emissions following procedures specified in 40 CFR pt. 98, subp. C with a conversion from metric tons to short tons. The Permittee shall calculate and record the daily and 365-day Rolling Sum of CO2e emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. [40 CFR pt. 98, subp. C, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.115.18		The Permittee shall conduct tune-ups in accordance with 40 CFR pt. 63, subp. DDDDD. Actions taken during each tune-up (burner inspection and cleaning, flame inspection and optimization, air-to-fuel ratio, CO optimization) will follow the schedule specified in Subpart DDDDD. The Permittee shall maintain records of heater tuning performed for compliance and may utilize normal business records for this purpose. This requirement is effective upon startup. (BACT Limit) The initial tune-up shall be performed within 365 days of startup. [40 CFR 63.7540(a)(10)(i)-(vi) & (12), Minn. R. 7011.7050, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.115.19		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.115.20		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.115.21		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable

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			requirements. [Minn. R. 7017.1010]
	5.115.22		The Permittee shall install, operate and maintain NOx and O2 CEMS in accordance with 40 CFR pt. 60, Appendix B and Appendix F. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.115.23		Nitrogen Oxides: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a NOx continuous emissions monitoring system (CEMS). [CAAA of 1990, Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.115.24		Carbon Monoxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain a CO continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.115.25		Nitrogen Oxides: Emissions Measuring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU66. [Minn. R. 7017.1006]
	5.115.26		Carbon Monoxide: Emissions Measuring: The Permittee shall use a CO CEMS to measure CO emissions from STRU66. [Minn. R. 7017.1006]
	5.115.27		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160, subps. 1-3]
	5.115.28		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.115.29		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.115.30		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.115.31		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS

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			and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.115.32		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.115.33		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.115.34		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.115.35		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.115.36		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.115.37		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.115.38		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R.

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			7007.0800, subp. 4]
	5.115.39		O2 QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.115.40		The Permittee shall conduct an initial compliance performance demonstration for the NOx limits in 40 CFR Section 60.102a(g)(2)(ii) following approved methods in Appendix A. The Permittee shall determine initial compliance with the NOx limits in 40 CFR Section 60.102a(g)(2)(ii) according to the following test methods and procedures: (1) Method 1 of Appendix A-1 to pt. 60 for sample and velocity traverses; (2) Method 2 of Appendix A-1 to pt. 60 for velocity and volumetric flow rate; (3) Method 3, 3A or 3B of Appendix A-2 to pt. 60 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60; (5) Method 7, 7A, 7C, 7D or 7E of Appendix A-4 to pt. 60 for moisture content and for the concentration of NOx calculated as NO2; the duration of each test run must be no less than 4 hours. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 7 or 7C of Appendix A-4 to pt. 60. (7) The Permittee that elects to demonstrate continuous compliance with a maximum excess O2 limit shall determine heat input in mmBtu/hr during each performance test run by measuring fuel gas flow rate and heating value content. (8) The Permittee shall use Equation 8 of this section to adjust pollutant concentrations to 0% O2 or 0% excess air. [40 CFR 60.104a(i)(1)-(8)]
	5.115.41		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of NOx emissions into the atmosphere according to the requirements below. The monitor must include an O2 monitor for correcting the data for excess air. (1) Except as provided in 40 CFR Section 60.107a(c)(6), the Permittee shall install, operate and maintain each NOx monitor according to Performance Specification 2 of Appendix B to pt. 60. The span value of this NOx monitor must be between 2 and 3 times the applicable emissions limit, inclusive. (2) The Permittee shall conduct performance evaluations of each NOx monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 2 of Appendix B to pt. 60. The Permittee shall use Methods 7, 7A, 7C, 7D or 7E of Appendix A-4 to pt. 60 for conducting the relative

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			accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60. (3) The Permittee shall install, operate and maintain each O₂ monitor according to Performance Specification 3 of Appendix B to pt. 60. The span value of this O₂ monitor must be selected between 10 and 25 percent, inclusive. (4) The Permittee shall conduct performance evaluations of each O₂ monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 3 of Appendix B to pt. 60. Method 3, 3A or 3B of Appendix A-2 to pt. 60 shall be used for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60. (5) The Permittee shall comply with the quality assurance requirements in Procedure 1 of Appendix F to pt. 60 for each NO_x and O₂ monitor, including quarterly accuracy demonstrations for NO_x monitors, annual accuracy determinations for O₂ monitors and daily calibration drift tests. [40 CFR 60.107a(c)]
	5.115.42		Excess Emissions: Excess emissions are defined as specified in 40 CFR Section 60.107a(i)(1) through (5). Determine a rolling 3-hour or a rolling daily average as the arithmetic average of the applicable 1-hour averages. Determine a rolling 30-day or a rolling 365-day average as the arithmetic average of the applicable daily averages. Each rolling 30-day period during which the average NO_x concentration as measured by the NO_x CMS required under 40 CFR Section 60.107a(c) or (d) exceeds: (ii) for a forced draft process heater, 60 ppmv and, if monitored, 0.060 lb/mmBtu. (iv) the site-specific limit determined by the Administrator under 40 CFR Section 60.102a(i). Each day during which the concentration of NO_x as measured by the NO_x CMS required under 40 CFR Section 60.107a(d) exceeds the daily average emissions limit calculated using Equation 3 in 40 CFR Section 60.102a(g)(2)(iii)(B) or Equation 4 in 40 CFR Section 60.102a(g)(2)(iv)(B). Each day during which the concentration of O₂ as measured by the O₂ CMS required under 40 CFR Section 60.107a(c)(6) exceeds the O₂ operating limit or operating curve determined during the most recent biennial performance test. [40 CFR 60.107a(i)(1)-(5)]
	5.115.43		Stack Temperature Monitoring for STRU66 BACT Limit: The Permittee shall monitor stack temperature by doing all of the following: (1) Continuously monitor the stack exit temperature; (2) Consider a stack exit temperature above 350 degrees F on a 24-hour average basis, excluding hourly periods of startup, shutdown and low firing rates less than 196 mmBtu/hr HHV input (< 60% of maximum design capacity), as an excursion

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			that requires corrective action; (3) Upon detecting a stack exit temperature above 350 degrees F on a 24-hour average basis, FHR shall restore operation of the heater to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing the period of any excursion and taking any necessary corrective actions to restore normal operation. Such actions may include heater adjustments or equipment maintenance; (4) Keep records of the continuous stack temperature measurements for at least five years and report excursions and a summary of response actions in FHR's Quarterly Air Quality and Excess Emissions Report. Excursions are events that require a response. Excursions are not violations and FHR shall not be considered out of compliance with the limit unless the stack exit temperature is above 350 degrees F on a 365-day rolling average basis, excluding hourly periods of startup, shutdown and low firing rates less than 196 mmBtu/hr HHV input (< 60% of maximum design capacity). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.115.44		EQUI407 shall be in compliance with all applicable requirements of 40 CFR pt. 63, subp. DDDDD upon the date of startup. [40 CFR 63.6(b)(2), 40 CFR 63.7495, Minn. R. 7011.7000, Minn. R. 7011.7050]
	5.115.45		At all times, the Permittee must operate and maintain any affected source (as defined in 40 CFR Section 63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source. [40 CFR 63.7500(a)(3), Minn. R. 7011.7050]
	5.115.46		The Permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in 40 CFR Section 63.7540(a)(10)(i) through (vi). This frequency does not apply to limited-use boilers and process heaters, as defined in 40 CFR Section 63.7575, or units with continuous oxygen trim systems that maintain an optimum air to fuel ratio. (i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the Permittee may delay the burner inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are

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			required only during planned entries into the storage vessel or process equipment; (ii) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available; (iii) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the Permittee may delay the inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection; (iv) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NOx requirement to which the unit is subject; (v) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer; and (vi) Maintain on-site and submit, if requested by the Administrator, an annual report containing the information in 40 CFR Section 63.7540(a)(10)(vi)(A) through (C), (A) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater; (B) A description of any corrective actions taken as part of the tune-up; and (C) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit. [40 CFR 63.7540(a)(10), Minn. R. 7011.7050]
	5.115.47		If EQUI407 has a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 million Btu per hour and the unit is in the units designed to burn gas 1; units designed to burn gas 2 (other); or units designed to burn light liquid subcategories, or meets the definition of limited-use boiler or process heater in 40 CFR Section 63.7575, the Permittee must conduct a tune-up of the boiler or process heater every 5 years as specified in 40 CFR 63.7540(a)(10)(i) through (vi) to demonstrate continuous compliance. The Permittee may delay the burner inspection specified in 40 CFR Section 63.7540(a)(10)(i) until the next scheduled or unscheduled unit shutdown, but the Permittee must inspect each burner at least once every 72 months. [40 CFR 63.7540(a)(12), Minn. R. 7011.7050]

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	5.115.48		If EQUI407 is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. [40 CFR 63.7540(a)(13), Minn. R. 7011.7050]
	5.115.49		The Permittee shall report each instance in which the Permittee did not meet each emission limit and operating limit in 40 CFR pt. 63, subp. DDDDD Tables 1 through 4 or 11 through 13 that are applicable. These instances are deviations from the emission limits or operating limits, respectively, in this subpart. These deviations must be reported according to the requirements in 40 CFR Section 63.7550. [40 CFR 63.7540(b), Minn. R. 7011.7050]
	5.115.50		Unless the EPA Administrator has approved a different schedule for submission of reports under 40 CFR Section 63.10(a), the Permittee must submit each report, according to 40 CFR Section 63.7550(h), by the date in 40 CFR pt. 63, subp. DDDDD Table 9 and according to the requirements in 40 CFR Section 63.7550(b)(1) through (4). For units that are subject only to a requirement to conduct an annual, biennial, or 5-year tune-up according to 40 CFR Section 63.7540(a)(10), (11), or (12), respectively, and not subject to emission limits or operating limits, you may submit only an annual, biennial, or 5-year compliance report, as applicable, as specified in 40 CFR Section 63.7550(b)(1) through (4), instead of a semiannual compliance report. (1) The first compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in 40 CFR Section 63.7495 and ending on July 31 or January 31, whichever date is the first date that occurs at least 180 days (or 1, 2, or 5 years, as applicable, if submitting an annual, biennial, or 5-year compliance report) after the compliance date that is specified for your source in 40 CFR Section 63.7495. (2) The first compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for each boiler or process heater in 40 CFR Section 63.7495. The first annual, biennial, or 5-year compliance report must be postmarked or submitted no later than January 31. (3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual, biennial, and 5-year compliance reports must cover the applicable 1-, 2-, or 5-year periods from January 1 through December 31. (4) Each subsequent compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period. Annual, biennial, and 5-year compliance reports must be postmarked or submitted no later than January 31. [40 CFR 63.7550(b), 40 CFR pt. 63, subp. DDDDD (Table 9), Minn. R. 7011.7050]

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	5.115.51		The compliance report must contain the following information in 40 CFR Section 63.7550(c)(5)(i) through (iii), (xiv) and (xvii): (1) Company and Facility name and address. (2) Process unit information, emissions limitations, and operating parameter limitations. (3) Date of report and beginning and ending dates of the reporting period. (4) Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual, biennial, or 5-year tune-up according to 40 CFR Section 63.7540(a)(10), (11), or (12), respectively. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the next scheduled or unscheduled unit shutdown. (5) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report. [40 CFR 63.7550(c), Minn. R. 7011.7050]
	5.115.52		The Permittee shall keep the following records: (1) A copy of each notification and report submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report submitted, according to the requirements in 40 CFR Section 63.10(b)(2)(xiv). (2) Records of performance tests, fuel analyses or other compliance demonstrations and performance evaluations as required in 40 CFR Section 63.10(b)(2)(viii). [40 CFR 63.7555, Minn. R. 7011.7050]
	5.115.53		The Permittee shall maintain files of all information (including all reports and notifications) required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, or on computer floppy disks, on magnetic tape disks or on microfiche. [40 CFR 63.10(b), 40 CFR 63.7560, 40 CFR 63.7565, Minn. R. 7011.7050, Minn. R. 7019.0100]
	5.115.54		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.115.55		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the Administrator on a case-by-case basis, determines that more frequent reporting is necessary. All reports shall be

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			postmarked by the 30th day following the end of each six-month period and include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.7(c), Minn. R. 7019.0100]
	5.115.56		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100]
	5.115.57		The Permittee shall maintain files of all information required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks or on microfiche. [40 CFR 63.10(b), Minn. R. 7019.0100]
	5.115.58		The Permittee shall submit reports to the Administrator in accordance with the reporting requirements in the relevant standard(s). [40 CFR 63.10(d), Minn. R. 7019.0100]
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	5.116.1		The Permittee shall limit Sulfur Dioxide $\leq$ 182.6 pounds per hour 1-hour average. This is a state-only requirement and, pursuant to Minn. R. 7007.1750, it is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M), Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-7009.0080, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.116.2		The Permittee shall limit Sulfur Dioxide $\leq$ 182.6 pounds per hour 3-hour rolling average. The Permittee shall use CEMS to monitor the sulfur dioxide emissions in order to calculate pounds of sulfur dioxide per hour (lb/hr). [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.116.3		The Permittee shall limit Sulfur Dioxide $\leq$ 182.6 pounds per hour 24-hour rolling average. The Permittee shall use CEMS to monitor the sulfur dioxide emissions in order to calculate pounds of sulfur dioxide per hour (lb/hr). [Title I Condition: 40

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			CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.116.4		The Permittee shall limit Sulfur Dioxide <= 800 tons per year 12-month rolling average (This requirement is met by complying with the more stringent requirement of 800 tons/year using a 365-day rolling average.). [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.116.5		The Permittee shall limit Sulfur Dioxide <= 800 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.116.6		The Permittee shall limit Sulfur Dioxide <= 25 parts per million 365-day rolling average by volume (at 0% oxygen). This limit was effective on December 31, 2003, with the initial calculation for compliance with the 365-day limit to be performed on December 30, 2004. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.116.7		The Permittee shall limit Sulfur Dioxide <= 50 parts per million 7-day rolling average by volume (at 0% oxygen). This limit does not apply during periods of startup, shutdown, or malfunction. This limit replaces the requirement for daily samples for feed sulfur analysis to the FCCU or calculation of pounds of SO ₂ per 1000 pounds of coke burned. The compliance option under 40 CFR Section 60.104(b) may be changed at any time as long as the switch is carried out in accordance with 40 CFR Section 60.108(e) including required notification under 40 CFR Section 60.107(e) and beginning daily compliance tests under 40 CFR Section 60.106 at least 7 days prior to the change. (2001 EPA Consent Decree, as amended). [40 CFR 60.104(b)(1), CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7011.1435(A)]
	5.116.8		The Permittee shall limit Total Particulate Matter <= 1.0 pounds per 1000 pounds as demonstrated through stack test weighted average PM results relative to 40 CFR pt. 60, subp. J calculated coke burn-off in the catalyst regenerator during the test period. This limit does not apply during periods of startup, shutdown, or malfunction. Compliance with the most recent stack test for PM constitutes compliance with this limit. [40 CFR 60.102(a)(1), 40 CFR 60.8(c), 40 CFR 63.1564(a)(1), 40 CFR 63.1564(c)(1), Minn. R. 7011.1410, subp. 1(A), Minn. R. 7011.1435(A), Minn. R. 7011.7280(B), Minn. R. 7017.2015]
	5.116.9		The Permittee shall limit Total Particulate Matter <= 169 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.116.10		The Permittee shall limit PM < 10 micron <= 142 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.116.11		The Permittee shall limit Carbon Monoxide <= 60 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.116.12		The Permittee shall limit Carbon Monoxide <= 500 parts per million 1-hour average by volume (dry basis). This limit does

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			not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.103, 40 CFR 60.105, 40 CFR 60.8, 40 CFR 63.1565(a)(1), 40 CFR 63.1565(c)(1), Minn. R. 7007.1435]
	5.116.13		The Permittee shall limit Nitrogen Oxides <= 500 tons per year 365-day rolling sum. This is a state only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [To avoid exceeding the mandatory Environmental Assessment Worksheet Category for air emissions]. [Minn. R. 4410.4300, subp. 15(A)]
	5.116.14		The Permittee shall limit Nitrogen Oxides <= 450 parts per million 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.116.15		The Permittee shall limit Nitrogen Oxides <= 859 pounds per hour 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.116.16		The Permittee shall limit Nitrogen Oxides <= 692 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.116.17		The Permittee shall limit Nitrogen Oxides <= 27.5 parts per million 365-day rolling average (operating day), by dry volume (at 0% oxygen). (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.116.18		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies to the H2S content of fuel gas burned in Boiler 17H-2 (TREA49) and Boiler 17H-4 (TREA50) and does not apply during periods of startup, shutdown, or malfunction. Existing continuous H2S monitoring systems on the existing refinery fuel gas mix drums will be used to demonstrate compliance with this limit for refinery gas combusted in the boilers. [40 CFR 60.104(a)(1), Minn. R. 7011.1435(A), Minn. R. 7011.1490, subp. 2]
	5.116.19		The Permittee shall limit Opacity <= 30 percent opacity except for one six-minute average opacity reading in any one hour period. Limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.102, 40 CFR 60.105, 40 CFR 60.11, 40 CFR 63.1564(a)(1), 40 CFR 63.1564(c)(1), Minn. R. 7011.1410, Minn. R. 7011.1435(A), Minn. R. 7011.7280(B), Minn. R. 7017.2015]
	5.116.20		Continuous Opacity Monitoring System (COMS): The Permittee shall calibrate, operate and maintain a continuous monitoring system for the measurement of opacity. [40 CFR 60.105(a), 40 CFR 63.1564(b)(1), Minn. R. 7011.1420, subp. 1(A)(1), Minn. R. 7011.1435(A), Minn. R. 7011.7280(B), Minn. R. 7017.1010, subp. 1(A)-(C)]
	5.116.21		Emissions Monitoring: The Permittee shall use a COMS to measure opacity emissions from STRU95. [40 CFR 63.1564(b)(1), 40 CFR 64.6(c), 40 CFR 64.7(b), Minn. R. 7011.7280(B), Minn. R. 7017.0200, Minn. R. 7017.1006]
	5.116.22		QA Plan Required: Develop and implement a written quality assurance plan that covers each COMS. The plan shall be on

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			site and available for inspection within 30 days after monitor certification. The plan shall contain the written procedures listed in Minn. R. 7017.1210, subp. 1. The plan shall include or reference the manufacturer's spare parts list for each COMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [40 CFR 64.6(c), Minn. R. 7017.1210]
	5.116.23		Continuous Operation: COMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A COMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. Acceptable monitor downtime includes reasonable periods as listed in Items A, B, C and D of Minn. R. 7017.1090, subp. 2. [40 CFR 60.13(e), 40 CFR 64.6(c), 40 CFR 64.7(c), Minn. R. 7017.0200, Minn. R. 7017.1090, subp. 1]
	5.116.24		COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily. The COMS must be adjusted whenever the calibration drift (CD) exceeds twice the specification of PS-1 of 40 CFR pt. 60, Appendix B. [40 CFR 60.13(d), 40 CFR 64.6(c), Minn. R. 7017.1210, subp. 2]
	5.116.25		All COMS shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data for each successive 6-minute period. [40 CFR 60.13(e)(1), 40 CFR 60.13(h), Minn. R. 7017.1200, subps. 1-3]
	5.116.26		Recordkeeping: The Permittee must retain records of all COMS monitoring data and supporting information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 64.9(b), Minn. R. 7017.0200, Minn. R. 7017.1130]
	5.116.27		Continuous Monitoring System (CMS): The Permittee shall calibrate, operate and maintain a CMS for the measurement of CO emissions from the FCC Regenerator. [40 CFR 63.1565(b)(1), Minn. R. 7011.7280(B), Minn. R. 7017.1006]
	5.116.28		FCC Regenerator Monitoring: The Permittee shall monitor the CO in FCC flue gas at outlet of the FCC Regenerator whenever the FCC CO boilers are bypassed. [40 CFR 63.1565(b)(1), Minn. R. 7011.7280(B), Minn. R. 7017.1006]

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	5.116.29		CMS QA/QC: Twice a week, the Permittee shall validate and, if necessary, calibrate CO flue gas analyzer installed at the outlet duct of the FCC Regenerator. [40 CFR 63.1565(b)(1), Minn. R. 7011.7280(B), Minn. R. 7017.1006]
	5.116.30		CMS QA/QC: On an annual basis, the Permittee shall conduct a simple test to compare data from the flue gas analyzer whenever a relative accuracy test is conducted on the CO CEMS on the ESP stack. The test shall consist of an instrumental (analyzer) method or and Orsat test depending on the concentration of CO. [40 CFR 63.1565(b)(1), Minn. R. 7011.7280(B), Minn. R. 7017.1006]
	5.116.31		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.116.32		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.116.33		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.116.34		SO2 Emissions Monitoring: The Permittee shall calibrate, operate and maintain SO2 Continuous Emissions Monitoring System (CEMS). (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.116.35		SO2 Emissions Measuring: The Permittee shall use a sulfur dioxide CEMS to measure sulfur dioxide emissions from STRU95. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7017.1006]
	5.116.36		SO2 Emissions Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of the following: 1. The Permittee shall use the SO2 CEMS to calculate and record each 1-hour average concentration (dry, 0% oxygen, ppmv of SO2 from the FCCU); 2. The Permittee shall calculate and record the 7-day average (arithmetic mean) concentration of SO2 using all of the 1-hour average concentration values obtained during the previous seven successive 24-hour periods; and 3. The Permittee shall calculate and record the 365-day average (arithmetic mean) concentration of SO2 using all of the 1-hour average concentration values obtained during the previous 365-day period. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition:

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			Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.116.37		Continuous Emission Monitoring System (CEMS): The Permittee shall calibrate, operate and maintain a continuous emissions monitoring system for the measurement of CO emissions from STRU95. [40 CFR 63.1565(b)(1), Minn. R. 7011.7280(B), Minn. R. 7017.1006]
	5.116.38		CO Calculations and Recordkeeping: The Permittee shall maintain records of the calculated CO emissions in pounds per hour (lb/hr). The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7017.1006]
	5.116.39		CO Recordkeeping: The Permittee shall maintain records of the calculated hourly average of CO in ppm, on a dry basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.105(a)(2), 40 CFR 63.1565(c)(1), Minn. R. 7011.1435(A), Minn. R. 7011.7280(B)]
	5.116.40		Continuous Emission Monitoring System (CEMS): The Permittee shall calibrate, operate and maintain a continuous monitoring system for the measurement of nitrogen oxide (NOx). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.116.41		NOx Emissions Measuring: The Permittee shall use NOx CEMS to measure nitrogen oxide emissions from STRU95. [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.116.42		NOx Emissions Calculation and Recordkeeping for BACT Limit: The Permittee shall use the NOx CEMS to calculate and record NOx emissions from STRU95 in units of parts per million (ppm) and in units of pounds of NOx per hour (lb/hr). The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.116.43		NOx Emissions Recordkeeping: The Permittee shall record the daily and 365-day rolling average of NOx emissions for EQUI421. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.116.44		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.116.45		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R.

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			7017.1080, subp. 1-4]
	5.116.46		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.116.47		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.116.48		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.116.49		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.116.50		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.116.51		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.116.52		FCCU ESP (TREA23) Particulate Matter: FHR uses de-SOx catalyst at the FCCU. During PM10 stack testing at the FCCU (EQUI421), which will occur at the intervals specified by MPCA guidance, FHR will apply de-SOx catalyst at an annualized average rate representative of normal operating conditions. FHR shall include the operating parameters used during normal operating conditions of the de-SOx catalyst system

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			with all submitted PM10 performance test plans. [Minn. R. 7007.0800, subp. 4]
	5.116.53		Conduct Root Cause Failure Analysis (RCFA): The Permittee shall comply with the RCFA as required by 2000 Global Consent Decree. [Minn. R. 7007.0800, subp. 2]
	5.116.54		Monitoring FCC for ppm SO2 limit: If the Permittee is complying with FCC 50 ppmv SO2 limit, when FCC SO2 or O2 emissions data is not obtained because of CMS system breakdowns, repairs, calibration checks and zero and span adjustments, the Permittee shall obtain emissions data via alternate means to provide a minimum of 18 hours per day in at least 22 out of 30 rolling successive calendar days: (i) The test methods as described in 40 CFR Section 60.106(k); (ii) A spare continuous monitoring system; or (iii) Other monitoring systems as approved by the MPCA. [40 CFR 60.105(a)(13), 40 CFR 60.106, Minn. R. 7011.1435(A)]
	5.116.55		Monitoring FCC SO2 concentration: If the Permittee is complying with FCC SO2 concentration limit of 50 ppmv (dry, 0% oxygen), the Permittee shall monitor SO2 emissions in ppmvd SO2 (dry, 0% oxygen). (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 5, Minn. R. 7011.1435(A)]
	5.116.56		Testing to Change Compliance Option: If the Permittee is changing FCC SO2 compliance option, the Permittee shall begin conducting daily tests as specified under 40 CFR Section 60.108(d) immediately upon electing to become subject to a different provision of 40 CFR Section 60.104(b). [40 CFR 60.108, Minn. R. 7011.1425, Minn. R. 7011.1430, Minn. R. 7011.1435(A)]
	5.116.57		PM10 Calculations and Recordkeeping: The Permittee shall calculate and record the 365-day rolling sum PM10 emissions using the most recent stack test emission factor until an MPCA approved ammonia slip versus PM10 correlation using the ammonia CMS in accordance with Minn. Rs. 7019.3040 to 7019.3100 is approved. The records may be maintained in either electronic or paper format, unless electronic or paper reports are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.116.58		The Permittee shall be allowed to propose an ammonia CMS correlation to quantify PM10 emissions in lieu of using a stack test emission factor. [Minn. R. 7007.0800, subp. 2]
	5.116.59		Air Pollution Control Equipment: Downtime of TREA49, TREA50, and/or TREA83 is not itself a deviation if the applicable permit limit requirement is met. [Minn. R. 7007.0800, subp. 16(J), Minn. R. 7007.0800, subp. 2]
	5.116.60		O2 QA Plan: Develop and implement a written quality assurance plan that covers the CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall

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			include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.116.61		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.116.62		CO Bypassed Emissions Recordkeeping: The Permittee shall record that the FCCU emissions exceed 1.0 lbs PM/1000 lb coke burn, when the FCCU CO boilers are bypassed. The records may be maintained in either electronic or paper format, unless electronic or paper reports are expressly prohibited. [Alternative Monitoring Plan to Comply with 40 CFR Section 60.13]. [Minn. R. 7007.0800, subp. 2]
	5.116.63		CO Bypassed Emissions Report: The Permittee shall submit a report to the MPCA, that the FCCU emission exceed 1.0 lbs PM/1000 lbs coke burn, that emissions are approximately 3 lbs PM/1000 lbs coke burn and that emissions exceed 30% opacity, when the FCCU CO boilers are bypassed. [Alternative Monitoring Plan to Comply with 40 CFR Section 60.13]. [Minn. R. 7007.0800, subp. 2]
	5.116.64		The Permittee shall prepare and implement an operation, maintenance, and monitoring (OM&M) plan according to the requirements in 40 CFR Section 63.1574(f) and operate at all times according to the procedures in the plan. [40 CFR 63.1564(a)(3), 40 CFR 63.1565(a), 40 CFR 63.1569(a), 40 CFR 63.1574(f), Minn. R. 7011.7280(B)]
	5.116.65		Stack Ammonia: When utilizing the approved ammonia slip correlation for compliance demonstration, the Permittee shall operate and maintain CMS that records the ammonia slip in the FCCU stack (STRU95). [Minn. R. 7007.0800, subp. 4]
	5.116.66		Monitor QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure analyzer reliability. [Minn. R. 7007.0800, subp. 4]
	5.116.67		See CAM requirements at TREA23. [Minn. R. 7007.0800, subp. 2]
	5.116.68		At all times, including period of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1)(i)-(iii), Minn. R. 7011.7000, Minn. R.

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			7011.7280(B), Minn. R. 7017.2015, subp. 2(A)-(B)]
	5.116.69		Correct malfunctions as soon as practicable in accordance with the SSMP. [40 CFR 63.6(e)(1)(ii)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.116.70		Record occurrence of startup, shutdown, and malfunction of process equipment or of malfunction or maintenance of air pollution control equipment. Document conformance with or deviation from SSMP. [40 CFR 63.10(b)(2)(i)-(v), 40 CFR 63.1570(d), 40 CFR 63.6(e)(3)(iii)-(iv), Minn. R. 7011.7000, Minn. R. 7011.7280(B), Minn. R. 7019.0100]
	5.116.71		Maintain up-to-date SSMP. [40 CFR 63.1570(d), 40 CFR 63.6(e)(1)(iii)-(2), 40 CFR 63.6(e)(3)(i)-(ii), (v)-(vii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.116.72		If a malfunction occurs that was not addressed in the SSMP, revise the SSMP within 45 days after the event. [40 CFR 63.6(e)(3)(viii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.116.73		Meet the requirements for bypass lines set forth in 40 CFR Section 63.1569. [40 CFR 63.1569(a)&(c), Minn. R. 7011.7280(B)]
EQUI 432	EU241	#1 H2 Plant Reformer/Heater - Process Heater	
	5.117.1		The Permittee shall limit Nitrogen Oxides $\leq$ 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.117.2		The Permittee shall limit Sulfur Dioxide $\leq$ 14.1 pounds per hour 3-hour rolling average. This limit is applicable to EQUI431 and EQUI432. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.117.3		The Permittee shall limit Sulfur Dioxide $\leq$ 14.1 pounds per hour 24-hour rolling average. This limit is applicable to EQUI431 and EQUI432. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.117.4		The Permittee shall limit Sulfur Dioxide $\leq$ 49.4 tons per year 12-month rolling average. This limit is applicable to EQUI431 and EQUI432. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.117.5		The Permittee shall limit Sulfur Dioxide $\leq$ 14.1 pounds per hour 1-hour average. This limit is applicable to EQUI431 and EQUI432. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.117.6		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction

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			requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(A)]
	5.117.7		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(B)]
	5.117.8		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. [Minn. R. 7011.1405, subp. 2]
	5.117.9		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.117.10		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.117.11		The Permittee shall limit Heat Input $\leq$ 121.1 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NOx. [Minn. R. 7017.2025, subp. 3]
	5.117.12		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.117.13		Monitoring for NOx emissions: The Permittee shall continuously monitor fuel combustion rate and firebox O2. The Permittee shall use the most recent correlation based on the performance test results to determine NOx lb/MMBtu emissions on an hourly basis. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 4]
	5.117.14		NOx Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 3-hour (arithmetic mean) lb/MMBtu of NOx using all of the 1-hour averages obtained during the previous 3-hour period. (2001 EPA Consent Decree, as amended). The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [CAAA of 1990, Minn. R. 7007.0800, subp. 5]
	5.117.15		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The

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			records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.117.16		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.117.17		Fuel Flowrate: The Permittee shall calibrate, operate and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.117.18		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.117.19		Firebox O ₂ : The Permittee shall operate and maintain a CMS that records the firebox O ₂ . [Minn. R. 7007.0800, subp. 4]
	5.117.20		Monitor QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure analyzer reliability, including but not limited to annual calibrations. [Minn. R. 7007.0800, subp. 4]
EQUI 444	EU254	Unit 94H3-Thermal Oxidizer Back-up - Other Combustion	
	5.118.1		Limit applies to the OSWTP during operation of either EQUI444 or EQUI457. (EQUI457 is the primary OSWTP oxidizer; EQUI444 is the backup) See all requirements under EQUI457. [Minn. R. 7007.0800, subp. 2]
EQUI 451	EU276	Central Buffer Zone Offgas (86H41) - Refining Equipment	
	5.119.1		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average. Limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.119.2		See pollution control equipment and CAM requirements at TREA66. [Minn. R. 7007.0800, subp. 2]

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EQUI 452	EU277	West Buffer Zone Offgas (88H2) - Refining Equipment	
	5.120.1		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average. This limit applies to the H ₂ S content of fuel gas combusted in EQUI452 (88H ₂). Limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.120.2		See pollution control equipment and CAM requirements at TREA65. [Minn. R. 7007.0800, subp. 2]
EQUI 457	EU282	OSWTP - Thermal Oxidizer - Other Combustion	
	5.121.1		Emission Limits (Limits apply to the OSWTP during operation of either EQUI444 or EQUI457. EQUI457 is the primary OSWTP oxidizer; EQUI444 is the backup) Except when switching WWTP gases from one oxidizer to the other, only one oxidizer may combust gases from OSWTP equipment at a time. The other oxidizer may be fired concurrently with natural gas for standby purposes. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.121.2		The Permittee shall limit Sulfur Dioxide ≤ 50.71 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.121.3		The Permittee shall limit Sulfur Dioxide ≤ 50.71 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.121.4		The Permittee shall limit Sulfur Dioxide ≤ 39.4 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.121.5		The Permittee shall limit Sulfur Dioxide ≤ 50.71 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.121.6		Operational Restriction: The Permittee shall only operate one oxidizer at a time. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.121.7		The Permittee shall limit Sulfur Dioxide ≤ 38.0 tons per year 365-day rolling sum for emissions from the combustion of waste gas. This limit shall be effective upon the completion of initial certification of the SO ₂ CEMS. For the first 365 days after initial certification of the SO ₂ CEMS, SO ₂ emissions in tons/year are limited as determined by the following equation:

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			$E = 38.0 [0.15 + 0.85(D/365)]$ where E = SO2 emissions in total tons since startup D = number of day after startup. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.121.8		The Permittee shall limit Volatile Organic Compounds ≤ 3.42 pounds per hour 365-day rolling average. This limit includes VOC emissions from the API separator, basins 7A and 7B, and the thermal oxidizers. (Netting Limit). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.121.9		The Permittee shall limit Hydrogen Sulfide (H2S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies to the H2S content of fuel gas burned in TREA62 and TREA63 and does not apply during periods of startup, shutdown, upset and malfunction provided that during such periods good air pollution control practices are implemented. [40 CFR 60.104(a)(1), 40 CFR 60.105(e)(3)(ii), 40 CFR 60.8(c), Minn. R. 7011.1420, subp. 2, Minn. R. 7011.1435(A)]
	5.121.10		The Permittee shall limit Opacity ≤ 20 percent opacity. [Minn. R. 7011.0110, Minn. R. 7011.0120]
	5.121.11		The Permittee shall limit Fuel Usage ≤ 625 million cubic feet per year 365-day rolling sum of natural gas consumption. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.121.12		Fuel Restriction: The Permittee shall burn natural gas in conjunction with oxidation of gases from OSWTP equipment. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.121.13		Hourly SO2 Emissions: The Permittee shall use the SO2 CEMS and the stack gas flow meters to calculate and record each 1-hour average SO2 lb/hr emission rate from EQUI457 OR EQUI444. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.121.14		Daily SO2 Emissions: The Permittee shall calculate and record daily and a 365-day rolling average of the SO2 emissions from EQUI457 OR EQUI444 for the previous 365-day period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.121.15		Monthly SO2 Emissions: The Permittee shall calculate and record the monthly and 12-month rolling average SO2 emissions from EQUI457 OR EQUI444. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.121.16		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of

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			hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.121.17		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.121.18		Fuel Usage Recordkeeping: The Permittee shall calculate and record daily and 365-day rolling sum of the total natural gas consumption from EQUI457 OR EQUI444 for the previous 365-day period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.121.19		VOC Recordkeeping Associated with Netting Limit: The Permittee shall record the daily VOC emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.121.20		Conduct Root Cause Failure Analysis (RCFA): The Permittee shall comply with the RCFA as required by 2000 Global Consent Decree. [Minn. R. 7007.0800, subp. 2]
	5.121.21		Control device and closed vent system must be operated at all times when waste is in the waste management unit vented to the control device. [40 CFR 61.349(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.22		Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.121.23		The control device shall be designed and operated in accordance with the following conditions: (i) An enclosed combustion device (e.g., a vapor incinerator, boiler, or process heater) shall meet one of the following conditions: (A) Reduce the organic emissions vented to it by 95 weight percent or greater; (B) Achieve a total organic compound concentration of 20 ppmv (as the sum of the concentrations for individual

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			compounds using Method 18) on a dry basis corrected to 3 percent oxygen; or (C) Provide a minimum residence time of 0.5 seconds at a minimum temperature of 760 degrees C (1,400 degrees F). If a boiler or process heater issued as the control device, then the vent stream shall be introduced into the flame zone of the boiler or process heater. [40 CFR 60.692-5(a), 40 CFR 61.349(a)(2), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.24		If visible defects are observed during an inspection, or if other problems are identified, or if detectable emissions are measured, a first effort to repair the closed-vent system and control device shall be made as soon as practicable but no later than 5 calendar days after detection. Repair shall be completed no later than 15 calendar days after the emissions are detected or the visible defect is observed. [40 CFR 61.349(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.25		(a) Delay of repair of facilities or units will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. (b) Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 60.692-6, 40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.26		Closed vent system and control device shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv initially and annually by Method 21 monitoring. Closed vent systems and control devices subject to NSPS QQQ (e.g. the oil-water separator closed vent system piping to the thermal oxidizers and the thermal oxidizer control devices) shall be monitored semi-annually. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 60.692-5(e)(1), 40 CFR 61.349(a)(1)(i), Minn. R. 7011.1435(C), Minn. R. 7011.9930(E)]
	5.121.27		The Permittee shall test equipment for compliance with no detectable emissions as required in accordance with the following requirements: (1) Monitoring shall comply with Method 21 from appendix A of 40 CFR pt. 60. (2) The detection instrument shall meet the performance criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane.

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			(5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 60.696(b), 40 CFR 61.355(h), 40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.28		Each closed-vent system and control device shall be visually inspected quarterly. The visual inspection shall include inspection of ductwork and piping and connections to covers and control devices for evidence of visible defects such as holes in ductwork or piping and loose connections. [40 CFR 61.349(f), 40 CFR 61.356(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.29		Vent systems that contain any bypass line that could divert the vent stream away from a control device shall install, maintain, and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow away from the control device at least once every 15 minutes OR ensure the bypass line valve is closed by securing with a car-seal or lock-and-key type device. Exception is for a vent to atmosphere that remains in a closed, sealed position during normal operations except when the device needs to open to prevent physical damage or permanent deformation of the closed-vent system resulting from malfunction of the unit in accordance with good engineering and safety practices for handling flammable, explosive, or other hazardous materials. [40 CFR 61.349(a)(1), 40 CFR 61.355(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.30		Permittees using a closed-vent system that contains any bypass line that could divert a vent stream from a control device shall do the following: (1) Visually inspect the bypass line valve at least once every month, checking the position of the valve and the condition of the car-seal or closure mechanism required under 40 CFR Section 61.349(a)(1)(ii) to ensure that the valve is maintained in the closed position and the vent stream is not diverted through the bypass line. (2) Visually inspect the readings from each flow monitoring device required by 40 CFR Section 61.349(a)(1)(ii) at least once each operating day to check that vapors are being routed to the control device as required. [40 CFR 61.354(f), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.31		Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor the control device operation as specified below, unless alternative monitoring procedures or requirements are approved. Inspect at least once each operating day the data

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			recorded by the monitoring equipment to ensure that the control device is operating properly. (1) For a thermal vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of +/-1 percent of the temperature being monitored in degrees C or +/-0.5 Â°C, whichever is greater. The temperature sensor shall be installed at a representative location in the combustion chamber. [40 CFR 60.695(a)(1), 40 CFR 61.349(h), 40 CFR 61.354(c)(1), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.121.32		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.121.33		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.121.34		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.121.35		SO2 Emissions: The Permittee shall use the combination of the stack flow meter(s) and SO2 CEMS to measure SO2 emissions from STRU162 or STRU180. [40 CFR 60.105(a)(4), Minn. R. 7011.0800, subp. 4, Minn. R. 7011.1435(A)]
	5.121.36		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.121.37		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.121.38		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.121.39		QA Plan: Develop and implement a written quality assurance

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			plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.121.40		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.121.41		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.121.42		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.121.43		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.121.44		Records of Startup, Shutdown or Malfunction: Any Permittee subject to the provisions of NSPS shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.121.45		See pollution control equipment and CAM requirements at TREA62. [Minn. R. 7007.0800, subp. 2]
EQUI 471	EU296	No. 4 Hydrogen Plant Reformer - Refining Equipment	
	5.122.1		The Permittee shall limit Nitrogen Oxides $\leq$ 157.7 tons per year 365-day rolling sum. This limit expires upon startup of EQUI471 following reactor technology modifications made as part of the Pine Bend Technology and Efficiency Improvement

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			Projects. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.122.2		The Permittee shall limit Nitrogen Oxides ≤ 92.2 tons per year 365-day rolling sum. This limit is effective upon startup of EQUI471 following reactor technology modifications made as part of the Pine Bend Technology and Efficiency Improvement Projects. For the first 364 days after startup, NOx emissions are limited as determined by the following equation: $E = 92.2 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after the limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.122.3		The Permittee shall limit Nitrogen Oxides ≤ 40.7 tons per year 365-day rolling sum. This limit is effective upon startup of EQUI471 following reactor technology modifications made as part of the Pine Bend Technology and Efficiency Improvement Projects. For the first 364 days after startup, NOx emissions are limited as determined by the following equation: $E = 40.7 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after the limit is effective [creditable emissions reduction]. [Minn. R. 7007.0800, subp. 2]
	5.122.4		The Permittee shall limit Sulfur Dioxide ≤ 69.4 pounds per hour 3-hour rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.122.5		The Permittee shall limit Sulfur Dioxide ≤ 69.4 pounds per hour 24-hour rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.122.6		The Permittee shall limit Sulfur Dioxide ≤ 243.3 tons per year 12-month rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.122.7		The Permittee shall limit Sulfur Dioxide ≤ 69.4 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA

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			administrator or citizens under the Clean Air Act. This limit expires upon issuance of Permit No. 03700011-101. [Minn. R. 7009.0080]
	5.122.8		The Permittee shall limit Sulfur Dioxide $\leq$ 22.7 pounds per hour 3-hour rolling average. THIS LIMIT WILL BECOME EFFECTIVE ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.122.9		The Permittee shall limit Sulfur Dioxide $\leq$ 22.7 pounds per hour 24-hour rolling average. THIS LIMIT WILL BECOME EFFECTIVE ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.122.10		The Permittee shall limit Sulfur Dioxide $\leq$ 79.7 tons per year 12-month rolling average. THIS LIMIT WILL BECOME EFFECTIVE ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.122.11		The Permittee shall limit Sulfur Dioxide $\leq$ 22.7 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. This limit is effective upon issuance of Permit No. 03700011-101. [Minn. R. 7009.0080]
	5.122.12		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. The total emissions of sulfur dioxide from all existing and new fuel gas combustion devices and indirect heating equipment shall be divided by the total heat input of all such devices and equipment to determine compliance with this part; provided that no Permittee shall cause to be discharged from any one unit of new indirect heating equipment any gases which contain sulfur dioxide in excess of 3.0 pounds per million Btu heat input. [Minn. R. 7011.1410, subp. 3(A)]
	5.122.13		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.122.14		The Permittee shall limit PM < 10 micron $\leq$ 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using EPA Methods 5 or 5B for filterable and EPA Method 202 for condensable PM. This limit is effective upon startup of EQUI471 following modifications made as part of the Pine Bend Technology and Efficiency Improvement Projects. (BACT Limit). [Title I Condition: 40 CFR

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			52.21(j)(BACT) & Minn. R. 7007.3000]
	5.122.15		The Permittee shall limit PM < 2.5 micron <= 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using EPA Methods 5 or 5B for filterable and EPA Method 202 for condensable PM. This limit is effective upon startup of EQUI471 following modifications made as part of the Pine Bend Technology and Efficiency Improvement Projects. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.122.16		The Permittee shall limit Carbon Dioxide Equivalent <= 771,156 tons per year 365-day rolling sum. This limit is effective upon startup of EQUI471 following modifications made as part of the Pine Bend Technology and Efficiency Improvement Projects. For the first 364 days after initial startup of the heater, CO ₂ e emissions are limited as determined by the following equation: $E = 771,156 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after limit is effective (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.122.17		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60% opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)(2)]
	5.122.18		The Permittee shall limit Stack Temperature < 350 degrees Fahrenheit 365-day rolling average excluding hourly periods of startup, shutdown, and low firing rates less than 480 mmBtu/hr HHV input (< 60% of maximum design capacity). This limit is effective upon startup of EQUI471 following modifications made as part of the Pine Bend Technology and Efficiency Improvement Projects. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.122.19		Fuel Restriction: Burn refinery fuel gas, natural gas or PSA purge gas only in the unit. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.122.20		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 2]
	5.122.21		Use methods in 40 CFR pt. 98, subp. C including flow monitoring of fuel usage and fuel gas analysis. Calculate emissions following procedures specified in 40 CFR pt. 98, subp. C with a conversion from metric tons to short tons. The Permittee shall calculate and record the daily and 365-day Rolling Sum of CO ₂ e emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of

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			the preceding month. [40 CFR pt. 98, subp. C, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.122.22		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [40 CFR 64.3(d), Minn. R. 7017.0200, Minn. R. 7017.1180, subp. 3]
	5.122.23		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [40 CFR 64.3(d), Minn. R. 7017.0200, Minn. R. 7017.1180, subp. 1]
	5.122.24		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [40 CFR 64.3(d), Minn. R. 7017.0200, Minn. R. 7017.1010]
	5.122.25		Nitrogen Oxides: Emissions Monitoring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU171. All of the NOx CAM requirements under 40 CFR pt. 64 contained in the permit for EQUI471 are applicable upon startup of the SCR (TREA86). [40 CFR 64.3(d), Minn. R. 7007.0800, subp. 5, Minn. R. 7017.0200, Minn. R. 7017.1006]
	5.122.26		CMS Quality Control (QC) Program: The Permittee shall development and implement a CEMS QC program and keep records of such procedures of 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F shall be used to determine out-of-control periods for CEMS. [40 CFR 63.8(d), 40 CFR 64.3(d), Minn. R. 7017.0200, Minn. R. 7017.1010]
	5.122.27		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), 40 CFR 64.3(d), Minn. R. 7017.0200, Minn. R. 7017.1050, subp. 1]
	5.122.28		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), 40 CFR 64.3(d), Minn. R. 7017.0200, Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.122.29		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to

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			bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), 40 CFR 64.3(d), Minn. R. 7017.0200, Minn. R. 7017.1090]
	5.122.30		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR 64.3(d), 40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.0200, Minn. R. 7017.1170, subp. 2]
	5.122.31		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR 64.3(d), 40 CFR pt. 60, Appendix F, Minn. R. 7017.0200]
	5.122.32		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR 64.3(d), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.0200, Minn. R. 7017.1170, subp. 3]
	5.122.33		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), 40 CFR 64.3(d), Minn. R. 7017.0200, Minn. R. 7017.1130]
	5.122.34		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2), 40 CFR 64.3(d), Minn. R. 7017.0200]
	5.122.35		NOx Calculation and Recordkeeping: The Permittee shall calculate and record the daily and 365-day rolling sum NOx emissions from EQUI471 and EQUI470. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.122.36		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper

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			format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.122.37		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.122.38		Stack Temperature Monitoring for EQUI471 BACT Limit: The Permittee shall monitor stack temperature by doing all of the following: (1) Continuously monitor the stack exit temperature; (2) Consider a stack exit temperature above 350 degrees F on a 24-hour average basis, excluding hourly periods of startup, shutdown and low firing rates less than 186 mmBtu/hr HHV input (< 60% of maximum design capacity), as an excursion that requires corrective action; (3) Upon detecting a stack exit temperature above 350 degrees F on a 24-hour average basis, FHR shall restore operation of the heater to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing the period of any excursion and taking any necessary corrective actions to restore normal operation. Such actions may include heater adjustments or equipment maintenance; (4) Keep records of the continuous stack temperature measurements for at least five years and report excursions and a summary of response actions in FHR's Quarterly Air Quality and Excess Emissions Report. Excursions are events that require a response. Excursions are not violations and FHR shall not be considered out of compliance with the limit unless the stack exit temperature is above 350 degrees F on a 365-day rolling average basis, excluding hourly periods of startup, shutdown and low firing rates less than 480 mmBtu/hr HHV input (< 60% of maximum design capacity). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 483	EU004	Truck Bottom Loading (gas, distillate) including the trucks - Loading-Unloading Equipment	
	5.123.1		The Permittee shall limit Volatile Organic Compounds <= 10 milligrams per liter of total organic compounds per liter gasoline loaded. [40 CFR 63.422(b), Minn. R. 7011.7180]

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	5.123.2		Total VOC concentration: equal to 2350 parts per million by volume (ppmv) using a 6-hour Average at the vapor recovery unit outlet which demonstrate compliance with the emission standard at 40 CFR Section 63.422(b). [40 CFR 63.422(b), Minn. R. 7011.7180]
	5.123.3		The Permittee shall limit Volatile Organic Compounds <= 50.2 tons per year 12-month rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.123.4		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies to the hydrogen sulfide content of fuel gases burned in the enclosed flare. [40 CFR 60.104(a)(1), Minn. R. 7011.1435(A)]
	5.123.5		The Permittee shall limit Opacity <= 20 percent opacity. [Minn. R. 7011.0110, Minn. R. 7011.0120]
	5.123.6		Calculation of VOC Emissions from the Loading Rack: By the 28th day of each month, the Permittee shall calculate and record VOC emissions from the loading rack for the previous month using the following equation: $\text{VOC Emissions} = Q \times 42 \text{ gal/bbl} \times \text{LL} \times (1 - \text{CE}/100) \times (1 \text{ ton}/2000 \text{ lbs})$ where: Q = product throughput (thousand barrels per month) LL = $12.46 \times S \times P \times M/T$ = factor for barge loading of distillate and all truck and rail loading (AP-42, 5th Edition) S = saturation factor 0.6 for Tank Trucks - Submerged Loading, dedicated normal service (AP-42 factor) P = true vapor pressure of product loaded, psia M = molecular weight of vapors, lb/lb-mol T = temperature of product loaded, degree R CE = control efficiency of control equipment (98.2 % for the VRU [TREA48] or 97.2% for the enclosed flare [TREA64]) The Permittee shall use the most recent AP-42 emission factors to calculate emissions. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.123.7		Recordkeeping of VOC Emissions from the Loading Rack: By the 28th day of each month, the Permittee shall record the following: Total VOC emissions from the loading rack for the previous month; and The 12-month rolling sum of VOC emissions from the loading rack for the previous 12-month period. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.123.8		The Permittee shall operate and maintain the enclosed flare (TREA64) during loading any time that the vapor recovery unit (TREA74) is not being operated to control emissions from the Bottom Loading Rack (EQUI483). [Minn. R. 7007.0800, subp.

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	5.123.9		See Monitoring Requirements for CAM and Pollution Control Equipment under TREA48 and TREA64. [Minn. R. 7007.0800, subp. 4]
EQUI 484	EU005	#1 Crude Heater atmospheric distillation - Distillation Equipment	
	5.124.1		The Permittee shall limit Sulfur Dioxide <= 6.8 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.124.2		The Permittee shall limit Sulfur Dioxide <= 6.8 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.124.3		The Permittee shall limit Sulfur Dioxide <= 16.0 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.124.4		The Permittee shall limit Sulfur Dioxide <= 6.8 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.124.5		The Permittee shall limit Nitrogen Oxides <= 23.6 tons per year 365-day rolling sum (Netting Limit). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.124.6		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), 40 CFR 60.105(e)(3)(ii), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.124.7		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.186 grains per dry standard cubic foot 1-hour average (300 ppm). This is a state-only requirement and it is not enforceable by the EPA Administrator and citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.124.8		The Permittee shall limit Total Particulate Matter <= 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.124.9		The Permittee shall limit Sulfur Dioxide <= 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]

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	5.124.10		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.124.11		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.124.12		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.124.13		NOx Emission Calculation and Recordkeeping Associated with Netting Limit: The Permittee shall calculate and record daily and 365-day rolling sum NOx emissions from EQUI484. The Permittee shall use 0.045 lb/mmBtu as the emission factor to calculate NOx emissions. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.124.14		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.124.15		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.124.16		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.124.17		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R.

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			7007.0800, subp. 4]
	5.124.18		Report: due before end of each quarter starting 02/01/2006 if there are any exceedances. (For netting limit). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 485	EU006	#1 Crude Heater crude preflash - Process Heater	
	5.125.1		The Permittee shall limit Nitrogen Oxides <= 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.125.2		The Permittee shall limit Sulfur Dioxide <= 2.4 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.125.3		The Permittee shall limit Sulfur Dioxide <= 2.4 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.125.4		The Permittee shall limit Sulfur Dioxide <= 5.7 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.125.5		The Permittee shall limit Sulfur Dioxide <= 2.4 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.125.6		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown or malfunction. [40 CFR 60.104(a), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.125.7		The Permittee shall limit Total Particulate Matter <= 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(A)]
	5.125.8		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(B)]
	5.125.9		The Permittee shall limit Sulfur Dioxide <= 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction and hydrogen sulfide requirements constitutes compliance with this limit. [Minn. R. 7011.1405,

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			subp. 2]
	5.125.10		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.125.11		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.125.12		The Permittee shall limit Heat Input $\leq$ 57.4 million Btu per hour 8-hour block average based on the higher heating value of fuel burned. Downtime of 15 or more minutes is not to be included as operating time. The unit may not be operated at a higher heat input unless a performance test is conducted at a higher rate and MPCA staff determine compliance at that rate for the emission unit. [Minn. R. 7017.2025]
	5.125.13		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.125.14		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.125.15		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.125.16		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that record the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.125.17		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]

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EQUI 487	EU016	Vacuum Pre-Strip Heater - Process Heater	
	5.126.1		The Permittee shall limit Sulfur Dioxide $\leq$ 6.3 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.126.2		The Permittee shall limit Sulfur Dioxide $\leq$ 6.3 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.126.3		The Permittee shall limit Sulfur Dioxide $\leq$ 15.0 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.126.4		The Permittee shall limit Sulfur Dioxide $\leq$ 6.3 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.126.5		The Permittee shall limit Nitrogen Oxides $\leq$ 27.2 tons per year 365-day rolling sum (Netting Limit for NO _x). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.126.6		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), 40 CFR 60.105(e)(3)(ii), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.126.7		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.186 grains per dry standard cubic foot 1-hour average (300 ppm). This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.126.8		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction and hydrogen sulfide requirements constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.126.9		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.126.10		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R.

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			7011.1410, subp. 3(B)]
	5.126.11		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.126.12		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.126.13		Emission Correlation Factor Threshold: less than or equal to 102.3 million Btu/hour on an instantaneous basis. Emission correlation factor threshold is calculated using the higher heating value (HHV) of fuel burned. The emission correlation factor threshold (ECFT) may not be operated at a higher heat input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. The ECFT is for calculating NOx and CO emissions from this unit. NOx and CO emissions from operations at or below the ECFT are calculated using factors measured during the most recent emissions factor performance test. NOx and CO emissions from operations above the ECFT are calculated using the emission factor in AP-42 chapter 1.4 table 1.4-1 for large wall-fired pre-NSPS boilers (corrected to the HHV for fuel type). The Permittee may also use other factors after receipt of written MPCA approval from the MPCA Emission Inventory program for use of such factors. The emission factor threshold applies unless the Permittee installs and certifies CEMS to directly measure NOx. [Minn. R. 7017.2025, subp. 3]
	5.126.14		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.126.15		Monitoring for NOx emissions: The Permittee shall continuously monitor fuel combustion rate and firebox O2. The Permittee shall use the most recent correlation based on performance test results to determine NOx lb/MMBtu emissions on an hourly basis. [Minn. R. 7007.0800, subp. 4, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.126.16		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that record the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.126.17		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]

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	5.126.18		Firebox O2: The Permittee shall operate, and maintain a CMS that records the firebox O2. [Minn. R. 7007.0800, subp. 4]
	5.126.19		Monitor QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure analyzer reliability, including but not limited to annual calibrations. [Minn. R. 7007.0800, subp. 4]
	5.126.20		NOx Emission Calculation and Recordkeeping: The Permittee shall calculate and record daily and 365-day rolling average NOx emissions from EQUI487. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.126.21		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly averages of total SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.126.22		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total SO2 in tons per year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 488	EU019	#2 Vac Heater - Process Heater	
	5.127.1		The Permittee shall limit Sulfur Dioxide <= 10.0 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.127.2		The Permittee shall limit Sulfur Dioxide <= 10.0 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.127.3		The Permittee shall limit Sulfur Dioxide <= 23.7 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.127.4		The Permittee shall limit Sulfur Dioxide <= 10.0 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R.

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			7009.0080]
	5.127.5		The Permittee shall limit Sulfur Dioxide $\leq$ 15.3 tons per year 365-day rolling sum (Netting Limit). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.127.6		The Permittee shall limit Nitrogen Oxides $\leq$ 46.7 tons per year 365-day rolling sum (Netting Limit). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.127.7		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), 40 CFR 60.105(e)(3)(ii), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.127.8		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.186 grains per dry standard cubic foot 1-hour average (300 ppm). This is a state-only requirement and it is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.127.9		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction and hydrogen sulfide requirements constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.127.10		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.127.11		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.127.12		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.127.13		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subps. 4-5]
	5.127.14		SO ₂ Emission Calculation and Recordkeeping for Netting Limit: The Permittee shall calculate and record daily and 365-day rolling sum SO ₂ emissions from EQUI488. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]

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	5.127.15		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly averages of total SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.127.16		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total SO2 in tons per year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.127.17		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.127.18		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.127.19		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.127.20		Nitrogen Oxides: Emissions Monitoring: The Permittee shall calibrate, operate and maintain NOx CEMS. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.127.21		Carbon Monoxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain CO CEMS. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.127.22		Nitrogen Oxides: Emissions Measuring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU94. [Minn. R. 7017.1006, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.127.23		Carbon Monoxide: Emissions Measuring: The Permittee shall use a CO CEMS to measure CO emissions from STRU94. [Minn. R. 7017.1006]
	5.127.24		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160]
	5.127.25		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b),

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			Minn. R. 7017.1050, subp. 1]
	5.127.26		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.127.27		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.127.28		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.127.29		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.127.30		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.127.31		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]

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	5.127.32		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.127.33		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.127.34		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.127.35		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
EQUI 490	EU026	#1 Vac Heater - Process Heater	
	5.128.1		The Permittee shall limit Sulfur Dioxide $\leq$ 7.3 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.128.2		The Permittee shall limit Sulfur Dioxide $<$ 7.3 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.128.3		The Permittee shall limit Sulfur Dioxide $\leq$ 17.3 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.128.4		The Permittee shall limit Sulfur Dioxide $\leq$ 7.3 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.128.5		The Permittee shall limit Nitrogen Oxides $\leq$ 28.7 tons per year 365-day rolling sum (Netting Limit). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R.

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			7007.3000]
	5.128.6		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), 40 CFR 60.105(e)(3)(ii), 40 CFR 60.8(c), Minn. R. 7011.1435(A), Minn. R. 7017.2015]
	5.128.7		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.186 grains per dry standard cubic foot 1-hour average (300 ppm). This is a state-only requirement and pursuant to the Minn. R. 7007.1750, it is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.128.8		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction and hydrogen sulfide requirements constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.128.9		The Permittee shall limit Total Particulate Matter ≤ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.128.10		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.128.11		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.128.12		The Permittee shall limit Heat Input ≤ 135.1 million Btu per hour 8-hour block average for NO _x emissions based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not to be included as operating time. The unit may not be operated at a higher heat input unless a performance test is conducted at a higher rate and MPCA staff determine compliance at that rate for the emission unit. [Minn. R. 7017.2025, subp. 3]
	5.128.13		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.128.14		SO ₂ Emissions Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements

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			associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.128.15		SO2 Emissions Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.128.16		NOx Emission Calculation and Recordkeeping for Netting Limit: The Permittee shall calculate and record daily and 365-day rolling sum NOx emissions from EQUI490. NOx emissions shall be calculated using 0.045 lbs/mmBtu. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.128.17		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.128.18		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 491	EU028	#1 Coker Heater - Process Heater	
	5.129.1		The Permittee shall limit Sulfur Dioxide <= 5.6 pounds per hour 3-hour rolling average (most stringent; meets the limit set by Minn. R. 7011.1410, subp. 3A). [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.129.2		The Permittee shall limit Sulfur Dioxide <= 5.6 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.129.3		The Permittee shall limit Sulfur Dioxide <= 13.2 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.129.4		The Permittee shall limit Sulfur Dioxide <= 5.6 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			7009.0080]
	5.129.5		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.129.6		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.129.7		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.129.8		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.129.9		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.129.10		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.129.11		Emission Factor Threshold: less than or equal to 106.5 million Btu/hour on an instantaneous basis. Emission factor threshold is calculated using the higher heating value (HHV) of fuel burned. The emission factor threshold (EFT) may not be operated a higher heat input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. The EFT is for calculating NO _x and CO emissions from this unit. NO _x and CO emissions from operations at or below the EFT are calculated using factors measured during the most recent emissions factor performance test. NO _x and CO emissions from operations above the EFT are calculated using the emission factor in AP-42 chapter 1.4 table 1.4-1 for large wall-fired pre-NSPS boilers (corrected to the HHV for fuel type). The Permittee may also use other factors after receipt of written MPCA approval from the MPCA Emission Inventory program for use of such factors. This emission factor threshold applies unless the Permittee installs and certifies CEMS to directly measure NO _x and CO. [Minn. R. 7007.0800, subp. 2]
	5.129.12		Recordkeeping of Heat Input: When the unit is operating the

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			Permittee shall record heat input at intervals no greater than 15 minutes. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.129.13		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.129.14		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total SO2 in tons per year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.129.15		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.129.16		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 492	EU030	#2 Coker Heater - Process Heater	
	5.130.1		The Permittee shall limit Sulfur Dioxide <= 5.6 pounds per hour 3-hour rolling average (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.130.2		The Permittee shall limit Sulfur Dioxide <= 5.6 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.130.3		The Permittee shall limit Sulfur Dioxide <= 13.2 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.130.4		The Permittee shall limit Sulfur Dioxide <= 5.6 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant

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			to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.130.5		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.130.6		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.130.7		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.130.8		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.130.9		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.130.10		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.130.11		Emission Factor Threshold: less than or equal to 124.4 million Btu/hour on an instantaneous basis. Emission factor threshold is calculated using the higher heating value (HHV) of fuel burned. The emission factor threshold (EFT) may not be operated at a higher heat input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. The EFT is for calculating NO _x and CO emissions from this unit. NO _x and CO emissions from operations at or below the EFT are calculated using factors measured during the most recent emissions factor performance test. NO _x and CO emissions from operations above the EFT are calculated using the emission factor in AP-42 chapter 1.4 table 1.4-1 for large wall-fired pre-NSPS boilers (corrected to the HHV for fuel type). The Permittee may also use other factors after receipt of written MPCA approval from the MPCA Emission Inventory program for use of such factors. This emission factor threshold applies unless the Permittee installs and certifies CEMS to directly measure NO _x and CO.

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			[Minn. R. 7007.0800, subp. 2]
	5.130.12		Recordkeeping of Heat Input: When the unit is operating the Permittee shall record heat input at intervals no greater than 15 minutes. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.130.13		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.130.14		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total SO2 in tons per year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.130.15		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.130.16		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 493	EU032	Steam/Air Heater Decoking - 21H-1 - Process Heater	
	5.131.1		The Permittee shall limit Sulfur Dioxide <= 8.0 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.131.2		The Permittee shall limit Sulfur Dioxide <= 8.0 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.131.3		The Permittee shall limit Sulfur Dioxide <= 1.73 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.131.4		The Permittee shall limit Sulfur Dioxide <= 8.0 pounds per hour

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			1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.131.5		Decoking shall occur in one of the three following scenarios for any 1-, 3- or 24-hour period: 1. EQUI493 (21H1) only, or; 2. EQUI494 (21H2) only, or; 3. EQUI498 (23H1) and EQUI499 (23H2) may be steam air decoked simultaneously but not during steam air decoking of EQUI493 or EQUI494. SCENARIO #3 WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.131.6		The Permittee shall limit Operating Hours <= 432 hours per year 12-month rolling sum for steam-air decoking operation. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.131.7		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.131.8		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.131.9		Recordkeeping: The Permittee shall monitor the start and stop times for heater decoking and compute the hours of heater decoking operations. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 494	EU033	Steam/Air Heater Decoking - 21H-2 - Process Heater	
	5.132.1		The Permittee shall limit Sulfur Dioxide <= 8.0 pounds per hour

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			3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.132.2		The Permittee shall limit Sulfur Dioxide <= 8.0 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.132.3		The Permittee shall limit Sulfur Dioxide <= 1.73 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.132.4		The Permittee shall limit Sulfur Dioxide <= 8.0 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.132.5		Decoking shall occur in one of the three following scenarios for any 1-, 3- or 24-hour period: 1. EQUI493 (21H1) only, or; 2. EQUI494 (21H2) only, or; 3. EQUI498 (23H1) and EQUI499 (23H2) may be steam air decoked simultaneously but not during steam air decoking of EQUI493 or EQUI494. SCENARIO #3 WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.132.6		The Permittee shall limit Operating Hours <= 432 hours per year 12-month rolling sum for steam-air decoking operation. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.132.7		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.132.8		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]

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	5.132.9		Recordkeeping: The Permittee shall monitor the start and stop times for heater decoking and compute the hours of heater decoking operations. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 495	EU034	#3 Coker Heater - Process Heater	
	5.133.1		The Permittee shall limit Sulfur Dioxide <= 12.7 pounds per hour 3-hour rolling average (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.133.2		The Permittee shall limit Sulfur Dioxide <= 12.7 pounds per hour 24-hour rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.133.3		The Permittee shall limit Sulfur Dioxide <= 44.6 tons per year 12-month rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.133.4		Fuel Restriction: Authorized to burn refinery gas and natural gas only. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.133.5		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.133.6		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total SO2 in tons per year. The records may be maintained in either

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			electronic or paper format, unless electronic or paper records are expressly prohibited. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.133.7		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 496	EU035	#3 Coker Heater - Process Heater	
	5.134.1		The Permittee shall limit Sulfur Dioxide <= 9.4 pounds per hour 3-hour rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.134.2		The Permittee shall limit Sulfur Dioxide <= 9.4 pounds per hour 24-hour rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.134.3		The Permittee shall limit Sulfur Dioxide <= 13.4 tons per year 12-month rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.134.4		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.134.5		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be

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			maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 498	EU037	Steam/Air Heater Decoking 23H-1 - Process Heater	
	5.135.1		The Permittee shall limit Sulfur Dioxide <= 20.2 pounds per hour 3-hour rolling average. This limit applies to EQUI498 and EQUI499. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.135.2		The Permittee shall limit Sulfur Dioxide <= 20.2 pounds per hour 24-hour rolling average. This limit applies to EQUI498 and EQUI499. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.135.3		The Permittee shall limit Sulfur Dioxide <= 4.36 tons per year 12-month rolling average. This limit applies to EQUI498 and EQUI499. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.135.4		Decoking shall occur in one of the three following scenarios for any 1-, 3- or 24-hour period: 1. EQUI493 (21H1) only, or; 2. EQUI494 (21H2) only, or; 3. EQUI498 (23H1) and EQUI499 (23H2) may be steam air decoked simultaneously but not during steam air decoking of EQUI493 or EQUI494. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.135.5		The Permittee shall limit Operating Hours <= 432 hours per year 12-month rolling sum for steam-air decoking operation. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.135.6		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.135.7		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.135.8		Recordkeeping: The Permittee shall monitor the start and stop times for heater decoking and compute the hours of heater decoking operations. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Minn. R. 7007.0800, subp. 5, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 499	EU038	Steam/Air Heater Decoking 23H-2 - Process Heater	
	5.136.1		Decoking shall occur in one of the three following scenarios for any 1-, 3- or 24-hour period: 1. EQUI493 (21H1) only, or; 2. EQUI494 (21H2) only, or; 3. EQUI498 (23H1) and EQUI499 (23H2) may be steam air decoked simultaneously but not during steam air decoking of EQUI493 or EQUI494. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.136.2		The Permittee shall limit Operating Hours <= 432 hours per year 12-month rolling sum for steam-air decoking operation. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]

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	5.136.3		Recordkeeping: The Permittee shall monitor the start and stop times for heater decoking and compute the hours of heater decoking operations. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Minn. R. 7007.0800, subp. 5, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 500	EU040	#3 Crude Unit Charge Heater - Process Heater	
	5.137.1		The Permittee shall limit Sulfur Dioxide <= 19.5 pounds per hour 3-hour rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.137.2		The Permittee shall limit Sulfur Dioxide <= 19.5 pounds per hour 24-hour rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.137.3		The Permittee shall limit Sulfur Dioxide <= 54.3 tons per year 12-month rolling average. THIS LIMIT WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.137.4		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.137.5		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US

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			EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 501	EU041	#3 Crude Unit Vac Pre-Fractionator Heater - Process Heater	
	5.138.1		The Permittee shall limit Nitrogen Oxides <= 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.138.2		The Permittee shall limit Nitrogen Oxides <= 0.12 pounds per million Btu heat input 365-day rolling average. This limit is less stringent than the effective Consent Decree limit of 0.045 lb/mmBtu NO _x . (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.138.3		The Permittee shall limit Nitrogen Oxides <= 0.10 pounds per million Btu heat input 30-day rolling average (expressed as NO ₂), low heat release basis. A "low heat release rate" is defined as a heat release of 70,000 Btu/hr-cubic foot or less. The 30-day rolling average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day period. A new 30-day rolling average emission rate is calculated each steam generating unit operating day. [40 CFR 60.44b(a), Minn. R. 7011.0565]
	5.138.4		The Permittee shall limit Carbon Monoxide <= 0.10 pounds per million Btu heat input (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.138.5		The Permittee shall limit Carbon Monoxide <= 9.9 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.138.6		The Permittee shall limit Sulfur Dioxide <= 17.5 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.138.7		The Permittee shall limit Sulfur Dioxide <= 17.5 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.138.8		The Permittee shall limit Sulfur Dioxide <= 48.8 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.138.9		The Permittee shall limit Sulfur Dioxide <= 17.5 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.138.10		The Permittee shall limit Sulfur Dioxide <= 1.75 pounds per

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			million Btu heat input 3-hour rolling average. Compliance with the fuel restriction and hydrogen sulfide requirements constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.138.11		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.138.12		The Permittee shall limit Total Particulate Matter ≤ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.138.13		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.138.14		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.138.15		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.138.16		NO _x Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 365-day average (arithmetic mean) lb/MMBtu of NO _x using all of the 1-hour averages obtained during the previous 365-day period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.138.17		CO Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 1-hour average (arithmetic mean) lb/MMBtu of CO until the CO CEMS is certified. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.138.18		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40

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			CFR pt. 52, subp. Y]
	5.138.19		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.138.20		The Permittee shall maintain records of the following information for each steam generating unit operating day: (1) Calendar date; (2) The average hourly NOx emission rates (expressed as NO2) (ng/J or lb/million Btu heat input) measured or predicted; (3) The 30-day average NOx emission rates (ng/J or lb/MMBtu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days; (4) Identification of the steam generating unit operating days when the calculated 30-day average NOx emission rates are in excess of the NOx emissions standards under 40 CFR Section 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken; (5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken. [40 CFR 60.49b(g), Minn. R. 7011.0565]
	5.138.21		The Permittee may submit electronic quarterly reports for NOx in lieu of submitting the written reports required under 40 CFR Section 60.49b(h) and (i). The format of each quarterly electronic report shall be coordinated with the MPCA. The electronic report(s) shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the Permittee, indicating whether compliance with the applicable emission standards and minimum data requirements of 40 CFR pt. 60, subp. Db was achieved during the reporting period. Before submitting reports in the electronic format, the Permittee shall coordinate with the MPCA to obtain their agreement to submit reports in this alternative format. [40 CFR 60.49b(v), Minn. R. 7011.0565]
	5.138.22		The Permittee shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for each fuel combusted for the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. [40 CFR 60.49b(d)(1), Minn. R. 7011.0565]
	5.138.23		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]

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	5.138.24		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.138.25		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.138.26		Nitrogen Oxides: Emissions Monitoring: The Permittee shall install, operate and use a NOx CEMS to measure NOx emissions from STRU110. Specifications for the operation of monitoring equipment are in 40 CFR Section 60.48b(c), (d), (e), (f), and Part 60 Appendix B. The installation and operation of the CEMS that will meet the performance requirements as specified in 40 CFR Section 60.46b or the terms of an approved alternative monitoring plan (AMP). (2001 EPA Consent Decree, as amended). [40 CFR 60.48b, CAAA of 1990, Minn. R. 7007.0800, subp. 4, Minn. R. 7011.0565, Minn. R. 7017.1006]
	5.138.27		Carbon Monoxide: Emission Monitoring: The Permittee shall install, operate and use CO CEMS to measure CO emissions from STRU109. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.138.28		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.138.29		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.138.30		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.138.31		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information

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			required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.138.32		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.138.33		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.138.34		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.138.35		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.138.36		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.138.37		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.138.38		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include or reference the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction

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			of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.138.39		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
EQUI 505	EU050	Distillate HDS Recycle Hydrogen Charge Heater - Process Heater	
	5.139.1		The Permittee shall limit Carbon Monoxide $\leq$ 3.7 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.139.2		The Permittee shall limit Nitrogen Oxides $\leq$ 4.80 pounds per hour 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.139.3		The Permittee shall limit Nitrogen Oxides $\leq$ 0.080 pounds per million Btu heat input 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.139.4		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 3, Minn. R. 7011.1435(A), Minn. R. 7011.1490, subp. 2]
	5.139.5		The Permittee shall limit Sulfur Dioxide $\leq$ 6.5 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.139.6		The Permittee shall limit Sulfur Dioxide $\leq$ 6.5 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.139.7		The Permittee shall limit Sulfur Dioxide $\leq$ 22.7 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.139.8		The Permittee shall limit Sulfur Dioxide $\leq$ 6.5 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.139.9		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction and hydrogen sulfide requirements constitutes compliance with this limit. [Minn. R. 7011.1410,

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			subp. 3(A)]
	5.139.10		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.139.11		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.139.12		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.139.13		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.139.14		Monitoring for NOx emissions associated with the BACT limit: Install, operate, and maintain NOx and O2 CEMS in accordance with 40 CFR pt. 60, Appendix B and Appendix F. See EQUI30 for additional monitoring requirements, [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.139.15		Monitoring of CO emissions: Install, operate, and maintain CO and O2 CEMS in accordance with 40 CFR pt. 60, Appendix B and Appendix F. See EQUI31 for additional monitoring requirements. [Minn. R. 7017.1006, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.139.16		NOx Emission Calculation and Recordkeeping associated with the BACT limit: The Permittee shall calculate and record the 24-hour (arithmetic mean) lb/MMBtu of NOx using all of the 1-hour averages obtained during the previous 24-hour period. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.139.17		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.139.18		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total

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			stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.139.19		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.139.20		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 514	EU312	No. 6 Cooling Tower Diesel Pump - Reciprocating IC Engine	
	5.140.1		The Permittee shall limit Sulfur Dioxide $\leq$ 0.50 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel sulfur content standard set forth below will demonstrate compliance with this requirement. [Minn. R. 7011.2300, subp. 2]
	5.140.2		The Permittee shall limit Opacity $\leq$ 20 percent opacity once operating temperatures have been attained. (visible air contaminants). [Minn. R. 7011.2300, subp. 1]
	5.140.3		The Permittee shall limit Operating Hours $\leq$ 1000 hours per year 12-month rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.140.4		The Permittee shall limit Sulfur Content of Fuel $\leq$ 0.050 percent by weight of diesel fuel. Certificate of Analysis retained onsite demonstrating generally that all FHR diesel meets the federal ULSD standard satisfies this requirement. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.140.5		Diesel Fuel Certification: The Permittee shall retain records demonstrating sulfur contents is less than 0.050 percent by weight. Certificates of Analysis retained onsite demonstrating generally that all FHR diesel meets the federal ULSD standard satisfies this requirement. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.140.6		Recordkeeping of Hours of Operation: By the 28th day of each month, the Permittee shall record the hours of operation and 12-month rolling sum for the previous month. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.140.7		Emissions Limitations: Reduce CO emissions by 70 percent or more. [40 CFR 63.6600(d), 40 CFR 63.6640(a), 40 CFR pt. 63,

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			Subp. ZZZZ(Table 2a)(3.a), 40 CFR pt. 63, Subp. ZZZZ(Table 2c)(5.b), Minn. R. 7011.8150]
	5.140.8		Operating Limitations: Maintain the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load (plus or minus 10 percent load) from the pressure drop across the catalyst that was measured during the initial performance test. [40 CFR 63.6600(d), 40 CFR 63.6630(b), 40 CFR pt. 63, Subp. ZZZZ(Table 1a)(Table 2b), Minn. R. 7011.8150]
	5.140.9		Operating Limitations: Maintain the temperature of the stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 degrees F and less than or equal to 1350 degrees F. [40 CFR 63.6600(d), 40 CFR 63.6630(b), 40 CFR pt. 63, Subp. ZZZZ(Table 1b)(Table 2b), Minn. R. 7011.8150]
	5.140.10		Diesel Fuel Requirements: Sulfur content 500 ppm maximum and Cetane index or aromatic content as follows: (i) a minimum cetane index of 40 or (ii) a maximum aromatic content of 35 volume percent. Compliance with this requirement can be demonstrated by retaining FHR Certificate of Analysis generally demonstrating that diesel fuel produced by FHR meets this requirement. [40 CFR 63.6604, 40 CFR 80.510(b), Minn. R. 7011.8150]
	5.140.11		Conduct performance tests annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO emission limitation, or the Permittee deviates from any of the operating limitations, the Permittee must resume semiannual performance tests. [40 CFR 63.6615, 40 CFR pt. 63, Subp. ZZZZ(Table 3)(1)Footnote 1, Minn. R. 7011.8150]
	5.140.12		Performance Tests: Measure the O2 at the inlet and outlet of the control device and measure the CO at the inlet and the outlet of the control device using portable CO and O2 analyzers: following the methods listed in Table 4. [40 CFR 63.6620, 40 CFR pt. 63, Subp. ZZZZ(Table 4.1)(i)-(ii), Footnote a, Minn. R. 7011.8150]
	5.140.13		Operation and maintenance of continuous monitoring systems: Maintain and operate each CMS/CPMS as specified in 40 CFR Section 63.6(e)(1); Must keep the necessary parts for routine repairs of the CMS equipment readily available. [40 CFR 63.8(c)(1), Minn. R. 7017.1010]
	5.140.14		Monitoring Requirements: Maintain a site-specific monitoring plan that addresses the monitoring system design, data collection and the quality assurance and quality control elements as outlined in 40 CFR Section 63.6625 (b)(1)(i) through (v) and in 40 CFR Section 63.8 (d). The applicable date for the requirement to prepare a site-specific monitoring plan was September 6, 2011, and completed by FHR. [40 CFR 63.6625(b), 40 CFR 63.8(e), 40 CFR pt. 63, subp. ZZZZ(Table 5), Minn. R. 7011.8150]
	5.140.15		Monitoring Requirements: The CPMS must collect data at least

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			once every 15 minutes. [40 CFR 63.6625(b)(3), 40 CFR 63.6635, Minn. R. 7011.8150]
	5.140.16		Monitoring Requirements: For a CPMS for measuring temperature range, the temperature sensor must have a minimum tolerance (maximum inaccuracy) of 5 degrees F or 1 percent of the measurement range, whichever is larger. [40 CFR 63.6625(b)(4), Minn. R. 7011.8150]
	5.140.17		Conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in the site-specific monitoring plan at least annually. [40 CFR 63.6625(b)(5)-(6), Minn. R. 7011.8150]
	5.140.18		Collect the catalyst inlet temperature data and reduce data to 4 hour rolling averages and maintain the 4 hour rolling averages within the operating limitations for the catalyst inlet temperature. [40 CFR 63.6640(a), 40 CFR pt. 63, subp. ZZZZ(Table 6)(item 1), Minn. R. 7011.8150]
	5.140.19		Measure the pressure drop across the catalyst at least once per month and demonstrate that the pressure drop across the catalyst is within the operating limitation established during the performance test. [40 CFR 63.6640(a), 40 CFR pt. 63, subp. ZZZZ(Table 6)(item 1), Minn. R. 7011.8150]
	5.140.20		If the Permittee changes the catalyst, the facility must reestablish the values of the operating parameters measured during the initial performance test. When the facility reestablishes the values of the operating parameters, the facility must also conduct a performance test to demonstrate that the facility is meeting the required emission limitation applicable to the stationary RICE. [40 CFR 63.6640(b), Minn. R. 7011.8150]
	5.140.21		Install closed crankcase ventilation system or open crankcase filtration emission control system to filter oil mist, particulates and metals. Must follow manufacturer's instructions for maintenance of the appropriate crankcase. [40 CFR 63.6625(g), Minn. R. 7011.8150]
	5.140.22		Minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which the emission standards applicable to all times other than startup apply. [40 CFR 63.6625(h), Minn. R. 7011.8150]
	5.140.23		Notification Submittals: Submit a Notification of Intent to conduct a performance test and site-specific performance evaluation test plan at least 60 days before the performance test is scheduled to begin as required in 40 CFR Section 63.7(b)(1) or as required by delegated authority (MPCA). [40 CFR 63.6645(a), 40 CFR 63.6645(g), 40 CFR 63.7(b), 40 CFR 63.8(e)(2), 40 CFR 63.9(e), Minn. R. 7011.8150, Minn. R. 7017.1010, Minn. R. 7017.2015, Minn. R. 7019.0100]
	5.140.24		Compliance report must contain all the information as described in 40 CFR Section 63.6650(c) through (e) as applicable. Report each instance in which the Permittee did

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			not meet the requirements of the general provisions in 40 CFR pt. 63, subp. ZZZZ, Table 8 that applies. [40 CFR 63.6640(e), 40 CFR 63.6650(c)-(e), 40 CFR pt. 63, subp. ZZZZ(Table 7)(item 1), Minn. R. 7011.8150]
	5.140.25		Submit performance test results within 60 days following the completion of the performance test, or sooner, if required by delegated authority. [40 CFR 63.10(d)(2), Minn. R. 7019.0100]
	5.140.26		General Recordkeeping Requirements: The Permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR pt. 63 subp. ZZZZ, recorded in a form suitable and readily available for expeditious inspection and review including all information required by 40 CFR Section 63.10(b). The files shall be kept for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report or record. [40 CFR 63.10(b), 40 CFR 63.6655, Minn. R. 7011.8150, Minn. R. 7019.0100]
	5.140.27		At all times, including periods of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1), 40 CFR 63.6605, 40 CFR 63.8(c), Minn. R. 7011.7000, Minn. R. 7011.8150, Minn. R. 7017.1010]
EQUI 515	EU313	Steam Boiler No. 9 - Boiler	
	5.141.1		The Permittee shall limit Nitrogen Oxides <= 46.3 tons per year 365-day rolling sum. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.141.2		The Permittee shall limit Nitrogen Oxides <= 0.20 pounds per million Btu heat input 30-day rolling average (expressed as NO ₂), high heat release rate. A "high heat release rate" is defined as a heat release rate greater than 70,000 Btu/hour-cubic foot. The 30-day rolling average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day period. A new 30-day rolling average emission rate is calculated each steam generating unit operating day. [40 CFR 60.44b(a), Minn. R. 7011.0565]
	5.141.3		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 90 parts per million 365-day rolling average by volume. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.141.4		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies to the hydrogen sulfide content of fuel gas burned in the units. Existing continuous H ₂ S monitoring systems on the existing refinery gas mix drums will be used to demonstrate compliance with this limit. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]

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	5.141.5		The Permittee shall limit Sulfur Dioxide $\leq$ 9.9 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.141.6		The Permittee shall limit Sulfur Dioxide $\leq$ 9.9 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.141.7		The Permittee shall limit Sulfur Dioxide $\leq$ 23.5 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.141.8		The Permittee shall limit Sulfur Dioxide $\leq$ 9.9 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.141.9		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. The total emissions of sulfur dioxide from all existing and new fuel gas combustion devices and indirect heating equipment shall be divided by the total heat input of all such devices and equipment to determine compliance with this part; provided that no Permittee shall cause to be discharged from any one unit of new indirect heating equipment any gases which contain sulfur dioxide in excess of 3.0 pounds per million Btu heat input. [Minn. R. 7011.1410, subp. 3(A)]
	5.141.10		The Permittee shall limit Total Particulate Matter $\leq$ 0.030 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. This limit is more stringent than Minn. R. 7011.1410, subp. 3(B)(1). [40 CFR 60.43b(h)(1), Minn. R. 7011.0565, Minn. R. 7011.1410, subp. 3(B)(1)]
	5.141.11		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60% opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)(2)]
	5.141.12		Fuel Restriction: Burn refinery fuel gas or natural gas only in the unit. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.141.13		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 2]
	5.141.14		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was

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			conducted. [Minn. R. 7017.1180, subp. 3]
	5.141.15		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.141.16		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.141.17		Nitrogen Oxides: Emissions Monitoring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU78. Specifications for the operation of the monitoring equipment are in 40 CFR Section 60.48b(c), (d), (e), (f), and Appendix B. [40 CFR 60.48b, Minn. R. 7011.0565, Minn. R. 7017.1006]
	5.141.18		The Permittee shall operate a NOx CEMS. The operation of the CEMs will meet the performance requirements as specified in 40 CFR Section 60.46b. [Minn. R. 7017.1006]
	5.141.19		Records of Startup, Shutdown, or Malfunction: Any Permittee subject to the provisions of 40 CFR pt. 60, subp. Db, shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.141.20		CMS Quality Control (QC) Program: The Permittee shall development and implement a CEMS QC program and keep records of such procedures of 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F shall be used to determine out-of-control periods for CEMS. [40 CFR 63.8(d), Minn. R. 7017.1010]
	5.141.21		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.141.22		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.141.23		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a

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			numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.141.24		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.141.25		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.141.26		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.141.27		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.141.28		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.141.29		NOx Calculation and Recordkeeping: The Permittee shall calculate and record the daily NOx emissions and 365-day rolling sum of NOx emissions. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.141.30		Maintain records of the following information: (1) Calendar date. (2) The average hourly nitrogen oxides emission rates (expressed as NO ₂) (ng/J or lb/million Btu heat input) measured or predicted. (3) The 30-day average nitrogen oxides emission rates

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			(lb/mmBtu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days. (4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under Section 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken. (5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken. [40 CFR 60.49b(g), Minn. R. 7011.0565]
	5.141.31		The Permittee may submit electronic quarterly reports for NOx in lieu of submitting the written reports. The format of each quarterly electronic report shall be coordinated with the MPCA. The electronic report(s) shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the Permittee, indicating whether compliance with the applicable emission standards and minimum data requirements of 40 CFR pt. 60, subp. Db was achieved during the reporting period. Before submitting reports in the electronic format, the Permittee shall coordinate with the MPCA to obtain their agreement to submit reports in this alternative format. [40 CFR 60.49b(v), Minn. R. 7011.0565]
	5.141.32		The Permittee shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for each fuel combusted for the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.49b(d), Minn. R. 7011.0565]
	5.141.33		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.141.34		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be

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			maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.141.35		Fuel Flowrate: The Permittee shall calibrate, operate and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.141.36		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 526	EU324	#3 Crude Unit Vacuum Heater - Process Heater	
	5.142.1		The Permittee shall limit Nitrogen Oxides <= 32.1 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.142.2		The Permittee shall limit Carbon Monoxide <= 7.1 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.142.3		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies to the H ₂ S content of the fuel gas burned in the unit. Compliance determined with the H ₂ S monitor at the 45 unit refinery fuel gas mix drum (see COMG96). [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.142.4		The Permittee shall limit Sulfur Dioxide <= 12.6 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.142.5		The Permittee shall limit Sulfur Dioxide <= 12.6 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.142.6		The Permittee shall limit Sulfur Dioxide <= 44.1 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.142.7		The Permittee shall limit Sulfur Dioxide <= 12.6 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.142.8		The Permittee shall limit Sulfur Dioxide <= 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the hydrogen sulfide limit constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A), Minn. R. 7011.1420,

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			subp. 2(B)]
	5.142.9		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lbs/million Btu heat input based on the AP-42 emission factor for natural gas. Compliance with the fuel restriction constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)(1)]
	5.142.10		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)(2)]
	5.142.11		Fuel Restriction: Authorized to burn refinery fuel gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.142.12		Install, operate, and maintain NO _x , CO, and O ₂ CEMS in accordance with 40 CFR pt. 60, Appendix B and Appendix F. See additional CEMS requirements under EQUI58, EQUI60, and EQUI61. [Minn. R. 7017.1006, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.142.13		Daily Recordkeeping: The Permittee shall maintain daily records of all monitoring data and calculations for nitrogen oxides, carbon monoxide, oxygen, and type and amount of each fuel combusted to show continuous compliance with the applicable emission limits. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.142.14		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.142.15		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.142.16		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain a continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. The records may be maintained in either electronic or paper format, unless

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			electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 4]
	5.142.17		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability including, but not limited to, annual calibrations of fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 538	EU336	Coke Drum System E and F - Coke Handling Equipment	
	5.143.1		Pressure: <= 2.0 psi (gauge) 365-day rolling average, effective upon initial startup of the new 25H2 (EQUI407) furnace or new 23H3 (EQUI406) furnace, whichever is first, as part of the #3 Crude/Coker Improvements permit. The first full compliance period will be 365 days after initial startup of EQUI407 or EQUI406, whichever is first, as part of the #3 Crude/Coker Improvements permit. The coke drums at the 23 Unit shall be managed in an enclosed blowdown system and the uncondensed vapor must either be recovered (e.g., sent to the delayed coking unit fractionators) or vented to the fuel gas system, a fuel gas combustion device or a flare, until the coke drum pressure reaches 2.0 psig or less. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.143.2		Pressure: <= 5.0 psi (gauge) prior to discharging the coke drum steam exhaust to the atmosphere. This limit is effective upon initial startup of the new 25H2 (EQUI407) furnace or new 23H3 (EQUI406) furnace, whichever is first, as part of the #3 Crude/Coker Improvements permit. Until the coke drum pressure reaches 5.0 psig, the coke drum steam exhaust must be managed in an enclosed blowdown system and the uncondensed vapor must either be recovered (e.g., sent to the delayed coking unit fractionators) or vented to the fuel gas system, a fuel gas combustion device or a flare. [40 CFR 60.103a(i)]
	5.143.3		Recordkeeping: The Permittee shall calculate and record the pressure reading to which the coke drum is depressured prior to opening the coke drum steam exhaust to the atmosphere. If more than one monitor is used to measure pressure for compliance, the value shall be based on the median of readings taken from the multiple monitors. The average of the pressure readings for each 365-day rolling average shall be calculated from the reading for each coke drum depressuring event, as provided above, and recorded by the 28th day of each month for the 365-day rolling average periods ending on the last day of the preceding month. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.143.4		Monitoring Equipment: The Permittee shall install and maintain a pressure monitor or multiple monitors on each

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			coke drum to conduct pressure monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained. [Minn. R. 7007.0800, subp. 4]
EQUI 541	EU084	Gas Oil HDS Charge Heater - Process Heater	
	5.144.1		The Permittee shall limit Nitrogen Oxides <= 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.144.2		The Permittee shall limit Nitrogen Oxides <= 22.8 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.144.3		The Permittee shall limit Sulfur Dioxide <= 13.4 pounds per hour 3-hour rolling average. Compliance with the fuel restriction constitutes compliance with this limit. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.144.4		The Permittee shall limit Sulfur Dioxide <= 13.4 pounds per hour 24-hour rolling average. Compliance with the fuel restriction constitutes compliance with this limit. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.144.5		The Permittee shall limit Sulfur Dioxide <= 10.7 pounds per hour 12-month rolling average. Compliance with the fuel restriction constitutes compliance with this limit. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.144.6		The Permittee shall limit Sulfur Dioxide <= 13.4 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.144.7		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.144.8		The Permittee shall limit Total Particulate Matter <= 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.144.9		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R.

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			7011.1410, subp. 3(B)]
	5.144.10		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.144.11		The Permittee shall limit Heat Input <= 118.0 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NO _x . [Minn. R. 7017.2025, subp. 3]
	5.144.12		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.144.13		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.144.14		Monitoring for NO _x emissions: The Permittee shall continuously monitor fuel combustion rate and firebox O ₂ . The Permittee shall use the most recent correlation based on the performance test results to determine NO _x lb/MMBtu emissions on an hourly basis. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 4]
	5.144.15		Recordkeeping: The Permittee shall calculate and record the hourly, daily, and 365-day rolling sum emission rate of nitrogen oxides. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.144.16		NO _x Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 3-hour (arithmetic mean) lb/MMBtu of NO _x using all of the 1-hour averages obtained during the previous 3-hour period. (2001 EPA Consent Decree, as amended). The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [CAAA of 1990, Minn. R. 7007.subp. 5]
	5.144.17		SO ₂ Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly averages of total SO ₂ emissions in lb/hr. The records

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			may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.144.18		SO ₂ Emissions Calculations and Recordkeeping for SIP Limits: The Permittee shall maintain records of the calculated SO ₂ emissions in lb/hr and tons/year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.144.19		Fuel Flowrate: The Permittee shall operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.144.20		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.144.21		Firebox O ₂ : The Permittee shall operate, and maintain a CMS that records the firebox O ₂ at 33H31. [Minn. R. 7007.0800, subp. 4]
	5.144.22		Monitor QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure analyzer reliability, including but not limited to annual calibrations. [Minn. R. 7007.0800, subp. 4]
EQUI 542	EU051	Distillate Hydrotreater Fractnr Htr - Distillation Equipment	
	5.145.1		The Permittee shall limit Carbon Monoxide <= 3.7 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.145.2		The Permittee shall limit Nitrogen Oxides <= 4.80 pounds per hour 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.145.3		The Permittee shall limit Nitrogen Oxides <= 0.080 pounds per million Btu heat input 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.145.4		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.145.5		The Permittee shall limit Sulfur Dioxide <= 7.3 pounds per hour

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			3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.145.6		The Permittee shall limit Sulfur Dioxide <= 7.3 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.145.7		The Permittee shall limit Sulfur Dioxide <= 25.7 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.145.8		The Permittee shall limit Sulfur Dioxide <= 7.3 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.145.9		The Permittee shall limit Sulfur Dioxide <= 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.145.10		The Permittee shall limit Total Particulate Matter <= 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.145.11		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.145.12		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.145.13		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.145.14		The Permittee shall limit Heat Input <= 76.1 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NO _x and CO. [Minn. R. 7017.2025, subp. 3]
	5.145.15		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total

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			heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.145.16		Monitoring for NOx emissions: The Permittee shall continuously monitor fuel combustion rate and stack O2. The Permittee shall use the most recent correlation based on performance test results to determine NOx lb/MMBtu emissions on an hourly basis. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.145.17		Monitoring for CO emissions: The Permittee shall continuously monitor fuel combustion rate and stack O2. The Permittee shall use the most recent correlation based on performance test results to determine CO lb/MMBtu emissions on an hourly basis. [Minn. R. 7017.1006, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.145.18		NOx Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 24-hour (arithmetic mean) lb/MMBtu of NOx using all of the 1-hour averages obtained during the previous 24-hour period. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.145.19		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.145.20		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.145.21		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.145.22		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R.

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			7007.0800, subp. 4]
	5.145.23		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include or reference the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.145.24		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
EQUI 543	EU052	#2 H2 Plant Reformer Heater - Process Heater	
	5.146.1		The Permittee shall limit Total Particulate Matter <= 2.09 pounds per hour 365-day rolling average (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(B)). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.146.2		The Permittee shall limit PM < 10 micron <= 6.0 pounds per hour 365-day rolling average. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.146.3		The Permittee shall limit Nitrogen Oxides <= 47.5 pounds per hour 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.146.4		The Permittee shall limit Nitrogen Oxides <= 0.10 pounds per million Btu heat input 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.146.5		The Permittee shall limit Carbon Monoxide <= 14.4 pounds per hour 365-day rolling average. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.146.6		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), 40 CFR 60.8(c), Minn. R. 7011.1435(A)]
	5.146.7		The Permittee shall limit Sulfur Dioxide <= 61.7 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2

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			SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.146.8		The Permittee shall limit Sulfur Dioxide $\leq$ 61.7 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.146.9		The Permittee shall limit Sulfur Dioxide $\leq$ 216.3 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.146.10		The Permittee shall limit Sulfur Dioxide $\leq$ 61.7 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.146.11		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.146.12		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.146.13		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.146.14		The Permittee shall limit Heat Input $\leq$ 800 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. [Minn. R. 7017.2025, subp. 3]
	5.146.15		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.146.16		Fuel Restriction: Authorized to burn purge gas, refinery fuel gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.146.17		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless

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			electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.146.18		Monitoring for BACT NOx emissions: The Permittee shall continuously monitor fuel combustion rate and stack O2. The Permittee shall use the most recent correlation to determine NOx lb/MMBtu emissions on an hourly basis. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.146.19		Monitoring for CO emissions: The Permittee shall continuously monitor fuel combustion rate and stack O2. The Permittee shall use the most recent correlation to determine CO lb/MMBtu emissions on an hourly basis. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.146.20		BACT NOx Emission Recordkeeping: The Permittee shall maintain records of the calculated NOx emissions hourly average of NOx emissions in lb/hr based on the most recent performance test. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.146.21		CO Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated CO emissions hourly average of CO emissions in lb/hr based on the most recent performance test. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.146.22		BACT NOx Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 24-hour average lb/MMBtu of NOx using all of the 1-hour averages obtained during the previous 24-hour period based on the most recent performance test. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.146.23		PM/PM10 Emission Calculations and Recordkeeping: The Permittee shall calculate and record the daily and 365-day rolling average PM/PM10 emissions based on the most recent performance test. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.146.24		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the

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			Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.146.25		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.146.26		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.146.27		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.146.28		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include or reference the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.146.29		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 2]
EQUI 544	EU053	Naphtha Hydrotreater Reactor Chg Htr - Reactor	
	5.147.1		The Permittee shall limit Nitrogen Oxides <= 3.0 pounds per hour 24-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.147.2		The Permittee shall limit Nitrogen Oxides <= 0.14 pounds per million Btu heat input 24-hour rolling average when heater is firing less than or equal to 90% of maximum rating. The limit does not apply during startup or shutdown (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]

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	5.147.3		The Permittee shall limit Nitrogen Oxides $\leq$ 0.10 pounds per million Btu heat input 24-hour rolling average when heater is firing greater than 90% of maximum rating. The limit does not apply during startup or shutdown (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.147.4		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.147.5		The Permittee shall limit Sulfur Dioxide $\leq$ 2.6 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.147.6		The Permittee shall limit Sulfur Dioxide $\leq$ 2.6 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.147.7		The Permittee shall limit Sulfur Dioxide $\leq$ 9.2 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.147.8		The Permittee shall limit Sulfur Dioxide $\leq$ 2.6 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.147.9		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.147.10		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.147.11		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.147.12		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.147.13		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.147.14		The Permittee shall limit Heat Input $\leq$ 34.0 million Btu per

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			hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NOx. [Minn. R. 7017.2025, subp. 3]
	5.147.15		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.147.16		Monitoring for NOx emissions associated with the BACT limit: The Permittee shall continuously monitor fuel combustion rate and stack O2. The Permittee shall use the most recent correlation based on performance test results to determine NOx lb/MMBtu emissions on an hourly basis. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.147.17		NOx Emission Calculation and Recordkeeping associated with the BACT limit: The Permittee shall calculate and record the 24-hour (arithmetic mean) lb/MMBtu of NOx using all of the 1-hour averages obtained during the previous 24-hour period. Performance test results shall be used for calculating emissions. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.147.18		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.147.19		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.147.20		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records

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			the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.147.21		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.147.22		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include or reference the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.147.23		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
EQUI 545	EU054	#6 HDS Reactor Charge Heater - Process Heater	
	5.148.1		The Permittee shall limit Sulfur Dioxide $\leq$ 1.0 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.148.2		The Permittee shall limit Sulfur Dioxide $\leq$ 1.0 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.148.3		The Permittee shall limit Sulfur Dioxide $\leq$ 2.3 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.148.4		The Permittee shall limit Sulfur Dioxide $\leq$ 1.0 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.148.5		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of

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			hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.148.6		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 546	EU055	#2 HDS Fractionation Heater (31H2) - Fractionation Equipment	
	5.149.1		The Permittee shall limit Sulfur Dioxide <= 66.4 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.149.2		The Permittee shall limit Sulfur Dioxide <= 66.4 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.149.3		The Permittee shall limit Sulfur Dioxide <= 290.8 tons per year 365-day rolling average. This limit is effective upon the date of SIP approval. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.149.4		The Permittee shall limit Sulfur Dioxide <= 66.4 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.149.5		The Permittee shall comply with either the emission limit in 40 CFR Section 60.102a(g)(1)(i) or the fuel gas concentration limit in 40 CFR Section 60.102a(g)(1)(ii). [40 CFR 60.102a(g)(1)]
	5.149.6		The Permittee shall limit Sulfur Dioxide <= 20 parts per million 3-hour rolling average (by volume ppmv, dry basis, corrected to 0 percent excess air, determined hourly) and, [40 CFR 60.102a(g)(1)(i)]
	5.149.7		The Permittee shall limit Sulfur Dioxide <= 8.0 parts per million 365-day rolling average (by volume ppmv, dry basis, corrected to 0 percent excess air, determined daily) or; [40 CFR 60.102a(g)(1)(i)]
	5.149.8		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 162 parts

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			per million 3-hour rolling average (by volume ppmv, determined hourly) and, [40 CFR 60.102a(g)(1)(ii)]
	5.149.9		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 60 parts per million 365-day rolling average (by volume ppmv, determined daily). [40 CFR 60.102a(g)(1)(ii)]
	5.149.10		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.149.11		The Permittee shall limit Total Particulate Matter ≤ 0.40 pounds per million Btu heat input 3-hour rolling average. [Minn. R. 7011.1410, subp. 3(B)]
	5.149.12		The Permittee shall limit Opacity ≤ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.1410, subp. 3(B)]
	5.149.13		The Permittee shall conduct a root cause analysis of any emission limit exceedance or process startup, shutdown, upset, or malfunction that causes a discharge to the atmosphere in excess of 227 kilograms per day (kg/day) (500 lb per day (lb/day)) in excess of permitted levels of SO ₂ . For any root cause analysis performed, the Permittee shall record the identification of the affected facility, the date and duration of the discharge, the results of the root cause analysis, and the action taken as a result of the root cause analysis. [40 CFR 60.103a(b)]
	5.149.14		SO ₂ Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly averages of total SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.149.15		SO ₂ Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total SO ₂ in tons per year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.149.16		Record and maintain records of excess emissions greater than 500 lb/day SO ₂ . [40 CFR 60.108a(c)(6)]
	5.149.17		SO ₂ Emissions Monitoring: The Permittee shall calibrate, operate and maintain SO ₂ Continuous Emissions Monitoring System (CEMS). See additional CEMS requirements under EQUI84. [CAAA of 1990, Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]

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	5.149.18		SO2 Emissions Measuring: The Permittee shall use a sulfur dioxide CEMS to measure sulfur dioxide emissions from STRU117. [Minn. R. 7017.1006]
	5.149.19		Due to the inherently low levels of H2S present in the Merox Treatment Unit offgas stream, EQUI546 is exempt from H2S monitoring of the Merox Treating Unit offgas stream per EPA Region V letter of approval dated 11/15/2010. [40 CFR 60.107a(b)]
EQUI 547	EU056	HDS Heater (hot oil system) - Process Heater	
	5.150.1		The Permittee shall limit Nitrogen Oxides $\leq$ 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.150.2		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(A)]
	5.150.3		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(B)(2)]
	5.150.4		The Permittee shall limit Sulfur Dioxide $\leq$ 3.0 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.150.5		The Permittee shall limit Sulfur Dioxide $\leq$ 3.0 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.150.6		The Permittee shall limit Sulfur Dioxide $\leq$ 7.1 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.150.7		The Permittee shall limit Sulfur Dioxide $\leq$ 3.0 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.150.8		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 2]
	5.150.9		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.150.10		Recordkeeping: Record and maintain records of each type of

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			fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.150.11		The Permittee shall limit Heat Input $\leq$ 43.1 pounds per million Btu heat input 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. [Minn. R. 7017.2025, subp. 3]
	5.150.12		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.150.13		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.150.14		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.150.15		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.150.16		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 548	EU057	Unisar Reactor Charge Heater - Process Heater	
	5.151.1		The Permittee shall limit Sulfur Dioxide $\leq$ 0.4 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP),

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			Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.151.2		The Permittee shall limit Sulfur Dioxide $\leq$ 0.4 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.151.3		The Permittee shall limit Sulfur Dioxide $\leq$ 1.0 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.151.4		The Permittee shall limit Sulfur Dioxide $\leq$ 0.4 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.151.5		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.151.6		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 549	EU058	#5 HDS Charge Heater (naphtha) - Process Heater	
	5.152.1		The Permittee shall limit Sulfur Dioxide $\leq$ 2.9 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.152.2		The Permittee shall limit Sulfur Dioxide $\leq$ 2.9 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.152.3		The Permittee shall limit Sulfur Dioxide $\leq$ 6.8 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.152.4		The Permittee shall limit Sulfur Dioxide $\leq$ 2.9 pounds per hour

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			1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.152.5		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(A)]
	5.152.6		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(B)]
	5.152.7		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 2]
	5.152.8		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.152.9		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.152.10		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.152.11		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.152.12		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.152.13		CMS QA/QC: The Permittee shall follow manufacturer

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			recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 550	EU059	#1 HDS Reactor Charge Heater - Process Heater	
	5.153.1		The Permittee shall limit Sulfur Dioxide <= 1.6 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.153.2		The Permittee shall limit Sulfur Dioxide <= 1.6 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.153.3		The Permittee shall limit Sulfur Dioxide <= 3.9 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.153.4		The Permittee shall limit Sulfur Dioxide <= 1.6 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.153.5		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.153.6		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 551	EU060	#1 HDS Fractionation Heater - Fractionation Equipment	
	5.154.1		The Permittee shall limit Sulfur Dioxide <= 2.1 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52,

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			subp. Y]
	5.154.2		The Permittee shall limit Sulfur Dioxide $\leq$ 2.1 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.154.3		The Permittee shall limit Sulfur Dioxide $\leq$ 5.0 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.154.4		The Permittee shall limit Sulfur Dioxide $\leq$ 2.1 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.154.5		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(A)]
	5.154.6		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(B)]
	5.154.7		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 2]
	5.154.8		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.154.9		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.154.10		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.154.11		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total

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			stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.154.12		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.154.13		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 552	EU061	#2 HDS Reactor Charge Heater - Process Heater	
	5.155.1		The Permittee shall limit Sulfur Dioxide ≤ 1.3 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.155.2		The Permittee shall limit Sulfur Dioxide ≤ 1.3 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.155.3		The Permittee shall limit Sulfur Dioxide ≤ 3.0 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.155.4		The Permittee shall limit Sulfur Dioxide ≤ 1.3 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.155.5		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.155.6		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless

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			electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 558	EU077	Powerformer Catalyst Regeneration - Refining Equipment	
	5.156.1		Prepare and implement an operation, maintenance, and monitoring plan according to the requirements in 40 CFR Section 63.1574(f) and operate at all times according to the procedures in the plan. [40 CFR 63.1566(a)(5), 40 CFR 63.1567(a)(3), Minn. R. 7011.7280(B)]
	5.156.2		At all times, including periods of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1)(i)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280(B), Minn. R. 7017.2015]
	5.156.3		Correct malfunctions as soon as practicable in accordance with the startup, shutdown, and malfunction plan (SSMP). [40 CFR 63.6(e)(1)(ii)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.156.4		Record occurrence of startup, shutdown, and malfunction of process equipment or malfunction or maintenance of air pollution control equipment. Document conformance with or deviation from SSMP. [40 CFR 63.10(b)(2)(i)-(v), 40 CFR 63.6(e)(3)(iii)-(iv), 40 CFR pt. 63, subp. CC(Table 6), Minn. R. 7011.7000, Minn. R. 7011.7280(B), Minn. R. 7019.0100]
	5.156.5		Maintain up-to-date startup, shutdown, malfunction plan (SSMP). [40 CFR 63.6(e)(1)(iii)-(2), 40 CFR 63.6(e)(3)(i)-(ii), (v)-(vii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.156.6		If a malfunction occurs that was not addressed in the SSMP, revise the SSMP within 45 days after the event. [40 CFR 63.6(e)(3)(viii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.156.7		Vent emissions to a flare that meets the requirements for control devices in 40 CFR Section 63.11(b). Visible emissions from a flare must not exceed a total of 5 minutes during any 2-hour operating period for this source. Note: Vent gas routed to the flare system normally is recovered by flare gas recovery and returned to the refinery fuel gas system. These flare control requirements do not apply to recovered flare gas. [40 CFR 63.1566(a)(1)(i), Table 15, option 1 or 2, 40 CFR 63.1566(c), Minn. R. 7011.7280(B)]
	5.156.8		For combustion control, the flare pilot light must be present at all times and the flare must be operating (in a ready status) at all times that emissions may be vented to it from this source. [40 CFR 63.1566(a)(2), Minn. R. 7011.7280(B)]
	5.156.9		The Permittee must install and operate a monitoring device such as a thermocouple, an ultraviolet beam sensor, or infrared sensor to continuously detect the presence of a pilot flame. [40 CFR 63.1566(b)(1), Minn. R. 7011.7280(B)]
	5.156.10		When emissions are routed to a flare for control, collect flare

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			monitoring data according to 40 CFR Section 63.1572 and record each 1-hour period whether the monitor was continuously operating and the pilot light was continuously present during each 1-hour period. [40 CFR 63.1566(c), Minn. R. 7011.7280(B)]
	5.156.11		Reduce uncontrolled emissions of hydrogen chloride by 97 percent by weight or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen. [40 CFR 63.1567(a)(1), 40 CFR 63.1567(c), Minn. R. 7011.7280(B)]
	5.156.12		Fixed bed gas-solid adsorption system: The daily average temperature of the gas entering or exiting the adsorption system must not exceed the limit established during the performance test; and the HCl concentration in the adsorption system exhaust gas must not exceed the limit established during the performance test. Collect the hourly and daily average temperature monitoring data according to 40 CFR Section 63.1572 during regeneration. [40 CFR 63.1567(a)(2), 40 CFR 63.1567(c), 40 CFR 63.1572, Minn. R. 7011.7280(B)]
	5.156.13		Continuous Compliance: Average daily temperature must be less than 370 degrees F and measured at the adsorber inlet. [40 CFR 63.1567(c), 40 CFR 63.1572, Minn. R. 7011.7280(B)]
	5.156.14		Continuous Compliance for HCl concentration: Measure and record the concentration of the HCl weekly or during each regeneration cycle, whichever is less frequent. HCl must be <10 ppm. [40 CFR 63.1567(c), Minn. R. 7011.7280(B)]
	5.156.15		Fixed-bed gas-solid adsorption system: Must have a continuous parameter monitoring system to measure and record the temperature of the gas entering or exiting the adsorption system during coke burn-off and catalyst rejuvenation; and colorimetric tube sampling system to measure the gaseous HCl concentration in the adsorption system exhaust and at a point within the adsorbent bed not to exceed 90 percent of the total length of the adsorbent bed during coke burn-off and catalyst rejuvenation. The colorimetric tube sampling system must meet the requirements of Table 41 of 40 CFR pt. 63, subp. CC. [40 CFR 63.1567(b)(1), Minn. R. 7011.7280(B)]
	5.156.16		The compliance report must include a statement that there were no deviations from any emission limitation or work practice standards during the reporting period or the information in 40 CFR Section 63.1575 (d) or (e) if applicable. The Permittee may submit reports required by other regulations in place of or as part of the compliance report if the report contains the required information. [40 CFR 63.1575, Minn. R. 7011.7280(B)]
	5.156.17		Meet the requirements for bypass lines set forth in 40 CFR Section 63.1569. [40 CFR 63.1569(a)&(c), Minn. R. 7011.7280(B)]
	5.156.18		The Permittee shall limit Sulfur Dioxide <= 0.4 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52,

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			subp. Y]
	5.156.19		The Permittee shall limit Sulfur Dioxide $\leq$ 0.4 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.156.20		The Permittee shall limit Sulfur Dioxide $\leq$ 0.9 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.156.21		The Permittee shall limit Sulfur Dioxide $\leq$ 0.4 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.156.22		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.156.23		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 559	EU085	Gas Oil HDS Fractionation Charge Heater - Process Heater	
	5.157.1		The Permittee shall limit Nitrogen Oxides $\leq$ 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.157.2		The Permittee shall limit Nitrogen Oxides $\leq$ 25.4 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.157.3		The Permittee shall limit Sulfur Dioxide $\leq$ 9.9 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.157.4		The Permittee shall limit Sulfur Dioxide $\leq$ 9.9 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂

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			SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.157.5		The Permittee shall limit Sulfur Dioxide <= 34.8 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.157.6		The Permittee shall limit Sulfur Dioxide <= 9.9 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.157.7		The Permittee shall limit Carbon Monoxide <= 0.040 pounds per million Btu heat input 365-day rolling average. [Minn. R. 7007.0800, subp. 2]
	5.157.8		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.157.9		The Permittee shall limit Total Particulate Matter <= 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.157.10		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.157.11		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.157.12		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.157.13		The Permittee shall limit Heat Input <= 120.0 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NOx. [Minn. R. 7017.2025, subp. 3]
	5.157.14		Recordkeeping of Heat Input: The Permittee shall calculate the

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			average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.157.15		Monitoring for NOx emissions: The Permittee shall continuously monitor fuel combustion rate and firebox O2. The Permittee shall use the most recent correlation based on performance test results to determine NOx lb/MMBtu emissions on an hourly basis. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 4]
	5.157.16		NOx Emission Calculation and Recordkeeping: On an hourly basis, the Permittee shall calculate and record the 3-hour (arithmetic mean) lb/MMBtu of NOx using all of the 1-hour averages obtained during the previous 3-hour period. (2001 EPA Consent Decree, as amended) The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [CAAA of 1990, Minn. R. 7007.0800, subp. 5]
	5.157.17		Recordkeeping: The Permittee shall calculate and record the hourly, daily, and 365-day rolling sum emission rate of NOx. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.157.18		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly averages of total SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.157.19		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total SO2 in tons per year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.157.20		CO Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 3-hour (arithmetic mean) lb/MMBtu of CO using all of the 1-hour averages obtained during the previous 3-hour period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]

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	5.157.21		Fuel Flowrate: The Permittee shall operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.157.22		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.157.23		Firebox O2: The Permittee shall operate, and maintain a CMS that records the firebox O2 at 33H32. [Minn. R. 7007.0800, subp. 4]
	5.157.24		Monitor QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure analyzer reliability, including but not limited to annual calibrations. [Minn. R. 7007.0800, subp. 4]
EQUI 566	EU099	Platformer Catalyst Regeneration Vent - Regenerator	
	5.158.1		Prepare and implement an operation, maintenance, and monitoring plan according to the requirements in 40 CFR Section 63.1574(f) and operate at all times according to the procedures in the plan. [40 CFR 63.1566(a)(5), 40 CFR 63.1567(a)(3), Minn. R. 7011.7280(B)]
	5.158.2		At all times, including periods of startup, shutdown, and malfunction, operate and maintain equipment and associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6(e)(1)(i)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.158.3		Correct malfunctions as soon as practicable in accordance with the startup, shutdown, and malfunction plan (SSMP). [40 CFR 63.6(e)(1)(ii)-(iii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.158.4		Record occurrence of startup, shutdown, and malfunction of process equipment or malfunction or maintenance of air pollution control equipment. Document conformance with or deviation from SSMP. [40 CFR 63.10(b)(2)(i)-(v), 40 CFR 63.6(e)(3)(iii)-(iv), 40 CFR pt. 63, subp. CC(Table 6), Minn. R. 7011.7000, Minn. R. 7011.7280(B), Minn. R. 7019.0100]
	5.158.5		Maintain up-to-date SSMP. [40 CFR 63.6(e)(1)(iii)-(2), 40 CFR 63.6(e)(3)(i)-(ii), (v)-(vii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.158.6		If a malfunction occurs that was not addressed in the SSMP, revise the SSMP within 45 days after the event. [40 CFR 63.6(e)(3)(viii), Minn. R. 7011.7000, Minn. R. 7011.7280(B)]
	5.158.7		Reduce uncontrolled emissions of total organic compounds (TOC) or nonmethane TOC from your process vent by 98% by weight using a control device or to a concentration of 20 ppmv (dry basis as hexane), corrected to 3% oxygen, whichever is less stringent. If you vent emissions to a boiler or process

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			heater to comply with the percent reduction or concentration emission limitation, the vent stream must be introduced into the flame zone, or any other location that achieves the percent reduction or concentration standard. Or as an alternate control method, vent emissions to a flare that meets the requirements for control devices in 40 CFR Section 63.11(b). Visible emissions from a flare must not exceed a total of 5 minutes during any 2 hour operating period for this source. Note: Vent gas routed to the flare system normally is recovered by flare gas recovery and returned to the refinery fuel gas system. These flare control requirements do not apply to recovered flare gas. [40 CFR 63.1566(a)(1), 40 CFR 63.1566(c), Minn. R. 7011.7280(B)]
	5.158.8		For combustion control, the flare pilot light must be present at all times and the flare must be operating (in a ready status) at all times that emissions may be vented to it from this source. [40 CFR 63.1566(a)(2), Minn. R. 7011.7280(B)]
	5.158.9		The Permittee must install and operate a monitoring device such as a thermocouple, an ultraviolet beam sensor, or infrared sensor to continuously detect the presence of a pilot flame. [40 CFR 63.1566(b)(1), Minn. R. 7011.7280(B)]
	5.158.10		When emissions are routed to a flare for control, collect flare monitoring data according to 40 CFR Section 63.1572 and record each 1-hour period whether the monitor was continuously operating and the pilot light was continuously present during each 1-hour period. [40 CFR 63.1566(c), Minn. R. 7011.7280(B)]
	5.158.11		Reduce uncontrolled emissions of hydrogen chloride by 97 percent by weight or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen. [40 CFR 63.1567(a)(1), 40 CFR 63.1567(c), Minn. R. 7011.7280(B)]
	5.158.12		Fixed bed gas-solid adsorption system: The daily average temperature of the gas entering or exiting the adsorption system must not exceed the limit established during the performance test; and the HCl concentration in the adsorption system exhaust gas must not exceed the limit established during the performance test. Collect the hourly and daily average temperature monitoring data according to 40 CFR Section 63.1572 during regeneration. [40 CFR 63.1567(a)(2), 40 CFR 63.1567(c), 40 CFR 63.1572, Minn. R. 7011.7280(B)]
	5.158.13		Continuous Compliance: Average daily temperature must be less than 370 degrees F and measured at the adsorber inlet. [40 CFR 63.1567(c), 40 CFR 63.1572, Minn. R. 7011.7280(B)]
	5.158.14		Continuous Compliance for HCl concentration: Measure and record the concentration of the HCl weekly or during each regeneration cycle, whichever is less frequent. HCl must be <10 ppm. [40 CFR 63.1567(c), Minn. R. 7011.7280(B)]
	5.158.15		Fixed-bed gas-solid adsorption system: Must have a continuous parameter monitoring system to measure and record the temperature of the gas entering or exiting the adsorption system during coke burn-off and catalyst

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			rejuvenation; and colormetric tube sampling system to measure the gaseous HCl concentration in the adsorption system exhaust and at a point within the adsorbent bed not to exceed 90 percent of the total length of the absorbent bed during coke burn-off and catalyst rejuvenation. The colormetric tube sampling system must meet the requirements of Table 41 of 40 CFR pt. 63, subp. CC. [40 CFR 63.1567(b)(1), Minn. R. 7011.7280(B)]
	5.158.16		The compliance report must include a statement that there were no deviations from any emission limitation or work practice standards during the reporting period or the information in 40 CFR Section 63.1575 (d) or (e) if applicable the Permittee may submit reports required by other regulations in place of or as part of the compliance report if the report contains the required information. [40 CFR 63.1575, Minn. R. 7011.7280(B)]
	5.158.17		Meet the requirements for bypass lines set forth in 40 CFR Section 63.1569. [40 CFR 63.1569(a)&(c), Minn. R. 7011.7280(B)]
EQUI 568	EU102	Unit 38 Gasoil HDS A-Train Heater - Process Heater	
	5.159.1		The Permittee shall limit Nitrogen Oxides <= 0.12 pounds per million Btu heat input 3-hour average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.159.2		The Permittee shall limit Sulfur Dioxide <= 2.9 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.159.3		The Permittee shall limit Sulfur Dioxide <= 2.9 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.159.4		The Permittee shall limit Sulfur Dioxide <= 10.3 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.159.5		The Permittee shall limit Sulfur Dioxide <= 2.9 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.159.6		The Permittee shall limit Oxygen <= 5.49 percent 3-hour rolling average (wet) excluding periods of startup and shutdown. [Minn. R. 7017.2025]
	5.159.7		The Permittee shall limit Heat Input <= 30.7 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a

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			performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NOx. [Minn. R. 7017.2025, subp. 3]
	5.159.8		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.159.9		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.159.10		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.159.11		Fuel Flowrate: The Permittee shall calibrate, operate and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.159.12		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 569	EU103	Unit 38 Gasoil HDS B-Train Heater - Process Heater	
	5.160.1		The Permittee shall limit Nitrogen Oxides <= 0.12 pounds per million Btu heat input 3-hour rolling average (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.160.2		The Permittee shall limit Sulfur Dioxide <= 2.9 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.160.3		The Permittee shall limit Sulfur Dioxide <= 2.9 pounds per hour

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			24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.160.4		The Permittee shall limit Sulfur Dioxide $\leq$ 10.3 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.160.5		The Permittee shall limit Sulfur Dioxide $\leq$ 2.9 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.160.6		The Permittee shall limit Oxygen $\leq$ 4.90 percent 3-hour rolling average (wet) excluding periods of startup and shutdown. [Minn. R. 7017.2025]
	5.160.7		The Permittee shall limit Heat Input $\leq$ 28.9 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NO _x . [Minn. R. 7017.2025, subp. 3]
	5.160.8		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.160.9		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.160.10		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51,

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			Title I Condition: 40 CFR pt. 52, subp. Y]
	5.160.11		Fuel Flowrate: The Permittee shall calibrate, operate and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.160.12		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 570	EU104	Unit 38 Gasoil HDS Fractionation Charge Heater - Process Heater	
	5.161.1		The Permittee shall limit Nitrogen Oxides $\leq$ 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.161.2		The Permittee shall limit Nitrogen Oxides $\leq$ 12.2 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.161.3		The Permittee shall limit Sulfur Dioxide $\leq$ 4.8 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.161.4		The Permittee shall limit Sulfur Dioxide $\leq$ 4.8 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.161.5		The Permittee shall limit Sulfur Dioxide $\leq$ 16.8 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.161.6		The Permittee shall limit Sulfur Dioxide $\leq$ 4.8 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.161.7		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.161.8		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R.

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			7011.1405, subp. 3(A)]
	5.161.9		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction and H ₂ S requirements constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 2]
	5.161.10		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1405, subp. 3(B)(2)]
	5.161.11		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.161.12		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.161.13		Calculations and Recordkeeping for NO _x Emissions: The Permittee shall calculate and record the hourly, daily, and 365-day rolling sum emission rate of nitrogen oxides. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.161.14		The Permittee shall limit Heat Input $\leq$ 56.0 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NO _x . [Minn. R. 7017.2025, subp. 3]
	5.161.15		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.161.16		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40

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			CFR pt. 52, subp. Y]
	5.161.17		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.161.18		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.161.19		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
EQUI 574	EU361	ATS Process Unit - Refining Equipment	
	5.162.1		The Permittee shall limit Sulfur Dioxide <= 5.0 pounds per hour 3-hour rolling average effective upon initial start-up of EQUI574. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.162.2		The Permittee shall limit Sulfur Dioxide <= 5.0 pounds per hour 24-hour rolling average effective upon initial start-up of EQUI574. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.162.3		The Permittee shall limit Sulfur Dioxide <= 19.71 tons per year 12-month rolling average effective upon initial start-up of EQUI574. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.162.4		The Permittee shall limit Sulfur Dioxide <= 5.0 pounds per hour 1-hour average effective upon initial start-up of EQUI574. This is a state only requirement pursuant to Minn. R. 7007.1750, it is not enforceable by the EPA Administrator or citizens under the Clean Air Act. THIS LIMIT WILL BE REMOVED FROM THE SIP ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. THIS LIMIT WILL REMAIN IN THE PERMIT AND REMAIN APPLICABLE TO THIS UNIT UNDER THE AUTHORITY OF MINN. R. 7009.0080. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.162.5		The Permittee shall limit Opacity <= 20 percent opacity. [Minn. R. 7011.0715, subp. 1(B)]
	5.162.6		The Permittee shall limit Sulfur Dioxide <= 250 parts per million 12-hour rolling average by volume (dry basis) at zero percent excess air. [40 CFR 60.102a(f)(1)(i)]
	5.162.7		All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action

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			analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR Section 60.108a(c)(6)(ix). [40 CFR 60.103a(e)(1)]
	5.162.8		For corrective actions that cannot be fully implemented within 45 days following the discharge for which the root cause and corrective action analyses were required, the Permittee shall develop an implementation schedule to complete the corrective action(s) as soon as practicable. [40 CFR 60.103a(e)(2)]
	5.162.9		Emissions Monitoring: The Permittee shall calibrate, operate and maintain an SO ₂ CEMS. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.162.10		The Permittee shall use CEMS to monitor the sulfur dioxide emissions in order to calculate pounds of sulfur dioxide per hour (lb/hr) from STRU91. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.162.11		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.162.12		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0% excess air) of any SO ₂ emissions into the atmosphere. The monitor shall include an oxygen monitor for correcting the data for excess air. (i) The span values for this monitor are two times the applicable SO ₂ emission limit and between 10 and 25% O ₂ inclusive. (ii) The Permittee shall install, operate and maintain each SO ₂ CEMS according to Performance Specification 2 of 40 CFR pt. 60, appendix B. (iii) The Permittee shall conduct performance evaluations of each SO ₂ monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 2 of 40 CFR pt. 60, appendix B. The Permittee shall use Method 6 or 6C of appendix A-4 and Method 3 or 3A of appendix A-2 to 40 CFR pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 6. [40 CFR 60.106a(a)(1)(i)-(iii)]
	5.162.13		The Permittee shall operate the demister system (TREA75) whenever the ATS Process Unit (EQUI574) is in operation. [Minn. R. 7007.0800, subp. 8]
	5.162.14		SIP SO ₂ Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂

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			emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.162.15		The Permittee shall conduct a root cause analysis and a corrective action analysis each time the SO ₂ emissions are more than 227 kg (500 lb) greater than the amount that would have been emitted if the SO ₂ or reduced sulfur concentration was equal to the applicable emissions limit in 40 CFR Section 60.102a(f)(1) during one or more consecutive periods of excess emissions or any 24-hour period, whichever is shorter. [40 CFR 60.103a(c)(3)]
	5.162.16		No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed to date, and for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR Section 60.108a(c)(6)(x). [40 CFR 60.103a(e)(3)]
	5.162.17		The Permittee shall comply with the notification, recordkeeping and reporting requirements in 40 CFR Section 60.7. [40 CFR 60.108a(a)]
	5.162.18		The Permittee shall notify the Administrator of the specific monitoring provisions of 40 CFR Sections 60.105a, 60.106a and 60.107a with which the Permittee intends to comply. The Permittee shall submit to the Administrator documentation showing that the process heater meets the definition of a co-fired process heater in 40 CFR Section 60.101a. Notifications required by this paragraph shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b)]
	5.162.19		The Permittee shall maintain the following records: Records of discharges greater than 500 lb SO ₂ in excess of the allowable limits from a sulfur recovery plant in any 24-hour period as required by 40 CFR Section 60.103a(c). The following information shall be recorded no later than 45 days following the end of a discharge exceeding the thresholds: (i) A description of the discharge. (ii) The date and time the discharge was first identified and the duration of the discharge. (iii) The measured or calculated cumulative quantity of gas discharged over the discharge duration. If the discharge duration exceeds 24 hours, record the discharge quantity for each 24-hour period. (vi) For each discharge greater than 500 lb SO ₂ in excess of the allowable limits from a sulfur recovery plant, either the measured concentration of reduced sulfur or SO ₂ discharged to the atmosphere. (vii) For each discharge greater than 500 lb SO ₂ in excess of the allowable limits from a sulfur recovery plant, the cumulative quantity of H ₂ S and SO ₂ released into the

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			atmosphere. (viii) The steps that the Permittee took to limit the emissions during the discharge. (ix) The root cause analysis and corrective action analysis conducted as required in 40 CFR Section 60.103a(d), including an identification of the affected facility, the date and duration of the discharge, a statement noting whether the discharge resulted from the same root cause(s) identified in a previous analysis and either a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary under 40 CFR Section 60.103a(e). (x) For any corrective action analysis for which corrective actions are required in 40 CFR Section 60.103a(e), a description of the corrective action(s) completed within the first 45 days following the discharge and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. [40 CFR 60.108a(c)(6)]
	5.162.20		The Permittee shall submit and excess emissions report for all periods of excess emissions according to the requirements of 40 CFR Section 60.7(c) except that the report shall contain the information specified in 40 CFR Section 60.108a(d)(1)-(7). (1) The date that the exceedance occurred; (2) An explanation of the exceedance; (3) Whether the exceedance was concurrent with a startup, shutdown or malfunction of an affected facility or control system; and (4) A description of the actions taken, if any. (5) The information described in 40 CFR Section 60.108a(c)(6) for all discharges listed in 40 CFR Section 60.108a(c)(6). (6) For any periods for which monitoring data are not available, any changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability. (7) A written statement, signed by a responsible official, certifying the accuracy and completeness of the information contained in the report. [40 CFR 60.108a(d)]
	5.162.21		The Permittee shall determine compliance with the SO ₂ emissions limits using the following methods and procedures: (1) Method 1 of 40 CFR pt. 60, Appendix A-1 for sample and velocity traverses. (2) Method 2 of 40 CFR pt. 60, Appendix A-1 for velocity and volumetric flow rate. (3) Method 3, 3A or 3B of 40 CFR pt. 60, Appendix A-2 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 3B of 40 CFR pt. 60, Appendix A-2.

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			(4) Method 6, 6A or 6C of 40 CFR pt. 60, Appendix A-4 to determine the SO₂ concentration. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 6 or 6A of 40 CFR pt. 60, Appendix A-4. (5) Method 15 or 15A of 40 CFR pt. 60, Appendix A-5 or Method 16 of 40 CFR pt. 60, Appendix A-6 to determine the reduced sulfur compounds and H₂S concentrations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 15A of 40 CFR pt. 60, Appendix A-5. (i) Each run consists of 16 samples taken over a minimum of 3 hours. (ii) The Permittee shall calculate the average H₂S concentration after correcting for moisture and O₂ as the arithmetic average of the H₂S concentration for each sample during the run (ppmv, dry basis, corrected to 0% excess air). (iii) The Permittee shall calculate the SO₂ equivalent for each run after correcting for moisture and O₂ as the arithmetic average of the SO₂ equivalent of reduced sulfur compounds for each sample during the run (ppmv, dry basis, corrected to 0% excess air). (iv) The Permittee shall use Equation 8 of 40 CFR Section 60.104a(d) to adjust pollutant concentrations to 0% O₂ or 0% excess air. [40 CFR 60.104a(h)(1)-(5)]
	5.162.22		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.162.23		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the Administrator on a case-by-case basis, determines that more frequent reporting is necessary. All reports shall be postmarked by the 30th day following the end of each six-month period and include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.7(c), Minn. R. 7019.0100]
	5.162.24		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the

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			total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100]
	5.162.25		The Permittee shall maintain a file of all measurements, including continuous monitoring system (CMS), monitoring device and performance testing measurements; all CMS performance evaluations; all CMS or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR pt. 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records, except as follows: [40 CFR 60.7(f), Minn. R. 7019.0100]
	5.162.26		An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of maintaining a file of all CEMS subhourly measurements as required under 40 CFR Section 60.7(f), the Permittee shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard. [40 CFR 60.7(f)(1), Minn. R. 7019.0100]
	5.162.27		In lieu of maintaining a file of all CEMS subhourly measurements as required under 40 CFR Section 60.7(f), the Permittee shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator. [40 CFR 60.7(f)(2), Minn. R. 7019.0100]
	5.162.28		If notification substantially similar to that in 40 CFR Section 60.7(a) is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of 40 CFR Section 60.7(a). [40 CFR 60.7(g), Minn. R. 7019.0100]
	5.162.29		Individual subparts of 40 CFR pt. 60 may include specific provisions which clarify or make inapplicable the provisions set forth in this section. [40 CFR 60.7(f), Minn. R. 7019.0100, subp. 1]
	5.162.30		At all times, including periods of startup, shutdown and malfunction, the Permittee shall, to the extent possible, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015]

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	5.162.31		For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed. [40 CFR 60.11(g), Minn. R. 7017.2015]
	5.162.32		The Permittee shall conduct a root cause analysis and corrective action analysis as soon as possible, but no later than 45 days after a discharge exceeding 500 lb greater than the permit limit. [40 CFR 60.103a(d)]
	5.162.33		If a single continuous discharge exceeds 500 lb greater than the permit limit for 2 or more consecutive 24-hour periods, a single root cause analysis and corrective action analysis may be conducted. [40 CFR 60.103a(d)(1)]
	5.162.34		Excess emissions reports required for all 12-hour periods during which the average concentration of SO ₂ as measured by the SO ₂ continuous monitoring system required under 40 CFR Section 60.106a(a)(1) exceeds the applicable emission limit (dry basis, 0% excess air). [40 CFR 60.106a(b)(1)]
	5.162.35		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.162.36		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.162.37		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.162.38		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.162.39		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.162.40		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or

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			malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.162.41		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.162.42		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.162.43		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.162.44		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.162.45		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.162.46		Stack Air Flow: The Permittee shall calibrate, operate and maintain a continuous air flow monitor that records the stack air flow for STRU91. [Minn. R. 7007.0800, subp. 4]
	5.162.47		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude

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			specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
EQUI 1456		EQUI24H1	
	5.163.1		The Permittee shall limit Nitrogen Oxides ≤ 0.010 pounds per million Btu heat input 365-day rolling average determined daily, inclusive of all periods of operation. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.2		The Permittee shall limit Nitrogen Oxides ≤ 3.10 pounds per hour 24-hour rolling average applicable during hourly periods of normal operation, which shall exclude startup, shutdown, malfunction and when the hourly average exhaust temperature to the SCR is less than 530 degrees F. At least 18 hours of normal operations are needed in the 24-hour period for comparison to the standard. The standard shall not apply for those 24-hour periods with less than 18 hours of normal operations. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.3		The Permittee shall limit Nitrogen Oxides ≤ 60 parts per million 30-day rolling average (dry basis, corrected to 0 percent excess air) determined daily. [40 CFR 60.102a(g)(2)(ii)(A), Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.4		The Permittee shall limit Carbon Dioxide Equivalent $\leq 168,775$ tons per year 365-day rolling sum. For the first 364 days after initial startup of EQUI1456, CO ₂ e emissions are limited as determined by the following equation: $E = 168,775 \times [0.15 + 0.85(D/365)]$ where E=emissions in total tons D=number of days after limit is effective (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.5		The Permittee shall limit Carbon Dioxide Equivalent ≤ 126.3 pounds per million Btu heat input 12-month rolling average. Compliance with this limit can be demonstrated by firing strictly natural gas or by quantifying the average lb/mmBtu of the gaseous fuels fired over the operating period. [Minn. R. 7007.0800, subp. 2]
	5.163.6		The Permittee shall limit PM < 10 micron ≤ 0.0075 pounds per million Btu heat input 3-hour average measured as filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.7		The Permittee shall limit PM < 2.5 micron ≤ 0.0075 pounds per million Btu heat input 3-hour average measured as

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			filterable and condensable PM using Methods 5 or 5B for filterable and Method 202 for condensable PM. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.8		The Permittee shall limit Total Particulate Matter <= 0.4 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.0075 lbs/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.163.9		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.163.10		The Permittee shall limit Hydrogen Sulfide (H2S) <= 162 parts per million 3-hour rolling average, determined hourly. This limit does not apply during periods of startup, shutdown or malfunction; and, [40 CFR 60.102a(g)(1)(ii), 40 CFR 60.8(c), Minn. R. 7017.2015]
	5.163.11		The Permittee shall limit Hydrogen Sulfide (H2S) <= 60 parts per million 365-day rolling average, determined daily. This limit does not apply during periods of startup, shutdown or malfunction. [40 CFR 60.102a(g)(1)(ii), 40 CFR 60.8(c), Minn. R. 7017.2015]
	5.163.12		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies to the hydrogen sulfide content of fuel gas burned in EQUI1456. The use of natural gas and/or the existing continuous H2S monitoring systems (EQUI87 and EQUI128) on the refinery gas mix drums will be used to demonstrate compliance with this limit. [Minn. R. 7011.1410, subp. 2]
	5.163.13		The Permittee shall limit Sulfur Dioxide <= 13.1 pounds per hour 3-hour rolling average. THIS LIMIT WILL BECOME EFFECTIVE ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.163.14		The Permittee shall limit Sulfur Dioxide <= 13.1 pounds per hour 24-hour rolling average. THIS LIMIT WILL BECOME EFFECTIVE ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.163.15		The Permittee shall limit Sulfur Dioxide <= 31.0 tons per year 12-month rolling average. THIS LIMIT WILL BECOME EFFECTIVE ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.163.16		The Permittee shall limit Sulfur Dioxide <= 13.1 pounds per

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			hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.163.17		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. The total emissions of sulfur dioxide from all existing and new fuel gas combustion devices and indirect heating equipment shall be divided by the total heat input of all such devices and equipment to determine compliance with this part; provided that no Permittee shall cause to be discharged from any one unit of new indirect heating equipment any gases which contain sulfur dioxide in excess of 3.0 lbs/million Btu heat input. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.163.18		The Permittee shall limit Stack Temperature $<$ 350 degrees Fahrenheit 365-day rolling average excluding hourly periods of startup, shutdown, and low firing rates less than 186 mmBtu/hr HHV input ($<$ 60% of maximum design capacity). (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.19		Fuel Restriction: Authorized to burn refinery fuel gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.163.20		SIP SO ₂ Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. THIS CONDITION WILL BECOME EFFECTIVE ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.163.21		Fuel Flowrate: The Permittee shall calibrate, operate and maintain a continuous monitoring system (CMS) that records the fuel flowrate. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.163.22		NO _x Emission Recordkeeping: By the 28th day of each month for the hourly periods ending on the last day of the preceding month, the Permittee shall maintain records of the calculated NO _x emissions hourly average of NO _x emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.23		NO _x Emission Calculation and Recordkeeping: By the 28th day of each month for the hourly periods ending on the last day of the preceding month, the Permittee shall calculate and record the 24-hour average lb/mmBtu of NO _x using all of the 1-hour

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			averages obtained during the previous 24-hour period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.24		Use methods in 40 CFR pt. 98, subp. C including flow monitoring of fuel usage and fuel gas analysis. Calculate emissions following procedures specified in 40 CFR pt. 98, subp. C with a conversion from metric tons to short tons. The Permittee shall calculate and record the daily and 365-day Rolling Sum of CO ₂ e emissions by the 28th day of each month for the 365-day Rolling Sum periods ending on the last day of the preceding month. [40 CFR pt. 98, subp. C, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.25		The Permittee shall conduct tune-ups in accordance with 40 CFR pt. 63, subp. DDDDD. Actions taken during each tune-up (burner inspection and cleaning, flame inspection and optimization, air-to-fuel ratio, CO optimization) will follow the schedule specified in 40 CFR pt. 63, subp. DDDDD. The Permittee shall maintain records of heater tuning performed for compliance and may utilize normal business records for this purpose. This requirement is effective upon startup. The initial tune-up shall be performed within 365 days of startup. (BACT Limit). [40 CFR 63.7540(a)(10)(i)-(vi) & (12), Minn. R. 7011.7050, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.26		Recordkeeping: The Permittee shall record and maintain records of each fuel combusted in EQUI1456 on a monthly basis. For lbs CO ₂ e/mmBtu heat input, use fuel gas analysis to calculate, record and maintain the CO ₂ e emissions value on a monthly average and 12-month rolling average basis, unless natural gas is fired strictly during the 12-month period. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.163.27		RCFA and Corrective Action Requirements: The Permittee shall conduct a root cause analysis of any emission limit exceedance or process startup, shutdown, upset or malfunction that exceeds permitted SO ₂ emissions by 227 kilograms (kg) (500 lb) in any 24-hour period. For any root cause analysis performed, the Permittee shall record the identification of the affected facility, the date and duration of the discharge, the results of the root cause analysis and the action taken as a result of the root cause analysis. All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR Section 60.108a(c)(6)(ix). For corrective actions that cannot be fully implemented within

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			45 days following the discharge for which the root cause and corrective action analyses were required, the Permittee shall develop an implementation schedule to complete the corrective action(s) as soon as practicable. No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed date, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR Section 60.108a(c)(6)(x). [40 CFR 60.103a(c)-(e)]
	5.163.28		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.163.29		Installation Notification: due 60 days before installing the continuous emissions monitoring system. The notification shall include plans and drawings of the system. [Minn. R. 7017.1040, subp. 1]
	5.163.30		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.163.31		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.163.32		The Permittee shall install, operate and maintain NOx and O2 CEMS in accordance with 40 CFR pt. 60, Appendix B and Appendix F. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.33		Emissions Monitoring: The Permittee shall calibrate, operate and maintain a NOx continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.34		Emissions Monitoring: The Permittee shall calibrate, operate and maintain a CO continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.163.35		CO and NOx Emissions Measuring: The Permittee shall use a CO CEMS and NOx CEMS to measure CO and NOx emissions from STRU215. [Minn. R. 7017.1006]
	5.163.36		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160, subps. 1-3]
	5.163.37		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2.

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			[40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.163.38		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.163.39		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.163.40		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.163.41		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.163.42		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.163.43		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b)]
	5.163.44		Fuel Flowrate: The Permittee shall calibrate, operate, and maintain continuous monitoring system (CMS) that records the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.163.45		CMS QA/QC: The Permittee shall follow manufacturer

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			recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.163.46		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.163.47		O2 QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.163.48		See H2S monitor requirements at COMG96. [Minn. R. 7007.0800, subp. 2]
	5.163.49		The Permittee shall conduct an initial compliance performance demonstration for the NOx limits in 40 CFR Section 60.102a(g)(2)(ii) following approved methods in Appendix A. The Permittee shall determine initial compliance with the NOx limits in 40 CFR Section 60.102a(g)(2)(ii) according to the following test methods and procedures: (1) Method 1 of Appendix A-1 to pt. 60 for sample and velocity traverses; (2) Method 2 of Appendix A-1 to pt. 60 for velocity and volumetric flow rate; (3) Method 3, 3A or 3B of Appendix A-2 to pt. 60 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60; (5) Method 7, 7A, 7C, 7D or 7E of Appendix A-4 to pt. 60 for moisture content and for the concentration of NOx calculated as NO2; the duration of each test run must be no less than 4 hours. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" (incorporated by reference see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 7 or 7C of Appendix A-4 to pt. 60. (7) The Permittee that elects to demonstrate continuous compliance with a maximum excess O2 limit shall determine heat input in mmBtu/hr during each performance test run by

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			measuring fuel gas flow rate and heating value content. (8) The Permittee shall use Equation 8 of this section to adjust pollutant concentrations to 0% O ₂ or 0% excess air. [40 CFR 60.104a(i)(1)-(8)]
	5.163.50		The Permittee shall determine compliance with the applicable H ₂ S emissions limit in 40 CFR Section 60.103a(g)(1)(ii) according to the following test methods and procedures: (1) Method 1 of Appendix A-1 to pt. 60 for sample and velocity traverses; (2) Method 2 of Appendix A-1 to pt. 60 for velocity and volumetric flow rate; (3) Method 3, 3A or 3B of Appendix A-2 to pt. 60 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60; (4)(iv) If monitoring is conducted at a single point in a common source of fuel gas as allowed under 40 CFR Section 60.107a(a)(2)(iv), only one performance test is required. That is, performance tests are not required when a new affected fuel gas combustion device or flare is added to a common source of fuel gas that previously demonstrated compliance. [40 CFR 60.104a(j)(1)-(4)]
	5.163.51		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H ₂ S in the fuel gases before being burned in any fuel gas combustion device. (i) Install, operate and maintain each H ₂ S monitor according to Performance Specification 7 of Appendix B to pt. 60. The span value is 300 ppmv H ₂ S. (ii) Conduct performance evaluations for each H ₂ S monitor according to the requirements of 40 CFR Section 60.13(c) and Performance Specification 7 of Appendix B to pt. 60. Use Method 11, 15 or 15A of Appendix A-5 to pt. 60 or Method 16 of Appendix A-6 to pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" is an acceptable alternative to EPA Method 15A of Appendix A-5 to pt. 60. (iii) Comply with the applicable quality assurance procedures in Appendix F to pt. 60 for each H ₂ S monitor. (iv) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H ₂ S in the fuel gas being burned in the respective fuel gas combustion devices. [40 CFR 60.107a(a)(2)]
	5.163.52		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of NO _x emissions into the atmosphere according to the requirements below. The monitor must include an O ₂ monitor for correcting the data for excess air. (1) Except as provided in 40 CFR Section 60.107a(c)(6), the Permittee shall install, operate and maintain each NO _x

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			monitor according to Performance Specification 2 of Appendix B to pt. 60. The span value of this NO_x monitor must be between 2 and 3 times the applicable emissions limit, inclusive. (2) The Permittee shall conduct performance evaluations of each NO_x monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 2 of Appendix B to pt. 60. The Permittee shall use Methods 7, 7A, 7C, 7D or 7E of Appendix A-4 to pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60. (3) The Permittee shall install, operate and maintain each O₂ monitor according to Performance Specification 3 of Appendix B to pt. 60. The span value of this O₂ monitor must be selected between 10 and 25 percent, inclusive. (4) The Permittee shall conduct performance evaluations of each O₂ monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 3 of Appendix B to pt. 60. Method 3, 3A or 3B of Appendix A-2 to pt. 60 shall be used for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", is an acceptable alternative to EPA Method 3B of Appendix A-2 to pt. 60. (5) The Permittee shall comply with the quality assurance requirements in Procedure 1 of Appendix F to pt. 60 for each NO_x and O₂ monitor, including quarterly accuracy demonstrations for NO_x monitors, annual accuracy determinations for O₂ monitors and daily calibration drift tests. [40 CFR 60.107a(c)]
	5.163.53		Excess Emissions: Excess emissions are defined as specified in 40 CFR Section 60.107a(i)(1) through (5). Determine a rolling 3-hour or rolling daily average as the arithmetic average of the applicable 1-hour averages. Determine a rolling 30-day or rolling 365-day average as the arithmetic average of the applicable daily averages. (1)(ii) For H₂S limits in 40 CFR Section 60.102a(g)(1)(ii), each rolling 3-hour period during which the average H₂S concentration as measured by the CMS required under 40 CFR Section 60.107a(a)(2) exceeds 162 ppmv and each rolling 365-day period during which the average H₂S concentration as measured by the CMS required under 40 CFR Section 60.107a(a)(2) exceeds 60 ppmv. (iii) If a fuel gas combustion device becomes subject to the requirements of stain tube sampling in 40 CFR Section 60.107a(b)(3)(iii), each day during which the daily concentration of H₂S exceeds 162 ppmv and each rolling 365-day period during which the average concentration of H₂S exceeds 60 ppmv. (3) Each rolling 30-day period during which the average NO_x concentration as measured by the NO_x CMS required under 40 CFR Section 60.107a(c) or (d) exceeds:

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			(ii) For a forced draft process heater, 60 ppmv and, if monitored, 0.060 lb/mmBtu; (iv) The site-specific limit determined by the Administrator under 40 CFR Section 60.102a(i). (4) Each day during which the concentration of NO_x as measured by the NO_x CMS required under 40 CFR Section 60.107a(d) exceeds the daily average emissions limit calculated using Equation 3 in 40 CFR Section 60.102a(g)(2)(iii)(B) or Equation 4 in 40 CFR Section 60.102a(g)(2)(iv)(B). (5) Each day during which the concentration of O₂ as measured by the O₂ CMS required under 40 CFR Section 60.107a(c)(6) exceeds the O₂ operating limit or operating curve determined during the most recent biennial performance test. [40 CFR 60.107a(i)(1)-(5)]
	5.163.54		Stack Temperature Monitoring for STRU215 BACT Limit: The Permittee shall monitor stack temperature by doing all of the following: (1) Continuously monitor the stack exit temperature; (2) Consider a stack exit temperature above 350 degrees F on a 24-hour average basis, excluding hourly periods of startup, shutdown and low firing rates less than 186 mmBtu/hr HHV input (< 60% of maximum design capacity), as an excursion that requires corrective action; (3) Upon detecting a stack exit temperature above 350 degrees F on a 24-hour average basis, FHR shall restore operation of the heater to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing the period of any excursion and taking any necessary corrective actions to restore normal operation. Such actions may include heater adjustments or equipment maintenance; (4) Keep records of the continuous stack temperature measurements for at least five years and report excursions and a summary of response actions in FHR's Quarterly Air Quality and Excess Emissions Report. Excursions are events that require a response. Excursions are not violations and FHR shall not be considered out of compliance with the limit unless the stack exit temperature is above 350 degrees F on a 365-day rolling average basis, excluding hourly periods of startup, shutdown and low firing rates less than 186 mmBtu/hr HHV input (< 60% of maximum design capacity). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.163.55		EQUI1456 shall be in compliance with all applicable requirements of 40 CFR pt. 63, subp. DDDDD upon the date of startup. [40 CFR 63.6(b)(2), 40 CFR 63.7495, Minn. R. 7011.7000, Minn. R. 7011.7050]
	5.163.56		At all times, the Permittee must operate and maintain any affected source (as defined in 40 CFR Section 63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and

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			good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source. [40 CFR 63.7500(a)(3), Minn. R. 7011.7050]
	5.163.57		The Permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in 40 CFR Section 63.7540(a)(10)(i) through (vi). This frequency does not apply to limited-use boilers and process heaters, as defined in 40 CFR Section 63.7575, or units with continuous oxygen trim systems that maintain an optimum air to fuel ratio. (i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the Permittee may delay the burner inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment; (ii) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available; (iii) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection; (iv) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NOx requirement to which the unit is subject; (v) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer; and (vi) Maintain on-site and submit, if requested by the Administrator, an annual report containing the information in 40 CFR Section 63.7540(a)(10)(vi)(A) through (C), (A) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and

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			after the tune-up of the boiler or process heater; (B) A description of any corrective actions taken as part of the tune-up; and (C) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit. [40 CFR 63.7540(a)(10), Minn. R. 7011.7050]
	5.163.58		If EQUI1456 has a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 million Btu per hour and the unit is in the units designed to burn gas 1; units designed to burn gas 2 (other); or units designed to burn light liquid subcategories, or meets the definition of limited-use boiler or process heater in 40 CFR Section 63.7575, the Permittee must conduct a tune-up of the boiler or process heater every 5 years as specified in 40 CFR Section 63.7450(a)(10)(i) through (vi) to demonstrate continuous compliance. The Permittee may delay the burner inspection specified in 40 CFR Section 63.7450(a)(10)(i) until the next scheduled or unscheduled unit shutdown, but the Permittee must inspect each burner at least once every 72 months. [40 CFR 63.7540(a)(12), Minn. R. 7011.7050]
	5.163.59		If EQUI1456 is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. [40 CFR 63.7540(a)(13), Minn. R. 7011.7050]
	5.163.60		The Permittee shall report each instance in which the Permittee did not meet each emission limit and operating limit in 40 CFR pt. 63, subp. DDDDD Tables 1 through 4 or 11 through 13 that are applicable. These instances are deviations from the emission limits or operating limits, respectively, in this subpart. These deviations must be reported according to the requirements in 40 CFR Section 63.7550. [40 CFR 63.7540(b), Minn. R. 7011.7050]
	5.163.61		Unless the EPA Administrator has approved a different schedule for submission of reports under 40 CFR Section 63.10(a), the Permittee must submit each report, according to 40 CFR Section 63.7550(h), by the date in 40 CFR pt. 63, subp. DDDDD Table 9 and according to the requirements in 40 CFR Section 63.7550(b)(1) through (4). For units that are subject only to a requirement to conduct an annual, biennial, or 5-year tune-up according to 40 CFR Section 63.7540(a)(10), (11), or (12), respectively, and not subject to emission limits or operating limits, you may submit only an annual, biennial, or 5-year compliance report, as applicable, as specified in 40 CFR Section 63.7550(b)(1) through (4), instead of a semiannual compliance report. (1) The first compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in 40 CFR Section 63.7495 and ending on July 31 or January 31, whichever date is the first date that occurs at least 180 days (or 1, 2, or 5 years, as applicable, if submitting an annual, biennial, or 5-year compliance report)

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			after the compliance date that is specified for your source in 40 CFR Section 63.7495. (2) The first compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for each boiler or process heater in 40 CFR Section 63.7495. The first annual, biennial, or 5-year compliance report must be postmarked or submitted no later than January 31. (3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual, biennial, and 5-year compliance reports must cover the applicable 1-, 2-, or 5-year periods from January 1 through December 31. (4) Each subsequent compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period. Annual, biennial, and 5-year compliance reports must be postmarked or submitted no later than January 31. [40 CFR 63.7550(b), 40 CFR pt. 63, subp. DDDDD(Table 9), Minn. R. 7011.7050]
	5.163.62		The compliance report must contain the following information in 40 CFR Section 63.7550(c)(5)(i) through (iii), (xiv) and (xvii): (1) Company and Facility name and address. (2) Process unit information, emissions limitations, and operating parameter limitations. (3) Date of report and beginning and ending dates of the reporting period. (4) Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual, biennial, or 5-year tune-up according to 40 CFR Section 63.7540(a)(10), (11), or (12), respectively. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the next scheduled or unscheduled unit shutdown. (5) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report. [40 CFR 63.7550(c), Minn. R. 7011.7050]
	5.163.63		The Permittee shall keep the following records: (1) A copy of each notification and report submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report submitted, according to the requirements in 40 CFR Section 63.10(b)(2)(xiv). (2) Records of performance tests, fuel analyses or other compliance demonstrations and performance evaluations as required in 40 CFR Section 63.10(b)(2)(viii). [40 CFR 63.7555, Minn. R. 7011.7050]
	5.163.64		The Permittee shall maintain files of all information (including all reports and notifications) required by this part recorded in

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			a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, or computer floppy disks, on magnetic tape disks or on microfiche. [40 CFR 63.10(b), 40 CFR 63.7560, 40 CFR 63.7565, Minn. R. 7011.7050, Minn. R. 7019.0100]
	5.163.65		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.163.66		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the Administrator on a case-by-case basis, determines that more frequent reporting is necessary. All reports shall be postmarked by the 30th day following the end of each six-month period and include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.7(c), Minn. R. 7019.0100]
	5.163.67		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100]
	5.163.68		The Permittee shall maintain files of all information required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks or on microfiche. [40 CFR 63.10(b), Minn. R. 7019.0100]
	5.163.69		The Permittee shall submit reports to the Administrator in accordance with the reporting requirements in the relevant standard(s). [40 CFR 63.10(d), Minn. R. 7019.0100]

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EQUI 1457		EQUI24DRUMS (Process)	
	5.164.1		The Permittee shall limit Pressure Drop $\leq$ 2.0 psi (gauge) 365-day rolling average prior to discharging the coke drum steam exhaust to the atmosphere. Until the coke drum pressure reaches 2.0 psig or less, the coke drum steam exhaust must be managed in an enclosed blowdown system and the uncondensed vapor must either be recovered (e.g., sent to the delayed coking unit fractionators) or vented to the fuel gas system, a fuel gas combustion device or a flare. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.164.2		The Permittee shall limit Pressure Drop $\leq$ 5.0 psi (gauge) prior to discharging the coke drum steam exhaust to the atmosphere. Until the coke drum pressure reaches 5.0 psig, the coke drum steam exhaust must be managed in an enclosed blowdown system and the uncondensed vapor must either be recovered (e.g., sent to the delayed coking unit fractionators) or vented to the fuel gas system, a fuel gas combustion device or a flare. [40 CFR 60.103a(i)]
	5.164.3		Operation Standard: The Permittee shall comply with the delayed coking unit decoking operation standards in 40 CFR pt. 63, subp. CC by the effective compliance date. [40 CFR 63.657, Minn. R. 7011.7280(A)]
	5.164.4		Recordkeeping: The Permittee shall calculate and record the pressure reading to which each coke drum is depressured prior to opening the coke drum steam exhaust to the atmosphere. If more than one monitor is used to measure pressure for compliance, the value shall be based on the median of readings taken from the multiple monitors. The average of the pressure readings for each 365-day rolling average shall be calculated from the reading for each coke drum depressuring event, as provided above, and recorded on the 28th day of each month for the 365-day rolling average periods ending on the last day of the preceding month. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.164.5		Monitoring Equipment: The Permittee shall install and maintain a pressure monitor or multiple monitors on each coke drum to conduct pressure monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained. [Minn. R. 7007.0800, subp. 4]
EQUI 1471	EU363	North Contractor Building Emergency Generator	
	5.165.1		The Permittee shall limit Carbon Monoxide $\leq$ 387 grams per horsepower-hour. Compliance with this emission limit is demonstrated by purchasing an engine that is certified by the manufacturer to meet this limit. [40 CFR 60.4233(e), 40 CFR 63.6590(c)(4), 40 CFR pt. 60, subp. JJJ(Table 1), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.165.2		The Permittee shall limit Nitrogen Oxides $\leq$ 10 grams per horsepower-hour. Compliance with this emission limit is

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			demonstrated by purchasing an engine that is certified by the manufacturer to meet this limit. The emission standards applicable to emergency engines between 25 HP and 130 HP are in terms of NOx + HC. [40 CFR 60.4233(e), 40 CFR 63.6590(c)(4), 40 CFR pt. 60, subp. JJJJ(Table 1), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.165.3		The Permittee shall limit Sulfur Dioxide <= 0.50 pounds per million Btu heat input 3-hour rolling average. Compliance with this limit can be demonstrated by firing pipeline quality natural gas. [Minn. R. 7011.2300, subp. 2]
	5.165.4		The Permittee shall limit Opacity <= 20 percent opacity once operating temperatures have been attained. Compliance with this limit can be demonstrated by firing pipeline quality natural gas. [Minn. R. 7011.2300, subp. 1]
	5.165.5		Fuel Restriction: Authorized to burn pipeline quality natural gas only. [Minn. R. 7005.0100, subp. 35a]
	5.165.6		The Permittee shall operate and maintain the stationary SI ICE such that it achieves the emission standards as required in 40 CFR Section 60.4233 over the entire life of the engine. [40 CFR 60.4234, 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.165.7		The Permittee shall install a non-resettable hour meter upon startup of EQUI1471. [40 CFR 60.4237(c), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.165.8		Operation of Emergency Stationary ICE: 1) There is no time limit on the use of emergency stationary ICE in emergency situations. 2) The Permittee may operate the emergency stationary ICE for any combination of the purposes specified in 40 CFR Section 60.4243(d)(2)(i) through (iii) for a maximum of 100 hours per calendar year. Any operation for nonemergency situations as allowed by 40 CFR Section 60.4243(d)(3) counts as part of the 100 hours per calendar year allowed by 40 CFR Section 60.4243(d)(2). 2i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The Permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year. 2ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see 40 CFR Section 60.17), or other authorized entity as determined

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			by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3. 2iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency. 3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in 40 CFR Section 60.4243(d)(2). Except as provided in 40 CFR Section 60.4243(d)(3)(i), the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 60.4243(d)(1-3), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.165.9		The Permittee shall demonstrate compliance by purchasing an engine certified according to procedures specified in 40 CFR pt. 60, subp. JJJ, for the same model year and demonstrating compliance according to one of the methods specified in 40 CFR Section 60.4243(a). [40 CFR 60.4243(b)(1), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.165.10		The Permittee shall comply by purchasing an engine certified to the emission standards in 40 CFR Section 60.4231(a) through (c), as applicable, for the same engine class and maximum engine power. In addition, the Permittee shall keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if the Permittee is an owner or operator. The Permittee shall also meet the requirements as specified in 40 CFR pt. 1068, subps. A through D, as they apply to the Permittee. If the Permittee adjusts engine settings according to and consistent with the manufacturer's instructions, EQUI1471 will not be considered out of compliance. [40 CFR 60.4243(a)(1), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.165.11		The Permittee shall keep the following records: 1) All notifications submitted to comply with 40 CFR pt. 60, subp. JJJ and all documentation supporting any notification. 2) Maintenance conducted on EQUI1471. 3) If EQUI1471 is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054 and 1060, as applicable. [40 CFR 60.4245(a)(1-3), 40 CFR 63.6590(c)(4), Minn. R. 7011.2310, Minn. R. 7011.8150]
	5.165.12		The Permittee shall meet the requirements of 40 CFR pt. 63, subp. ZZZZ by meeting the requirements of 40 CFR pt. 60, subp. JJJ, as a new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP

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			emissions. [40 CFR 63.6590(c)(4), Minn. R. 7011.8150]
	5.165.13		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of EQUI1471. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.165.14		At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate EQUI1471 in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015]
	5.165.15		No Permittee shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [40 CFR 60.12, Minn. R. 7011.0050]
	5.165.16		Time periods specified in days shall be measured in calendar days, even if the word "calendar" is absent, unless otherwise specified in an applicable requirement. [40 CFR 60.19(a)]
	5.165.17		If an explicit postmark deadline is not specified in an applicable requirement for the submittal of a notification, application, report, or other written communication to the Administrator, the Permittee shall postmark the submittal on or before the number of days specified in the applicable requirement. [40 CFR 60.19(b)]
EQUI 1474	EU366	Lab Roof Top Unit #1	
	5.166.1		The Permittee shall limit Sulfur Dioxide $\leq$ 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with this limit is inherently met through equipment design by firing natural gas only. [Minn. R. 7011.1410, subp. 3(A)]
	5.166.2		The Permittee shall limit Total Particulate Matter $\leq$ 0.40 pounds per million Btu heat input 3-hour rolling average. Compliance with this limit is inherently met through equipment design by firing natural gas only. [Minn. R. 7011.1410, subp. 3(B)(1)]
	5.166.3		The Permittee shall limit Opacity $\leq$ 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Compliance with this limit is inherently met through equipment design by firing natural gas only. [Minn. R. 7011.1410, subp. 3(B)(2)]
	5.166.4		Fuel Restriction: Authorized to burn natural gas only. [Minn. R. 7007.0800, subp. 2]

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FUGI 67	FS027	15-Coker Gasoline - Process Emissions	
	5.167.1		Each valve that is in VHAP service subject to NESHAPs J/V shall be monitored monthly to detect leaks by Method 21. Leak detection and followup to leak detection shall follow refinery consolidated LDAR program. [40 CFR pt. 70 (consolidated LDAR requirements based on various applicable provisions of 40 CFR pt. 60, subps. A and GGG; 40 CFR pt. 61, subps. A, J and V; 40 CFR pt. 63, subps. A and CC)]. [40 CFR 61.242-7, Minn. R. 7007.0800, subp. 2, Minn. R. 7011.9990]
FUGI 68	FS009	Coke Pile - Piles	
	5.168.1		The Permittee shall limit Total Particulate Matter ≤ 379.3 tons per year 12-month rolling sum, effective upon startup of the modified 11H6 furnace (EQUI376), new 25H2 furnace (EQUI407) or new 23H3 furnace (EQUI406), whichever is first, as part of the #3 Crude/Coker Improvements permit. For the first 11 months after the limit is effective, PM emissions are limited as determined by the following equation: $E = 379.3 \times [0.15 + 0.85(M/12)]$ where E=emissions in total tons M=number of months after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.168.2		The Permittee shall limit PM < 10 micron ≤ 119.2 tons per year 12-month rolling sum, effective upon startup of the modified 11H6 furnace (EQUI376), new 25H2 furnace (EQUI407) or new 23H3 furnace (EQUI406), whichever is first, as part of the #3 Crude/Coker Improvements permit. For the first 11 months after the limit is effective, PM10 emissions are limited as determined by the following equation: $E = 119.2 \times [0.15 + 0.85(M/12)]$ where E=emissions in total tons M=number of months after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.168.3		The Permittee shall limit PM < 2.5 micron ≤ 13.2 tons per year 12-month rolling sum, effective upon startup of the modified 11H6 furnace (EQUI376), new 25H2 furnace (EQUI407) or new 23H3 furnace (EQUI406), whichever is first, as part of the #3 Crude/Coker Improvements permit. For the first 11 months after the limit is effective, PM2.5 emissions are limited as determined by the following equation:

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			$E=13.2 \times [0.15 + 0.85(M/12)]$ where E=emissions in total tons M=number of months after limit is effective. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.168.4		Recordkeeping: The Permittee shall calculate and record the 12-month Rolling Sum of PM, PM10 and PM2.5 emissions by the 28th day of each month for the preceding month. Emissions shall be calculated using the equations in Appendix F of the facility Pt. 70 permit unless a different emissions factor is developed by the Permittee and approved by the MPCA in accordance with Minn. R. 7019.3040 - 7019.3100. This requirement is effective upon startup of the modified 11H6 furnace (EQUI376), new 25H2 furnace (EQUI407) or new 23H3 furnace (EQUI406), whichever is first, as part of the #3 Crude/Coker Improvements permit. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.168.5		Coke Fugitive Dust Control Plan: The plan shall include a statement of objectives, identify the roads associated with transporting petroleum coke, describe primary and contingent control measures and practices, describe the employee training program and identify the records to be kept to demonstrate plan implementation. The Commissioner may require additions or changes to the plan when granting approval. The Permittee will be given an opportunity to comment on any required addition or change. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines that the Permittee is out of compliance with Minn. R. 7011.0150, 40 CFR Section 52.21 and/or the coke fugitive dust control plan, then the Permittee may be required to amend the control plan. [Minn. R. 7011.0150, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.168.6		Comply with the Coke Fugitive Dust Control Plan: Prior to the MPCA approval of the Coke Fugitive Dust Control Plan (control plan), the Permittee shall follow the actions and recordkeeping in the control plan as proposed. Upon approval of the control plan, the Permittee shall follow the actions and recordkeeping specified in the control plan as approved. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7011.0150, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
FUGI 124	FS001	Unburied Sewer Lines subject to NESHAP FF or NSPS QQQ - Material Handling/Transfer/Storage	
	5.169.1		Each opening shall be maintained in a closed, sealed position

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			(e.g., covered by a lid that is gasketed and latched) at all times that waste is in the drain system except when it is necessary to use the opening for waste sampling or removal, or for equipment inspection, maintenance, or repair. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(a)(1)(i)(B), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.169.2		Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.169.3		Each sewer line shall not be open to the atmosphere and shall be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.346(b)(3), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.169.4		For NESHAP, Subpart FF controlled sewers, the unburied portion of each sewer line shall be visually inspected initially and quarterly for indication of cracks, gaps, or other problems that could result in benzene emissions. [40 CFR 61.346(b)(4)(iv), Minn. R. 7011.9930(E)]
	5.169.5		(a) Delay of repair of facilities or units will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. (b) Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 60.692-6(a), 40 CFR 60.697(e)(1)-(4), 40 CFR 61.350(a)-(b), 40 CFR 63.654(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.169.6		Repair problems found during NESHAP visual inspections: When a broken seal or gasket or other problem is identified, or when detectable emissions are measured, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification unless qualifying for delay of repair. [40 CFR 61.346(a)(3), 40 CFR 61.346(b)(5), 40 CFR 61.357(d)(8), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.169.7		For NESHAP, Subpart FF Records: Maintain a record for each visual inspection required that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. [40 CFR 61.356(g)-

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			(h), 40 CFR 63.654(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.169.8		For NSPS, Subpart QQQ sewers, sewer lines shall not be open to the atmosphere and shall be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces. The portion of each unburied sewer line shall be visually inspected initially and semiannually thereafter for indication of cracks, gaps, or other problems that could result in VOC emissions. [40 CFR 60.692-2(c)(1)-(2), Minn. R. 7011.1435(C)]
	5.169.9		For NSPS, Subpart QQQ Records: The location, date, and corrective action shall be recorded for inspections when a problem is identified that could result in VOC emissions. [40 CFR 60.697(b)(3), Minn. R. 7011.1435(C)]
	5.169.10		For NSPS, Subpart QQQ Records: A copy of the design specifications for all equipment shall be kept for the life of the source in a readily accessible location. (2) The following information pertaining to the design specifications shall be kept. (i) Detailed schematics, and piping and instrumentation diagrams. (ii) The dates and descriptions of any changes in the design specifications. [40 CFR 60.697(f)(1)-(2)(i)-(ii), Minn. R. 7011.1435(C)]
FUGI 126	FS136	25 Unit Drains Requiring Emission Controls - Process Emissions	
	5.170.1		Comply with the requirements in COMG13, COMG14, or COMG15, as applicable. [Minn. R. 7011.0150, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
FUGI 133		FUGI24FUGPM	
	5.171.1		The #4 coker crusher and conveyor to the existing coke storage pad shall be enclosed as part of its physical design. The petroleum coke pit shall be enclosed with walls on all four sides as part of its physical design. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.171.2		The petroleum coke handled in FUGI133 shall be visibly moist or at a moisture content no less than 8%. Within 180 days of startup of EQUI1456, the Permittee shall conduct a one-time test of the petroleum coke to confirm a coke moisture content of at least 8%. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
STRU 70	SV165	Hydrocracker Feed Heater and Reboiler	
	5.172.1		The Permittee shall limit Nitrogen Oxides <= 46.5 tons per year 365-day rolling sum (based on maximum duty of 141 mmBtu/hr on EQUI469 and 100 mmBtu/hr on EQUI470). [Title

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			I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.172.2		Emissions Monitoring: The Permittee shall use a NOx CEMS to measure NOx emissions from STRU70. Monitoring requirements are located under the subject item EQUI296. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.172.3		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour average (230 mg/dscm [162 ppm]). This limit applies to the hydrogen sulfide content of fuel gas burned in the units. Existing continuous H ₂ S monitoring systems on the existing refinery gas mix drums will be used to demonstrate compliance with this limit. This limit applies individually to EQUI469 and EQUI470. (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.172.4		The Permittee shall limit Sulfur Dioxide ≤ 17.0 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.172.5		The Permittee shall limit Sulfur Dioxide ≤ 17.0 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.172.6		The Permittee shall limit Sulfur Dioxide ≤ 59.5 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.172.7		The Permittee shall limit Sulfur Dioxide ≤ 17.0 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.172.8		The Permittee shall limit Sulfur Dioxide ≤ 1.75 pounds per million Btu heat input 3-hour rolling average. The total emissions of sulfur dioxide from all existing and new fuel gas combustion devices and indirect heating equipment shall be divided by the total heat input of all such devices and equipment to determine compliance with this part; provided that no Permittee shall cause to be discharged from any one unit of new indirect heating equipment any gases which contain sulfur dioxide in excess of 3.0 pounds per million Btu heat input. This limit applies individually to EQUI469 and EQUI470. [Minn. R. 7011.1410, subp. 3(A)]
	5.172.9		The Permittee shall limit Total Particulate Matter ≤ 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE for this heater is 0.0074 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. This limit applies

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			individually to EQUI469 and EQUI470. [Minn. R. 7011.1410, subp. 3(B)]
	5.172.10		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60% opacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. This limit applies individually to EQUI469 and EQUI470. [Minn. R. 7011.1410, subp. 3(B)]
	5.172.11		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.172.12		Recordkeeping: Record and maintain records of each fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subps. 4-5]
	5.172.13		NOx Recordkeeping: The Permittee shall record the daily and 365-day rolling sum NOx emissions from EQUI469 and EQUI470 using the NOx CEMS. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.172.14		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.172.15		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
STRU 83	SV042	#5 SRU 26 Unit Stack	
	5.173.1		Requirements from 40 CFR pt. 60, subp. Ja become effective upon issuance of Permit No. 03700011-101. [Minn. R. 7007.0800, subp. 2]
	5.173.2		The Permittee shall limit Sulfur Dioxide <= 170.8 pounds per hour 3-hour rolling average. The Permittee shall use CEMS to monitor the sulfur dioxide emissions in order to calculate pounds of sulfur dioxide per hour (lb/hr). [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I

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			Condition: 40 CFR pt. 52, subp. Y]
	5.173.3		The Permittee shall limit Sulfur Dioxide <= 93.6 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.173.4		The Permittee shall limit Sulfur Dioxide <= 409.8 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.173.5		The Permittee shall limit Sulfur Dioxide <= 250 parts per million 12-hour rolling average by volume (dry, 0% oxygen). Limit does not apply during periods of startup, shutdown, or malfunction. Applicability of NSPS subp. J and Minn. R. 7011.1435 expires after startup of EQUI574. [40 CFR 63.1568(a)(1), 40 CFR 63.1568(c)(1), Minn. R. 7011.7280(B)]
	5.173.6		The Permittee shall limit Sulfur Dioxide <= 170.8 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.173.7		The Permittee shall limit Sulfur Dioxide <= 250 parts per million 12-hour rolling average by volume (dry basis) at zero percent excess air. [40 CFR 60.102a(f)(1)(i)]
	5.173.8		The Permittee shall limit Nitrogen Oxides <= 9.70 pounds per hour 365-day rolling average for STRU83 (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.173.9		The Permittee shall limit Nitrogen Oxides <= 50 parts per million 24-hour rolling average by volume dry corrected to 7 percent oxygen for STRU83. The limit does not apply during periods of startup or shutdown. (BACT Limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.173.10		The Permittee shall limit Carbon Monoxide <= 121.0 tons per year 365-day rolling sum. Emissions from acid gas flaring incidents are not included in the calculation of emissions against this limit. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.173.11		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit applies only to fuel gas combusted in the SRU/TGTU, not to SRU process/waste gases per EPA guidance. This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.173.12		The Permittee shall limit Opacity <= 20 percent opacity. [Minn. R. 7011.0715, subp. 1(B)]
	5.173.13		Periods of maintenance of the sulfur pit, during which the emission limits in 40 CFR Section 60.102a(f)(1) shall not apply, shall not exceed 240 hours per year. The Permittee must document the time periods during which the sulfur pit vents were not controlled and measures taken to minimize

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			emissions during these periods. Examples of these measures include not adding fresh sulfur or shutting off vent fans. [40 CFR 60.102a(f)(3)]
	5.173.14		All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR Section 60.108a(c)(6)(ix). [40 CFR 60.103a(e)(1)]
	5.173.15		For corrective actions that cannot be fully implemented within 45 days following the discharge for which the root cause and corrective action analyses were required, the Permittee shall develop an implementation schedule to complete the corrective action(s) as soon as practicable. [40 CFR 60.103a(e)(2)]
	5.173.16		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0% excess air) of any SO₂ emissions into the atmosphere. The monitor shall include an oxygen monitor for correcting the data for excess air. (i) The span values for this monitor are two times the applicable SO₂ emission limit and between 10 and 25% O₂ inclusive. (ii) The Permittee shall install, operate and maintain each SO₂ CEMS according to Performance Specification 2 of 40 CFR pt. 60, appendix B. (iii) The Permittee shall conduct performance evaluations of each SO₂ monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 2 of 40 CFR pt. 60, appendix B. The Permittee shall use Method 6 or 6C of appendix A-4 and Method 3 or 3A of appendix A-2 to 40 CFR pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 6. [40 CFR 60.106a(a)(1)(i)-(iii)]
	5.173.17		SIP SO ₂ Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.173.18		SIP SO ₂ Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂

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			emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.173.19		BACT NO _x Emission Calculations and Recordkeeping: The Permittee shall calculate and record the STRU83 24-hour rolling average NO _x emissions in ppmvd, and the STRU83 365-day rolling average NO _x emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.173.20		CO Emission Calculation and Recordkeeping: The Permittee shall maintain record and calculate the 365-day rolling sum CO emissions of total stack emissions in tons/year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.173.21		SO ₂ Concentration Recordkeeping for NSPS Limit: The Permittee shall record on an hourly average of SO ₂ in ppm (dry, 0% oxygen). The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.107, Minn. R. 7011.1435(A)]
	5.173.22		The Permittee shall conduct a root cause analysis and a corrective action analysis each time the SO ₂ emissions are more than 227 kg (500 lb) greater than the amount that would have been emitted if the SO ₂ or reduced sulfur concentration was equal to the applicable emissions limit in 40 CFR Section 60.102a(f)(1) during one or more consecutive periods of excess emissions or any 24-hour period, whichever is shorter. [40 CFR 60.103a(c)(3)]
	5.173.23		No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed to date, and for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR Section 60.108a(c)(6)(x). [40 CFR 60.103a(e)(3)]
	5.173.24		The Permittee shall comply with the notification, recordkeeping and reporting requirements in 40 CFR Section 60.7. [40 CFR 60.108a(a)]
	5.173.25		The Permittee shall notify the Administrator of the specific monitoring provisions of 40 CFR Sections 60.105a, 60.106a and 60.107a with which the Permittee intends to comply. The Permittee shall submit to the Administrator documentation showing that the process heater meets the definition of a co-fired process heater in 40 CFR Section 60.101a. Notifications required by this paragraph shall be submitted with the notification of initial startup required by 40 CFR Section

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	5.173.26		60.7(a)(3). [40 CFR 60.108a(b)] The Permittee shall maintain the following records: Records of discharges greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant in any 24-hour period as required by 40 CFR Section 60.103a(c). The following information shall be recorded no later than 45 days following the end of a discharge exceeding the thresholds: (i) A description of the discharge. (ii) The date and time the discharge was first identified and the duration of the discharge. (iii) The measured or calculated cumulative quantity of gas discharged over the discharge duration. If the discharge duration exceeds 24 hours, record the discharge quantity for each 24-hour period. (vi) For each discharge greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant, either the measured concentration of reduced sulfur or SO₂ discharged to the atmosphere. (vii) For each discharge greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant, the cumulative quantity of H₂S and SO₂ released into the atmosphere. (viii) The steps that the Permittee took to limit the emissions during the discharge. (ix) The root cause analysis and corrective action analysis conducted as required in 40 CFR Section 60.103a(d), including an identification of the affected facility, the date and duration of the discharge, a statement noting whether the discharge resulted from the same root cause(s) identified in a previous analysis and either a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary under 40 CFR Section 60.103a(e). (x) For any corrective action analysis for which corrective actions are required in 40 CFR Section 60.103a(e), a description of the corrective action(s) completed within the first 45 days following the discharge and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. [40 CFR 60.108a(c)(6)]
	5.173.27		The Permittee shall submit and excess emissions report for all periods of excess emissions according to the requirements of 40 CFR Section 60.7(c) except that the report shall contain the information specified in 40 CFR Section 60.108a(d)(1)-(7). (1) The date that the exceedance occurred; (2) An explanation of the exceedance; (3) Whether the exceedance was concurrent with a startup, shutdown or malfunction of an affected facility or control system; and (4) A description of the actions taken, if any. (5) The information described in 40 CFR Section 60.108a(c)(6) for all discharges listed in 40 CFR Section 60.108a(c)(6). (6) For any periods for which monitoring data are not

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			available, any changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability. (7) A written statement, signed by a responsible official, certifying the accuracy and completeness of the information contained in the report. [40 CFR 60.108a(d)]
	5.173.28		The Permittee may use STRU83 during periods when tail gas from SRU 5 (EQUI503) is bypassing the Tail Gas Recovery Unit #2 (TGTU #2, EQUI428 and EQUI429). The Permittee shall not shut down the TGTU #2 except as necessary for maintenance or repair. The Permittee shall not bypass the TGTU #2 with tail gas from SRU 5 except: 1) during periods of startup, shutdown, or breakdown (as governed by 40 CFR pt. 60, subp. A) of SRU 5, the TGTU #2 or TGTU #2 incinerator (EQUI 429), or 2) to prevent a breakdown of the TGTU #2. Sulfur degassing gas may be combusted in the SRU 5 startup incinerator and omitted from STRU83. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.173.29		Monitoring SO2 concentration: The Permittee shall monitor and record the total SRU SO2 emissions (including sulfur degassing and bypasses) at stack ppm (at 0% oxygen). (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 4, Minn. R. 7011.1435]
	5.173.30		Conduct Root Cause Failure Analysis (RCFA): The Permittee shall comply with the RCFA as required by 2000 Global Consent Decree. [Minn. R. 7007.0800, subp. 2]
	5.173.31		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.173.32		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.173.33		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.173.34		Sulfur Dioxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain SO2 Continuous Emissions Monitoring System (CEMS). [40 CFR 60.105, 40 CFR 63.1568(b)(1), CAAA of 1990, Minn. R. 7011.1435(A), Minn. R. 7011.7280(B), Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.173.35		Sulfur Dioxide: Emissions Measuring: The Permittee shall use a

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			SO2 CEMS to measure emissions from STRU83. [40 CFR 60.105, 40 CFR 63.1568(b)(1), CAAA of 1990, Minn. R. 7011.1435(A), Minn. R. 7011.7280(B), Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.173.36		Nitrogen Oxides: Emissions Monitoring: The Permittee shall calibrate, operate and maintain NOx Continuous Emissions Monitoring System (CEMS). [Minn. R. 7017.1006, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	5.173.37		Carbon Monoxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain CO Continuous Emissions Monitoring System (CEMS). [Minn. R. 7017.1006, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.173.38		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.173.39		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.173.40		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.173.41		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.173.42		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each

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			CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.173.43		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.173.44		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.173.45		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.173.46		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include or reference the manufacturer's spare parts list for the monitor and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.173.47		O2 QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.173.48		The Permittee shall determine compliance with the SO2 emissions limits using the following methods and procedures: (1) Method 1 of 40 CFR pt. 60, Appendix A-1 for sample and velocity traverses. (2) Method 2 of 40 CFR pt. 60, Appendix A-1 for velocity and volumetric flow rate. (3) Method 3, 3A or 3B of 40 CFR pt. 60, Appendix A-2 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40

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			CFR Section 60.17) is an acceptable alternative to EPA Method 3B of 40 CFR pt. 60, Appendix A-2. (4) Method 6, 6A or 6C of 40 CFR pt. 60, Appendix A-4 to determine the SO₂ concentration. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 6 or 6A of 40 CFR pt. 60, Appendix A-4. (5) Method 15 or 15A of 40 CFR pt. 60, Appendix A-5 or Method 16 of 40 CFR pt. 60, Appendix A-6 to determine the reduced sulfur compounds and H₂S concentrations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 15A of 40 CFR pt. 60, Appendix A-5. (i) Each run consists of 16 samples taken over a minimum of 3 hours. (ii) The Permittee shall calculate the average H₂S concentration after correcting for moisture and O₂ as the arithmetic average of the H₂S concentration for each sample during the run (ppmv, dry basis, corrected to 0% excess air). (iii) The Permittee shall calculate the SO₂ equivalent for each run after correcting for moisture and O₂ as the arithmetic average of the SO₂ equivalent of reduced sulfur compounds for each sample during the run (ppmv, dry basis, corrected to 0% excess air). (iv) The Permittee shall use Equation 8 of 40 CFR Section 60.104a(h) to adjust pollutant concentrations to 0% O₂ or 0% excess air. [40 CFR 60.104a(h)(1)-(5)]
	5.173.49		The Permittee shall conduct a root cause analysis and corrective action analysis as soon as possible, but no later than 45 days after a discharge exceeding 500 lb greater than the permit limit. [40 CFR 60.103a(d)]
	5.173.50		If a single continuous discharge exceeds 500 lb greater than the permit limit for 2 or more consecutive 24-hour periods, a single root cause analysis and corrective action analysis may be conducted. [40 CFR 60.103a(d)(1)]
	5.173.51		Excess emissions reports required for all 12-hour periods during which the average concentration of SO ₂ as measured by the SO ₂ continuous monitoring system required under 40 CFR Section 60.106a(a)(1) exceeds the applicable emission limit (dry basis, 0% excess air). [40 CFR 60.106a(b)(1)]
	5.173.52		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.173.53		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the

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			Administrator on a case-by-case basis, determines that more frequent reporting is necessary. All reports shall be postmarked by the 30th day following the end of each six-month period and include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.7(c), Minn. R. 7019.0100]
	5.173.54		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100]
	5.173.55		The Permittee shall maintain a file of all measurements, including continuous monitoring system (CMS), monitoring device and performance testing measurements; all CMS performance evaluations; all CMS or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR pt. 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records, except as follows: [40 CFR 60.7(f), Minn. R. 7019.0100]
	5.173.56		An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of maintaining a file of all CEMS subhourly measurements as required under 40 CFR Section 60.7(f), the Permittee shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard. [40 CFR 60.7(f)(1), Minn. R. 7019.0100]
	5.173.57		In lieu of maintaining a file of all CEMS subhourly measurements as required under 40 CFR Section 60.7(f), the Permittee shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator. [40 CFR 60.7(f)(2), Minn. R. 7019.0100]
	5.173.58		If notification substantially similar to that in 40 CFR Section 60.7(a) is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of 40 CFR Section 60.7(a). [40 CFR 60.7(g), Minn. R. 7019.0100]
	5.173.59		Individual subparts of 40 CFR pt. 60 may include specific

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			provisions which clarify or make inapplicable the provisions set forth in this section. [40 CFR 60.7(f), Minn. R. 7019.0100]
	5.173.60		At all times, including periods of startup, shutdown and malfunction, the Permittee shall, to the extent possible, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015]
	5.173.61		For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed. [40 CFR 60.11(g), Minn. R. 7017.2015]
STRU 124	SV066	32H5 6 7 Stack	
	5.174.1		The Permittee shall limit Sulfur Dioxide <= 6.8 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.174.2		The Permittee shall limit Sulfur Dioxide <= 6.8 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.174.3		The Permittee shall limit Sulfur Dioxide <= 16.0 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.174.4		The Permittee shall limit Sulfur Dioxide <= 6.8 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.174.5		The Permittee shall limit Nitrogen Oxides <= 29.6 tons per year 365-day rolling sum (EQUI554, EQUI555, and EQUI556). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.174.6		The Permittee shall limit Nitrogen Oxides <= 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). Although, the limit applies to each heater, compliance demonstration will be determined at the stack level. [CAAA of 1990, Minn. R. 7007.0800, subp. 2]

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	5.174.7		The Permittee shall limit Carbon Monoxide <= 23.7 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.174.8		The Permittee shall limit Hydrogen Sulfide (H ₂ S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. (Limit applies to each subject item) (This limit is most stringent, meets the limit set by Minn. R. 7011.1410, subp. 3(A)). [40 CFR 60.104(a)(1), Minn. R. 7011.1435(A), Minn. R. 7011.1490, subp. 2]
	5.174.9		The Permittee shall limit Total Particulate Matter <= 0.40 pounds per million Btu heat input 3-hour rolling average (limit applies to each subject item). Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.174.10		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity (limit applies to each subject item). Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.174.11		Fuel Restriction: Authorized to burn refinery gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.174.12		The Permittee shall limit Heat Input <= 117.6 million Btu per hour 8-hour block average based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher heat input rate unless a performance test is conducted at a higher rate and the Permittee receives written verification of the test results from the MPCA. This limit applies unless the Permittee installs and certifies CEMS to directly measure NO _x and CO. [Minn. R. 7017.2025, subp. 3]
	5.174.13		Recordkeeping of Heat Input: The Permittee shall calculate the average heat input for each 8-hour block by dividing the total heat input by the total operating time in each 8-hour block. Downtime of 15 or more minutes is not to be included as operating time. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.174.14		Recordkeeping: Record and maintain records of each fuel combusted in each unit on a monthly basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.174.15		Monitoring for NO _x and CO emissions: The Permittee shall continuously monitor fuel combustion rate and O ₂ in the common convection section at 32H-5/6/7 (EQUI554, EQUI555 and EQUI556). The Permittee shall use the most recent performance test correlation to determine NO _x and CO lb/MMBtu emissions on an hourly basis. [CAAA of 1990, Minn. R. 7007.0800, subp. 4]

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	5.174.16		NOx Emission Calculation and Recordkeeping: The Permittee shall calculate and record the 3-hour (arithmetic mean) lb/MMBtu of NOx using all of the 1-hour averages obtained during the previous 3-hour period. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [CAAA of 1990, Minn. R. 7007.0800, subp. 5]
	5.174.17		NOx and CO Calculations and Recordkeeping: The Permittee shall calculate and record daily and 365-day rolling sum NOx and CO emissions from EQUI554, EQUI555, and EQUI556. NOx emissions shall be calculated using 0.045 lb/mmBtu, unless a different emission factor is developed by the Permittee and approved by the MPCA in accordance with Minn. Rs. 7019.3040 to 7019.3100. CO emissions shall be based on fuel combustion rate and lb/MMBtu emissions. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.174.18		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly averages of total SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, it is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.174.19		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total SO2 in tons per year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.174.20		Fuel Flowrate: The Permittee shall operate, and maintain continuous monitoring system (CMS) that record the fuel flowrate at each fuel combustion device. [Minn. R. 7007.0800, subp. 4]
	5.174.21		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
	5.174.22		QA Plan Firebox O2: The Permittee shall operate, and maintain a CMS that records the O2 in the common convection section at 32H-5/6/7 (EQUI554, EQUI555, EQUI556). [Minn. R. 7007.0800, subp. 4]
	5.174.23		Monitor QA/QC: The Permittee shall follow manufacturer

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			recommendations for preventative maintenance and periodic monitoring to ensure analyzer reliability, including but not limited to annual calibrations. [Minn. R. 7007.0800, subp. 4]
STRU 130	SV082	37H1 2 6 Stack	
	5.175.1		The Permittee shall limit Nitrogen Oxides <= 17.7 tons per year 365-day rolling sum effective upon startup of EQUI526 (25H-4). [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.175.2		The Permittee shall limit Nitrogen Oxides <= 0.045 pounds per million Btu heat input 3-hour rolling average. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.175.3		The Permittee shall limit Sulfur Dioxide <= 6.9 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.175.4		The Permittee shall limit Sulfur Dioxide <= 6.9 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.175.5		The Permittee shall limit Sulfur Dioxide <= 24.3 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.175.6		The Permittee shall limit Sulfur Dioxide <= 6.9 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.175.7		Fuel Restriction: Authorized to burn refinery fuel gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.175.8		The Permittee shall limit Heat Input <= 65.5 million Btu per hour 8-hour block average for NOx emissions based on the higher heating value (HHV) of fuel burned. Downtime of 15 or more minutes is not included as operating time. The unit may not be operated at a higher heat input unless a performance test is conducted at a higher rate and MPCA staff determine compliance at that rate for the emission unit. [Minn. R. 7017.2025, subp. 3]
	5.175.9		Daily Recordkeeping: Record and maintain records of the type and amount of each fuel combusted in each heater on a daily basis. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.175.10		Monitoring for NOx Emissions: The Permittee shall continuously monitor fuel combustion rate. The Permittee shall use the most recent performance test to demonstrate compliance with the lb/MMBtu and tons/year emission limits. [Title I Condition: Avoid major modification under 40 CFR

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			52.21(b)(2) & Minn. R. 7007.3000]
	5.175.11		NOx Calculations and Recordkeeping: The Permittee shall calculate and record daily and 365-day rolling sum NOx emissions from EQUI560, EQUI561 and EQUI565. NOx emissions based on fuel combustion rate and lb/MMBtu emissions. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.175.12		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly averages of total SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.175.13		SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total SO2 in tons per year. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.175.14		Fuel Flowrate: The Permittee shall operate, and maintain a continuous monitoring system (CMS) at each fuel combustion device that records the fuel flow rate. [Minn. R. 7007.0800, subp. 4]
	5.175.15		CMS QA/QC: The Permittee shall follow manufacturer recommendations for preventative maintenance and periodic monitoring to ensure CMS reliability, including but not limited to annual calibrations for fuel gas flow meters. [Minn. R. 7007.0800, subp. 4]
STRU 131	SV083	37H3 4 5 Stack	
	5.176.1		The Permittee shall limit Nitrogen Oxides <= 0.045 pounds per million Btu heat input 3-hour rolling average (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 2]
	5.176.2		The Permittee shall limit Carbon Monoxide <= 50 tons per year 365-day rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.176.3		The Permittee shall limit Sulfur Dioxide <= 30.1 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.176.4		The Permittee shall limit Sulfur Dioxide <= 30.1 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR

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			50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.176.5		The Permittee shall limit Sulfur Dioxide <= 105.6 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.176.6		The Permittee shall limit Sulfur Dioxide <= 30.1 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]
	5.176.7		The Permittee shall limit Hydrogen Sulfide (H2S) <= 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), 40 CFR 60.8(c), Minn. R. 7011.1435]
	5.176.8		The Permittee shall limit Total Particulate Matter <= 0.40 pounds per million Btu heat input 3-hour rolling average. The PTE of each heater is 0.00745 lb/mmBtu heat input at maximum capacity. Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.176.9		The Permittee shall limit Sulfur Dioxide <= 1.75 pounds per million Btu heat input 3-hour rolling average. Compliance with the fuel restriction constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(A)]
	5.176.10		The Permittee shall limit Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. (Limit applies to each subject item). Compliance with the fuel restriction requirement constitutes compliance with this limit. [Minn. R. 7011.1410, subp. 3(B)]
	5.176.11		Fuel Restriction: Authorized to burn refinery fuel gas and natural gas only. [Minn. R. 7007.0800, subp. 2]
	5.176.12		Recordkeeping: Record and maintain records of each type of fuel combusted in the unit on a monthly basis. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.176.13		SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.176.14		SO2 Emission Calculations and Recordkeeping: The Permittee

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			shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.176.15		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.176.16		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.176.17		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.176.18		Nitrogen Oxides: Emissions Monitoring: The Permittee shall calibrate, operate and maintain NOx continuous emissions monitoring system (CEMS). [CAAA of 1990, Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.176.19		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160]
	5.176.20		Carbon Monoxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain CO continuous emissions monitoring system (CEMS). [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.176.21		Carbon Monoxide: Emissions Measuring: The Permittee shall use a CO CEMS to measure CO emissions from STRU131. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.1006]
	5.176.22		Calculation: The Permittee shall calculate valid hourly average emissions from CEMS. [Minn. R. 7017.1160]
	5.176.23		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.176.24		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.176.25		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation

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			including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.176.26		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.176.27		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.176.28		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.176.29		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.176.30		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.176.31		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 Monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include or reference the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on

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			site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.176.32		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
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	5.177.1		Requirements from 40 CFR pt. 60, subp. Ja become effective upon issuance of Permit No. 03700011-101. [Minn. R. 7007.0800, subp. 2]
	5.177.2		The Permittee shall limit Sulfur Dioxide <= 149.0 pounds per hour 3-hour rolling average. The company shall use CEMS to monitor the sulfur dioxide emissions in order to calculate pounds of sulfur dioxide per hour (lb/hr). [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.3		The Permittee shall limit Sulfur Dioxide <= 86.5 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.4		The Permittee shall limit Sulfur Dioxide <= 324.3 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.5		The Permittee shall limit Sulfur Dioxide <= 250 parts per million 12-hour rolling average by volume (dry, 0% oxygen). Limit does not apply during periods of startup, shutdown, or malfunction. Applicability of NSPS subp. J and Minn. R. 7011.1435 expires after startup of EQUI574. [40 CFR 60.104, 40 CFR 60.105, 40 CFR 60.8(c), 40 CFR 63.1568(a)(1), 40 CFR 63.1568(c)(1), Minn. R. 7011.1435(A), Minn. R. 7011.7280(B), Minn. R. 7017.2015]
	5.177.6		The Permittee shall limit Sulfur Dioxide <= 200 parts per million 12-hour rolling average (dry, at 0% oxygen) when SRU #3 (EQUI319) and SRU #4 (EQUI320) operate together or when only SRU #4 (EQUI320) operates. This limit was consolidated based on previous limits. While the limit is a LAER limit, the Permittee will comply with the requirements listed in 40 CFR pt. 60, subp. J (or Ja when applicable) for these units (monitoring, recordkeeping and reporting). [Title I Condition: 40 CFR 51.Appendix S]
	5.177.7		The Permittee shall limit Sulfur Dioxide <= 149.0 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R.

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	5.177.8		The Permittee shall limit Sulfur Dioxide $\leq$ 250 parts per million 12-hour rolling average by volume (dry basis) at zero percent excess air. [40 CFR 60.102a(f)(1)(i)]
	5.177.9		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (230 mg/dscm [162 ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A)]
	5.177.10		The Permittee shall limit Opacity $\leq$ 20 percent opacity. [Minn. R. 7011.0715, subp. 1(B)]
	5.177.11		Periods of maintenance of the sulfur pit, during which the emission limits in 40 CFR Section 60.102a(f)(1) shall not apply, shall not exceed 240 hours per year. The Permittee must document the time periods during which the sulfur pit vents were not controlled and measures taken to minimize emissions during these periods. Examples of these measures include not adding fresh sulfur or shutting off vent fans. [40 CFR 60.102a(f)(3)]
	5.177.12		All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR Section 60.108a(c)(6)(ix). [40 CFR 60.103a(e)(1)]
	5.177.13		For corrective actions that cannot be fully implemented within 45 days following the discharge for which the root cause and corrective action analyses were required, the Permittee shall develop an implementation schedule to complete the corrective action(s) as soon as practicable. [40 CFR 60.103a(e)(2)]
	5.177.14		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0% excess air) of any SO₂ emissions into the atmosphere. The monitor shall include an oxygen monitor for correcting the data for excess air. (i) The span values for this monitor are two times the applicable SO₂ emission limit and between 10 and 25% O₂ inclusive. (ii) The Permittee shall install, operate and maintain each SO₂ CEMS according to Performance Specification 2 of 40 CFR pt. 60, appendix B. (iii) The Permittee shall conduct performance evaluations of each SO₂ monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 2 of 40 CFR pt. 60, appendix B. The Permittee shall use Method 6 or 6C of appendix A-4 and Method 3 or 3A of appendix A-2 to 40 CFR pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas

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			Analyses" (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 6. [40 CFR 60.106a(a)(1)(i)-(iii)]
	5.177.15		LAER SO2 Concentration Recordkeeping: The Permittee shall record on an hourly average of SO2 in ppm (dry, 0% oxygen). The records may be maintained in either electronic or paper format unless it is expressly prohibited. [Title I Condition: 40 CFR 51.Appendix S]
	5.177.16		SIP SO2 Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of hourly average of total stack SO2 emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.17		Total SO2 Emissions Recordkeeping: The Permittee shall calculate and record the total SO2 emissions (including sulfur degassing and bypasses) at stack in ppm (at 0% oxygen). The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [CAAA of 1990, Minn. R. 7007.0800, subp. 5, Minn. R. 7011.1435(A)]
	5.177.18		SIP SO2 Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO2 emissions of total stack SO2 emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.19		The Permittee shall conduct a root cause analysis and a corrective action analysis each time the SO2 emissions are more than 227 kg (500 lb) greater than the amount that would have been emitted if the SO2 or reduced sulfur concentration was equal to the applicable emissions limit in 40 CFR Section 60.102a(f)(1) during one or more consecutive periods of excess emissions or any 24-hour period, whichever is shorter. [40 CFR 60.103a(c)(3)]
	5.177.20		No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed to date, and for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR Section 60.108a(c)(6)(x). [40 CFR 60.103a(e)(3)]
	5.177.21		The Permittee shall comply with the notification, recordkeeping and reporting requirements in 40 CFR Section

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			60.7. [40 CFR 60.108a(a)]
	5.177.22		The Permittee shall notify the Administrator of the specific monitoring provisions of 40 CFR Sections 60.105a, 60.106a and 60.107a with which the Permittee intends to comply. The Permittee shall submit to the Administrator documentation showing that the process heater meets the definition of a co-fired process heater in 40 CFR Section 60.101a. Notifications required by this paragraph shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b)]
	5.177.23		The Permittee shall maintain the following records: Records of discharges greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant in any 24-hour period as required by 40 CFR Section 60.103a(c). The following information shall be recorded no later than 45 days following the end of a discharge exceeding the thresholds: (i) A description of the discharge. (ii) The date and time the discharge was first identified and the duration of the discharge. (iii) The measured or calculated cumulative quantity of gas discharged over the discharge duration. If the discharge duration exceeds 24 hours, record the discharge quantity for each 24-hour period. (vi) For each discharge greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant, either the measured concentration of reduced sulfur or SO₂ discharged to the atmosphere. (vii) For each discharge greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant, the cumulative quantity of H₂S and SO₂ released into the atmosphere. (viii) The steps that the Permittee took to limit the emissions during the discharge. (ix) The root cause analysis and corrective action analysis conducted as required in 40 CFR Section 60.103a(d), including an identification of the affected facility, the date and duration of the discharge, a statement noting whether the discharge resulted from the same root cause(s) identified in a previous analysis and either a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary under 40 CFR Section 60.103a(e). (x) For any corrective action analysis for which corrective actions are required in 40 CFR Section 60.103a(e), a description of the corrective action(s) completed within the first 45 days following the discharge and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. [40 CFR 60.108a(c)(6)]
	5.177.24		The Permittee shall submit and excess emissions report for all periods of excess emissions according to the requirements of 40 CFR Section 60.7(c) except that the report shall contain the information specified in 40 CFR Section 60.108a(d)(1)-(7).

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			(1) The date that the exceedance occurred; (2) An explanation of the exceedance; (3) Whether the exceedance was concurrent with a startup, shutdown or malfunction of an affected facility or control system; and (4) A description of the actions taken, if any. (5) The information described in 40 CFR Section 60.108a(d)(6) for all discharges listed in 40 CFR Section 60.108a(c)(6). (6) For any periods for which monitoring data are not available, any changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability. (7) A written statement, signed by a responsible official, certifying the accuracy and completeness of the information contained in the report. [40 CFR 60.108a(d)]
	5.177.25		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.177.26		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.177.27		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.177.28		Sulfur Dioxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain SO ₂ Continuous Emissions Monitoring System (CEMS). [40 CFR 63.1568(b)(1), CAAA of 1990, Minn. R. 7011.7280(B), Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.29		Carbon Monoxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain CO Continuous Emissions Monitoring System (CEMS). [40 CFR 63.1568(b)(1), Minn. R. 7011.7280(B), Minn. R. 7017.1006]
	5.177.30		Sulfur Dioxide: Emissions Measuring: The Permittee shall use a SO ₂ CEMS to measure SO ₂ emissions from STRU139. [40 CFR 63.1568(b)(1), CAAA of 1990, Minn. R. 7011.7280(B), Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.31		Carbon Monoxide: Emissions Measuring: The Permittee shall use a CO CEMS to measure CO emissions from STRU139. [40 CFR 63.1568(b)(1), Minn. R. 7011.7280(B), Minn. R. 7017.1006]
	5.177.32		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any

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			change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.177.33		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.177.34		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.177.35		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.177.36		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.177.37		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.177.38		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.

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			[40 CFR 60.7(f), Minn. R. 7017.1130]
	5.177.39		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.177.40		The Permittee shall not emit SRU 3 (EQUI319) tail gas at STRU140 unless tail gas from SRU 3 is bypassing the SCOT/TGTU #1 Unit (EQUI 479 and EQUI480). The Permittee may use STRU139 during periods when tail gas from SRU 4 (EQUI320) is bypassing the SCOT Unit/TGTU #1. The Permittee shall not shut down the SCOT Unit except as necessary for maintenance or repair. The Permittee shall not bypass the SCOT Unit with tailgas from SRU 3 (EQUI319) or SRU 4 (EQUI320) except: (1) during periods of startup, shutdown, or breakdown of SRU 3, SRU 4, the SCOT/TGTU #1 Unit, or SCOT incinerator (EQUI480); or (2) to prevent a breakdown of the SCOT Unit. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.41		Sulfur degassing gas may be combusted in the SRU 4 (EQUI320) startup/bypass incinerator and emitted from STRU140 during instances of startup, shutdown, or malfunction. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.177.42		Conduct Root Cause Failure Analysis (RCFA): The Permittee shall comply with the RCFA as required by 2000 Global Consent Decree. [Minn. R. 7007.0800, subp. 2]
	5.177.43		O2 QA Plan: Develop and implement a written quality assurance plan that covers the O2 monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include or reference the manufacturer's spare parts list for the monitor and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.177.44		O2 QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate and maintain the O2 monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.177.45		The Permittee shall determine compliance with the SO2 emissions limits using the following methods and procedures: (1) Method 1 of 40 CFR pt. 60, Appendix A-1 for sample and

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			velocity traverses. (2) Method 2 of 40 CFR pt. 60, Appendix A-1 for velocity and volumetric flow rate. (3) Method 3, 3A or 3B of 40 CFR pt. 60, Appendix A-2 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 3B of 40 CFR pt. 60, Appendix A-2. (4) Method 6, 6A or 6C of 40 CFR pt. 60, Appendix A-4 to determine the SO₂ concentration. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 6 or 6A of 40 CFR pt. 60, Appendix A-4. (5) Method 15 or 15A of 40 CFR pt. 60, Appendix A-5 or Method 16 of 40 CFR pt. 60, Appendix A-6 to determine the reduced sulfur compounds and H₂S concentrations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 15A of 40 CFR pt. 60, Appendix A-5. (i) Each run consists of 16 samples taken over a minimum of 3 hours. (ii) The Permittee shall calculate the average H₂S concentration after correcting for moisture and O₂ as the arithmetic average of the H₂S concentration for each sample during the run (ppmv, dry basis, corrected to 0% excess air). (iii) The Permittee shall calculate the SO₂ equivalent for each run after correcting for moisture and O₂ as the arithmetic average of the SO₂ equivalent of reduced sulfur compounds for each sample during the run (ppmv, dry basis, corrected to 0% excess air). (iv) The Permittee shall use Equation 8 of 40 CFR Section 60.104a(h) to adjust pollutant concentrations to 0% O₂ or 0% excess air. [40 CFR 60.104a(h)(1)-(5)]
	5.177.46		The Permittee shall conduct a root cause analysis and corrective action analysis as soon as possible, but no later than 45 days after a discharge exceeding 500 lb greater than the permit limit. [40 CFR 60.103a(d)]
	5.177.47		If a single continuous discharge exceeds 500 lb greater than the permit limit for 2 or more consecutive 24-hour periods, a single root cause analysis and corrective action analysis may be conducted. [40 CFR 60.103a(d)(1)]
	5.177.48		Excess emissions reports required for all 12-hour periods during which the average concentration of SO ₂ as measured by the SO ₂ continuous monitoring system required under 40 CFR Section 60.106a(a)(1) exceeds the applicable emission limit (dry basis, 0% excess air). [40 CFR 60.106a(b)(1)]
	5.177.49		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a

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			continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.177.50		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the Administrator on a case-by-case basis, determines that more frequent reporting is necessary. All reports shall be postmarked by the 30th day following the end of each six-month period and include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.7(c), Minn. R. 7019.0100]
	5.177.51		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100]
	5.177.52		The Permittee shall maintain a file of all measurements, including continuous monitoring system (CMS), monitoring device and performance testing measurements; all CMS performance evaluations; all CMS or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR pt. 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records, except as follows: [40 CFR 60.7(f), Minn. R. 7019.0100]
	5.177.53		An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of maintaining a file of all CEMS subhourly measurements as required under 40 CFR Section 60.7(f), the Permittee shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard. [40 CFR 60.7(f)(1), Minn. R. 7019.0100]
	5.177.54		In lieu of maintaining a file of all CEMS subhourly measurements as required under 40 CFR Section 60.7(f), the Permittee shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator. [40 CFR 60.7(f)(2), Minn. R. 7019.0100]

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	5.177.55		If notification substantially similar to that in 40 CFR Section 60.7(a) is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of 40 CFR Section 60.7(a). [40 CFR 60.7(g), Minn. R. 7019.0100]
	5.177.56		Individual subparts of 40 CFR pt. 60 may include specific provisions which clarify or make inapplicable the provisions set forth in this section. [40 CFR 60.7(f), Minn. R. 7019.0100]
	5.177.57		At all times, including periods of startup, shutdown and malfunction, the Permittee shall, to the extent possible, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015]
	5.177.58		For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed. [40 CFR 60.11(g), Minn. R. 7017.2015]
STRU 140	SV094	45H6 Stack	
	5.178.1		Requirements from 40 CFR pt. 60, subp. Ja become effective upon issuance of Permit No. 03700011-101. [Minn. R. 7007.0800, subp. 2]
	5.178.2		The Permittee shall limit Sulfur Dioxide $\leq$ 1.6 pounds per hour 3-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.178.3		The Permittee shall limit Sulfur Dioxide $\leq$ 1.6 pounds per hour 24-hour rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.178.4		The Permittee shall limit Sulfur Dioxide $\leq$ 4.5 tons per year 12-month rolling average. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.178.5		The Permittee shall limit Sulfur Dioxide $\leq$ 1.6 pounds per hour 1-hour average. The 1-hour emission limitations for fuel gas combustion sources is a state-only requirement and, pursuant to Minn. R. 7007.1750, is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080]

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	5.178.6		The Permittee shall limit Sulfur Dioxide $\leq$ 250 parts per million 12-hour rolling average by volume (dry, 0% oxygen). Limit does not apply during periods of startup, shutdown or malfunction. Applicability of NSPS subp. J and Minn. R. 7011.1435 expires after startup of EQUI574. [40 CFR 63.1568(a)(1), 40 CFR 63.1568(c)(1), Minn. R. 7011.7280(B)]
	5.178.7		The Permittee shall limit Sulfur Dioxide $\leq$ 250 parts per million 12-hour rolling average by volume (dry basis) at zero percent excess air. [40 CFR 60.102a(f)(1)(i)]
	5.178.8		The Permittee shall limit Hydrogen Sulfide (H ₂ S) $\leq$ 0.10 grains per dry standard cubic foot 3-hour rolling average (Supplemental Fuel Gas) (230 mg/dscm [162ppm]). This limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), Minn. R. 7011.1410, subp. 2, Minn. R. 7011.1435(A), Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.178.9		The Permittee shall limit Opacity $\leq$ 20 percent opacity. [Minn. R. 7011.0715, subp. 1(B)]
	5.178.10		Periods of maintenance of the sulfur pit, during which the emission limits in 40 CFR Section 60.102a(f)(1) shall not apply, shall not exceed 240 hours per year. The Permittee must document the time periods during which the sulfur pit vents were not controlled and measures taken to minimize emissions during these periods. Examples of these measures include not adding fresh sulfur or shutting off vent fans. [40 CFR 60.102a(f)(3)]
	5.178.11		All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR Section 60.108a(c)(6)(ix). [40 CFR 60.103a(e)(1)]
	5.178.12		For corrective actions that cannot be fully implemented within 45 days following the discharge for which the root cause and corrective action analyses were required, the Permittee shall develop an implementation schedule to complete the corrective action(s) as soon as practicable. [40 CFR 60.103a(e)(2)]
	5.178.13		The Permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0% excess air) of any SO ₂ emissions into the atmosphere. The monitor shall include an oxygen monitor for correcting the data for excess air. (i) The span values for this monitor are two times the applicable SO ₂ emission limit and between 10 and 25% O ₂ inclusive. (ii) The Permittee shall install, operate and maintain each SO ₂ CEMS according to Performance Specification 2 of 40 CFR pt.

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			60, appendix B. (iii) The Permittee shall conduct performance evaluations of each SO ₂ monitor according to the requirements in 40 CFR Section 60.13(c) and Performance Specification 2 of 40 CFR pt. 60, appendix B. The Permittee shall use Method 6 or 6C of appendix A-4 and Method 3 or 3A of appendix A-2 to 40 CFR pt. 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 6. [40 CFR 60.106a(a)(1)(i)-(iii)]
	5.178.14		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. The calculation and recordkeeping requirements associated with the 1-hr emission limitations for fuel gas combustion sources is a state-only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act. [Minn. R. 7009.0080, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.178.15		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.178.16		SO ₂ Emission Calculations and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of hourly average of total stack SO ₂ emissions in lb/hr. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.178.17		Total SO ₂ Emissions Recordkeeping: The Permittee shall calculate and record the total SO ₂ emissions (including sulfur degassing and bypasses) at the stack in ppm (at 0% oxygen). The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 5, Minn. R. 7011.1435(A)]
	5.178.18		SO ₂ Emission Calculation and Recordkeeping: The Permittee shall maintain records of the calculated SO ₂ emissions of total stack SO ₂ emissions in tons/year. The records may be maintained in either electronic or paper format unless electronic or paper records are expressly prohibited. [Minn. R. 7007.0800, subp. 5]
	5.178.19		The Permittee shall conduct a root cause analysis and a corrective action analysis each time the SO ₂ emissions are more than 227 kg (500 lb) greater than the amount that would

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			have been emitted if the SO ₂ or reduced sulfur concentration was equal to the applicable emissions limit in 40 CFR Section 60.102a(f)(1) during one or more consecutive periods of excess emissions or any 24-hour period, whichever is shorter. [40 CFR 60.103a(c)(3)]
	5.178.20		No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed to date, and for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR Section 60.108a(c)(6)(x). [40 CFR 60.103a(e)(3)]
	5.178.21		The Permittee shall comply with the notification, recordkeeping and reporting requirements in 40 CFR Section 60.7. [40 CFR 60.108a(a)]
	5.178.22		The Permittee shall notify the Administrator of the specific monitoring provisions of 40 CFR Sections 60.105a, 60.106a and 60.107a with which the Permittee intends to comply. The Permittee shall submit to the Administrator documentation showing that the process heater meets the definition of a co-fired process heater in 40 CFR Section 60.101a. Notifications required by this paragraph shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b)]
	5.178.23		The Permittee shall maintain the following records: Records of discharges greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant in any 24-hour period as required by 40 CFR Section 60.103a(c). The following information shall be recorded no later than 45 days following the end of a discharge exceeding the thresholds: (i) A description of the discharge. (ii) The date and time the discharge was first identified and the duration of the discharge. (iii) The measured or calculated cumulative quantity of gas discharged over the discharge duration. If the discharge duration exceeds 24 hours, record the discharge quantity for each 24-hour period. (vi) For each discharge greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant, either the measured concentration of reduced sulfur or SO₂ discharged to the atmosphere. (vii) For each discharge greater than 500 lb SO₂ in excess of the allowable limits from a sulfur recovery plant, the cumulative quantity of H₂S and SO₂ released into the atmosphere. (viii) The steps that the Permittee took to limit the emissions during the discharge. (ix) The root cause analysis and corrective action analysis conducted as required in 40 CFR Section 60.103a(d), including an identification of the affected facility, the date and duration of the discharge, a statement noting whether the discharge resulted from the same root cause(s) identified in a previous

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			analysis and either a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary under 40 CFR Section 60.103a(e). (x) For any corrective action analysis for which corrective actions are required in 40 CFR Section 60.103a(e), a description of the corrective action(s) completed within the first 45 days following the discharge and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. [40 CFR 60.108a(c)(6)]
	5.178.24		The Permittee shall submit and excess emissions report for all periods of excess emissions according to the requirements of 40 CFR Section 60.7(c) except that the report shall contain the information specified in 40 CFR Section 60.108a(d)(1)-(7). (1) The date that the exceedance occurred; (2) An explanation of the exceedance; (3) Whether the exceedance was concurrent with a startup, shutdown or malfunction of an affected facility or control system; and (4) A description of the actions taken, if any. (5) The information described in 40 CFR Section 60.108a(c)(6) for all discharges listed in 40 CFR Section 60.108a(c)(6). (6) For any periods for which monitoring data are not available, any changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability. (7) A written statement, signed by a responsible official, certifying the accuracy and completeness of the information contained in the report. [40 CFR 60.108a(d)]
	5.178.25		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.178.26		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.178.27		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.178.28		Sulfur Dioxide: Emissions Monitoring: The Permittee shall calibrate, operate and maintain SO ₂ Continuous Emissions Monitoring System (CEMS). [40 CFR 60.105, 40 CFR 63.1568(b)(1), CAAA of 1990, Minn. R. 7011.1435(A), Minn. R. 7011.7280(B), Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]

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	5.178.29		Sulfur Dioxide: Emissions Measuring: The Permittee shall use a SO2 CEMS to measure SO2 emissions from STRU140. [40 CFR 60.105, 40 CFR 63.1568(b)(1), CAAA of 1990, Minn. R. 7011.1435(A), Minn. R. 7011.7280(B), Minn. R. 7017.1006, Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
	5.178.30		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.178.31		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.178.32		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.178.33		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.178.34		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.178.35		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60,

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			Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.178.36		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.178.37		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
	5.178.38		Conduct Root Cause Failure Analysis (RCFA): The Permittee shall comply with the RCFA as required by 2000 Global Consent Decree. [Minn. R. 7007.0800, subp. 2]
	5.178.39		Monitoring SRU 3 SO ₂ concentration: The Permittee shall monitor and record the total SRU 3 SO ₂ emissions (including sulfur degassing and bypasses) at stack ppm (at 0% oxygen). [CAAA of 1990, Minn. R. 7007.0800, subp. 5, Minn. R. 7011.1435]
	5.178.40		O ₂ QA Plan: Develop and implement a written quality assurance plan that covers the O ₂ monitor. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all the information required by 40 CFR pt. 60, Appendix F, Section 3. The plan shall include or reference the manufacturer's spare parts list for the monitor and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. The Commissioner may approve requested exclusions if the Commissioner determines that it is not reasonable to keep a specific part on site after consideration of the consequences of a malfunction of the part, the likelihood of a malfunction, the time required to obtain the part, and other pertinent factors. [Minn. R. 7007.0800, subp. 4]
	5.178.41		O ₂ QA/QC: The Permittee is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate and maintain the O ₂ monitor according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [Minn. R. 7007.0800, subp. 4]
	5.178.42		The Permittee shall determine compliance with the SO ₂ emissions limits using the following methods and procedures: (1) Method 1 of 40 CFR pt. 60, Appendix A-1 for sample and velocity traverses. (2) Method 2 of 40 CFR pt. 60, Appendix A-1 for velocity and volumetric flow rate. (3) Method 3, 3A or 3B of 40 CFR pt. 60, Appendix A-2 for gas analysis. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method

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			3B of 40 CFR pt. 60, Appendix A-2. (4) Method 6, 6A or 6C of 40 CFR pt. 60, Appendix A-4 to determine the SO₂ concentration. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 6 or 6A of 40 CFR pt. 60, Appendix A-4. (5) Method 15 or 15A of 40 CFR pt. 60, Appendix A-5 or Method 16 of 40 CFR pt. 60, Appendix A-6 to determine the reduced sulfur compounds and H₂S concentrations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses", (incorporated by reference - see 40 CFR Section 60.17) is an acceptable alternative to EPA Method 15A of 40 CFR pt. 60, Appendix A-5. (i) Each run consists of 16 samples taken over a minimum of 3 hours. (ii) The Permittee shall calculate the average H₂S concentration after correcting for moisture and O₂ as the arithmetic average of the H₂S concentration for each sample during the run (ppmv, dry basis, corrected to 0% excess air). (iii) The Permittee shall calculate the SO₂ equivalent for each run after correcting for moisture and O₂ as the arithmetic average of the SO₂ equivalent of reduced sulfur compounds for each sample during the run (ppmv, dry basis, corrected to 0% excess air). (iv) The Permittee shall use Equation 8 of 40 CFR Section 60.104a(h) to adjust pollutant concentrations to 0% O₂ or 0% excess air. [40 CFR 60.104a(h)(1)-(5)]
	5.178.43		The Permittee shall conduct a root cause analysis and corrective action analysis as soon as possible, but no later than 45 days after a discharge exceeding 500 lb greater than the permit limit. [40 CFR 60.103a(d)]
	5.178.44		If a single continuous discharge exceeds 500 lb greater than the permit limit for 2 or more consecutive 24-hour periods, a single root cause analysis and corrective action analysis may be conducted. [40 CFR 60.103a(d)(1)]
	5.178.45		Excess emissions reports required for all 12-hour periods during which the average concentration of SO ₂ as measured by the SO ₂ continuous monitoring system required under 40 CFR Section 60.106a(a)(1) exceeds the applicable emission limit (dry basis, 0% excess air). [40 CFR 60.106a(b)(1)]
	5.178.46		The Permittee shall maintain records of the occurrence and duration of any startup, shutdown or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system (CMS) or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.178.47		The Permittee shall submit excess emissions and monitoring systems performance report and/or summary form to the Administrator semiannually, except when: more frequent reporting is required by an applicable subpart; or the Administrator on a case-by-case basis, determines that more

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			frequent reporting is necessary. All reports shall be postmarked by the 30th day following the end of each six-month period and include the information in 40 CFR Section 60.7(c)(1) through (4). [40 CFR 60.7(c), Minn. R. 7019.0100]
	5.178.48		The summary report form shall contain the information in figure 1 of 40 CFR Section 60.7. One summary report form shall be submitted for each pollutant monitored at each affected facility. If the total duration of excess emissions is less than 1% of the total operating time and CMS downtime is less than 5% of the total operating time, only the summary report form shall be submitted. If the total duration of excess emissions is 1% or greater of the total operating time or CMS downtime is 5% or greater of the total operating time, the summary report form and the excess emission report described in 40 CFR Section 60.7(c) shall both be submitted. [40 CFR 60.7(d), Minn. R. 7019.0100]
	5.178.49		The Permittee shall maintain a file of all measurements, including continuous monitoring system (CMS), monitoring device and performance testing measurements; all CMS performance evaluations; all CMS or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR pt. 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records, except as follows: [40 CFR 60.7(f), Minn. R. 7019.0100]
	5.178.50		An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of maintaining a file of all CEMS subhourly measurements as required under 40 CFR Section 60.7(f), the Permittee shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard. [40 CFR 60.7(f)(1), Minn. R. 7019.0100]
	5.178.51		In lieu of maintaining a file of all CEMS subhourly measurements as required under 40 CFR Section 60.7(f), the Permittee shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator. [40 CFR 60.7(f)(2), Minn. R. 7019.0100]
	5.178.52		If notification substantially similar to that in 40 CFR Section 60.7(a) is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of 40 CFR Section 60.7(a). [40 CFR 60.7(g), Minn. R. 7019.0100]
	5.178.53		Individual subparts of 40 CFR pt. 60 may include specific provisions which clarify or make inapplicable the provisions set

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			forth in this section. [40 CFR 60.7(h), Minn. R. 7019.0100]
	5.178.54		At all times, including periods of startup, shutdown and malfunction, the Permittee shall, to the extent possible, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015]
	5.178.55		For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed. [40 CFR 60.11(g), Minn. R. 7017.2015]
TREA 1	EU301	84ME23 E. Flare - zControl	
	5.179.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.179.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.179.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.179.4		Sulfur, Total: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from TREA1. [40 CFR pt. 60, subp. Ja, Minn. R. 7017.1010, subp 1]
	5.179.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.179.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2.

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			[40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.179.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.179.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.179.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.179.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.179.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.179.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
TREA 2	EU302	84ME24 W. Flare - zControl	
	5.180.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]

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	5.180.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.180.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.180.4		Sulfur, Total: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from TREA2. [40 CFR pt. 60, subp. Ja, Minn. R. 7017.1010, subp 1]
	5.180.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.180.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]
	5.180.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.180.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.180.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC

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			program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.180.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.180.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.180.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
TREA 4	EU304	84ME3 N. Flare - zControl	
	5.181.1		Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which a RATA was conducted. [Minn. R. 7017.1180, subp. 3]
	5.181.2		Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter in which a CGA was conducted. [Minn. R. 7017.1180, subp. 1]
	5.181.3		The CEMS/COMS requirements listed below outline the typical standards of 40 CFR pt. 60 when combined with Minn. R. Additional monitoring requirements may also apply to the Facility based on this combination of standards and it is the responsibility of the Facility to meet all applicable requirements. [Minn. R. 7017.1010]
	5.181.4		Sulfur, Total: Emissions Monitoring: The owner or operator shall use a CEMS to measure emissions from TREA4. [40 CFR pt. 60, subp. Ja, Minn. R. 7017.1010, subp 1]
	5.181.5		CEMS Certification/Recertification Test: due 90 days after the first excess emissions report required for the CEMS or any change which invalidates the monitor's certification status as outlined in Minn. R. 7017.1050, subp. 2. [40 CFR 60.13(b), Minn. R. 7017.1050, subp. 1]
	5.181.6		Certification Test Plan due 30 days before Certification Test. Certification Test Pretest Meeting due 7 days before Certification Test. Certification Test Report - Microfiche Copy due 105 days after Certification Test. Certification Test Report due 45 days after Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2. [40 CFR 60.7(a)(5), Minn. R. 7017.1060, subp. 1-3, Minn. R. 7017.1080, subp. 1-4]

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	5.181.7		Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. [40 CFR 60.13(e), Minn. R. 7017.1090]
	5.181.8		QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Part 60, Appendix F, Section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list. [40 CFR pt. 60, Appendix F, 3, Minn. R. 7017.1170, subp. 2]
	5.181.9		CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection. [40 CFR 60.13(a), 40 CFR pt. 60, Appendix F]
	5.181.10		CEMS Daily Calibration Drift Test: Check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, Section 4.3.1 shall be used to determine out-of-control periods for CEMS. [40 CFR 60.13(d)(1), 40 CFR pt. 60, Appendix F, 4.1, Minn. R. 7017.1170, subp. 3]
	5.181.11		Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source. [40 CFR 60.7(f), Minn. R. 7017.1130]
	5.181.12		CEMS Monitor Design: Each CEMS shall be designed to complete a minimum of one cycle of sampling, analyzing, and data recording in each 15-minute period. [40 CFR 60.13(e)(2)]
TREA 23	CE006	Electrostatic Precipitator - Medium Efficiency	
	5.182.1		Compliance Assurance Monitoring: The Permittee shall operate and maintain the ESP (TREA23) at any time that the process equipment controlled by the ESP (EQUI421) is in operation. The Permittee shall document periods of non-operation of the control equipment. [Title I Condition: Avoid

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			major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.182.2		The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 10 micron >= 70 percent control efficiency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.182.3		The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for Total Particulate Matter >= 70 percent control efficiency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.182.4		Operation and Maintenance of ESP: The Permittee shall operate and maintain the ESP in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and review by MPCA staff. Following the NESHAP, Subpart UUU Operations, Maintenance, and Monitoring (OM&M) Plan satisfies this requirement. [Minn. R. 7007.0800, subp. 2&14]
	5.182.5		The Permittee shall operate TREA23 with no less than the minimum number of fields (TR sets) online during the most recent performance test that measured PM and PM10 emissions and showed compliance with the applicable limit under EQUI421. [40 CFR 64.3, Minn. R. 7017.0200, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.182.6		The Permittee shall record the minimum number of fields (TR sets) online in TREA23 once each day of operation of EQUI421. If the minimum number of fields are found to not be online, commence corrective action (as outlined in the operation and maintenance plan for the facility) within 24-hours of discovery to return the minimum number of fields online. This is considered an excursion as defined in 40 CFR Section 64.1. Make a record of all corrective actions taken. [40 CFR 64.3, Minn. R. 7017.0200, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	5.182.7		Opacity: Corrective action (as outlined in the CAM plan) is required as soon as possible if opacity is greater than 20% using a daily average as measured using the COMS located on STRU95. As indicated in the CAM plan, opacity in excess of 20% shall be considered an excursion under 40 CFR Section 64.6(c)(2) for purposes of CAM requirements, but is not an indication of an exceedance of the applicable emission limitation and shall not be considered a permit deviation if the response and reporting requirements of the CAM plan and this permit are met. [40 CFR 64.3(a)(2), Minn. R. 7017.0200]
	5.182.8		Continuous Monitoring: The Permittee shall continuously, or at a minimum once every 15 minutes, monitor the opacity of the ESP exhaust. (See Subject Item EQUI421 for specific COMS operating requirements.). [40 CFR 64.3(b)(4)(ii), Minn. R. 7017.0200]
	5.182.9		Response to excursions: (1) Upon detecting an excursion, the

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			Permittee shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup or shutdown conditions). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable. [40 CFR 64.7(d)(1), Minn. R. 7017.0200]
	5.182.10		Periodic Inspections: At least once per calendar quarter, or more frequently if required by the manufacturer, the Permittee shall inspect the control equipment components that are subject to wear or plugging, for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection. [40 CFR 64.3, Minn. R. 7017.0200]
	5.182.11		Annual Inspections: At least once per calendar year, or more frequently if required by the manufacturer, the Permittee shall perform an in-service inspection to inspect the control equipment components not covered by the quarterly inspections. This includes, but is not limited to, components that are not subject to wear or plugging including structural components, housings, and hoods. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection. [40 CFR 64.3, Minn. R. 7017.0200]
	5.182.12		Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded daily average of opacity is outside the required operating range; or - the ESP or any of its components are found during the inspections to need repair. Corrective actions shall return operation to within the permitted range and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the OM&M Plan for the FCCU. The Permittee shall keep a record of the type and date of any corrective action taken for the FCCU. [40 CFR 64.7(d), Minn. R. 7017.0200]
	5.182.13		Opacity CAM Performance Criteria: (1) Opacity is measured using a COMS on the STRU95. (2) Conduct daily validation and semi-annual calibration error audits. Visual confirmation from data recording verifies

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			operation twice per day. (3) Follow the QA/QC plan developed for the COMS. (4) The opacity is measured continuously. (5) The daily average opacity is calculated and recorded. (6) The averaging period is a daily average. [40 CFR 64.6(c), Minn. R. 7017.0200]
	5.182.14		Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing opacity which is considered an excursion, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes. [40 CFR 64.7(e), Minn. R. 7017.0200]
	5.182.15		CAM Excursions Reporting: As required by 40 CFR Section 64.9(a)(2), for the Quarterly Report listed with this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed with this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents. The Permittee shall report all TREA23 and EQUI421 opacity excursions in the quarterly report required by this permit. [40 CFR 64.9(a)(2), Minn. R. 7017.0200]
	5.182.16		The Permittee will comply with the monitoring, recordkeeping and reporting requirements contained in the CAM plan submitted to the MPCA effective on the permit issuance date. [40 CFR 64.6(c), Minn. R. 7017.0200]
TREA 48	CE003	Activated Carbon Adsorption	
	5.183.1		The Permittee shall operate and maintain the carbon adsorption in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff. [Minn. R. 7007.0800, subp. 14]
	5.183.2		Operation Requirement: Operation of air pollution control system to achieve emission limit or operational parameter. [40 CFR 63.427(b), Minn. R. 7007.0800, subp. 2&14, Minn. R. 7011.7180]
	5.183.3		Monitoring Requirement: Install, calibrate, certify, operate and maintain according to the manufacturer's specification a CEMS capable of measuring organic compounds concentration. [40 CFR 63.427(a)(1), 40 CFR 64.3(b), Minn. R. 7011.7180, Minn. R. 7017.0200]
	5.183.4		Daily Monitoring: The Permittee shall physically verify the

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			operation of the VOC analyzer at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written record of the daily verifications. [40 CFR 64.3(b), Minn. R. 7017.0200]
	5.183.5		Quarterly Inspections: At least once per calendar quarter, the Permittee shall inspect the control equipment internal and external system components. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection. [40 CFR 64.3, Minn. R. 7017.0200]
	5.183.6		Annual Inspection: At least once per calendar year, the Permittee shall conduct an internal inspection of the control device that includes all operating systems of the control device. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection. [40 CFR 64.3, Minn. R. 7017.0200]
	5.183.7		Corrective Actions: If VOC analyzer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the outlet VOC concentration to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the activated carbon adsorption. The Permittee shall keep a record of the type and date of any corrective action taken. [40 CFR 64.7(d), Minn. R. 7017.0200]
	5.183.8		Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing minimum combustion chamber temperature(s), the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes. [40 CFR 64.7(e), Minn. R. 7017.0200]
	5.183.9		CAM Excursions Reporting: As required by 40 CFR Section 64.9(a)(2), for the Quarterly Report listed in with this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed with this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents. The Permittee shall report all excursions in the quarterly report required by this permit. [40 CFR 64.9(a)(2), Minn. R. 7017.0200]
	5.183.10		The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other

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			supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b), Minn. R. 7017.0200]
	5.183.11		Operation Requirement: The Permittee shall act to assure that loadings of gasoline tank trucks at the affected facility are made into tanks equipped with vapor collection equipment that is compatible with the terminals vapor collection system. [40 CFR 60.502(f), 40 CFR 63.422(a), 40 CFR 64.3, Minn. R. 7011.1550, Minn. R. 7011.7180, Minn. R. 7017.0200]
	5.183.12		Operation Requirement: The Permittee shall act to assure that the terminals and the tank trucks vapor collection systems are connected during each loading of a gasoline tank truck at the affected facility. [40 CFR 60.502(g), 40 CFR 63.422(a), 40 CFR 64.3, Minn. R. 7011.1550, Minn. R. 7011.7180, Minn. R. 7017.0200]
	5.183.13		Construction/Design Requirement: Each vapor collection system shall be designed to prevent any total organic compound vapors from passing to another loading rack. [40 CFR 60.502(d), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.14		Design/Construction Requirement: The vapor collection and liquid loading equipment shall be designed and operated to prevent gauge pressure in the delivery tank from exceeding 450 mm of water during product loading. [40 CFR 60.502(h), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.15		Compliance Requirement: Loadings of liquid product into gasoline tank trucks shall be limited to vapor tight gasoline tank trucks using the procedures in 40 CFR Section 60.502(e)(1)-(5). [40 CFR 60.502(e), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.16		Recordkeeping Requirement: The Permittee shall obtain documentation that states that the truck to be gasoline loaded is vapor tight. [40 CFR 60.502(e)(1), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.17		Recordkeeping Requirement: The Permittee shall require the tank ID number to be recorded as each gasoline tank truck is loaded at the affected facility. [40 CFR 60.502(e)(2), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.18		Compliance Requirement: The Permittee shall cross check each tank ID number obtained in 40 CFR Section 60.502(e)(2) with the file of tank vapor tightness documentation within 2 weeks after the corresponding tank is loaded. [40 CFR 60.502(e)(3), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.19		Reporting Requirement: The terminal owner or operator shall notify the Permittee of each non-vapor-tight gasoline tank truck within one (1) week after the loading has occurred. [40

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			CFR 60.502(e)(4), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.20		Compliance Requirement: The Permittee shall take steps assuring that the non-vapor-tight gasoline tank truck will not be reloaded until vapor tightness documentation for that tank is obtained. [40 CFR 60.502(e)(5), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.21		Design/Construction Requirement: No pressure-vacuum vent in the bulk gasoline terminals vapor collection system shall begin to open at a system pressure less than 450 mm of water. [40 CFR 60.502(i), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.22		Performance Test Requirement: In conducting the performance tests required by this subpart, the Permittee shall use the test methods in Appendix A of this part, except as provided in 40 CFR Section 60.8(b); the three-run requirement of 40 CFR Section 60.8(f) does not apply to this subpart. [40 CFR 60.503(a), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.183.23		Compliance Requirement: Each Permittee subject to the emission standard in 40 CFR Section 63.422(b) shall conduct a performance test on the vapor processing system according to the test methods and procedures of 40 CFR Section 60.503 except that a reading of 500 ppm shall be used to determine the level of leaks to be repaired under 40 CFR Section 60.503(b). [40 CFR 63.425(a), Minn. R. 7011.7180]
	5.183.24		Recordkeeping Requirement: Record each startup, shutdown or malfunction of the air pollution control equipment. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.183.25		Performance Test Requirement: For each performance test conducted under 40 CFR Section 63.425(a), the Permittee shall determine a monitored operating parameter value for the vapor processing system by continuously recording the operating parameter during the performance test and determining operating parameter values based on the results of the test; a rationale for selecting the parameter values shall be provided to the Administrator. [40 CFR 63.425(b), Minn. R. 7011.7180]
	5.183.26		Recordkeeping Requirement: For performance tests performed after the initial test, the Permittee shall document the reasons for any change in the operating parameter value since the previous performance test. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 63.425(c), Minn. R. 7011.7180]
	5.183.27		Annual Certification Test: Follow one of the test methods and procedures listed in 40 CFR Section 63.425(e). [40 CFR 63.425(e), Minn. R. 7011.7180]
	5.183.28		Recordkeeping Requirement: Records of the annual tests of

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			gasoline cargo tanks to be conducted as specified in 40 CFR Section 63.425(e)-(h). The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 63.428(b), 40 CFR 63.428(k), Minn. R. 7011.7180]
	5.183.29		Recordkeeping Requirement: Records of continuous monitoring data required by 40 CFR Section 63.427(a), or of the alternative parameter if approved under 40 CFR Section 63.427(b) shall be kept in a readily accessible location. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 63.428(c), Minn. R. 7011.7180]
	5.183.30		Semi-Annual report must include each loading of a gasoline cargo tank for which vapor tightness documentation had not been previously obtained by the facility. [40 CFR 63.428(g), Minn. R. 7011.7180]
	5.183.31		Reporting and Recordkeeping: Submit (1) An excess emissions report in accordance with 40 CFR Section 63.10(e)(3) each exceedance or failure to maintain the monitored operating parameter value determined in 40 CFR Section 63.425(b). (2) Each instance of a nonvapor-tight gasoline cargo tank loading at the facility in which the operator failed to take steps to assure that such cargo tank would not be reloaded at the facility before vapor tightness documentation for the cargo tank was obtained; and (3) Each reloading or a nonvapor-tight gasoline cargo tank at the facility before vapor tightness documentation for that cargo tank is obtained by the facility. [40 CFR 63.428(h), Minn. R. 7011.7180]
	5.183.32		Startup, Shutdown, and Malfunction Plan: The Permittee shall develop and implement a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the relevant standard. As required under 40 CFR Section 63.8(c)(1)(i), the plan shall identify all routine or otherwise predictable CMS malfunctions. The plan shall be developed by the compliance date and shall meet the purposes specified in 40 CFR Section 63.6(e)(3)(i)(A) through (C). [40 CFR 63.6(e)(3)(i), 40 CFR 63.8(c)(1)(iii), Minn. R. 7011.7000, Minn. R. 7017.1010]
	5.183.33		Operation and maintenance of continuous monitoring systems: The Permittee shall ensure the immediate repair or replacement of CMS parts to correct "routine" or otherwise predictable CMS malfunctions as defined in the source's startup, shutdown, and malfunction plan required by 40 CFR Section 63.6(e)(3). The Permittee shall keep the necessary parts for routine repairs of the affected equipment readily available. If the plan is followed and the CMS is repaired immediately, this action shall be reported in the semiannual

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			startup, shutdown, and malfunction report required under 40 CFR Section 63.10(d)(5)(i). [40 CFR 63.8(c)(1)(i), Minn. R. 7017.1010]
	5.183.34		Operation and maintenance of continuous monitoring systems: All CMS shall be installed such that representative measurements of emissions or process parameters from the affected source are obtained. In addition, CEMS shall be located according to procedures contained in the applicable performance specification(s). [40 CFR 63.8(c)(2), Minn. R. 7017.1010]
	5.183.35		Operation and maintenance of continuous monitoring systems: All CMS shall be installed, operational, and the data verified as specified in the relevant standard either prior to or in conjunction with conducting performance tests under 40 CFR Section 63.7. Verification of operational status shall, at a minimum, include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system. [40 CFR 63.8(c)(3), Minn. R. 7017.1010]
	5.183.36		Operation and maintenance of continuous monitoring systems: Except for system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and (high-level) calibration drift adjustments, the CEMS, shall be in continuous operation and shall meet minimum frequency of operation requirements by completing a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [40 CFR 63.8(c)(4), Minn. R. 7017.1010]
	5.183.37		Quality Control Program: The Permittee shall develop a quality control program meeting the requirements of 40 CFR Section 63.8(d)(2) and (3) within 60 days of the effective date. The program shall follow the procedures of 40 CFR pt. 60, Appendix F. [Minn. R. 7007.0800, subp. 2]
	5.183.38		General Recordkeeping Requirements: The Permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR pt. 63 recorded in a form suitable and readily available for expeditious inspection and review including all information required by 40 CFR Section 63.10(b). The files shall be kept for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report or record. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 63.10(b), Minn. R. 7019.0100]
TREA 61	CE002	Flaring	
	5.184.1		The Permittee shall limit Hydrogen Sulfide (H ₂ S) ≤ 0.10 grains per dry standard cubic foot 3-hour rolling average. This limit applies to the H ₂ S content of fuel gas burned in TREA61. Limit does not apply during periods of startup, shutdown, or malfunction. [40 CFR 60.104(a)(1), 40 CFR 60.8(c), Minn. R.

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			7011.1435(A)]
	5.184.2		Operating Parameter: The Permittee shall operate the vapor processing system in a manner not to exceed the operating parameter value for the parameter or to go below the operating parameter value for the parameter and established using the procedures in 40 CFR Section 63.425(b). In cases where an alternative parameter is approved, the Permittee shall operate the vapor processing system in a manner not to exceed or not to go below, as appropriate, the alternative operating parameter value. Operation of the vapor processing system in a manner exceeding or going below the operating parameter value shall constitute a violation of the emission standard in 40 CFR Section 63.422(b). [40 CFR 63.427(b), 40 CFR 63.6(f)(1), 40 CFR 63.650(a), Minn. R. 7007.0800, subp. 2&14, Minn. R. 7011.7000, Minn. R. 7011.7180, Minn. R. 7011.7280(A)]
	5.184.3		Follow the design requirements of 40 CFR Section 60.502(a), (d). Follow the design requirements of 40 CFR Section 60.502(h), (i) or alternatively as listed in 40 CFR Section 63.425(e). [40 CFR 63.422(a), Minn. R. 7011.7180]
	5.184.4		Emissions to the atmosphere from the vapor collection and processing systems due to the loading of gasoline cargo tanks shall not exceed 10 milligrams of total organic compounds per liter of gasoline loaded as defined in 40 CFR Section 60.503. [40 CFR 63.422(b), Minn. R. 7011.7180]
	5.184.5		Loadings of liquid product into gasoline cargo tanks shall be limited to vapor-tight gasoline cargo tanks using the procedures as listed in 40 CFR Section 60.502(e). [40 CFR 60.502(e), 40 CFR 63.422(a)&(c), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.184.6		The Permittee shall take steps assuring that the nonvapor-tight gasoline cargo tank (i.e., cargo tanks initially loaded without proper vapor tightness documentation) will not be reloaded at the facility until vapor proper vapor tightness documentation for that gasoline cargo tank is obtained. [40 CFR 60.502(e), 40 CFR 63.422(c), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.184.7		The Permittee shall act to assure that the gasoline cargo tank's vapor collection systems are connected during each loading of a gasoline cargo tank at the affected facility. [40 CFR 60.502(g), 40 CFR 63.422(a), Minn. R. 7011.1550, Minn. R. 7011.7180]
	5.184.8		Compliance Requirement: Each owner or operator subject to the emission standard in 40 CFR Section 63.422(b) shall conduct a performance test on the vapor processing system according to the test methods and procedures of 40 CFR Section 60.503 except that a reading of 500 ppm shall be used to determine the level of leaks to be repaired under 40 CFR Sections 60.503(b) or 63.425(a)(1)(ii). [40 CFR 63.425(a), Minn. R. 7011.7180]
	5.184.9		Performance Test Requirement: For each performance test conducted under 40 CFR Section 63.425(a), the Permittee shall

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			determine a monitored operating parameter value for the vapor processing system by continuously recording the operating parameter during the performance test and determining operating parameter values based on the results of the test; a rationale for selecting the parameter values shall be provided to the Administrator. [40 CFR 63.425(b), Minn. R. 7011.7180]
	5.184.10		Recordkeeping Requirement: For performance tests performed after the initial test, the Permittee shall document the reasons for any change in the operating parameter value since the previous performance test. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 63.425(c), Minn. R. 7011.7180]
	5.184.11		Annual Certification Test: Follow one of the test methods and procedures listed in 40 CFR Section 63.425(e) or as an alternative to 40 CFR Section 63.425(e), FHR may also alternatively comply with 40 CFR Section 63.425(i), railcar bubble leak test procedures. [40 CFR 63.425(e), 40 CFR 63.425(i), Minn. R. 7011.7180]
	5.184.12		The Permittee shall operate and maintain the afterburner (TREA61) at all times that any emission unit controlled by the afterburner (EQUI375) is in operation. The Permittee shall document periods of non-operation of the control equipment. [Minn. R. 7007.0800, subp. 2&14]
	5.184.13		Operation and maintenance of continuous monitoring systems: All CMS shall be installed, operational, and the data verified as specified in the relevant standard either prior to or in conjunction with conducting performance tests under 40 CFR Section 63.7. Verification of operational status shall, at a minimum, include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system. [40 CFR 63.8(c)(3), Minn. R. 7007.0800, subp. 14, Minn. R. 7017.1010]
	5.184.14		Monitoring Requirement: Install, calibrate, certify, operate and maintain according to the manufacturer's specification a CPMS capable of measuring temperature. The CPMS must be installed in the firebox or in the ductwork immediately downstream from the firebox in a position before any substantial heat exchange occurs. [40 CFR 63.427(a)(3), Minn. R. 7007.0800, subp. 2&14, Minn. R. 7011.7180]
	5.184.15		Operation Requirement: Operation of air pollution control system to achieve emission limit or operational parameter at or above the temperature requirement of 187.3 degrees F. [40 CFR 63.427(b), Minn. R. 7007.0800, subp. 2&14, Minn. R. 7011.7180]
	5.184.16		Operation and maintenance of continuous monitoring systems: All CMS shall be installed such that representative measurements of emissions or process parameters from the affected source are obtained. [40 CFR 63.8(c)(2), Minn. R. 7007.0800, subp. 2, Minn. R. 7017.1010]
	5.184.17		Operation and maintenance of continuous monitoring

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			systems: Except for system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level calibration drift adjustments, all CMS shall be in continuous operation. [40 CFR 63.8(c)(4), Minn. R. 7007.0800, subp. 2&14, Minn. R. 7017.1010]
	5.184.18		Operation and maintenance of continuous monitoring systems: The Permittee shall ensure the immediate repair or replacement of CMS parts to correct "routine" or otherwise predictable CMS malfunctions as defined in the source's startup, shutdown, and malfunction plan required by 40 CFR Section 63.6(e)(3). The Permittee shall keep the necessary parts for routine repairs of the affected equipment readily available. If the plan is followed and the CMS is repaired immediately, this action shall be reported in the semiannual startup, shutdown, and malfunction report required under 40 CFR Section 63.10(d)(5)(i). [40 CFR 63.8(c)(1)(i), Minn. R. 7007.0800, subp. 2&14, Minn. R. 7017.1010]
	5.184.19		Daily Monitoring: The Permittee shall physically verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written record of the daily verifications. [40 CFR 64.3(b), Minn. R. 7017.0200]
	5.184.20		Periodic Inspections: Conduct periodic inspections in accordance with the CAM Plan for the control equipment. [40 CFR 64.3, Minn. R. 7017.0200]
	5.184.21		Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken. [40 CFR 64.7(d), Minn. R. 7017.0200]
	5.184.22		Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing minimum combustion chamber temperature(s), the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes. [40 CFR 64.7(e), Minn. R. 7017.0200]
	5.184.23		CAM Excursions Reporting: As required by 40 CFR Section 64.9(a)(2), for the Quarterly Report listed in this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed in this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary

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			information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents. The Permittee shall report all excursions in the quarterly report required by this permit. [40 CFR 64.9(a)(2), Minn. R. 7017.0200]
	5.184.24		The Permittee shall comply with the monitoring, recordkeeping, and reporting requirements contained in the CAM plan submitted to the MPCA effective on the permit issuance date. [40 CFR 64.6(c), Minn. R. 7017.0200]
	5.184.25		Recordkeeping Requirement: Records of the annual tests of gasoline cargo tanks to be conducted as specified in 40 CFR Section 63.425(e)-(h). The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 63.428(b), 40 CFR 63.428(k), Minn. R. 7011.7180]
	5.184.26		Recordkeeping Requirement: Records of continuous monitoring data required by 40 CFR Section 63.427(a), or of the alternative parameter if approved under 40 CFR Section 63.427(b) shall be kept in a readily accessible location. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 63.428(c), Minn. R. 7011.7180]
	5.184.27		Semi-Annual report must include each loading of a gasoline cargo tank for which vapor tightness documentation had not been previously obtained by the facility. [40 CFR 63.428(g), Minn. R. 7011.7180]
	5.184.28		Reporting and Recordkeeping: Submit (1) An excess emissions report in accordance with 40 CFR Section 63.10(e)(3), each exceedance or failure to maintain the monitored operating parameter value determined in 40 CFR Section 63.425(b); (2) Each instance of a nonvapor-tight gasoline cargo tank loading at the facility in which the operator failed to take steps to assure that such cargo tank would not be reloaded at the facility before vapor tightness documentation for the cargo tank was obtained; and (3) Each reloading of a nonvapor-tight gasoline cargo tank at the facility before vapor tightness documentation for that cargo tank is obtained by the facility. [40 CFR 63.428(h), Minn. R. 7011.7180]
	5.184.29		Recordkeeping Requirement: Record each startup, shutdown or malfunction of the air pollution control equipment or any periods during which a continuous monitoring system or monitoring device is inoperative. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.7(b), Minn. R. 7019.0100]
	5.184.30		General Recordkeeping Requirements: The Permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR pt. 63 recorded in a form suitable and readily available for expeditious inspection and

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			review including all information required by 40 CFR Section 63.10(b). The files shall be kept for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report or record. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 63.10(b), Minn. R. 7019.0100]
	5.184.31		Startup, Shutdown, and Malfunction Plan: The Permittee shall develop and implement a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control, and monitoring equipment used to comply with the relevant standard. As required under 40 CFR Section 63.8(c)(1)(i), the plan shall identify all routine or otherwise predictable CMS malfunctions. The plan shall be developed by the compliance date and shall meet the purposes specified in 40 CFR Section 63.6(e)(3)(i)(A) through (C). [40 CFR 63.6(e)(3)(i), 40 CFR 63.8(c)(1)(iii), Minn. R. 7011.7000, Minn. R. 7017.1010]
TREA 62	CE028	Direct Flame Afterburner w/Heat Exchanger	
	5.185.1		Subject to 40 CFR pt. 61, subps. A and FF requirements. Compliance with 40 CFR pt. 61, subp. FF and 40 CFR pt. 61, subp. A requirements as listed in this permit fully satisfies 40 CFR pt. 60, subps. A and QQQ; 40 CFR pt. 63, subps. A and CC requirements. [40 CFR 60.11(d), 40 CFR 60.690-699, 40 CFR 60.692-5(e)(4)-(5), 40 CFR 60.697(f), 40 CFR 63.640(o)(1), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7017.2015]
	5.185.2		The Permittee shall operate and maintain the thermal oxidizer (TREA62 or TREA63 (backup)) at all times that any emission unit controlled by the thermal oxidizer (EQUI350, EQUI352-362, EQUI364, EQUI453, EQUI455, EQUI456, EQUI464, EQUI465-468, EQUI468, EQUI519, EQUI444, EQUI457 and EQUI876) is in operation. The Permittee shall document periods of non-operation of the control equipment. [Minn. R. 7007.0800, subp. 2&14]
	5.185.3		Operation and Maintenance of the Thermal Oxidizer: The Permittee shall operate and maintain the thermal oxidizer in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff. [Minn. R. 7007.0800, subp. 2&14]
	5.185.4		Temperature: Maintain temperature within 50 degrees F of temperature established in most recent destruction efficiency performance test using a 3-hour Rolling Average. The temperature shall be measured in a representative location in or near the firebox of the oxidizer. [40 CFR 61.354(c)(1), 40

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			CFR 61.356(j)(4), Minn. R. 7011.9930(E), Minn. R. 7017.2025]
	5.185.5		A flow indicator shall be installed on a vent stream to a control device to ensure that the vapors are being routed to the control device. [40 CFR 60.692-5, 40 CFR 64.3, Minn. R. 7011.1435(C), Minn. R. 7017.0200]
	5.185.6		Daily Monitoring: The Permittee shall verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written or electronic record of the daily verifications. [40 CFR 64.3(b), Minn. R. 7007.0800, subps. 4-5, Minn. R. 7017.0200]
	5.185.7		Inspections: Conduct periodic inspections in accordance with 40 CFR pt. 64 (Compliance Assurance Monitoring). [40 CFR 64.3, Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subps. 4-5, Minn. R. 7017.0200]
	5.185.8		Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken. [40 CFR 64.7(d), Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subps. 4-5, Minn. R. 7017.0200]
	5.185.9		For each control device, maintain documentation that includes the following information regarding the control device operation: (1) Dates of startup and shutdown of the closed-vent system and control device; (2) A description of the operating parameter (or parameters) to be monitored to ensure that the control device will be operated in conformance with these standards and the control device's design specifications and an explanation of the criteria used for selection of that parameter (or parameters). This documentation shall be kept for the life of the control device; and (3) Periods when the closed-vent system and control device are not operated as designed including all periods and the duration when: Any valve car-seal or closure mechanism is broken or the by-pass line valve position has changed and The flow monitoring devices indicate that vapors are not routed to the control device as required. [40 CFR 61.356(j)(1), 40 CFR 63.655(a), 40 CFR 64.6(c), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.0200]
	5.185.10		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste

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			management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The Permittee shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 60.697(d), 40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.185.11		Maintain continuous records of the temperature of the gas stream in the combustion zone of the incinerator and records of all 3-hour periods of operation during which the average temperature of the gas stream in the combustion zone is more than 28 degrees C (50 degrees F) below the temperature established in most recent destruction efficiency performance test. [40 CFR 60.697(f)(3)(viii), 40 CFR 61.356(j)(4), 40 CFR 63.655(a), 40 CFR 64.9(b), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.0200]
	5.185.12		The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b), Minn. R. 7017.0200]
	5.185.13		CAM Excursions Reporting: As required by 40 CFR Section 64.9(a)(2), for the Quarterly Report listed in with this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed with this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents. The Permittee shall report all TREAs 62 and 63 excursions in the quarterly report required by this permit. [40 CFR 64.9(a)(2),

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			Minn. R. 7017.0200]
	5.185.14		Retain at the source and make available, upon request, for inspection by the Administrator, for a minimum of 2 years, records of emission test results and other data needed to determine emissions. [40 CFR 61.13(g), 40 CFR 61.356, 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.2015]
	5.185.15		The Permittee shall notify the Administrator of intent to conduct a required performance test at least 30 days before the performance test is scheduled. [40 CFR 61.13(c), Minn. R. 7017.2015]
	5.185.16		Unless otherwise specified in an applicable subpart, samples shall be analyzed and emissions determined within 30 days after each emission test has been completed. The Permittee shall report the determinations of the emission test to the Administrator by a registered letter sent before the close of business on the 31st day following the completion of the emission test. [40 CFR 61.13(f), Minn. R. 7017.2015]
	5.185.17		Subject to 40 CFR pt. 61 subps. A and FF requirements. Compliance with 40 CFR pt. 61, subp. FF and 40 CFR pt. 61, subp. A requirements as listed in this permit fully satisfies 40 CFR pt. 63, subps. A and CC requirements. [40 CFR 63.640(o)(1), Minn. R. 7011.7280(A)]
TREA 63	CE029	Direct Flame Afterburner	
	5.186.1		Subject to 40 CFR pt. 61, subps. A and FF requirements. Compliance with 40 CFR pt. 61, subp. FF and 40 CFR pt. 61, subp. A requirements as listed in this permit fully satisfies 40 CFR pt. 60, subps. A and QQQ; 40 CFR pt. 63, subps. A and CC requirements. [40 CFR 60.11(d), 40 CFR 60.690-699, 40 CFR 60.692-5(e)(4)-(5), 40 CFR 60.697(f), 40 CFR 63.640(o)(1), Minn. R. 7011.1435(C), Minn. R. 7011.7280(A), Minn. R. 7017.2015]
	5.186.2		See pollution control equipment and CAM requirements at TREA62. [Minn. R. 7007.0800, subp. 2]
TREA 64	CE050	Flaring	
	5.187.1		Operation and Maintenance: The Permittee shall maintain and operate the continuous parameter monitoring system in a manner consistent with good air pollution control practices and shall meet all applicable requirements of 40 CFR Section 63.8(c). [40 CFR 63.8(c), Minn. R. 7017.1010]
	5.187.2		The Permittee shall operate and maintain the flare in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff. [Minn. R. 7007.0800, subp. 14]
	5.187.3		The Permittee shall operate and maintain the enclosed flare during fuel loading any time that the vapor recovery unit (TREA48) is not being operated to control emissions from the Bottom Loading Rack (EQUI483). [Minn. R. 7007.0800, subp.

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			2&14]
	5.187.4		Enclosed Flare Minimum Temperature: For each performance test conducted under 40 CFR Section 63.425(a) when operating the enclosed flare, the Permittee shall determine a minimum temperature for the enclosed flare using the following procedure: (1) During the performance test, continuously record the enclosed flare operating temperature; (2) Determine a minimum enclosed flare operating temperature based on the parameter data monitored during the performance test, supplemented by engineering assessments and the manufacturer's recommendations; and (3) Provide for the MPCA's approval the rationale for the selected minimum enclosed flare operating temperature, and monitoring frequency and averaging time including data and calculations used to develop the value and a description of why the minimum enclosed flare operating temperature, monitoring frequency, and averaging time demonstrate continuous compliance with the emission standard in 40 CFR Section 63.422(b). [40 CFR 63.425(b), 40 CFR 64.3, Minn. R. 7011.7180, Minn. R. 7017.0200]
	5.187.5		The Permittee shall maintain Temperature $\geq$ 300 degrees Fahrenheit using a 1-hour Block Average. Downtime of 15 minutes or less is not to be included as operating time. During all gasoline loading procedures, the flame stack temperature indicator may not operate at a lower temperature as listed, unless a performance test is conducted at a different temperature and the MPCA staff determines compliance at that new temperature. [Minn. R. 7007.0800, subp. 2]
	5.187.6		Continuous Monitoring: For the enclosed flare (TREA64), the Permittee shall install, calibrate, certify, operate, and maintain, according to the manufacturer's specifications, a continuous parameter monitoring system (CPMS) capable of measuring temperature in the fire box or in the duct work immediately downstream from the fire box in a position before any substantial heat exchange occurs. [40 CFR 63.427(a), 40 CFR 64.3(b)(4)(ii), Minn. R. 7011.7180, Minn. R. 7017.0200]
	5.187.7		CPMS Continuous Operation: Except for system breakdowns, repairs, and calibration checks, the CPMS shall be in continuous operation whenever the enclosed flare is operating. [40 CFR 63.8(c)(4), Minn. R. 7017.1010]
	5.187.8		Daily Monitoring: The Permittee shall physically verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written record of the daily verifications. [40 CFR 64.3(b), Minn. R. 7017.0200]
	5.187.9		Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored control equipment is required. [40 CFR

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			64.7(b), Minn. R. 7017.0200]
	5.187.10		Periodic Inspections: Conduct periodic inspections in accordance with the CAM Plan. [40 CFR 64.3, Minn. R. 7017.0200]
	5.187.11		Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken. [40 CFR 64.7(d), Minn. R. 7017.0200]
	5.187.12		Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing minimum combustion chamber temperature(s), the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes. [40 CFR 64.7(e), Minn. R. 7017.0200]
	5.187.13		CAM Excursions Reporting: As required by 40 CFR Section 64.9(a)(2), for the Quarterly Report listed with this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed with this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents. The Permittee shall report all excursions in the quarterly report required by this permit. [40 CFR 64.9(a)(2), Minn. R. 7017.0200]
	5.187.14		The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b), Minn. R. 7017.0200]
	5.187.15		Enclosed Flare Operation: The Permittee shall operate the enclosed flare to ensure that the enclosed flare operating temperature is greater than or equal to the minimum enclosed flare operating temperature established using the procedures in 40 CFR Section 63.425(b). Operation of the enclosed flare at

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			a temperature below the minimum enclosed flare operating temperature shall constitute a violation of the emission standard in 40 CFR Section 63.422(b). [40 CFR 63.427(b), Minn. R. 7011.7180]
	5.187.16		Recordkeeping and Reporting: (1) Keep an up-to-date, readily accessible record of the enclosed flare operating temperature. This record shall indicate the time intervals during which loadings of gasoline cargo tanks have occurred or, alternatively, shall record the operating parameter data only during such loadings. The date and time of day shall also be indicated at reasonable intervals on this record. (2) Record and report, simultaneously with the notification of compliance status required under 40 CFR Section 63.9(h), all data and calculations, engineering assessments, and manufacturer's recommendations used in determining the operating parameter value under 40 CFR Section 63.425(b). Records shall be maintained for a period of at least 5 years. The records may be maintained in either electronic or paper format, unless it is expressly prohibited. [40 CFR 63.10(b)(1), 40 CFR 63.428(c), Minn. R. 7011.7180, Minn. R. 7019.0100]
	5.187.17		Quality Control Program: The Permittee shall develop and implement a quality control program for the continuous parameter monitoring system used to measure the enclosed flare operating temperature. The quality control program shall meet all applicable requirements of 40 CFR Section 63.8(d)(2) and (d)(3). [40 CFR 63.8(d)(2)-(3), Minn. R. 7017.1010]
	5.187.18		Startup, Shutdown, and Malfunction Plan: Develop and implement a written startup, shutdown, and malfunction plan which complies with 40 CFR Section 63.6(e)(3). [40 CFR 63.6(e)(3), Minn. R. 7011.7000]
	5.187.19		The Permittee shall record all times during which the enclosed flare is operated. These records shall be retained for a period of 5 years. [Minn. R. 7007.0800, subp. 2&14]
TREA 65	CE056	Direct Flame Afterburner	
	5.188.1		The Permittee shall maintain Temperature $\geq$ 1278 degrees Fahrenheit 3-hour rolling average. [Minn. R. 7017.2025, subp. 3]
	5.188.2		The Permittee shall operate and maintain the control equipment such that it achieves a destruction efficiency for Total Organic Compounds $\geq$ 95 percent destruction efficiency (by weight) as demonstrated by performance test. [40 CFR 61.349(a)(2)(i)(A), Minn. R. 7011.9930(E), Minn. R. 7017.2025]
	5.188.3		Temperature: Maintain temperature no greater than 28 degrees Celsius (50 degrees F) below the most recent performance test design temperature as a 3-hour rolling average. [40 CFR 61.354(c)(1), 40 CFR 61.356(j)(4), Minn. R. 7011.9930(E), Minn. R. 7017.2025]
	5.188.4		The Permittee must design the control device to meet performance standard: Reduce the organic emissions vented

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			to it by 95 weight percent or greater. [40 CFR 61.349(a)(2)(i)(A), Minn. R. 7011.9930(E)]
	5.188.5		Daily Records: The Permittee shall maintain continuous records of the temperature of the gas stream in the combustion zone of the incinerator and records of all 3-hour periods of operation during which the average temperature of the gas stream in the combustion zone is more than 28 degrees C (50 degrees F) below the design combustion zone temperature. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.356(j)(4), 40 CFR 64.3, Minn. R. 7011.9930(E), Minn. R. 7017.0200]
	5.188.6		The Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor the control device operation as specified in 40 CFR Section 61.354(c)(1), unless alternative monitoring procedures or requirements are approved for that facility by the Administrator. The Permittee shall inspect at least once each operating day the data recorded by the monitoring equipment (e.g., temperature monitor or flow indicator) to ensure that the control device is operating properly. [40 CFR 61.354(c)(1), 40 CFR 64.3(b), Minn. R. 7011.9930(E), Minn. R. 7017.0200]
	5.188.7		Inspections: Conduct periodic inspections in accordance with the CAM Plan. [40 CFR 64.3, Minn. R. 7017.0200]
	5.188.8		Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor the control device operation as specified below, unless alternative monitoring procedures or requirements are approved. Inspect at least once each operating day the data recorded by the monitoring equipment to ensure that the control device is operating properly. For a thermal vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of +/-1 percent of the temperature being monitored in degrees C or +/-0.5 degree C, whichever is greater. The temperature sensor shall be installed at a representative location in the combustion chamber. [40 CFR 61.349(h), 40 CFR 61.354(c)(1), 40 CFR 63.655(a), 40 CFR 64.3(a)(2), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.0200]
	5.188.9		Corrective Actions: The Permittee shall follow the corrective actions, as outlined in the CAM Plan. If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type

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			and date of any corrective action taken. [40 CFR 64.7(d), Minn. R. 7017.0200]
	5.188.10		Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing minimum combustion chamber temperature(s), the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes. [40 CFR 64.7(e), Minn. R. 7017.0200]
	5.188.11		The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained in accordance with the CAM Plan. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b), Minn. R. 7017.0200]
	5.188.12		Closed vent system and control device shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv initially and annually by Method 21 monitoring. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.349(a)(1)(i), Minn. R. 7011.9930(E)]
	5.188.13		The Permittee shall test equipment for compliance with no detectable emissions as required in accordance with the following requirements: (1) Monitoring shall comply with Method 21 from appendix A of 40 CFR pt. 60. (2) The detection instrument shall meet the performance criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. (5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background

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			level is compared to 500 ppm for determining compliance. [40 CFR 61.355(h), 40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.14		Each closed-vent system and control device shall be visually inspected quarterly. The visual inspection shall include inspection of ductwork and piping and connections to covers and control devices for evidence of visible defects such as holes in ductwork or piping and loose connections. [40 CFR 61.349(f), 40 CFR 61.356(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.15		Vent systems that contain any bypass line that could divert the vent stream away from a control device shall install, maintain, and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow away from the control device at least once every 15 minutes OR ensure the bypass line valve is closed by securing with a car-seal or lock-and-key type device. Exception is for a vent to atmosphere that remains in a closed, sealed position during normal operations except when the device needs to open to prevent physical damage or permanent deformation of the closed-vent system resulting from malfunction of the unit in accordance with good engineering and safety practices for handling flammable, explosive, or other hazardous materials. [40 CFR 61.349(a)(1), 40 CFR 61.355(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.16		Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor the control device operation as specified below, unless alternative monitoring procedures or requirements are approved. Inspect at least once each operating day the data recorded by the monitoring equipment to ensure that the control device is operating properly. For a thermal vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of +/-1 percent of the temperature being monitored in degrees C or +/-0.5 degree C, whichever is greater. The temperature sensor shall be installed at a representative location in the combustion chamber. [40 CFR 61.349(h), 40 CFR 61.354(c)(1), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.17		Permittees using a closed-vent system that contains any bypass line that could divert a vent stream from a control device shall do the following: (1) Visually inspect the bypass line valve at least once every month, checking the position of the valve and the condition of the car-seal or closure mechanism required under 40 CFR Section 61.349(a)(1)(ii) to ensure that the valve is maintained in the closed position and the vent stream is not diverted through the bypass line. (2) Visually inspect the readings from each flow monitoring device required by 40 CFR Section 61.349(a)(1)(ii) at least once each operating day to check that vapors are being routed to

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			the control device as required. [40 CFR 61.354(f), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.18		CMS Records: The Permittee shall maintain records of monitoring data, monitoring system calibration checks, and the occurrence and duration of any period during which the monitoring system is malfunctioning or inoperative. These records shall be maintained at the source for a minimum of 2 years and made available, upon request, for inspection by the Administrator. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.14(f), Minn. R. 7011.7000]
	5.188.19		Performance test was used to determine control device performance; therefore, the Permittee will maintain the following records: (i) A description of how it is determined that the test is conducted when the waste management unit or treatment process is operating at the highest load or capacity level. This description shall include the estimated or design flow rate and organic content of each vent stream and definition of the acceptable operating ranges of key process and control parameters during the test program. (ii) A description of the control device including the type of control device, control device manufacturer's name and model number, control device dimensions, capacity, and construction materials. (iii) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis. (iv) All test results. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.356(f)(3)(i)-(iv), 40 CFR 61.356(j)(4), Minn. R. 7011.9930(E)]
	5.188.20		For each control device, maintain documentation that includes the following information regarding the control device operation: (1) Dates of startup and shutdown of the closed-vent system and control device; (2) A description of the operating parameter (or parameters) to be monitored to ensure that the control device will be operated in conformance with these standards and the control device's design specifications and an explanation of the criteria used for selection of that parameter (or parameters). This documentation shall be kept for the life of the control device; and (3) Periods when the closed-vent system and control device are not operated as designed including all periods and the duration when: Any valve car-seal or closure mechanism is broken or the by-pass line valve position has changed and the flow monitoring devices indicate that vapors are not routed to

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			the control device as required. [40 CFR 61.356(j)(1)-(3), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.21		Retain at the source and make available, upon request, for inspection by the Administrator, for a minimum of 2 years, records of emission test results and other data needed to determine emissions. [40 CFR 61.13(g), 40 CFR 61.356, 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.2015]
	5.188.22		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The Permittee shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.23		Maintain continuous records of the temperature of the gas stream in the combustion zone of the incinerator and records of all 3-hour periods of operation during which the average temperature of the gas stream in the combustion zone is more than 28 degrees C (50 degrees F) below the temperature established in most recent destruction efficiency performance test. [40 CFR 61.356(j)(4), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.24		Quarterly Report: The Permittee shall prepare and submit quarterly reports for each 3-hour period of operation during which the average temperature of the gas stream in the combustion zone of a thermal vapor incinerator, as measured by the temperature monitoring device, is more than 28 degrees C (50 degrees F) below the design combustion zone temperature. [40 CFR 61.357(d)(7)(iv)(A), Minn. R. 7011.9930(E), Minn. R. 7017.1010, subp. 3]
	5.188.25		The Permittee shall notify the Administrator of intent to

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			conduct a required performance test at least 30 days before the performance test is scheduled. [40 CFR 61.13(c), Minn. R. 7017.2015]
	5.188.26		Unless otherwise specified in an applicable subpart, samples shall be analyzed and emissions determined within 30 days after each emission test has been completed. The Permittee shall report the determinations of the emission test to the Administrator by a registered letter sent before the close of business on the 31st day following the completion of the emission test. [40 CFR 61.13(f), Minn. R. 7017.2015]
	5.188.27		Control device and closed vent system must be operated at all times when waste is in the waste management unit vented to the control device. [40 CFR 61.349(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.28		Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.188.29		The control device shall be designed and operated in accordance with the following conditions: (i) An enclosed combustion device (e.g., a vapor incinerator, boiler, or process heater) shall meet one of the following conditions: (A) Reduce the organic emissions vented to it by 95 weight percent or greater; (B) Achieve a total organic compound concentration of 20 ppmv (as the sum of the concentrations for individual compounds using Method 18) on a dry basis corrected to 3 percent oxygen; or (C) Provide a minimum residence time of 0.5 seconds at a minimum temperature of 760 degrees C (1,400 degrees F). If a boiler or process heater issued as the control device, then the vent stream shall be introduced into the flame zone of the boiler or process heater. [40 CFR 61.349(a)(2), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.30		If visible defects are observed during an inspection, or if other problems are identified, or if detectable emissions are measured, a first effort to repair the closed-vent system and control device shall be made as soon as practicable but no later than 5 calendar days after detection. Repair shall be completed no later than 15 calendar days after the emissions are detected or the visible defect is observed. [40 CFR 61.349(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.188.31		(a) Delay of repair of facilities or units will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. (b) Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]

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TREA 66	CE057	Direct Flame Afterburner	
	5.189.1		The Permittee shall maintain Temperature $\geq$ 1279 degrees Fahrenheit 3-hour rolling average. [Minn. R. 7017.2025, subp. 3]
	5.189.2		The Permittee shall operate and maintain the control equipment such that it achieves a destruction efficiency for Total Organic Compounds $\geq$ 95 percent destruction efficiency (by weight) as demonstrated by performance test. [40 CFR 61.349(a)(2)(i)(A), Minn. R. 7011.9930(E), Minn. R. 7017.2025(E)]
	5.189.3		Temperature: Maintain temperature no greater than 28 degrees Celsius (50 degrees F) below the most recent performance test design temperature as a 3-hour rolling average. [40 CFR 61.354(c)(1), 40 CFR 61.356(j)(4), Minn. R. 7011.9930(E), Minn. R. 7017.2025]
	5.189.4		The Permittee must design the control device to meet performance standard: Reduce the organic emissions vented to it by 95 weight percent or greater. [40 CFR 61.349(a)(2)(i)(A), Minn. R. 7011.9930(E)]
	5.189.5		Daily Records: The Permittee shall maintain continuous records of the temperature of the gas stream in the combustion zone of the incinerator and records of all 3-hour periods of operation during which the average temperature of the gas stream in the combustion zone is more than 28 degrees C (50 degrees F) below the design combustion zone temperature. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.356(j)(4), 40 CFR 64.3, Minn. R. 7011.9930(E), Minn. R. 7017.0200]
	5.189.6		The Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor the control device operation as specified in 40 CFR Section 61.354(c)(1), unless alternative monitoring procedures or requirements are approved for that facility by the Administrator. The Permittee shall inspect at least once each operating day the data recorded by the monitoring equipment (e.g., temperature monitor or flow indicator) to ensure that the control device is operating properly. [40 CFR 61.354(c)(1), 40 CFR 64.3(b), Minn. R. 7011.9930(E), Minn. R. 7017.0200]
	5.189.7		Inspections: Conduct periodic inspections in accordance with the CAM Plan. [40 CFR 64.3, Minn. R. 7017.0200]
	5.189.8		Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor the control device operation as specified below, unless alternative monitoring procedures or requirements are approved. Inspect at least once each operating day the data recorded by the monitoring equipment to ensure that the control device is operating properly. For a thermal vapor incinerator, a temperature monitoring

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			device equipped with a continuous recorder. The device shall have an accuracy of +/-1 percent of the temperature being monitored in degrees C or +/-0.5 degree C, whichever is greater. The temperature sensor shall be installed at a representative location in the combustion chamber. [40 CFR 61.349(h), 40 CFR 61.354(c)(1), 40 CFR 63.655(a), 40 CFR 64.3(a)(2), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.0200]
	5.189.9		Corrective Actions: The Permittee shall follow the corrective actions, as outlined in the CAM Plan. If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken. [40 CFR 64.7(d), Minn. R. 7017.0200]
	5.189.10		Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing minimum combustion chamber temperature(s), the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes. [40 CFR 64.7(e), Minn. R. 7017.0200]
	5.189.11		The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained in accordance with the CAM Plan. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b), Minn. R. 7017.0200]
	5.189.12		Closed vent system and control device shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv initially and annually by Method 21 monitoring. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.349(a)(1)(i), Minn. R. 7011.9930(E)]
	5.189.13		The Permittee shall test equipment for compliance with no detectable emissions as required in accordance with the

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			following requirements: (1) Monitoring shall comply with Method 21 from appendix A of 40 CFR pt. 60. (2) The detection instrument shall meet the performance criteria of Method 21. (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21. (4) Calibration gases shall be: (i) Zero air (less than 10 ppm of hydrocarbon in air); and (ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. (5) The background level shall be determined as set forth in Method 21. (6) The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 61.355(h), 40 CFR 61.356(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.14		Each closed-vent system and control device shall be visually inspected quarterly. The visual inspection shall include inspection of ductwork and piping and connections to covers and control devices for evidence of visible defects such as holes in ductwork or piping and loose connections. [40 CFR 61.349(f), 40 CFR 61.356(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.15		Vent systems that contain any bypass line that could divert the vent stream away from a control device shall install, maintain, and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow away from the control device at least once every 15 minutes OR ensure the bypass line valve is closed by securing with a car-seal or lock-and-key type device. Exception is for a vent to atmosphere that remains in a closed, sealed position during normal operations except when the device needs to open to prevent physical damage or permanent deformation of the closed-vent system resulting from malfunction of the unit in accordance with good engineering and safety practices for handling flammable, explosive, or other hazardous materials. [40 CFR 61.349(a)(1), 40 CFR 61.355(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.16		Permittees using a closed-vent system that contains any bypass line that could divert a vent stream from a control device shall do the following: (1) Visually inspect the bypass line valve at least once every month, checking the position of the valve and the condition of the car-seal or closure mechanism required under 40 CFR Section 61.349(a)(1)(ii) to ensure that the valve is maintained in the closed position and the vent stream is not diverted

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			through the bypass line. (2) Visually inspect the readings from each flow monitoring device required by 40 CFR Section 61.349(a)(1)(ii) at least once each operating day to check that vapors are being routed to the control device as required. [40 CFR 61.354(f), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.17		CMS Records: The Permittee shall maintain records of monitoring data, monitoring system calibration checks, and the occurrence and duration of any period during which the monitoring system is malfunctioning or inoperative. These records shall be maintained at the source for a minimum of 2 years and made available, upon request, for inspection by the Administrator. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.14(f), Minn. R. 7017.1010]
	5.189.18		Performance test was used to determine control device performance; therefore, the Permittee will maintain the following records: (i) A description of how it is determined that the test is conducted when the waste management unit or treatment process is operating at the highest load or capacity level. This description shall include the estimated or design flow rate and organic content of each vent stream and definition of the acceptable operating ranges of key process and control parameters during the test program. (ii) A description of the control device including the type of control device, control device manufacturer's name and model number, control device dimensions, capacity, and construction materials. (iii) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis. (iv) All test results. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.356(f)(3)(i)-(iv), 40 CFR 61.356(j)(4), Minn. R. 7011.9930(E)]
	5.189.19		For each control device, maintain documentation that includes the following information regarding the control device operation: (1) Dates of startup and shutdown of the closed-vent system and control device; (2) A description of the operating parameter (or parameters) to be monitored to ensure that the control device will be operated in conformance with these standards and the control device's design specifications and an explanation of the criteria used for selection of that parameter (or parameters). This documentation shall be kept for the life of the control device; and (3) Periods when the closed-vent system and control device

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			are not operated as designed including all periods and the duration when: Any valve car-seal or closure mechanism is broken or the by-pass line valve position has changed and the flow monitoring devices indicate that vapors are not routed to the control device as required. [40 CFR 61.356(j)(1)-(3), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.20		Retain at the source and make available, upon request, for inspection by the Administrator, for a minimum of 2 years, records of emission test results and other data needed to determine emissions. [40 CFR 61.13(g), 40 CFR 61.356, 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E), Minn. R. 7017.2015]
	5.189.21		Recordkeeping: The Permittee shall maintain a record for each visual inspection required by 40 CFR Sections 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. The Permittee shall maintain a record for each test of no detectable emissions required. The record shall include the following information: date the test is performed, background level measured during test, and maximum concentration indicated by the instrument reading measured for each potential leak interface. If detectable emissions are measured at a leak interface, then the record shall also include the waste management unit, control equipment, and leak interface location where detectable emissions were measured, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed. The records may be maintained in either electronic or paper format, unless electronic or paper records are expressly prohibited. [40 CFR 61.356(g)-(h), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.22		Maintain continuous records of the temperature of the gas stream in the combustion zone of the incinerator and records of all 3-hour periods of operation during which the average temperature of the gas stream in the combustion zone is more than 28 degrees C (50 degrees F) below the temperature established in most recent destruction efficiency performance test. [40 CFR 61.356(j)(4), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.23		Quarterly Report: The Permittee shall prepare and submit quarterly reports for each 3-hour period of operation during which the average temperature of the gas stream in the combustion zone of a thermal vapor incinerator, as measured by the temperature monitoring device, is more than 28

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			degrees C (50 degrees F) below the design combustion zone temperature. [40 CFR 61.357(d)(7)(iv)(A), Minn. R. 7011.9930(E), Minn. R. 7017.1010, subp. 3]
	5.189.24		The Permittee shall notify the Administrator of intent to conduct a required performance test at least 30 days before the performance test is scheduled. [40 CFR 61.13(c), Minn. R. 7017.2015]
	5.189.25		Unless otherwise specified in an applicable subpart, samples shall be analyzed and emissions determined within 30 days after each emission test has been completed. The Permittee shall report the determinations of the emission test to the Administrator by a registered letter sent before the close of business on the 31st day following the completion of the emission test. [40 CFR 61.13(f), Minn. R. 7017.2015]
	5.189.26		Control device and closed vent system must be operated at all times when waste is in the waste management unit vented to the control device. [40 CFR 61.349(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.27		Maintain compliance with design, equipment, work practice, operational standards. A departure from this equipment specification is not considered a permit deviation as long as it is corrected (or properly qualified for delay of repair) within the time frame specified by regulation. [40 CFR 61.12(b), Minn. R. 7011.9900]
	5.189.28		The control device shall be designed and operated in accordance with the following conditions: (i) An enclosed combustion device (e.g., a vapor incinerator, boiler, or process heater) shall meet one of the following conditions: (A) Reduce the organic emissions vented to it by 95 weight percent or greater; (B) Achieve a total organic compound concentration of 20 ppmv (as the sum of the concentrations for individual compounds using Method 18) on a dry basis corrected to 3 percent oxygen; or (C) Provide a minimum residence time of 0.5 seconds at a minimum temperature of 760 degrees C (1,400 degrees F). If a boiler or process heater issued as the control device, then the vent stream shall be introduced into the flame zone of the boiler or process heater. [40 CFR 61.349(a)(2), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.29		If visible defects are observed during an inspection, or if other problems are identified, or if detectable emissions are measured, a first effort to repair the closed-vent system and control device shall be made as soon as practicable but no later than 5 calendar days after detection. Repair shall be completed no later than 15 calendar days after the emissions are detected or the visible defect is observed. [40 CFR 61.349(g), 40 CFR 61.357(d)(8), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	5.189.30		(a) Delay of repair of facilities or units will be allowed if the

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			repair is technically impossible without a complete or partial facility or unit shutdown. (b) Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(a)-(b), 40 CFR 63.655(a), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]

6. Submittal/action requirements

This section lists most of the submittals required by this permit. Please note that some submittal requirements may appear in the Limits and Other Requirements section, or, if applicable, within a Compliance Schedule section.

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TFAC 4	03700011	Flint Hills Resources Pine Bend Refinery	
	6.1.1		The Permittee shall submit an application for permit reissuance : Due 180 calendar days before Permit Expiration Date. [Minn. R. 7007.0400, subp. 2]
	6.1.2		The Permittee shall submit a quarterly report : Due quarterly 30 days after end of each calendar quarter, applies to all quarterly reports: due January 30th, April 30th, July 30th and October 30th of each calendar year. (Air Quality and Excess Emissions). [Minn. R. 7007.0800, subp. 6]
	6.1.3		The Permittee shall submit a report : Due semiannually, by the 30th of January and July for LDAR Semiannual Report. [40 CFR 60.487a, Minn. R. 7007.0800, subp. 6]
	6.1.4		The Permittee shall submit a report : Due semiannually, by the 30th of January and July for NSPS QQQ Semi-Annual Report. The Permittee shall submit to the Administrator semi-annually a certificate that all of the required inspections have been carried out in accordance with these standards. [40 CFR 60.698(b)(1), 40 CFR 60.698(c), Minn. R. 7011.1435(C)]
	6.1.5		The Permittee shall submit a report : Due semiannually, by the 31st of January and July for MACT Semi-Annual Periodic Reports. [40 CFR 63.10(d)(5)(i)-(ii), 40 CFR 63.1575(a), 40 CFR 63.6(e)(3)(iii)-(iv), 40 CFR 63.6545(g), 40 CFR 63.665(h)(1), 40 CFR 63.6650(l), 40 CFR 63.7591, 40 CFR pt. 63, subp. CC(Table 6), 40 CFR pt. 63, subp. UUU(Table 43), 40 CFR pt. 63, subp. ZZZZ(Table 7), 40 CFR pt. 63, subps. A & GGGGG, Minn. R. 7011.7000, Minn. R. 7011.7280(A)-(B), Minn. R. 7011.8010, Minn. R. 7011.8150, Minn. R. 7019.0100]
	6.1.6		The Permittee shall submit an annual report : Due annually, by the 30th of January. The annual report applies to all annual reports. [Minn. R. 7007.0800, subp. 6]
	6.1.7		The Permittee shall submit a compliance certification : Due annually, by the 31st of January (for the previous calendar year). The Permittee shall submit this to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year. [Minn. R. 7007.0800,

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			subp. 6(C)]
	6.1.8		The Permittee shall submit a semiannual deviations report : Due semiannually, by the 30th of January and July The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations. [Minn. R. 7007.0800, subp. 6(A)(2)]
	6.1.9		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance. Submit Deviations Reporting Form DRF-1 as amended. The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions. The EER must be submitted even if there were no excess emissions, downtime or bypasses during the quarter. [40 CFR 60.7(c), Minn. R. 7017.1110, subp. 1-2]
	6.1.10		The Permittee shall submit a report : Due annually by April 7th of each year for NESHAP Annual TAB/2Mg Report. The Permittee shall prepare and submit NESHAP TAB/2Mg Report for the Total Facility. [40 CFR 61.357(d)(2)-(3), Minn. R. 7011.7280(A), Minn. R. 7011.9930(E)]
	6.1.11		The Permittee shall submit a report : Due 120 calendar days after Permit Issuance Date. The Permittee shall submit a report, titled and clearly labeled "Subject Item Update Report", containing the missing Subject Item Details noted in Appendix H of this permit. The Permittee shall submit the information by filling in the Appendix H. In addition, the Permittee shall certify the report by using MPCA form SCP-01. [Minn. R. 7007.0500, subp. 2, Minn. R. 7007.0800, subp. 2]
COMG 9	GP009	Tanks subject to VOC Limit (CFP)	
	6.2.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of VOC tons/year limit per month and per year. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
COMG 27	GP135	Combustion Turbine and Duct Burners	
	6.3.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.3.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F,

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			5.1.1]
	6.3.3		PM < 10 micron : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The test shall occur at or near maximum heat input and load conditions, consisting of at least 3 test runs each with a duration of at least 60 minutes. The number and duration of the test runs may be extended at the Permittee's discretion to a maximum of 6 test runs and 240 minutes per run to account for variability in test results from low PM concentrations in exhaust gas stream. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. [Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.3.4		PM < 2.5 micron : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The test shall occur at or near maximum heat input and load conditions, consisting of at least 3 test runs each with a duration of at least 60 minutes. The number and duration of the test runs may be extended at the Permittee's discretion to a maximum of 6 test runs and 240 minutes per run to account for variability in test results from low PM concentrations in exhaust gas stream. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. [Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.3.5		Nitrogen Oxides : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. If a NOx-diluent CEMS is installed and certified under 40 CFR Section 60.4345, the initial performance test required under 40 CFR Section 60.8 may be performed in an alternative manner as described in 40 CFR Section 60.4405. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. [40 CFR 60.4320(a), 40 CFR 60.4380(b)(1)&(3), 40 CFR 60.8(a), 40 CFR pt. 60, subp. KKKK(Table 1), Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.3.6		Volatile Organic Compounds : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The performance test shall establish a lb/mmBtu emission factor for VOC to calculate annual emissions for emissions inventory purposes. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 25A, or other method approved by MPCA in the performance test plan approval. [Minn. R. 7017.2020, subp. 1,

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			Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.3.7		PM < 10 micron: The Permittee shall submit a test frequency plan for PM10: Due 60 calendar days after Initial Performance Test Date for PM10 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.3.8		PM < 2.5 micron: The Permittee shall submit a test frequency plan for PM2.5: Due 60 calendar days after Initial Performance Test Date for PM2.5 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.3.9		Nitrogen Oxides: The Permittee shall submit a test frequency plan for Nitrogen Oxides: Due 60 calendar days after Initial Performance Test Date for NOx emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.3.10		Volatile Organic Compounds: The Permittee shall submit a test frequency plan for Volatile Organic Compounds: Due 60 calendar days after Initial Performance Test Date for VOC emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.3.11		The Permittee shall submit a notification : Due 30 calendar days after Date of Construction Start of EQUI367. A notification of the date construction of EQUI367 commenced postmarked no later than 30 days after such date. Notification of start of construction is required by 40 CFR Section 60.7(a)(1). [40 CFR 60.7(a)(1), 40 CFR 63.9(b)(5)(i), Minn. R. 7019.0100]
	6.3.12		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI367. [40 CFR 60.7(a)(3), 40 CFR 63.9(b)(5)(ii), Minn. R. 7019.0100]
	6.3.13		The Permittee shall submit a notification : Due 30 calendar days before Startup of Monitor Date of the continuous monitoring system (CMS) in accordance with 40 CFR Section 60.13(c). [40 CFR 60.13(c), 40 CFR 60.7(a)(5), Minn. R. 7017.1010, Minn. R. 7019.0100]
COMG 28	GP011	Diesel Engines with SIP Conditions and <83.3 hr/mon	
	6.4.1		The Permittee shall submit excess emission/downtime report :

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			Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of diesel hours of operation. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
COMG 41	GP112	Sulfur Recovery Units	
	6.5.1		The Permittee shall submit a notification : Due 60 calendar days before Date of Construction Start of any physical or operational change to EQUI319, EQUI320 and EQUI503 or as soon as practicable before the change is commenced and shall include the information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice. This notification is required by 40 CFR Section 60.7(a)(4). [40 CFR 60.7(a)(4), Minn. R. 7019.0100]
COMG 66	GP002	Cooling Towers (#1, #3, #4, #5, #6 and #7) and associated Heat Exchange Systems	
	6.6.1		The Permittee shall submit a notification : Due 365 calendar days after Initial Startup Date of FUGI96. The notification shall provide information required in 40 CFR Section 63.405(a)(1)(i) through (a)(1)(iv). [40 CFR 63.405(a), 40 CFR 63.9(b)(1)(i) & (iii), Minn. R. 7011.8170, Minn. R. 7019.0100]
	6.6.2		The Permittee shall submit a notification of compliance status : Due 60 calendar days after Initial Startup Date of FUGI96 and brought into compliance with 40 CFR Section 63.402. [40 CFR 63.405(b), 40 CFR 63.9(h)(3), Minn. R. 7011.8170, Minn. R. 7019.0100]
COMG 67	GP133	Emergency Propane Generators	
	6.7.1		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI408, EQUI409 and EQUI410. A notification of the dates of startup of each individual emission unit (EQUI408, EQUI409 and EQUI410) postmarked no later than 15 days after such date. This information shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.7(a)(3), 40 CFR 63.9, Minn. R. 7019.0100]
COMG 69	GP131	RGP Vapor Combustion Unit	
	6.8.1		The Permittee shall submit a notification : Due 30 calendar days

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			after Date of Construction Start of the VCU (EQUI405). A notification of the date construction of EQUI405 commenced postmarked no later than 30 days after such date. FHR submitted the NSPS subp. Ja notification for the VCU on 12/3/2012, noting that FHR commenced construction pursuant to the NSPS definition (entered contract to fabricate the VCU offsite) but not the NSR definition on 11/8/2012. [40 CFR 60.7(a)(1), Minn. R. 7019.0100]
	6.8.2		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of the VCU (EQUI405) combusting gases from the operating loading rack. The notification shall include the specific monitoring provisions of 40 CFR Sections 60.105a, 60.106a and 60.107a with which the Permittee seeks to comply. This information shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b), 40 CFR 60.7(a)(3), Minn. R. 7019.0100]
COMG 96	GP111	Fuel Gas Supply Systems	
	6.9.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.9.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
COMG 99	GP136	Sour Water Tanks	
	6.10.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Construction Start of EQUI1020 and EQUI1455. A notification of the date construction of EQUIs 1020 and 1455 commenced postmarked no later than 30 days after such date. Notification of start of construction is required by 40 CFR Section 60.7(a)(1). [40 CFR 60.7(a)(1), Minn. R. 7019.0100]
	6.10.2		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI1020 and EQUI1455. A notification of the date of startup of EQUIs 1020 and 1455 postmarked no later than 15 days after such date. Notification of startup is required by 40 CFR Section 60.7(a)(3). [40 CFR 60.7(a)(3), Minn. R. 7019.0100]
EQUI 19	MR156	41 Unit Fuel Gas Mix Drum Total Sulfur	
	6.11.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]

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	6.11.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 24	MR161	45 Mix Drum Fuel Gas Combustion SO2 Monitor at 25H3	
	6.12.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.12.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 25	MR162	45 SO2 Monitor at 29H1/2	
	6.13.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.13.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 29	MR166	45 Mix Drum Fuel Gas Combustion O2 Monitor at 29H1/2	
	6.14.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.14.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 30	MR167	27H-101 CO Monitor	
	6.15.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.15.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]

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EQUI 31	MR168	27H-101 NOx Monitor	
	6.16.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.16.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 32	MR170	71B6 NOx Monitor	
	6.17.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.17.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 33	MR171	71B6 CO Monitor	
	6.18.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.18.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 34	MR172	71B6 O2 Monitor	
	6.19.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.19.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 58	MR154	O2 Monitor at 25H4	
	6.20.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.20.2		The Permittee shall conduct a relative accuracy test audit : Due

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			one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 60	MR152	NOx Monitor at 25H4	
	6.21.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.21.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 61	MR153	CO Monitor at 25H4	
	6.22.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.22.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 71	MR045	27H-1 O2 Analyzer	
	6.23.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.23.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 72	MR047	27H-102 O2 Analyzer	
	6.24.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.24.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 80	MR061	28H-1 O2 Analyzer	
	6.25.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than

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			three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.25.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 84	MR069	34H3 SO2 Analyzer	
	6.26.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.26.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 135	MR093	71B8 O2 Analyzer to Monitor NOx Emissions	
	6.27.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.27.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 222	MR004	VOC Monitor at Bottom Loading Unit	
	6.28.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.28.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 245	MR027	23H-2 O2 Analyzer	
	6.29.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.29.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F,

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			5.1.1]
EQUI 283	MR033	25H-3 O2 Analyzer	
	6.30.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.30.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 287	MR181	29H-1/2 O2 Monitor	
	6.31.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.31.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 288	MR182	27H-101 O2 Monitor	
	6.32.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.32.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 296	MR179	29H-1/2 NOx Monitor	
	6.33.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.33.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 297	MR180	29H-1/2 CO Monitor	
	6.34.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any

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			calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.34.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 312	MR196	45 Unit Fuel Gas Mix Drum Total Sulfur	
	6.35.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.35.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 324	EU127	Plant Air Compressor Diesel Engine - Reciprocating IC Engine	
	6.36.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of NOx lb/hr limit. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.36.2		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of diesel hours of operation. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 371	EU204	Steam Boiler #8 - Boiler	
	6.37.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of NOx emission limits. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.37.2		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance. Cover letter certification, and summary of exceedances shall be submitted in hardcopy or electronic format; all other information may be submitted electronically. The report shall be certified per Minn. R. 7007.0500, subp. 3. [40 CFR 60.19, 40 CFR 60.4, 40 CFR 60.49b, Minn. R. 7007.0500, subp. 3, Minn. R. 7011.0565]
	6.37.3		Carbon Monoxide : The Permittee shall conduct a performance test : Due before 05/20/2017 every 60 months to measure emissions. The first test is due by the date specified and all

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			subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 10, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.37.4		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 05/20/2017 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [40 CFR 60.40b, 40 CFR 60.44b, Minn. R. 7011.0565, Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 376	EU212	11H-6 - Refining Equipment	
	6.38.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.38.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.38.3		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of SO2 limits.

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			[Minn. R. 7017.1110, subps. 1-2, Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.38.4		The Permittee shall submit a notification : Due 60 calendar days before Date of Construction Start of any physical or operational change to EQUI376 or as soon as practicable before the change is commenced and shall include the information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice. This notification is required by 40 CFR Section 60.7(a)(4). [40 CFR 60.7(a)(4), Minn. R. 7019.0100]
	6.38.5		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI376 following modifications made as part of the #3 Crude/Coker Improvements Permit. The notification shall include the specific monitoring provisions of Sections 60.105a, 60.106a and 60.107a with which the Permittee intends to comply. This information shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b), 40 CFR 60.7(a)(3), Minn. R. 7019.0100]
	6.38.6		The Permittee shall submit a notification : Due 30 calendar days before Startup of Monitor Date of the continuous monitoring system (CMS) following modifications made as part of the #3 Crude/Coker Improvements Permit. This notification is in accordance with 40 CFR Section 60.13(c). [40 CFR 60.7(a)(5), Minn. R. 7019.0100]
	6.38.7		PM < 10 micron : The Permittee shall conduct a performance test : Due before 08/18/2017 every 12 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 12-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [40 CFR 60.102a(a), 40 CFR

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			60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.38.8		PM < 2.5 micron : The Permittee shall conduct a performance test : Due before 08/18/2017 every 12 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 12-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.38.9		Total Particulate Matter : The Permittee shall conduct a performance test : Due before 08/18/2017 every 12 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 12-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 5 and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 377	EU213	#3 H2 Heater -	

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		Process Heater	
	6.39.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.39.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.39.3		PM < 10 micron : The Permittee shall conduct a performance test : Due before 01/17/2017 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.39.4		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of NOx emission limits. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.39.5		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of the PM10 limit. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 406	EU352	23H3 Heater - Process Heater	
	6.40.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.40.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]

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	6.40.3		PM < 10 micron : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.40.4		PM < 2.5 micron : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.40.5		Total Particulate Matter : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 5 and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.40.6		PM < 10 micron: The Permittee shall submit a test frequency plan for PM10: Due 60 calendar days after Initial Performance Test Date for PM10 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.40.7		PM < 2.5 micron: The Permittee shall submit a test frequency plan for PM2.5: Due 60 calendar days after Initial Performance Test Date for PM2.5 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.40.8		Total Particulate Matter: The Permittee shall submit a test frequency plan for Total Particulate Matter: Due 60 calendar days after Initial Performance Test Date for PM emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month,

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			36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.40.9		The Permittee shall submit a notification : Due 30 calendar days after Date of Construction Start of EQUI406. A notification of the date construction of EQUI406 commenced postmarked no later than 30 days after such date. Notification of start of construction is required by 40 CFR Section 60.7(a)(1). [40 CFR 60.7(a)(1), Minn. R. 7019.0100]
	6.40.10		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI406. The notification shall include the specific monitoring provisions of 40 CFR Sections 60.105a, 60.106a and 60.107a with which the Permittee seeks to comply. This information shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b), 40 CFR 60.7(a)(3), Minn. R. 7019.0100]
	6.40.11		The Permittee shall submit a notification : Due 30 calendar days before Startup of Monitor Date of the continuous monitoring system (CMS) in accordance with 40 CFR Section 60.13(c). [40 CFR 60.7(a)(5), Minn. R. 7019.0100]
	6.40.12		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI406. The notification must include the information listed in 40 CFR Section 63.9(b)(4) and (b)(5). [40 CFR 63.7495(d), 40 CFR 63.7545(a)&(c), 40 CFR 63.7565, 40 CFR 63.9(b)(1)(i)&(iii), Minn. R. 7011.7050, Minn. R. 7019.0100]
	6.40.13		The Permittee shall submit a notification of compliance status : Due 60 calendar days after Initial Startup Date and brought into compliance with 40 CFR pt. 63, subp. DDDDD. [40 CFR 63.7495(d), 40 CFR 63.9(h)(3), Minn. R. 7011.7050, Minn. R. 7019.0100]
EQUI 407	EU353	25H2 Heater - Process Heater	
	6.41.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.41.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.41.3		PM < 10 micron : The Permittee shall conduct a performance test : Due before 03/03/2021 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval.

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			Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.41.4		PM < 2.5 micron : The Permittee shall conduct a performance test : Due before 03/03/2021 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.41.5		Total Particulate Matter : The Permittee shall conduct a performance test : Due before 03/03/2021 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 5 and 202, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date

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			satisfies this test due date requirement and will reset the performance test due date. [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.41.6		The Permittee shall submit a notification : Due 30 calendar days after Date of Construction Start of EQUI407. A notification of the date construction of EQUI407 commenced postmarked no later than 30 days after such date. Notification of start of construction is required by 40 CFR Section 60.7(a)(1). [40 CFR 60.7(a)(1), Minn. R. 7019.0100]
	6.41.7		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI407. The notification shall include the specific monitoring provisions of 40 CFR Sections 60.105a, 60.106a and 60.107a with which the Permittee seeks to comply. This information shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b), 40 CFR 60.7(a)(3), Minn. R. 7019.0100]
	6.41.8		The Permittee shall submit a notification : Due 30 calendar days before Startup of Monitor Date of the continuous monitoring system (CMS) in accordance with 40 CFR Section 60.13(c). [40 CFR 60.7(a)(5), Minn. R. 7019.0100]
	6.41.9		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI407. The notification must include the information listed in 40 CFR Section 63.9(b)(4) and (b)(5). [40 CFR 63.7495(d), 40 CFR 63.7545(a)&(c), 40 CFR 63.7565, 40 CFR 63.9(b)(1)(i)&(iii), Minn. R. 7011.7050, Minn. R. 7019.0100]
	6.41.10		The Permittee shall submit a notification of compliance status : Due 60 calendar days after Initial Startup Date and brought into compliance with 40 CFR pt. 63, subp. DDDDD. [40 CFR 63.7495(d), 40 CFR 63.9(h)(3), Minn. R. 7011.7050, Minn. R. 7019.0100]
EQUI 421	EU228	FCCU - Refining Equipment	
	6.42.1		The Permittee shall conduct COMS calibration error audit : Due semiannually, by the 30th of January and July starting 03/25/2008. Conduct three point calibration error audits at least 3 months apart but no greater than 8 months apart. Filter values used shall be determined in accordance with 40 CFR pt. 60, Appendix B. [40 CFR 64.6(c), 40 CFR pt. 60, Appendix B, Sec. 7, Minn. R. 7017.1210, subp. 3]
	6.42.2		The Permittee shall submit a COMS calibration error audit results summary : Due 30 calendar days after 06/10/2008 every half year following COMS Calibration Error Audit. [Minn. R. 7017.1220]
	6.42.3		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt.

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			60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.42.4		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.42.5		PM < 10 micron : The Permittee shall conduct a performance test : Due before 11/03/2017 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.42.6		Total Particulate Matter : The Permittee shall conduct a performance test : Due before 11/03/2016 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 5 and 202, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [40 CFR 60.102(a)(1), 40 CFR 60.8(c), 40 CFR 63.1564(a)(1), 40 CFR 63.1564(c)(1), Minn. R. 7011.1410, subp. 1(A), Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 432	EU241	#1 H2 Plant Reformer/Heater	

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		- Process Heater	
	6.43.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 5]
	6.43.2		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 11/09/2017 every 36 months to measure emissions from STRU127. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7017.2020, subp. 1]
EQUI 457	EU282	OSWTP - Thermal Oxidizer - Other Combustion	
	6.44.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.44.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 471	EU296	No. 4 Hydrogen Plant Reformer - Refining Equipment	
	6.45.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR 64.3(d), 40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.0200, Minn. R. 7017.1170, subp. 4]
	6.45.2		The Permittee shall conduct a relative accuracy test audit : Due

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			one of each four calendar quarters. [40 CFR 64.3(d), 40 CFR pt. 60, Appendix F, 5.1.1, Minn. R. 7017.0200]
	6.45.3		PM < 10 micron : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.45.4		PM < 2.5 micron : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). The testing shall occur at or near maximum heat input and load conditions, consisting of at least 3 test runs, each with a duration of at least 60 minutes. The number and duration of the test runs may be extended at the Permittee's discretion to a maximum of 6 test runs and 240 minutes per run to account for variability in test results from low PM concentrations in the exhaust gas stream. [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.45.5		PM < 10 micron: The Permittee shall submit a test frequency plan for PM10: Due 60 calendar days after Initial Performance Test Date for PM10 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.45.6		PM < 2.5 micron: The Permittee shall submit a test frequency plan for PM2.5: Due 60 calendar days after Initial Performance Test Date for PM2.5 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
EQUI 483	EU004	Truck Bottom Loading (gas, distillate) including the trucks - Loading-Unloading	

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		Equipment	
	6.46.1		Volatile Organic Compounds : The Permittee shall conduct a performance test : Due before 03/27/2018 every 60 months to measure emissions in lbs/hr and milligrams of total organic compounds per liter gasoline loaded. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 25A, or other method approved by MPCA in the performance test plan approval. Performance testing is required if the Permittee desires to operate above the loadout rate achieved during the most recent MPCA approved performance test, or if a VOC emission factor is desired to be developed for use in emission inventory reporting. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [40 CFR 63.422(b), Minn. R. 7011.7180, Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 484	EU005	#1 Crude Heater atmospheric distillation - Distillation Equipment	
	6.47.1		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 06/27/2018 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date

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			satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 485	EU006	#1 Crude Heater crude preflash - Process Heater	
	6.48.1		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 11/17/2018 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7017.2020, subp. 1]
EQUI 487	EU016	Vacuum Pre-Strip Heater - Process Heater	
	6.49.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.49.2		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 08/23/2021 every 60 months to measure emissions from STRU93. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit;

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			2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 488	EU019	#2 Vac Heater - Process Heater	
	6.50.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.50.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.50.3		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of the SO ₂ or NO _x limit. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 490	EU026	#1 Vac Heater - Process Heater	
	6.51.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of the SO ₂ or NO _x limit. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.51.2		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 03/22/2017 every 60 months to measure emissions from STRU95. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency

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			Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 491	EU028	#1 Coker Heater - Process Heater	
	6.52.1		Carbon Monoxide : The Permittee shall conduct a performance test : Due before 12/04/2023 every 10 years to verify the emission factor of CO in mmBtu/hr from STRU99/STRU100. This is the emission factor performance test for determining the CO emission factor and the EFT. The EFT is calculated as 110% of the average mmBtu/hr operating rate of all test runs. The first test is due by the date specified and all subsequent tests are due by the end of each 10-year period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 10, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.52.2		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 12/04/2023 every 10 years to verify the emission factor of NOx in mmBtu/hr from STRU99/STRU100. This is the emission factor performance test for determining the NOx emission factor and the EFT. The EFT is calculated as 110% of the average mmBtu/hr operating rate of all test runs. The first test is due by the date specified and all subsequent tests are due by the end of each 10-year period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or

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			3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.52.3		The Permittee shall submit a notification : Due 30 calendar days after Date of Shutdown of EQUI491. Notification of the date that EQUI491 has been permanently shutdown pursuant to the Pine Bend Technology and Efficiency Improvement Projects. [Minn. R. 7007.0800, subp. 6]
EQUI 492	EU030	#2 Coker Heater - Process Heater	
	6.53.1		Carbon Monoxide : The Permittee shall conduct a performance test : Due before 12/03/2023 every 10 years to verify the emission factor of CO in mmBtu/hr from STRU101/STRU102. This is the emission factor performance test for determining the CO emission factor and the EFT. The EFT is calculated as 110% of the average mmBtu/hr operating rate of all test runs. The first test is due by the date specified and all subsequent tests are due by the end of each 10-year period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 10, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.53.2		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 12/03/2023 every 10 years to verify the emission factor of NOx in mmBtu/hr from STRU101/STRU102. This is the emission factor performance test for determining the NOx emission factor and the EFT. The EFT is calculated as 110% of the average mmBtu/hr operating rate of all test runs. The first test is due by the date specified and all subsequent tests are due by the end of each 10-year period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit;

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			2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.53.3		The Permittee shall submit a notification : Due 30 calendar days after Date of Shutdown of EQUI492. Notification of the date that EQUI492 has been permanently shutdown pursuant to the Pine Bend Technology and Efficiency Improvement Projects. [Minn. R. 7007.0800, subp. 6]
EQUI 493	EU032	Steam/Air Heater Decoking - 21H-1 - Process Heater	
	6.54.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Shutdown of EQUI493. Notification of the date that EQUI493 has been permanently shutdown pursuant to the Pine Bend Technology and Efficiency Improvement Projects. [Minn. R. 7007.0800, subp. 6]
EQUI 494	EU033	Steam/Air Heater Decoking - 21H-2 - Process Heater	
	6.55.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Shutdown of EQUI494. Notification of the date that EQUI494 has been permanently shutdown pursuant to the Pine Bend Technology and Efficiency Improvement Projects. [Minn. R. 7007.0800, subp. 6]
EQUI 495	EU034	#3 Coker Heater - Process Heater	
	6.56.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of the SO2 limits. THIS CONDITION WILL BE TERMINATED ON THE DATE THE US EPA APPROVES AMENDMENT 11 TO THE SIP. [Title I Condition: 40 CFR 50.4(SO2 SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 501	EU041	#3 Crude Unit Vac Pre-Fractionator Heater - Process Heater	
	6.57.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.57.2		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than

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			three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.57.3		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 505	EU050	Distillate HDS Recycle Hydrogen Charge Heater - Process Heater	
	6.58.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. (reporting associated with the BACT limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 515	EU313	Steam Boiler No. 9 - Boiler	
	6.59.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.59.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
EQUI 536	EU334	Coke Drum System A and B - Coke Handling Equipment	
	6.60.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Shutdown of EQUI536. Notification of the date that EQUI536 has been permanently shutdown pursuant to the Pine Bend Technology and Efficiency Improvement Projects. [Minn. R. 7007.0800, subp. 6]
EQUI 537	EU335	Coke Drum System C and D - Coke Handling Equipment	
	6.61.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Shutdown of EQUI537. Notification of the date that EQUI537 has been permanently shutdown pursuant to the Pine Bend Technology and Efficiency Improvement Projects. [Minn. R. 7007.0800, subp. 6]
EQUI 538	EU336	Coke Drum System E and F -	

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		Coke Handling Equipment	
	6.62.1		The Permittee shall submit a notification : Due 60 calendar days before Date of Construction Start of any physical or operational change to EQUI538 or as soon as practicable before the change is commenced and shall include the information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice. This notification is required by 40 CFR Section 60.7(a)(4). For the purposes of this requirement, where FHR is taking voluntary applicability of an NSPS standard, the start of the operational change in question is defined to be when the Coke Drums E & F are subject to the 5.0 psig depressure standard. [40 CFR 60.7(a)(4), Minn. R. 7019.0100]
	6.62.2		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI406 or EQUI407, whichever is sooner. Notification of initial startup is required by 40 CFR Section 60.7(a)(3). [40 CFR 60.7(a)(3), Minn. R. 7019.0100]
EQUI 541	EU084	Gas Oil HDS Charge Heater - Process Heater	
	6.63.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 5]
	6.63.2		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 02/09/2019 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]

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EQUI 542	EU051	Distillate Hydrotreater Fractnr Htr - Distillation Equipment	
	6.64.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.64.2		Carbon Monoxide : The Permittee shall conduct a performance test : Due before 01/31/2017 every 60 months to measure emissions from STRU113. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 10, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.64.3		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 01/31/2017 every 60 months to measure emissions from STRU113. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I

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			Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 543	EU052	#2 H2 Plant Reformer Heater - Process Heater	
	6.65.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of NOx emission limits. [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.65.2		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of CO and PM/PM10 emission limits. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.65.3		PM < 10 micron : The Permittee shall conduct a performance test : Due before 03/04/2020 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.65.4		Total Particulate Matter : The Permittee shall conduct a performance test : Due before 03/04/2020 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 5 and 202, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or

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			3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.65.5		Carbon Monoxide : The Permittee shall conduct a performance test : Due before 01/25/2022 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 10, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.65.6		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 01/25/2022 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 544	EU053	Naphtha Hydrotreater Reactor Chg Htr - Reactor	

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	6.66.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. (reporting associated with the BACT limit). [Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.66.2		Carbon Monoxide : The Permittee shall conduct a performance test : Due before 11/16/2016 every 36 months to measure emissions from STRU115. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 10, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.66.3		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 11/16/2016 every 36 months to measure emissions from STRU115. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 546	EU055	#2 HDS Fractionation Heater (31H2) - Fractionation Equipment	

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	6.67.1		The Permittee shall submit a notification : Due 15 calendar days after Startup Date of EQUI546 combusting the full Merox offgas stream. [40 CFR 60.108a, 40 CFR 60.7(a)(3), Minn. R. 7019.0100]
	6.67.2		The Permittee shall submit a notification : Due 60 calendar days before Startup Date of modification to EQUI546. Notification shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. [40 CFR 60.108a, 40 CFR 60.7(a)(4), Minn. R. 7019.0100]
EQUI 547	EU056	HDS Heater (hot oil system) - Process Heater	
	6.68.1		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 02/05/2017 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7017.2020, subp. 1]
EQUI 559	EU085	Gas Oil HDS Fractionation Charge Heater - Process Heater	
	6.69.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. (2001 EPA Consent Decree, as amended). [CAAA of 1990, Minn. R. 7007.0800, subp. 5]
	6.69.2		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 02/06/2019 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at

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			worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 568	EU102	Unit 38 Gasoil HDS A-Train Heater - Process Heater	
	6.70.1		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 04/09/2017 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 569	EU103	Unit 38 Gasoil HDS B-Train Heater - Process Heater	
	6.71.1		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 04/10/2017 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at

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			worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
EQUI 570	EU104	Unit 38 Gasoil HDS Fractionation Charge Heater - Process Heater	
	6.72.1		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 02/05/2019 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
EQUI 574	EU361	ATS Process Unit - Refining Equipment	
	6.73.1		Sulfur Dioxide : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions to demonstrate initial compliance with each applicable emissions limit in 40 CFR Section 60.102a. The notification requirements of 40 CFR Section 60.8(d) apply to

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			the initial performance test and subsequent performance tests. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 6C, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified in 40 CFR Section 60.104a, except as provided in 40 CFR Section 60.8(b). [40 CFR 60.104a(a)&(c), 40 CFR 60.8, Minn. R. 7017.2020, subp. 1]
	6.73.2		Sulfur Dioxide: The Permittee shall submit a test frequency plan for Sulfur Dioxide: Due 60 calendar days after Initial Performance Test Date for SO ₂ emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.73.3		The Permittee shall submit a notification : Due 30 calendar days after Date of Construction Start of EQUI574 as a modification to the SRP (including COMG41 and EQUI574). A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR Section 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice. [40 CFR 60.7(a)(1), Minn. R. 7019.0100]
	6.73.4		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI574. A notification of the date of startup of EQUI574 postmarked no later than 15 days after such date. Notification of startup is required in association with the initial performance test requirements under 40 CFR Section 60.8. [40 CFR 60.8, Minn. R. 7017.2015]
	6.73.5		The Permittee shall submit a notification : Due 30 calendar days before Startup of Monitor Date of the continuous monitoring system (CMS) performance in accordance with 40 CFR Section 60.13(c). Notification shall be postmarked no less than 30 days prior to such date. [40 CFR 60.7(a)(5), Minn. R. 7019.0100]
	6.73.6		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.73.7		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.73.8		The Permittee shall submit excess emission/downtime report :

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			Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances of the SO ₂ limits. [Title I Condition: 40 CFR 50.4(SO ₂ SIP), Title I Condition: 40 CFR 51, Title I Condition: 40 CFR pt. 52, subp. Y]
EQUI 1456		EQUI24H1	
	6.74.1		The Permittee shall submit start-up notification : Due 10 working days after Startup of Monitor Date. [Minn. R. 7007.0800, subp. 2]
	6.74.2		The Permittee shall conduct CEMS cylinder gas audit (CGA) : Due after CEMS Certification Test Date quarterly but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.3]
	6.74.3		The Permittee shall conduct CEMS relative accuracy test audit (RATA) : Due after CEMS Certification Test Date annually meaning by the end of every one of four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.74.4		PM < 10 micron : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.74.5		PM < 2.5 micron : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 201A and 202, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified except as provided in 40 CFR Section 60.8(b). The testing shall occur at or near maximum heat input and load conditions, consisting of at least 3 test runs, each with a duration of at least 60 minutes. The number and duration of the test runs may be extended at the Permittee's discretion to a maximum of 6 test runs and 240 minutes per run to account for variability in test results from low PM concentrations in the exhaust gas stream. [40 CFR 60.102a(a), 40 CFR 60.104a(c), 40 CFR 60.8(a), Minn. R. 7017.2020, subp. 1, Title I Condition: 40 CFR 52.21(j)(BACT) & Minn. R. 7007.3000]
	6.74.6		PM < 10 micron: The Permittee shall submit a test frequency plan for PM ₁₀ : Due 60 calendar days after Initial Performance Test Date for PM ₁₀ emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future

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			performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.74.7		PM < 2.5 micron: The Permittee shall submit a test frequency plan for PM2.5: Due 60 calendar days after Initial Performance Test Date for PM2.5 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
	6.74.8		The Permittee shall submit a notification : Due 30 calendar days after Date of Construction Start of EQUI1456. A notification of the date construction of EQUI1456 commenced postmarked no later than 30 days after such date. Notification of start of construction is required by 40 CFR Section 60.7(a)(1). [40 CFR 60.7(a)(1), Minn. R. 7019.0100]
	6.74.9		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI1456. The notification shall include the specific monitoring provisions of 40 CFR Section 60.107a with which the Permittee seeks to comply. This information shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b), 40 CFR 60.7(a)(3), Minn. R. 7019.0100]
	6.74.10		The Permittee shall submit a notification : Due 30 calendar days before Startup of Monitor Date of the continuous monitoring system (CMS) in accordance with 40 CFR Section 60.13(c). [40 CFR 60.7(a)(5), Minn. R. 7019.0100]
	6.74.11		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI1456. The notification must include the information listed in 40 CFR Section 63.9(b)(4) and (b)(5). [40 CFR 63.7495(d), 40 CFR 63.7545(a)&(c), 40 CFR 63.7565, 40 CFR 63.9(b)(1)(i)&(iii), Minn. R. 7011.7050, Minn. R. 7019.0100]
	6.74.12		The Permittee shall submit a notification of compliance status : Due 60 calendar days after Initial Startup Date and brought into compliance with 40 CFR pt. 63, subp. DDDDD. [40 CFR 63.7495(d), 40 CFR 63.9(h)(3), Minn. R. 7011.7050, Minn. R. 7019.0100]
EQUI 1457		EQUI24DRUMS (Process)	
	6.75.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Construction Start of EQUI1457. A notification of the date construction of EQUI1457 commenced postmarked no later than 30 days after such date. Notification of start of construction is required by 40 CFR Section 60.7(a)(1). [40 CFR 60.7(a)(1), Minn. R. 7019.0100]
	6.75.2		The Permittee shall submit a notification : Due 15 calendar days after Initial Startup Date of EQUI1457. The notification shall include the specific monitoring provisions of 40 CFR Sections 60.105a, 60.106a and 60.107a with which the Permittee seeks

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			to comply. This information shall be submitted with the notification of initial startup required by 40 CFR Section 60.7(a)(3). [40 CFR 60.108a(b), 40 CFR 60.7(a)(3), Minn. R. 7019.0100]
FUGI 7	FS041	21-1Delayed Coker - Process Emissions	
	6.76.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Shutdown of FUGI7. Notification of the date that FUGI7 has been permanently shutdown pursuant to the Pine Bend Technology and Efficiency Improvement Projects. [Minn. R. 7007.0800, subp. 6]
FUGI 80	FS042	21-2 Delayed Coker - Process Emissions	
	6.77.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Shutdown of FUGI80. Notification of the date that FUGI80 has been permanently shutdown pursuant to the Pine Bend Technology and Efficiency Improvement Projects. [Minn. R. 7007.0800, subp. 6]
STRU 83	SV042	#5 SRU 26 Unit Stack	
	6.78.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.78.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.78.3		Sulfur Dioxide : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date of EQUI574 to measure emissions to demonstrate initial compliance with each applicable emissions limit in 40 CFR Section 60.102a. The notification requirements of 40 CFR Section 60.8(d) apply to the initial performance test and subsequent performance tests. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 6C, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified in 40 CFR Section 60.104a, except as provided in 40 CFR Section 60.8(b). [40 CFR 60.104a(a)&(c), 40 CFR 60.8, Minn. R. 7017.2020, subp. 1]
	6.78.4		Sulfur Dioxide: The Permittee shall submit a test frequency plan for Sulfur Dioxide: Due 60 calendar days after Initial Performance Test Date for SO2 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
STRU 124	SV066	32H5 6 7 Stack	
	6.79.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance if there are any exceedances. [CAAA of 1990, Minn. R. 7007.0800, subp. 5]
	6.79.2		Carbon Monoxide : The Permittee shall conduct a performance test : Due before 03/03/2017 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 10, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
	6.79.3		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 03/03/2017 every 36 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 36-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [CAAA of 1990, Minn. R. 7007.0800, subp. 2, Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
STRU 130	SV082	37H1 2 6 Stack	
	6.80.1		Nitrogen Oxides : The Permittee shall conduct a performance test : Due before 06/19/2017 every 60 months to measure emissions. The first test is due by the date specified and all subsequent tests are due by the end of each 60-month period following that date. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 7E, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) & Minn. R. 7007.3000]
STRU 131	SV083	37H3 4 5 Stack	
	6.81.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.81.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
STRU 139	SV093	45H61 Stack	
	6.82.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.82.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.82.3		Sulfur Dioxide : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date of EQUI574 to measure emissions to demonstrate initial compliance with each applicable emissions limit in 40 CFR Section 60.102a. The notification requirements of 40 CFR Section 60.8(d) apply to the initial performance test and subsequent performance tests. The performance test shall be conducted at worst case conditions as defined at Minn. R.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			7017.2025, subp. 2, using EPA Reference Method 6C, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60, Appendices A-1 through A-8 or other methods as specified in 40 CFR Section 60.104a, except as provided in 40 CFR Section 60.8(b). [40 CFR 60.104a(a)&(c), 40 CFR 60.8, Minn. R. 7017.2020, subp. 1]
	6.82.4		Sulfur Dioxide: The Permittee shall submit a test frequency plan for Sulfur Dioxide: Due 60 calendar days after Initial Performance Test Date for SO ₂ emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
STRU 140	SV094	45H6 Stack	
	6.83.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.83.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
	6.83.3		Sulfur Dioxide : The Permittee shall conduct an initial performance test : Due 180 calendar days after Initial Startup Date to measure emissions to demonstrate initial compliance with each applicable emissions limit in 40 CFR Section 60.102a. The notification requirements of 40 CFR Section 60.8(d) apply to the initial performance test and subsequent performance tests. The performance test shall be conducted at worst case conditions as defined at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 6C, or other method approved by MPCA in the performance test plan approval. Use test methods in 40 CFR pt. 60 Appendices A-1 through A-8 or other methods as specified in 40 CFR Section 60.104a, except as provided in 40 CFR Section 60.8(b). [40 CFR 60.104a(a)&(c), 40 CFR 60.8, Minn. R. 7017.2020, subp. 1]
	6.83.4		Sulfur Dioxide: The Permittee shall submit a test frequency plan for Sulfur Dioxide: Due 60 calendar days after Initial Performance Test Date for SO ₂ emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, or 60-month intervals, or as applicable, shall be required upon written approval of the MPCA. [Minn. R. 7017.2020, subp. 1]
TREA 1	EU301	84ME23 E. Flare - zControl	
	6.84.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.84.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
TREA 2	EU302	84ME24 W. Flare - zControl	
	6.85.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.85.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
TREA 4	EU304	84ME3 N. Flare - zControl	
	6.86.1		The Permittee shall conduct a cylinder gas audit : Due by the end of each three of four calendar quarters but no more than three quarters in succession. A CGA is not required during any calendar quarter in which a RATA was performed. [40 CFR pt. 60, Appendix F, 5.1.2, Minn. R. 7017.1170, subp. 4]
	6.86.2		The Permittee shall conduct a relative accuracy test audit : Due one of each four calendar quarters. [40 CFR pt. 60, Appendix F, 5.1.1]
TREA 65	CE056	Direct Flame Afterburner	
	6.87.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance. Cover letter, certification, and summary of exceedances shall be submitted in hardcopy or electronic format; all other information may be submitted electronically. The reports shall be certified per Minn. R. 7007.0500, subp. 3. [40 CFR 60.105(e)(3)(ii), Minn. R. 7011.1435(A)]
TREA 66	CE057	Direct Flame Afterburner	
	6.88.1		The Permittee shall submit excess emission/downtime report : Due by 30 days after the end of each calendar quarter following permit issuance. Cover letter, certification, and summary of exceedances shall be submitted in hardcopy or electronic format; all other information may be submitted electronically. The reports shall be certified per Minn. R. 7007.0500, subp. 3. [40 CFR 60.105(e)(3)(ii), Minn. R. 7011.1435(A)]

7. Appendices

Appendix A: Insignificant Activities and Likely Applicable Requirements

Under Minn. R. 7007.1250, subp. 1(A), the Permittee may add insignificant activities to the stationary source throughout the term of the permit without getting permit amendments. Certain exclusions apply and are listed in Minn. R. 7007.1250, subp.2. The following table is a listing of the insignificant activities that the Permittee is somewhat likely to add and their associated applicable requirements.

Operator ID	Description of Activity	Applicable Insignificant Activity	Likely Applicable Requirement

WATER AND WASTE MANAGEMENT ACTIVITIES (including but not limited to):

IA001-WMgmt	00PINEBEND084	All Hazardous Waste (RCRA) Container Storage Areas	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA002-WMgmt	00PINEBEND085	All Solid Waste Container Storage Areas	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA004-WMgmt	00PINEBEND086	Polishing Ponds	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA005-WMgmt	00PINEBEND087	Clarifiers: 94V6A, 94V6B, 94V23A and 94V23B	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA006-WMgmt	00PINEBEND088	Effluent Sampling Station - Polishing Ponds	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA007-WMgmt	94ME163	S7 Sump	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA011-WMgmt	94B5	North Firewater Basin, B-5	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA012-WMgmt	00PINEBEND089	21 and 23 Unit Clarifiers	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA013-WMgmt	00PINEBEND090	23 Unit Water Recovery Tank	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA014-WMgmt	00PINEBEND091	Coker Water and Coker Water Management Area	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA015-WMgmt	00PINEBEND092	Stormwater and Firewater Storage	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA016-WMgmt	00PINEBEND093	Effluent Discharge	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150

REFINERY GENERAL

IA017-RG	00PINEBEND055	Cleaning (Blasting) of Vessels, Piping and Structural Steel in Refinery	Minn. R. 7007.1300, subp. 2(B)(2)	Minn. R. 7011.0150
IA018-RG	00PINEBEND056	Cleaning (Blasting) of Pumps, Compressors, Valves, Flanges & Misc. Materials (Paint Shop)	Minn. R. 7007.1300, subp. 2(B)(2)	Minn. R. 7011.0150
IA019-RG	00PINEBEND057	Painting of Vessels, Piping & Structural Steel in Refinery	Minn. R. 7007.1300, subp. 2(B)(1)	Minn. R. 7011.0150
IA020-RG	103UNIT	Barge Pipeline & Associated	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150

		Equipment		
IA021-RG	00PINEBEND058	Spent Acid Pipeline & Associated Equipment	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710/0715
IA022-RG	00PINEBEND059	MAPCO Pipeline & Associated Equipment	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA023-RG	00PINEBEND060	Barge Dock Oil Collection Pits	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA024-RG	00PINEBEND061	Painting of Pumps, Compressors, Valves, Flanges & Misc. Materials (Paint Shop)	Minn. R. 7007.1300, subp. 2(B)(1)	Minn. R. 7011.0710
IA025-RG	00PINEBEND062	General Cleaning & Maintenance Activities - Pumps, Valves, Compressors, Exchangers, Other Equipment	Minn. R. 7007.1300, subp. 2(B)(2)	Minn. R. 7011.0150
IA026-RG	00PINEBEND063	Process Unit Filter Changing	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA027-RG	00PINEBEND064	Fire Training Grounds & Fire Fighting Activities	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA028-RG	00PINEBEND065	Vehicle Maintenance	Minn. R. 7007.1300, subp. 2(B)(2)	
IA029-RG	00PINEBEND066	Wood Working/Wood Construction Activities	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA030-RG	00PINEBEND067	Indirect Sources - Mobile Sources (Refinery Vehicles & Equipment)	Minn. R. 7007.1300, subp. 2(J)(3)	N/A
IA031-RG	00PINEBEND068	Heat Exchanger/Bundle Cleaning	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA032-RG	00PINEBEND069	Paving	Minn. R. 7007.1300, subp. 2(B)(1)	Minn. R. 7011.1505
IA033-RG	00PINEBEND070	Retarring of Roofs	Minn. R. 7007.1300, subp. 2(B)(1)	Minn. R. 7011.0150
IA034-RG	00PINEBEND071	Washer/Dryer in Safety Fire Barn	Minn. R. 7007.1300, subp. 2(B)(1)	Minn. R. 7011.0710
IA035-RG	00PINEBEND072	Test Pumps (Diesel Driven, Pneumatic)	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA036-RG	00PINEBEND073	Building Furnaces, HVAC Systems and Humidifiers	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.1410, 40 CFR pt. 63, subp. DDDDD
IA037-RG	00PINEBEND074	Stress Relieving	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0150
IA038-RG	00PINEBEND075	Fabricating	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA039-RG	00PINEBEND076	Welding, Soldering, Brazing Activities	Minn. R. 7007.1300, subp. 3(H)(3)	Minn. R. 7011.0150
IA040-RG	00PINEBEND077	Oxygen/Acetylene Torches	Minn. R. 7007.1300, subp. 3(H)(3)	Minn. R. 7011.0150
IA041-RG	00PINEBEND078	Space Heaters (Kerosene, Natural Gas, Propane)	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0510

IA042-RG	00PINEBEND079	Parts Washer/Degreasers	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710/0715
IA043-RG	00PINEBEND080	Air Compressors Other Than Listed as EQUIs	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA044-RG	00PINEBEND081	Chlorine Cylinders	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA045-RG	00PINEBEND082	Cylinders for CEM QA/QC	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA046-RG	00PINEBEND083	Activated Carbon Handling	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA047-RG	52ME91	Knock Engine #1	Minn. R. 7007.1300, subp. 4(B)	Minn. R. 7011.2300
IA048-RG	52ME92	Knock Engine #2	Minn. R. 7007.1300, subp. 4(B)	Minn. R. 7011.2300
IA049-RG	52ME93	Knock Engine #3	Minn. R. 7007.1300, subp. 4(B)	Minn. R. 7011.2300
IA050-RG	52ME2A	Knock Engine #4	Minn. R. 7007.1300, subp. 4(B)	Minn. R. 7011.2300
IA051-RG	52ME2B	Knock Engine #5	Minn. R. 7007.1300, subp. 4(B)	Minn. R. 7011.2300
IA052-RG	52ME65A	Knock Engine #6	Minn. R. 7007.1300, subp. 4(B)	Minn. R. 7011.2300
IA053-RG	52ME65B	Knock Engine #7	Minn. R. 7007.1300, subp. 4(B)	Minn. R. 7011.2300
IA054-RG	00PINEBEND051	Combustion Promoter Transfer /Dumping Activities	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA055-RG	00PINEBEND052	Spent Acid Loading	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710/0715
IA056-RG	00PINEBEND053	Sulfur Loading	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA058-RG	00UNIT	Refinery Deaerator Vents (Not Including 25V52, 25V53, 27V509 & 33V41)	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA059-RG	32UNIT1	Powerformer Catalyst Regeneration	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0710
IA064-RG	00PINEBEND118	Equipment used for Hydraulic or Hydrostatic Testing	Minn. R. 7007.1300, subp. 3(H)(2)	Minn. R. 7011.0715
IA065-RG	00PINEBEND119	Cleaning Operations: Alkaline/ Phosphate Cleaners, Associated Cleaners & Associated Burners	Minn. R. 7007.1300, subp. 3(H)(7)	Minn. R. 7011.0610/0715
IA066-RG	00PINEBEND120	North Contractor Building Water Heater, Rooftop Units 1, 2 and 3	Minn. R. 7007.1300, subp. 3(I)	Minn. R. 7011.0515

ROADS AND PARKING LOTS

IA060-RP	00UNIT_4	All Roads in Refinery - Paved or Unpaved	Minn. R. 7007.1300, subp. 3(J)	Minn. R. 7011.0150
IA061-RP	00PARKING003	All Parking Lots in Refinery - Gravel or Paved	Minn. R. 7007.1300, subp. 3(J)	Minn. R. 7011.0150
IA062-RP	00UNIT_3	All Laydown Areas	Minn. R. 7007.1300, subp. 3(J)	Minn. R. 7011.0150

LABORATORY

IA063-LAB	113UNIT_1	FHR Environmental Laboratory	Minn. R. 7007.1300, subp. 3(G)	Minn. R. 7011.0710

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STORAGE TANKS

IA-100-Tanks	00PINEBEND097	All Insignificant Activity - Tanks & Vessels, FHR Rosemount Terminal, Truck Loading Rack, Rail Loading Rack	Minn. R. 7007.1300, subps. 3(l) and 4(B)	Minn. R. 7011.1505

Appendix B: Title I Conditions: Stack Parameters Relied Upon in the Modeling to Demonstrate Compliance with the National Ambient Air Quality Standards for State Implementation Plan (SIP) Sulfur Dioxide (SO₂)

Appendix B															
Title I Condition: Stack Parameters Relied Upon to Demonstrate Compliance with the NAAQS for SIP SO ₂															
Stack Parameters for 1-Hour, 3-Hour, 24-Hour and Annual Modeling of SO ₂ Emission Units at Flint Hills Resources Pine Bend Refinery															
Stack ID	TEMPO ID	Description	NAD83 UTM_E ¹	NAD83 UTM_N ¹	Base Elevation (m) ¹	1 Hour SIP Emission Rate		3 Hour SIP Emission Rate		24 Hour SIP Emission Rate		Annual SIP Emission Rate		Stack Height (m)	Exit Temp. (K) ³
						(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)		
K2_ #3SRU	EQUI319, 320, 479, 480	SRU3, SRU4, Tail Gas Treating Unit #1 (SCOT), TGTU #1 (SCOT) Incinerator	496906.7	4956920.9	282.7	18.822	149.381	18.781	149.056	10.906	86.556	9.332	74.065	60.96	577.5944444
K3_ #5SRU	EQUI428, 503	SRU 5, Tail Gas Treating Unit #2	496868.5	4956631.4	277.6	21.520	170.794	21.520	170.794	11.793	93.595	11.793	93.598	65.00	463.7055556
K8 FCC	EQUI421	Fluid Catalytic Cracking Unit	496993.1	4956990.2	283.6	23.013	182.643	23.013	182.643	23.013	182.643	23.013	182.644	69.27	366.4833333
K10 32FG	EQUI 554, 555, 556	Process Heater 32H-5,6,7	496775.9	4957022.0	281.9	0.852	6.762	0.852	6.762	0.852	6.762	0.460	3.652	62.48	422.0388889
K11 19FG	EQUI490	Process Heater 19H-1	496585.4	4957137.0	280.4	0.921	7.310	0.921	7.310	0.921	7.310	0.498	3.948	58.52	422.0388889
K13 12FG	EQUI487	Process Heater 12H-4	496667.2	4957137.0	280.9	0.799	6.341	0.799	6.341	0.799	6.341	0.431	3.424	60.50	422.0388889
K14 33FG	EQUI541	Process Heater 33H-31	496981.5	4956855.0	283.5	1.691	13.421	1.691	13.421	1.691	13.421	1.353	10.738	55.78	552.5944444
K15 16FG	EQUI488	Process Heater 16H-1	496627.7	4957108.0	280.8	1.262	10.016	1.262	10.016	1.262	10.016	0.681	5.407	58.83	479.8166667
K19 11FG	EQUI484	Process Heater 11H-1	496649.9	4957059.0	281.0	0.852	6.762	0.852	6.762	0.852	6.762	0.460	3.652	39.93	466.4833333
K20 37FG	EQUI560, 561, 565	Process Heater 37H-1,2,6	496870.1	4956697.0	280.2	0.875	6.944	0.875	6.944	0.875	6.944	0.700	5.554	60.96	422.0388889
K21 33FG	EQUI559	Process Heater 33H-32	496923.7	4956848.0	283.0	1.252	9.937	1.252	9.937	1.252	9.937	1.002	7.949	56.12	547.0388889
K23 11FG	EQUI485	Process Heater 11H-2	496637.9	4957060.0	281.0	0.304	2.413	0.304	2.413	0.304	2.413	0.164	1.301	35.05	508.15
K27 21FG	EQUI491	Process Heater 21H-1S	496551.5	4957092.5	280.7	0.351	2.786	0.351	2.786	0.351	2.786	0.190	1.506	38.71	477.5944444
K28 21FG	EQUI491	Process Heater 21H-1N	496551.5	4957101.5	280.6	0.351	2.786	0.351	2.786	0.351	2.786	0.190	1.506	38.71	477.5944444
K29 21FG	EQUI492	Process Heater 21H-2S	496550.8	4957025.2	280.9	0.351	2.786	0.351	2.786	0.351	2.786	0.190	1.506	39.93	488.7055556
K30 21FG	EQUI492	Process Heater 21H-2N	496550.8	4957034.2	280.9	0.351	2.786	0.351	2.786	0.351	2.786	0.190	1.506	39.93	488.7055556
K31 33FG	EQUI431, 432	Process Heater 33H-4 (33H- 1&2)	496921.1	4956899.0	282.9	1.775	14.087	1.775	14.087	1.775	14.087	1.420	11.269	30.48	549.8166667
K32 23FG	EQUI495	Process Heater 23H-1	496531.7	4956882.6	272.9	1.604	12.730	1.604	12.730	1.604	12.730	1.283	10.183	57.91	422.0388889
K33 31FG	EQUI545	Process Heater 31H-1	496768.3	4957087.0	281.9	0.122	0.968	0.122	0.968	0.122	0.968	0.066	0.525	20.42	566.4833333
K34 31FG	EQUI546	Process Heater 31H-2	496769.0	4957077.0	281.9	8.363	66.373	8.363	66.373	8.363	66.373	8.363	66.399	18.59	666.4833333
K36 31FG	EQUI548	Process Heater 31H-5	496802.9	4957102.0	282.2	0.053	0.421	0.053	0.421	0.053	0.421	0.029	0.228	17.98	422.0388889
K37 31FG	EQUI552	Process Heater 31H-10	496802.9	4957112.0	282.2	0.160	1.270	0.160	1.270	0.160	1.270	0.086	0.685	30.48	524.8166667
K41 32FG	EQUI557, 558 EQUI562, 563	Process Heater 32H-9	496774.0	4957037.0	281.9	0.048	0.381	0.048	0.381	0.048	0.381	0.026	0.205	21.64	533.15
K42 37FG	564	Process Heater 37H-3,4,5	496914.2	4956703.2	279.8	3.798	30.143	3.798	30.143	3.798	30.143	3.038	24.112	71.20	422.0388889
K46 38FG	EQUI568	Process Heater 38H-1A	496952.1	4956560.5	281.5	0.371	2.944	0.371	2.944	0.371	2.944	0.297	2.358	44.50	599.8166667
K47 38FG	EQUI569	Process Heater 38H-1B	496952.1	4956571.3	281.5	0.371	2.944	0.371	2.944	0.371	2.944	0.297	2.358	44.50	599.8166667
K48 38FG	EQUI570	Process Heater 38H-2	496979.3	4956563.4	281.7	0.603	4.786	0.603	4.786	0.603	4.786	0.482	3.826	60.96	422.0388889
K50 25FG	EQUI500	Process Heater 25H-1	496755.4	4956642.0	274.5	2.459	19.516	2.459	19.516	2.459	19.516	1.967	15.614	65.00	422.0388889
K51 25FG	EQUI501	Process Heater 25H-3	496786.2	4956635.0	275.8	2.207	17.516	2.207	17.516	2.207	17.516	1.765	14.010	65.00	427.5944444
K52 25FG	EQUI526	Process Heater 25H-4	496800.5	4956636.9	276.8	1.584	12.571	1.584	12.571	1.584	12.571	1.268	10.060	60.96	422.0388889
K53 23FG	EQUI496	Process Heater 23H-2	496532.5	4956853.8	269.8	1.186	9.413	1.186	9.413	1.186	9.413	0.949	7.529	57.91	435.9277778
K54 27FG	EQUI543	Process Heater 27H-1	496725.5	4956511.4	277.1	7.776	61.714	7.776	61.714	7.776	61.714	6.221	49.373	45.72	422.0388889
K55 27FG	EQUI505	Process Heater 27H-101	496811.6	4956500.1	276.6	0.817	6.484	0.817	6.484	0.817	6.484	0.653	5.184	45.72	422.0388889
K56 27FG	EQUI542	Process Heater 27H-102	496813.3	4956402.9	276.0	0.923	7.325	0.923	7.325	0.923	7.325	0.739	5.863	45.72	422.0388889
K57 31FG	EQUI547	Process Heater 31H-4	496798.1	4957001.0	282.0	0.378	3.000	0.378	3.000	0.378	3.000	0.204	1.620	32.46	555.3722222
K58 31FG	EQUI549	Process Heater 31H-7	496798.0	4957025.0	282.0	0.364	2.889	0.364	2.889	0.364	2.889	0.197	1.561	28.65	544.2611111
K59 31FG	EQUI550	Process Heater 31H-8	496799.2	4957036.0	282.1	0.206	1.635	0.206	1.635	0.206	1.635	0.111	0.881	28.80	519.2611111
K60 31FG	EQUI551	Process Heater 31H-9	496798.8	4957018.0	282.0	0.266	2.111	0.266	2.111	0.266	2.111	0.144	1.141	24.84	510.9277778
K61 28FG	EQUI544	Process Heater 28H-1	496837.8	4956502.2	276.9	0.330	2.619	0.330	2.619	0.330	2.619	0.264	2.098	45.72	810.9277778
K62 BLR8	EQUI371	Process Heater 71B-8	496698.3	4956542.5	277.5	1.798	14.270	1.798	14.270	1.798	14.270	1.439	11.417	9.04	422.0388889
K63 27FG	EQUI377	Process Heater 27H-501	496722.3	4956358.0	275.1	4.617	36.643	4.617	36.643	4.617	36.643	3.694	29.315	35.05	422.0388889

Permit Issued: January 13, 2017
Permit Expires: January 9, 2018

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K67 11FG	EQUI376	Process Heater 11H-6	496630.1	4956988.4	280.7	2.183	17.329	2.183	17.329	2.183	17.329	1.179	9.357	54.86	422.0388889	4.17797231	2.642
K68 BLR9	EQUI515	Process Heater 71B-9	496569.0	4957199.8	280.0	1.251	9.929	1.251	9.929	1.251	9.929	0.676	5.363	12.19	422.0388889	3.01833833	1.829
K70 4H2	EQUI471	Heater 30H-401	496664.6	4956414.6	274.4	8.748	69.429	8.748	69.429	8.748	69.429	6.999	55.544	35.05	422.0388889	4.32173977	2.896
K71HCFD	EQUI469, 470	Heaters 29H-1, 29H-2	496923.0	4956351.0	277.0	2.138	16.968	2.138	16.968	2.138	16.968	1.711	13.578	40.78	422.0388889	0.10811933	2.629
K1006 BH	EQUI323	71B-6 Boiler	496566.9	4957213.0	280.1	0.639	5.071	0.639	5.071	0.639	5.071	0.345	2.739	21.34	422.0388889	3.17795937	1.372

Stack ID	TEMPO ID	Description	NAD83 UTM E ¹	NAD83 UTM N ¹	Base Elevation (m) ¹	1 Hour SIP Emission Rate		3 Hour SIP Emission Rate		24 Hour SIP Emission Rate		Annual SIP Emission Rate		Stack Height (m)	Exit Temp. (K) ³	Exit Velocity (m/s) ³	Exit Diameter (m)
						(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)				
K113 FG		SRU 3 Tail Gas Incinerator on Hot Standby	496901.4	4956953.5	282.7	0.202	1.603	0.202	1.603	0.202	1.603	0.181	1.025	53.68	422.0388889	0.80647003	1.016
K331 DSL	EQUI328	Diesel Engine 93P-160	496832.2	4956976.5	282.3	0.0003	0.002	0.0003	0.002	0.0003	0.002	0.0003	0.002	4.27	616.48	23.6009212	0.102
K332 DSL	EQUI365	Diesel Engine 93P-400	496753.3	4957695.5	270.9	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.008	4.57	616.48	37.8955891	0.152
K333 DSL	EQUI366	Diesel Engine 93P-570	495957.0	4956960.1	262.2	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.008	5.49	616.48	9.41187521	0.305
K348 OXD	EQUI457	Oil Separation & Waste Treatment Plant Thermal Oxidizer	496636.2	4957613.5	276.0	6.389	50.706	6.389	50.706	6.389	50.706	1.134	9.000	22.11	533.15	10.36423	1.717
K407 DSL	EQUI502	Diesel Engine EE-1657	496799.3	4956593.5	275.1	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.007	6.10	616.48	20.429156	0.203
K408 DSL	EQUI486	Diesel Engine EE-1852	496684.0	4957064.0	281.1	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.008	4.11	616.48	20.5313017	0.203
K435 DSL	EQUI497	Diesel Engine 23ME26	496526.5	4956971.5	278.6	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.009	7.01	616.48	41.6001259	0.152
K453 DSL	EQUI567	Diesel Engine EE-1309	496910.2	4956656.0	278.4	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.009	7.92	616.48	41.6001259	0.152
K465 DSL	EQUI489	Diesel Engine EE-1718	496908.4	4957114.5	283.0	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.008	4.57	616.48	20.5313017	0.203
K505 DSL	EQUI327	Diesel Engine 81P-159	496846.2	4956974.5	282.5	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.006	5.49	616.48	18.5905319	0.203
K506 DSL	EQUI329	Diesel Engine 81P-357	496838.3	4956933.5	282.2	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.006	6.10	616.48	17.0242966	0.203
K507 DSL	EQUI325	Diesel Engine 81P-444	496646.3	4956932.5	281.1	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.008	4.57	616.48	13.7013817	0.254
K508 DSL	EQUI326	Diesel Engine 81P-89	496639.3	4956990.5	280.9	0.0005	0.004	0.0005	0.004	0.0005	0.004	0.0005	0.004	4.57	616.48	43.8302822	0.102
K511 DSL	EQUI324	Diesel Engine 71C-11	496987.9	4956786.1	282.1	0.001	0.008	0.001	0.008	0.001	0.008	0.001	0.009	6.10	616.48	15.3324986	0.254
K513 DSL	EQUI514	Diesel Cooling Water Pump	496672.2	4956267.3	271.9	0.002	0.016	0.002	0.016	0.002	0.016	0.002	0.015	9.75	477.4444444	14.017697	0.305
K600 DEC	EQUI493	Process Heater 21H-1 Decoking	496522.1	4957081.7	280.6	1.008	8.000	1.008	8.000	1.008	8.000	0.050	0.395	1.50	NA	NA	NA
K601 DEC	EQUI494	Process Heater 21H-2 Decoking	496528.9	4957028.6	280.8	1.008	8.000	1.008	8.000	1.008	8.000	0.050	0.395	1.50	NA	NA	NA
K602 DEC ⁴	EQUI498	Process Heater 23H-1 Decoking	496461.0	4956855.0	264.1	2.545	20.198	2.545	20.198	2.545	20.198	0.126	0.996	1.50	NA	NA	NA
K603 DEC ²	EQUI499	Process Heater 23H-2 Decoking	496461.0	4956855.0	264.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.50	NA	NA	NA
K700ACDL ⁵		Sulfuric Acid Loading	496560.0	4957484.0	280.6	0.572	4.540	0.572	4.540	0.572	4.540	0.572	4.540	3.10			
K701ACDS ⁵		Sulfuric Acid Storage	496837.0	4957122.0	282.6	0.572	4.540	0.572	4.540	0.572	4.540	0.572	4.540	7.60			
	EQUI319, 321, 478	SRU 3 Bypass Incinerator	496901.4	4956953.5	282.7	0.202	1.606	0.202	1.606	0.202	1.606	0.181	1.435	53.68	422.02	0.81	1.020
	EQUI406	Process Heater 23H-3	469562.7	4956874.8	272.4	0.287	2.280	0.287	2.280	0.287	2.280	0.287	2.280	57.91	288.71	2	4.040
	EQUI407	Process Heater 25H-2	496743.3	4956638.2	273.0	0.058	0.456	0.058	0.456	0.058	0.456	0.058	0.456	51.82	288.71	2	4.770
	EQUI367, 368	Combustion Turbine and Duct Burners	497051.8	4955898.8	268.2	0.119	0.943	0.119	0.943	0.119	0.943	0.119	0.943	51.82	366.98	8.68	3.660
	EQUI574	ATS Process Unit	496949.2	4956768.7	280.6	0.630	5.000	0.630	5.000	0.630	5.000	0.567	4.500	59.44	377.594	8.829921	0.838
	EQUI1456	Process Heater 24H-1	496516.5	4956578.1	264.3	1.651	13.100	1.651	13.100	1.651	13.100	0.892	7.078	67.06	422.0	4.467	3.048

¹ Adjustments were made to locations of stacks and buildings based on more recent aerial photographs and GIS data as well as the updated modeling program AERMOD that allow elevations from the USGS national seamless elevation dataset where the most recent elevation data was used

² Emissions have been included in EQUI498 as part of the area source. EQUI499 is being included for completeness.

³ The exit temperatures and exit velocities have all been updated to reflect the worst case scenario being modeled in SIP 9

⁴ Modeled as an area source; parameters are emission rate (g/s-m²), release height (m), X dimension (m), Y dimension (m)

⁵ Modeled as a volume source; parameters are emission rate (g/s), release height (m), X dimension (m), Y dimension (m)

For the air permit issued to authorize changes for the Pine Bend Technology and Efficiency Improvement Projects (PBTEIP), new federally enforceable SO₂ emissions limits are in the permit for the new 24H1 process heater (EQUI1456)

and the existing SO₂ emissions limits for the 30H401 process heater (EQUI471) are decreased in the permit from those shown in this table. The SO₂ limits for EQUI1456 are effective upon approval of the SIP revision by the US EPA. The

decreased SO₂ limits at EQUI471 are also effective upon approval of the SIP revision by the US EPA.

Appendix C: Consent Decree with Amendments

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<http://www.epa.gov/compliance/resources/cases/civil/caa/kochcaacd.pdf>

<http://www.epa.gov/compliance/resources/decrees/amended/koch1st-amendment-cd.pdf>

<http://www.epa.gov/compliance/resources/decrees/amended/koch2nd-amendment-cd.pdf>

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MINNESOTA

UNITED STATES of AMERICA,

Plaintiff,

and

THE STATE OF MINNESOTA,

Plaintiff-Intervener,

v.

Civil Action No.

KOCH PETROLEUM GROUP, L.P.

Defendant.

CONSENT DECREE

CONSENT DECREE -2-

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Consent Decree -4-

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MINNESOTA

UNITED STATES of AMERICA,

Plaintiff,

and

THE STATE OF MINNESOTA,

Plaintiff-Intervener,

v.

Civil Action No.

KOCH PETROLEUM GROUP, L.P.

Defendant.

CONSENT DECREE

WHEREAS, Plaintiff, the United States of America (hereinafter "Plaintiff" or "the United States"), on behalf of the United States Environmental Protection Agency (herein, "EPA"), has simultaneously filed a Complaint and lodged this Consent Decree against Defendant, Koch Petroleum Group, L.P. (herein, "Koch" or "Defendant"), for alleged violations at three petroleum refineries owned and operated by Koch, the Pine Bend, Minnesota refinery, and the East and West refineries in Corpus Christi, Texas;

WHEREAS, prior to the filing of the Complaint, Koch met with representatives from EPA to discuss reconciling EPA and

Consent Decree -5-

industry goals for progressive Clean Air Act compliance at Koch's three refineries;

WHEREAS, Koch and EPA's primary common goal in this Consent Decree is to address particular areas of concern: Control of fugitive emissions, elimination of excess flaring, and reduction of nitrogen oxides ("NO_x") and sulfur dioxide ("SO₂") emissions from refinery process units (collectively referred to as "Marquee issues"), in which Koch has agreed to undertake major and extensive program enhancements involving both installation of air pollution control equipment and establishment of strict management practices to reduce air emissions from its refineries;

WHEREAS, the parties agree that the installation of equipment and implementation of controls pursuant to this Consent Decree will achieve major improvements in air quality control, and also that certain actions that Koch has agreed to take are expected to achieve advances in technology and methodology for air pollution control;

WHEREAS, Koch is the first petroleum company to step forward and enter into a comprehensive settlement with EPA addressing this broad range of air pollution control;
WHEREAS, Koch has not answered or otherwise responded to the Complaint in light of the settlement memorialized in this Consent Decree;

Consent Decree -6-

WHEREAS, the United States' Complaint alleges that Koch has been and is in violation of certain provisions of the following statutes and their implementing regulations: the Clean Air Act (the "Act"), 42 U.S.C. §§ 7470-7492; the Resource Conservation and Recovery Act, ("RCRA"), 42 U.S.C. § 6901 et seq.; the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9603(a); the Emergency Planning and Community Right to Know Act ("EPCRA"), 42 U.S.C. § 11004(a); and the Clean Water Act ("CWA"), 33 U.S.C. § 1321(b)(3) and (j);

WHEREAS, the State of Minnesota has filed a Complaint in Intervention, alleging that Koch was and is in violation of the applicable State Implementation Plan ("SIP");

WHEREAS, the State of Texas participated in the discussions regarding this Consent Decree and the Texas Natural Resources Conservation Commission ("TNRCC") has expressed general approval of its terms;

WHEREAS, Koch has denied and continues to deny the violations alleged in each of the Complaints; maintains that it has been and remains in compliance with all applicable environmental regulations, and is not liable for civil penalties or injunctive relief; however, in the interest of settlement and to accomplish its objective of cooperatively working to reconcile EPA and industry goals under the Clean

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Air Act, has agreed to undertake installation of air pollution control equipment and enhancements to its air pollution management practices at the three refineries to reduce air emissions;

WHEREAS, the parties acknowledge that this process, which was initiated by Koch, is an innovative approach to resolve potential compliance issues while simultaneously advancing the goals of the Clean Air Act;

WHEREAS, Koch has waived any applicable federal or state requirements of statutory notice of the alleged violations;

WHEREAS, the United States, Plaintiff-Intervener, and Koch have agreed that settlement of this action is in the best interest of the parties and in the public interest, and that entry of this Consent Decree without further litigation is the most appropriate means of resolving this matter; and
WHEREAS, the United States, Plaintiff-Intervener, and Koch have consented to entry of this Consent Decree without trial of any issues.

NOW, THEREFORE, without any admission of fact or law, and without any admission of the violations alleged in the Complaints, it is hereby ORDERED AND DECREED as follows:

I. JURISDICTION AND VENUE

1. The Complaints state a claim upon which relief can be granted against the Defendant under [Sections 113 and 167 of](#)

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the CAA, 42 U.S.C. §§ 7413 and 7477, and 28 U.S.C. § 1355. This Court has jurisdiction of the subject matter herein and over the parties consenting hereto pursuant to 28 U.S.C. § 1345 and pursuant to Sections 113 and 167 of the CAA, 42 U.S.C. §§ 7413 and 7477 and Section 3008(a) of RCRA, 42 U.S.C. § 6928(a), Section 109(c) of CERCLA, 42 U.S.C. § 9609(c), Section 325(b) of EPCRA, 42 U.S.C. § 11045(b), and Section 309(b) of the CWA, 33 U.S.C. § 1319(b). Venue is proper under Section 113(b) of the Act, 42 U.S.C. § 7413(b), Section 3008(a) of RCRA, 42 U.S.C. § 6928(a), Section 109(c) of CERCLA, 42 U.S.C. § 9609(c), Section 325(b) of EPCRA, 42 U.S.C. § 11045(b), and Section 309(b) of the CWA, 33 U.S.C. § 1319(b), and under 28 U.S.C. § 1391(b) and (c).

II. APPLICABILITY

2. The provisions of this Consent Decree shall apply to and be binding upon the United States, the Plaintiff-Intervener, and upon the Defendant as well as the Defendant's officers, employees, agents, successors and assigns, and shall apply to Defendant's refineries for the life of the Decree. In the event Defendant proposes to sell or transfer any of its refineries subject to this Consent Decree, it shall advise in writing to such proposed purchaser or successor-in-interest of the existence of this Consent Decree, and shall send a copy of such written notification by certified mail, return receipt

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requested, to EPA before such sale or transfer, if possible, but no later than the closing date of such sale or transfer.

III. FACTUAL BACKGROUND

3. Koch operates three petroleum refineries for the manufacture of various petroleum-based products, including gasoline, diesel, and jet fuels, and other marketable petroleum by-products.

4. Koch's Pine Bend refinery has the capacity to process approximately 285,000 barrels per day of heavy crude oil. The total capacity of Koch's Corpus Christi East and West refineries is approximately 285,000 barrels per day.

5. Petroleum refining involves the physical, thermal and chemical separation of crude oil into marketable petroleum products.

6. The petroleum refining process at Koch's three refineries results in emissions of significant quantities of criteria air pollutants, including nitrogen oxides ("NO_x"), carbon monoxide ("CO"), particulate matter ("PM"), and sulfur dioxides ("SO₂"), as well as volatile organic compounds ("VOCs"), including Benzene. The primary sources of these emissions are the fluidized catalytic cracking units ("FCCUs"), process heaters and boilers, the sulfur recovery plants, the wastewater treatment system, fugitive emissions

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from leaking components, and flares throughout the refinery where excess emissions are combusted.

IV. POLLUTION REDUCTION MEASURES

A. NO_x Emissions Reductions from Heaters and Boilers

Program Summary: Koch will implement a program to reduce NO_x emissions from refinery heaters and boilers over 40 mmBTU/hr higher heating value ("HHV") by installing ultra low-NO_x burners ("ULNB"), the demonstration of "next generation" ultra low-NO_x burners, or an alternative emissions reduction technology, and demonstrating compliance with the lower emission limits specified within this Consent Decree with the use of source testing, continuous emissions monitoring systems ("CEMS"), and/or parametric monitoring. Installation of ultra low NO_x burner technology is not required for heaters and boilers less than 40 mmBTU/hr(HHV).

7. By March 31, 2001, Koch shall submit to EPA, an initial plan for NO_x emissions reductions from heaters and boilers. This plan shall be in writing and shall contain the following:

(a.) An inventory of all heaters and boilers at each refinery and their size;

(b.) Identification of all heaters and boilers over 40 mmBTU/hr(HHV) now fitted with ultra low-NO_x burners;

(c.) Identification of all heaters and boilers over 40 mmBTU/hr(HHV) where Koch expects to install "current generation" ultra low-NO_x burners and the projected date of installation;

(d.) Identification of all heaters and boilers over 40 mmBTU/hr(HHV) where Koch plans to demonstrate "next generation" ultra low-NO_x burners and the projected date of installation;

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(e.) Identification of all heaters and boilers over 40 mmBTU/hr(HHV)where it is not now expected to be technologically feasible to install or operate current generation or next generation ultra low-NO_x burners (Preliminary Infeasibility List);

(f) Demonstration that requirements of Paragraphs 14 and 17 will be met; and

(g) Identification of all CEMS and parametric monitoring to be installed and the projected date of installation.

Koch will update this plan annually as further discussed in Paragraph 22 of this Consent Decree.

8. For purposes of this Consent Decree, "current generation" ultra low-NO_x burner means those burners currently available on the market that are designed to achieve a NO_x emission rate of 0.03 to 0.04 lb/mmBTU (HHV), when firing natural gas at "typical" industry firing conditions at full design load.

9. For purposes of this Consent Decree, "next generation" ultra low-NO_x burner shall mean those burners new to the market that are designed to an emission rate of 0.012 to 0.015 lb/mmBTU (HHV), when firing natural gas at "typical" industry firing conditions at full design load.

10. For those heaters and boilers identified in Paragraph 7(c) above, Koch shall begin installing current generation ultra low-NO_x burners (ULNB), as defined above and

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where determined to be technologically feasible, during the scheduled turnaround (t/a) for each unit that commences on or after August 1, 2001, or for heaters 11H-3, 11H-4 and 11H-5, where t/a commences on or after December 31, 2001. Koch will install the new burners to achieve the lowest feasible emissions of NO_x at maximum representative operating conditions. Subsequent to the development of the initial plan, see Paragraph 7, where warranted, and considering the requirements of Paragraphs 14 and 17, Koch may move heaters and boilers between categories in Paragraph 7. Koch will discuss these changes in the annual plan update.

11. For those heaters and boilers identified in Paragraph 7(d) above, Koch shall demonstrate next generation ultra low-NO_x burners, as defined above, for a test period beginning December 31, 2001. Koch will operate the new burners to achieve the lowest feasible emissions of NO_x at maximum representative operating conditions.

12. Koch shall prepare a written evaluation of the next generation ultra low-NO_x burner demonstration to include a discussion of effectiveness and economic and technical feasibility. Koch shall submit its report to EPA no later than March 31, 2002.

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13. If EPA determines that the demonstration of next generation ultra low-NO_x burners is successful, based on Koch's written evaluation of the demonstration, to include design rate, emission rate and heater reliability, and such other information as may then be available to EPA, Koch shall install the "next generation" burners on all heaters and boilers, where feasible, with t/a dates that commence on or after one year following EPA's notice to Koch that the demonstration was successful. Heaters and boilers that meet the "netting unit" definition as of said date (one year after EPA's notice to Koch), will not require additional modification.

14. For heaters and boilers identified in Koch's Preliminary Infeasibility Lists, as updated, Koch shall design and install an alternative emission reduction technology that achieves a weighted average emission limit in lbs NO_x/mmBTU, separately for Pine Bend and for Corpus Christi East and West combined, of not more than 0.06 lb/mmBTU (HHV), based on total emissions and total firing capacities of the heaters and boilers on those lists, by no later than December 31, 2006.

15. By no later than December 31, 2005, Koch shall submit to EPA a Final Determination of Infeasibility, which will include those heaters and boilers which Koch proposes to

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exempt, on the basis of technological or economical infeasibility, from further burner technology upgrades for NO_x control as required under Paragraphs 10 and 14. Koch shall include in the Final Determination its basis for the determination of infeasibility.

16. By no later than December 31, 2006, Koch will have installed current or next generation ultra low-NO_x burners, or an alternate emission reduction technology as specified in Paragraph 14, on all heaters and boilers of over 40 mmBTU/hr (HHV), except for those identified pursuant to Paragraph 15 of this Consent Decree.

17. In the event that Koch is successful in limiting the number of heaters or boilers in the technologically infeasible category to:

- (a.) No more than three (3) at Pine Bend and three (3) at the combined Corpus Christi East and West refineries, and with a total of no more than four (4) across all the refineries; or
- (b.) No more than one heater or boiler separately for Pine Bend and for Corpus Christi East and West combined;

then no further controls will be necessary for these heaters or boilers, they will be considered as "netting units" as that

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term is defined in Part IV, Section D of this Consent Decree, and the provisions relating to a weighted average of emission limits of not more than 0.06 lb NO_x per mmBTU/hr(HHV) will not apply. [EXAMPLE: if Pine Bend has only one heater or boiler that is in the technological infeasibility category, but the Corpus refineries have 7 in the technologically infeasible category, the requirements in Paragraph 14 would not apply to the Pine Bend unit, but would apply to all 7 of the Corpus Christi East and West units.]

18. Nothing in this Part shall exempt Koch from complying with any and all other state, regional or federal requirements.

19. If Koch demonstrates, reports to EPA, and EPA determines, that Koch is complying with the Tier II gasoline requirements 40 C.F.R. §§ 80.195-80.205 earlier than their applicable compliance date, the deadline identified in Paragraph 16 (December 31, 2006) shall be extended by a period equal in time to the amount of Koch's early compliance with Tier II deadlines, on a refinery-by-refinery basis.

20. On heaters and boilers with capacity of 150 mmBTU/hr (HHV) or greater, Koch shall install CEMS for NO_x at the time the heaters and boilers are fitted with control technology under this Consent Decree.

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21. On heaters and boilers with a capacity less than 150 mmBTU/hr(HHV) that are fitted with control technology under this Consent Decree, Koch shall conduct an initial performance test at maximum representative operating conditions. For heaters and boilers of greater than or equal to 100 mmBTU/hr(HHV) but less than 150 mmBTU/hr(HHV), Koch shall propose operating parameters to be monitored to determine future compliance based on good engineering judgment to ensure that the parameters are most representative for predicting emissions. At a minimum these parameters shall include combustion O₂ and air preheat temperature.

Recordkeeping and Reporting Requirements for Section A

22. Koch shall submit an annual update to the Initial Plan by March 31st of each calendar year regarding the NO_x heater and boiler project and the requirements of this Section. This report shall contain:

- (a.) A list of all heaters and boilers which went through t/a during the prior calendar year;
- (b.) The type of burner upgrade that was conducted on each heater and boiler;
- (c.) The results of all emission tests conducted on each heater and boiler identified in Paragraph 7 during the prior calendar year;
- (d.) A summary of the designed emission factors and results of all tested next generation burner technology

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installations identified in Paragraph 7 conducted during the prior calendar year;

(e.) A summary of all heaters and boilers scheduled for t/a during the next calendar year and the dates of the scheduled t/a, and the type of technology that Koch expects to install on those units;

(f.) An identification of established permit limits (in lbs NO_x per mmBTU (HHV) fired) applicable to each heater or boiler modified under this Consent Decree;

(g.) A demonstration that the requirements of Paragraphs 14 and 17, if applicable, continue to be met with updates for changes to the initial plan as required by Paragraph 10; and

(h.) A summary of all CEMS and parametric monitoring installations during the prior calendar year.

B. NO_x Emission Reductions from FCCUs

Program Summary: Koch will demonstrate the use of low-NO_x combustion promoter and NO_x adsorbing catalyst additive at the Corpus Christi West FCCU, alone (catalyst test) and in combination with the implementation of Selective Non-Catalytic Reduction ("SNCR") for the reduction and control of NO_x emissions (combined technology test). Successful demonstrations will obligate Koch to implement the catalyst additives alone, SNCR alone, or the combined technologies at its two remaining refineries or to implement other technologies giving equivalent or superior emissions performance.

23. Prior to June 1, 2001, Koch shall begin the use of low-NO_x combustion promoter, alone and in combination with NO_x adsorbing catalyst additive in the Corpus West Plant's FCCU. The test for low NO_x combustion promoter will test the effect of complete replacement of conventional combustion promoter

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with low NO_x combustion promoter wherever and whenever combustor promoter is used. Koch shall also attempt to use NO_x adsorbing catalyst additive alone, in an effort to quantify the emission reducing effects of each.

24. No later than December 31, 2001, Koch shall complete a study of the individual and combined effects of the additives on NO_x emissions from the FCCU, identify the amount of each catalyst additive, and the combined catalyst additives, and recommend to EPA the proposed economically reasonable maximum percentage of NO_x adsorbing catalyst additive up to 2% of total catalyst makeup, the addition of which results in the lowest feasible NO_x concentration in the regenerator flue gas at the tested facility.

25. Koch's proposal shall be included in a final report to EPA, "Catalyst Additive Study for Reduction of FCCU NO_x Emissions," to be submitted no later than March 31, 2002. EPA will provide a written response to Koch's proposal within 90 days.

26. During the planned shutdown of the Corpus Christi West FCCU, in calendar year 2002, Koch shall install an SNCR system which will allow the injection of a reductant, such as ammonia or urea, into the regenerator flue gas. Koch will

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design the system to reduce emissions of NO_x from the FCCU regenerator as much as economically feasible.

27. Koch will not be required to install SNCR pursuant to Paragraph 26 if Koch is able to achieve a NO_x concentration of 20 ppmvd (at 0% oxygen) or less on an annual average basis using only catalyst additives. Alternatively, if Koch can achieve a 20 ppmvd (at 0% oxygen) concentration or lower with an emission reduction technology not specified in this Consent Decree, Koch may install an alternative technology that will meet the 20 ppmvd (at 0% oxygen) NO_x emission limit.

28. Koch may elect to change the location of the combined technology test from Corpus Christi West to the Pine Bend FCCU at its next t/a but no later than 2003, by providing written notice to EPA by December 31, 2001. If Koch elects to demonstrate the combined NO_x control technology at Pine Bend, all the requirements of this Section shall apply, with the exception that the completion date shall be extended to December 31, 2003.

29. Koch shall operate the SNCR system in conjunction with the combination of low-NO_x combustion promoter and NO_x eliminating catalyst additive that will yield the lowest feasible NO_x concentration in the FCCU regenerator flue gas, as supported by the study. Koch will operate this "combined

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technology system" in an effort to achieve a NO_x concentration of 20 ppmvd at 0% oxygen. During the combined technology test, Koch will monitor SNCR inlet NO_x concentrations on a continuous basis for the period of the optimization study unless Koch shall propose and EPA shall approve an alternative monitoring frequency.

30. Koch will report the results of the combined technology test as follows:

(a.) Six months following the startup of the combined technology system, Koch will evaluate the success of this system based on the actual hourly, daily, weekly and projected annual average NO_x concentration in the regenerator flue gas using the CEMS and/or performance tests and will report this information to EPA within 8 months of startup.

(b.) One year following the startup of the combined technology system, Koch will evaluate the success of this system based on the actual hourly, daily, weekly, and annual average NO_x concentration in the regenerator flue gas using CEMS and/or performance tests, and will report this information to EPA within 15 months of startup.

For each report, Koch will prepare a summary for general use by the EPA and the States of Minnesota and Texas, notwithstanding any confidentiality claim by Koch.

31. For purposes of this Consent Decree, a "successful" test of the combined technology will be an annual average NO_x concentration of less than or equal to 20 ppmvd (at 0% oxygen).

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32. For purposes of this Consent Decree, a "partially successful" test of the combined technology will be an annual average NO_x concentrations of less than 70 ppmvd (at 0% oxygen) but greater than 20 ppmvd (at 0% oxygen).

33. For purposes of this Consent Decree, a "partial failure" of the combined technology will be an annual average of daily NO_x concentrations of less than or equal to 100 ppmvd (at 0% oxygen), but greater than or equal to 70 ppmvd (at 0% oxygen).

34. For purposes of this Consent Decree, a "failure" of the combined technology will be an annual average NO_x concentration of greater than 100 ppmvd (at 0% oxygen).

35. Pursuant to this Consent Decree, success or partial success, as defined above, will compel Koch to do the following:

(a.) 3 months after submittal of final test report, begin using catalyst additives, where justified by the catalyst additive study in Paragraph 25, at Corpus Christi East and Pine Bend FCCUs;

(b.) During the next turnaround for each FCCU that occurs no sooner than 18 months after submittal of the 6-month test report, install SNCR at the Pine Bend FCCU and SNCR, using an enhanced reductant such as hydrogen, at the Corpus Christi East FCCU;

(c.) SNCR will not be required at the Corpus Christi East FCCU if Koch can achieve and demonstrate an annual average of daily NO_x concentrations less than or equal to 35 ppmvd (at 0% oxygen), and show that SNCR cost

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effectiveness is greater than \$10,000 per ton (based on annualized cost); and

(d.) SNCR will not be required for any FCCU that demonstrates annual average concentration of less than or equal to 20 ppmvd (at 0% oxygen) NO_x without it.

36. Pursuant to this Consent Decree, partial failure in the combined technology test will compel Koch to propose an alternative for installation during the next t/a for that unit that is at least 18 months after the test report submission required by Paragraph 30(a). Such proposal will be approved if EPA determines that the alternate technology will achieve an annual average of daily NO_x concentrations of less than or equal to 70 ppmvd (at 0% oxygen). EPA shall provide a response to Koch within 90 days of submission.

37. Pursuant to this Consent Decree, failure in the combined technology test will compel Koch to propose an alternative control technology for all three FCCUs for installation during the next t/a for that unit that is at least 18 months after the test report submission required by Paragraph 30(a). Such proposal will be approved if EPA determines that the alternate technology will achieve an annual average of daily NO_x concentrations of less than or equal to 70 ppmvd (at 0% oxygen). EPA shall provide a response to Koch within 90 days of submission.

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38. After the installation and startup of the combined technology or alternative technology, EPA and Koch, in consultation with the appropriate state agency, will determine the individual NO_x concentration limits for the Corpus Christi West, Corpus Christi East, and Pine Bend FCCUs, based on the level of demonstrated performance, process variability, reasonable certainty of compliance, and any other available pertinent information.

C. SO₂ Emission Reductions from FCCUs

Program Summary: Koch shall install advanced pollution control technology for the control of SO₂ emissions from its FCCU unit at Pine Bend, and will comply with interim limits for the reduction of SO₂ emissions until the control technology is implemented. Koch will also perform optimization studies for the wet gas scrubbers at the FCCUs at the Corpus Christi West and East refineries, and limit SO₂ emissions from those units consistent with the results of the study.

39. No later than the end of the next scheduled t/a in 2003 of the Pine Bend FCCU, Koch shall reduce SO₂ emissions from the Pine Bend FCCU and achieve an SO₂ concentration of 25 ppmvd (at 0% oxygen) on an annual average basis. Koch shall also meet a limit of 50 ppmvd (at 0% oxygen) on a 7-day average identical to the averaging period used in NSPS Subpart J. Koch may elect any means for attaining these reductions.

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40. If Koch is unable to install equipment, or make the changes necessary to achieve the annual average of 25 ppmvd (at 0% oxygen) level of SO₂ reduction during the next scheduled t/a for the Pine Bend FCCU in 2003, then Koch shall meet this limit by the end of 2007, and shall meet interim SO₂ limits of 100 ppmvd (at 0% oxygen) in the flue gas on an annual average basis during the period between the next scheduled t/a and 2007.

41. Koch shall demonstrate compliance with either the 25 ppmvd (at 0% oxygen) or 100 ppmvd (at 0% oxygen) interim limits on a rolling annual average of daily SO₂ concentrations.

42. Koch shall demonstrate the reductions through continued operation of a CEMS for SO₂ on all 3 FCCUs.

43. No later than July 31, 2001, for the FCCUs at Corpus Christi West and East, and within one year of startup of the control technology at Pine Bend, Koch shall begin optimization studies on the existing Corpus Christi West and East FCCU wet gas scrubbers ("WGS") and the selected control technology at Pine Bend. Koch will submit a proposed protocol for the optimization studies to EPA for review and comment no later than 90 days prior to beginning the proposed study. The proposed protocol shall include, at a minimum (where

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applicable): pH, scrubbing liquor circulation rate, liquid-to-gas ratio, where applicable, and propose for EPA approval the frequency for monitoring of WGS inlet SO₂ concentrations. Koch shall submit to EPA a report on the optimization studies within 15 months of startup for Pine Bend and by October 31, 2002, for Corpus Christi East and West, and use the results of these optimization studies to propose to EPA new SO₂ concentration limits for the Corpus West, Corpus East, and Pine Bend FCCUs.

44. Koch will agree to reduce its SO₂ concentrations to levels demonstrated in each of the optimization studies, if the study supports that reductions are technologically feasible and not cost prohibitive. EPA, in consultation with Koch and the appropriate state agency, will determine the SO₂ concentration limits based on the level of demonstrated performance during the test period, process variability, reasonable certainty of compliance, and any other available pertinent information. For purposes of this Paragraph, the cost for further SO₂ reductions is prohibitive if it exceeds \$10,000 per ton of pollutant removed.

45.(A). Koch agrees that all of its heaters and boilers and all of its fluid catalytic cracking unit catalyst

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regenerators are affected facilities for each pollutant regulated under NSPS Subpart J and subject to all of the applicable requirements of NSPS Subpart J, and will be in compliance for those units (heaters, boilers, and fluid catalytic cracking unit catalyst regenerators) by January 1, 2001, except as noted below:

(i) With regard to SO₂ emissions (H₂S inlet concentration) from heater 02BA201 at the Corpus Christi West Refinery and heater E0310F101 at the Corpus Christi East Refinery; opacity from the Corpus Christi West FCCU catalyst regenerator; and SO₂ emissions (H₂S inlet concentration) from heaters 27H-1 and 37H-3, 4, 5 at the Pine Bend Refinery, Koch has already submitted, or will submit by February 28, 2001, Alternative Monitoring Plan(s) ("AMP"), as specified in 40 C.F.R. § 60.13. If EPA approves an AMP, Koch will comply with Subpart J for that heater or FCCU within 6 months of such final approval, unless an earlier date is required by EPA. If EPA denies the AMP, Koch may elect to either: (a) install an H₂S analyzer within 18 months of the denial; or (b) submit a revised AMP within 6 months of the denial, unless EPA requires Koch to install an H₂S analyzer.

(ii) With regard to SO₂ emissions (H₂S inlet concentration) from heater E23H201A at the Corpus Christi East

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Refinery; and boilers 17H2 and 17H4 at the Pine Bend Refinery, Koch will be in full compliance with Subpart J by December 31, 2003.

45. (B). Koch will continue to calibrate, maintain and operate SO₂, NO_x, CO and O₂ CEMS to continuously monitor air emissions from the Corpus Christi East and West, and Pine Bend FCCUs.

45.(C) All CEMS installed and operated pursuant to this agreement will be calibrated, maintained, and operated in accordance with the applicable requirements of 40 CFR §§ 60.11 and 60.13. These CEMS will be used to demonstrate compliance with emission limits pursuant to 40 CFR § 60.13(a) and shall be subject to the requirements of 40 CFR Part 60, Appendix F, with the following exception: Koch will not be required to conduct a Relative Accuracy Test Audit (RATA) once every four quarters, as specified in Sections 5.1.1 and 5.1.4 of Appendix F. Instead, a Cylinder Gas Audit (CGA) will be conducted each quarter. In addition, a Relative Accuracy Audit (RAA), as per Section 5.1.3 of Appendix F, shall be conducted (in lieu of a CGA) one quarter every three years. Koch may elect to conduct a RATA in lieu of this RAA.

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D. Credit for Emissions Reductions

46. Except as specifically provided in this Section, Koch may not use any credits resulting from the emissions reductions required by this Consent Decree in any emissions banking, trading, or netting program for PSD, major nonattainment NSR, and minor NSR. The terms defined in this Section are for purposes of this Consent Decree only, and may not be used or relied upon by Koch or any other entity, including any party to this Consent Decree, for any other purpose, in any subsequent permitting action.

47. For purposes of this Section and the provisions of this Consent Decree only, "netting units" shall mean those sources specified below that have been or will be upgraded to the following control levels for the defined pollutants:

(a.) FCCU NO_x - The Corpus Christi East and West FCCUs and Pine Bend FCCU will be considered netting units for NO_x upon Koch's demonstration that the units have achieved emissions levels less than 70 ppmvd (at 0% oxygen) as required by Part IV, Section B of this Consent Decree;

(b.) FCCU SO₂ - The Corpus Christi East and West FCCUs are considered netting units for SO₂ at the time of lodging of this Consent Decree. The Pine Bend FCCU will be considered a netting unit for SO₂ upon Koch's demonstration that it has achieved the final SO₂ emission levels required by Part IV, Section C of this Consent Decree;

c.) Sulfur Recovery Plants ("SRPs") - All SRPs at the Corpus Christi East, West, and Pine Bend refineries are

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considered netting units at the time of lodging of this Consent Decree; and

(d.) Heaters and boilers - All heaters and boilers with a capacity smaller than 40 mmBTU/hr; all heaters and boilers with a capacity greater than or equal to 40 mmBTU/hr that are or will be equipped with current or next generation ULNB as defined in Part IV, Section A of this Consent Decree; all heaters and boilers with a capacity greater than or equal to 40 mmBTU/hr which are controlled to a level less than or equal to 0.045 lb NO_x/mmBTU (HHV) maximum allowable emissions are considered netting units upon their demonstration of compliance with the terms of this Consent Decree.

Units which have not met the definition of netting units may not use any credits generated under this Consent Decree.

48. All future heaters and boilers with next generation ULNB which are firing fuel gas meeting the NSPS Subpart J H₂S limit of 0.1 gr/dscf. shall be defined as netting units for purposes of this Section.

49. Heaters and boilers with a capacity of greater than or equal to 40 mmBTU/hr that Koch upgrades with current generation ULNB but do not achieve an allowable NO_x emission rate of less than or equal to 0.045 lb/mmBTU (HHV) at full rates, as determined by the initial stack test with allowance made for operational factors, will be considered as a "try and fail" modification.

50. Koch may average these "try and fail" units in with the technologically infeasible group (see Paragraph 14), but

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may not consider them as part of this group for purposes of the exemptions in Paragraphs 17 and 52, or Koch may submit a written request to EPA for a specific source netting unit determination pursuant to this Section.

51. Koch's request for a netting unit determination under this Section shall contain stack test data, an explanation of why the source was not able to accept an allowable NO_x emission rate of less than or equal to 0.045 lb NO_x/mmBTU (HHV), and a discussion of other control options considered. EPA shall consider efforts made by Koch to meet the 0.045 lb NO_x/mmBTU (HHV) level and provide a determination or request additional information within 90 calendar days from the date Koch's request is received. Upon EPA's written approval or if EPA has not requested additional information within 90 days, the source will be a netting unit for purposes of this Section.

52. Koch may designate up to three (3) heaters and boilers at Pine Bend, and three (3) heaters and boilers in the combined Corpus Christi East and West refineries which fall into the "technologically infeasible" category as netting units under this Section.

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E. Emission Credit Generation and Classification

Program Summary: The emissions credit and netting limitations discussed below only apply to the netting units defined in this Section, and only to NO_x and SO₂ emissions. All other emission sources of NO_x and SO₂, and any netting associated with other pollutants, are outside the scope of these netting limitations and are subject to PSD/NSR applicability as implemented by the appropriate permitting authority or EPA. Emission reductions subject to this revised netting policy are only those reductions generated by installation of controls on sources defined as netting units in Section D and those reductions discussed further in Part IX. The provisions of this Section are for purposes of this Consent Decree only, and may not be used or relied upon by Koch or any other entity, including any party to this Consent Decree, for any other purpose, in any subsequent permitting or enforcement action.

53. For purposes of this Section, "emission reductions" are defined as the difference between the previous 2-year actual emissions or another more representative 2-year period (as defined pursuant to 40 C.F.R. § 52.21) and the future allowable emissions, as determined by the state permitting authority, after installation of controls.

54. Emission reductions generated by Koch, pursuant to this Consent Decree, will be allocated into two categories for future netting credit, "actual credits" and "allowable credits." The allocation of the emission reductions will be based on the source type and emission level achieved as described below. Emissions reductions from changes made by

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Koch that are not required by this Consent Decree can be used for netting as described in 40 C.F.R. § 52.21 and as otherwise allowed under any applicable state or local regulation.

55. Use of credits generated through changes to, or the shutdown of, Pine Bend heaters 11H-3, 11H-4, 11H-5, 12H-4 and 16H-1 will not be restricted under this decree.

56. Emission reductions generated by Koch at heaters and boilers firing more than 40 mmBTU/hr(HHV) by the installation of netting unit controls, by completion of certain of the pollution reduction projects discussed in Paragraph 110, by permanent shutdown, or by installation of other controls are subject to the following allocations:

(a.) For SO₂ reductions by limiting fuel oil firing at the Pine Bend refinery to 100,000 barrels per calendar year (see Paragraph 110), as reflected in accepted federally enforceable requirements, Koch shall receive 90% actual credits and 10% allowable credits;

(b.) For NO_x reductions to a level of less than or equal to 0.045 lb NO_x/mmBTU (HHV) on a 3 hour average basis at a maximum firing duty, as determined through accepted federally enforceable limits, Koch shall receive 90% actual credits and 10% allowable credits; and

(c.) For NO_x reductions to a level of less than or equal to 0.02 lb NO_x/mmBTU (HHV) on a 3 hour average basis at maximum firing duty (including permanent shutdown of sources) as determined through federally enforceable limits, Koch shall receive 80% actual credits and 20% allowable credits.

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57. Emission reductions generated by Koch at FCCU's by meeting the netting unit definition in Section D above, are subject to the following allocations:

(a.) For SO₂ reductions to a level of less than or equal to 25 ppmvd (at 0% oxygen) on an annual average basis, Koch shall receive 90% actual credits and 10% allowable credits;

(b.) For NO_x reductions to a level of less than or equal to 70 ppmvd (at 0% oxygen) on an annual average basis, Koch shall receive 75% actual credits and 25% allowable credits; and

(c.) For NO_x reductions to a level of less than or equal to 20 ppmvd (at 0% oxygen) on an annual average basis, Koch shall receive 50% actual credits and 50% allowable credits.

58. Koch may use the emission reductions generated by control of sources to the netting unit levels for PSD netting purposes at sources already classified as netting units or sources eligible for netting unit classification, consistent with the netting unit definitions in Part IV, Section D. Koch must make the emissions reductions federally enforceable through then existing mechanisms. Emissions reductions are creditable for 5 years from the date of generation and shall survive the termination of the Consent Decree.

59. For purposes of this Consent Decree, "allowable credits" generated can be used for PSD netting associated with netting units or sources that will later become netting units

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as defined and identified in this Consent Decree. Allowable credits can be used in netting calculations without restriction, except that credits may not be used to increase the concentration of the pollutant over agreed-upon levels, i.e., can increase FCCU throughput, air burn, tons/year of SO₂, but cannot use credits to relax the 25 ppmvd (at 0% oxygen) limit to say, 30 ppmvd (at 0% oxygen). Allowable credits can be used for netting units, including: (a) sources increasing their potential-to-emit (PTE); (b) sources with no increase in PTE but with an actual emissions increase; (c) construction of netting unit replacement sources; and (d) construction of netting unit new sources, where both replacement sources and new sources meet the criteria established in Paragraph 47.

60. For purposes of this Consent Decree, where allowable credits are used on heaters or boilers that are increasing their potential to emit SO₂ or NO_x, but have not yet been upgraded to a netting unit, those sources are required to be upgraded to ULNB or an alternate emission reduction technology providing that those units will achieve a NO_x emission rate of less than or equal to 0.045 lb NO_x/mmBTU (HHV), by the time lines specified in Part IV, Section A of this Consent Decree.

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61. For purposes of this Consent Decree, "actual credits" generated by Koch can be used for PSD netting associated with netting units or sources that will later become netting units as defined and identified in Part IV, Section D of this Consent Decree. Koch may only use actual credits in netting calculations for those sources with no increase in potential to emit but with an actual emissions increase (as defined pursuant to 40 C.F.R. § 52.21). Where actual credits are used on heaters or boilers that are increasing their actual emissions but have not yet been upgraded to a netting unit, those sources are required to be upgraded to ULNB or an alternate emission reduction technology that will achieve a NO_x emission rate of less than 0.045 lb NO_x/mmBTU (HHV), by the timelines specified in Part IV, Section A of this Consent Decree.

62. Where allowable emissions or federally enforceable limits are referred to in this Consent Decree: (a) for heaters and boilers without CEMS, these limits will be determined as the average of three one-hour stack test runs; (b) for heaters and boilers with CEMS, these limits will be determined on a 3-hour rolling average basis; and (c) for FCCUs, these limits

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will be determined on an annual average basis, except where otherwise specified in this Consent Decree.

V. PROGRAM ENHANCEMENTS RE: BENZENE WASTE NESHAP

Program Summary: Koch agrees to undertake the following measures to minimize or eliminate fugitive benzene waste emissions at its refineries. Unless otherwise stated, all actions will commence on January 1, 2001.

63. In addition to the provisions set forth below, the Corpus Christi West and Pine Bend refineries shall continue to comply with the compliance option set forth at 40 C.F.R. § 61.342(c), utilizing the exemptions set forth in 40 C.F.R. § 61.342(c)(2) and (c)(3)(ii) ("2Mg compliance option"), and the Corpus Christi East refinery shall continue to comply with the compliance option set forth at 40 C.F.R. § 61.342(e) ("6BQ compliance option"). Koch agrees that during the life of the Consent Decree, its Corpus Christi East refinery will not switch to the 2Mg compliance option. The Corpus Christi West and Pine Bend refineries may switch to the 6BQ compliance option by providing notice of this intent prior to the start of the calendar year.

64. Koch will conduct audits of all the laboratories that perform analysis of its benzene waste NESHAP samples to ensure that proper analytical and quality assurance procedures

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are followed. By July 1, 2001, Koch will conduct the audits of the laboratories used by one of its refineries, and will complete audits for the remaining two refineries by December 31, 2001. Koch shall conduct subsequent laboratory audits every 2 years, or prior to using a new lab for benzene analysis, during the life of this Consent Decree.

65. Koch shall continue its annual program of reviewing process information, including but not limited to construction projects, to ensure that all benzene waste streams are included in each refinery's inventory.

66. Beginning January 1, 2001, Koch will conduct quarterly sampling and analysis of the following uncontrolled benzene waste streams:

(a.) For refineries complying with the 6BQ compliance option, all uncontrolled waste streams that contributed greater than 0.03 Mg to the previous year's TAB calculation shall be sampled once per calendar quarter, with at least 30 days between samples;

(b.) For refineries complying with the 2Mg compliance option, all uncontrolled waste streams that contributed greater than 0.1 Mg to the previous year's TAB calculation and that qualify for the exemption under 40 C.F.R. § 61.342(c)(2) shall be sampled once per calendar quarter, with at least 30 days between samples; and

(c.) For refineries complying with the 2Mg compliance option, all uncontrolled waste streams, other than those qualifying for the exemption found in 40 C.F.R. § 61.342(c)(2), that contributed greater than 0.03 Mg to

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the previous year's TAB calculation shall be sampled once per calendar quarter, with at least 30 days between samples.

67. Beginning with the first full calendar year following lodging of this Consent Decree, Koch shall verify annually in the report required to be submitted under 40 C.F.R. § 61.357(d)(2) whether there has been a change in the control status of all of the following types of waste streams:

- (a.) Slop oil;
- (b.) Tank water draws;
- (c.) Spent caustic;
- (d.) Desalter rag layer dumps;
- (e.) Desalter vessel process sampling points; and
- (f.) Other sample wastes.

68. Koch shall comply with the following measures at all locations where carbon canisters are utilized as a regulated control device under the Benzene Waste NESHAP.

(a.) By December 31, 2001, Koch shall install primary and secondary carbon canisters and operate them in series;

(b.) Koch shall continue to measure breakthrough at times when the source is connected to the carbon canister, and during periods of normal operation in accordance with the frequency specified in 40 C.F.R. § 61.354(d);

(c.) For a single canister system, breakthrough shall be defined as a condition where the outlet of the canister is >100 ppmv VOC or >20 ppmv benzene, and the canister is providing a reduction of <98% VOC or <99% benzene. For a primary and secondary canister system, breakthrough shall be defined as a condition where the outlet of the primary canister is >100 ppmv VOC or >20 ppmv benzene, and the

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primary canister is providing a reduction of <95% VOC or <98% benzene; and

(d.) Koch shall replace existing carbon with fresh carbon immediately when carbon breakthrough is detected, in accordance with 40 C.F.R. § 61.354(d). Immediately shall be considered as within 24 hours upon determination of breakthrough for a primary and secondary canister system and within 8 hours for a single canister system.

69. Koch shall continue to review all spills within the refinery to determine if benzene waste was generated. Koch shall continue to account for all benzene wastes generated through spills that are not managed solely in controlled waste management units in its annual calculation against the 6 BQ or 2 Mg compliance option as applicable.

70. Koch shall continue to manage all groundwater remediation conveyance systems in accordance with the applicable control requirements of the Benzene Waste NESHAP.

71. Beginning with the first full calendar quarter commencing January 1, 2001, Koch shall implement the following compliance measures at all refineries:

(a.) Koch shall conduct monthly visual inspections of all water traps within its individual drain systems that are subject to the Benzene Waste NESHAP;

(b.) Koch shall continue to control all slop oil recovered from its oil/water separators, sewer systems, etc., until recycled or put into a feed tank, if not already counted toward the uncontrolled total;

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(c.) Koch shall develop and implement training for all technicians required to take benzene waste samples;

(d.) Koch shall continue to provide the person(s) within each refinery responsible for overseeing the benzene waste program access to real-time benzene waste process monitoring information related to control equipment;

(e.) Koch shall continue to make real-time benzene waste process monitoring information related to control equipment available electronically to the operator(s) responsible for benzene waste systems in each refinery; and

(f.) Koch shall identify/mark all area drains that are segregated stormwater drains by December 31, 2001.

72. By December 31, 2001, Koch shall evaluate each of the following projects at each refinery, including, but not limited to, each project's feasibility (including estimated costs, where appropriate):

(a.) Installation of closed loop sampling devices on all waste and process streams that are greater than 10 ppmw benzene;

(b.) Installation of new Benzene Waste NESHP waste sample points at all locations where routine sampling points are not easily accessible; and

(c.) Implementation of the 6 BQ option, which allows for more straight forward, end of the line sampling, at the Corpus Christi West and Pine Bend refineries, for demonstrating compliance with the Benzene Waste NESHP.

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Recordkeeping and Reporting Requirements for Part V

73. As part of the overall progress reports submitted pursuant to Part XI (General Recordkeeping and Reporting), Koch shall include the following information:

(a.) with respect to the initial lab audits, Koch shall include information listing the steps it has taken to implement Paragraph 64 (initial lab audits). After completion of the initial lab audits, Koch's final progress report on this requirement shall include any corrective actions taken as a result of each audit;

(b.) With respect to carbon canister installation, Koch shall include information listing the steps it has taken to implement Paragraph 68(a) (carbon canister installation). After installation of the carbon canisters is complete, Koch's final progress report on this requirement shall include a listing of all locations within the refinery where secondary canisters were placed in service;

(c.) in its first progress report after the first quarter of 2001, Koch shall submit a certification that the training program required by Paragraph 71(c) has been developed and initiated; and

(d.) in its first progress report filed after completing each project evaluation required by Paragraph 72, Koch shall summarize the results of the evaluations, any future plans for action, including, at a minimum, the feasibility of each project, and any reasons why Koch may have elected not to proceed with the project.

74. Beginning with the first full calendar quarter commencing January 1, 2001, Koch shall submit to the appropriate state and EPA office, the following information

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for each of its refineries as part of the report required by

40 C.F.R. § 61.357(d)(7):

(a.) The results of the quarterly sampling conducted pursuant to Paragraphs 66(a) through 66(c), above, if sampling results are available. If certain sampling results are not available prior to submitting the report for that quarter, such results shall be submitted with the next quarter's report;

(b.) Koch shall use the quarterly sampling results pursuant to Paragraph 66 and the previous year's annual report (for unsampled waste streams) to estimate projected quarterly and calendar year values against the 6BQ or 2Mg compliance option;

(c.) If the estimated quarterly calculation for any refinery made pursuant to Paragraph 74(b), above, exceeds 0.5 Mg for refineries complying with the 2 Mg compliance option or 1.5 Mg for refineries complying with the 6 BQ compliance option, or if the projected annual calculation for any refinery made pursuant to this Paragraph exceeds 2 Mg for refineries complying with the 2 Mg compliance option, or 6 Mg for refineries complying with the 6 BQ compliance option, Koch shall include a summary of the activities planned to minimize benzene wastes at the refinery, or a discussion of why no activity is necessary to ensure that the calendar year calculation complies with the Benzene Waste NESHAP. For purposes of this subParagraph, Koch will use best available data, but may have better information available when it submits the annual reports required by 40 C.F.R. § 61.357(d)(2); and

(d.) Koch shall identify all labs used during the quarter for analysis of benzene waste samples and identify when Koch's most recent audit of each lab occurred.

VI. PROGRAM ENHANCEMENTS RE: LEAK DETECTION AND REPAIR

Program Summary: Koch agrees to undertake the following measures regarding leak detection and repair ("LDAR") at its refineries in accordance with the following schedule. Unless

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otherwise stated, the Corpus Christi East and West refineries will be considered as one LDAR program for purposes of this Agreement. Unless otherwise stated, all actions will commence on January 1, 2001.

75. By no later than December 31, 2001, Koch shall develop a written refinery-wide program for LDAR compliance for each refinery. These programs shall include, at a minimum: an overall refinery-wide leak rate goal (to be applied unit-by-unit), procedures for identifying leaking components, and procedures for identifying and including new components in the LDAR program. As set forth below, certain elements of the program will be enforceable by EPA, and Koch will implement other management-type elements on an enforceable schedule, but the elements themselves will not be enforceable against Koch under the terms of this Consent Decree. Koch will implement this program according to the schedules specified in the Paragraphs below.

76. By no later than December 31, 2002, Koch's LDAR programs shall be implemented refinery-wide, including all components within all areas that are owned and maintained by the refineries. As referenced in this Section, "components" shall mean applicable regulated equipment as defined in 40

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C.F.R. Part 60, subpart VV, and 40 C.F.R. Part 63, subparts H and CC, excluding the definition of "process unit."

77. By no later than December 31, 2001, Koch shall develop and begin implementing the following training programs at each refinery:

(a.) For new LDAR personnel, Koch shall provide and require LDAR training prior to the employee beginning work in the LDAR group;

(b.) For all LDAR personnel, Koch shall provide and require completion of annual LDAR training; and

(c.) For all other refinery operations personnel, Koch shall provide and require annual review courses for LDAR monitoring.

78. Koch shall implement the following audit programs (the Corpus Christi refineries will be audited as one LDAR program) focusing on comparative monitoring, records review and observation of the LDAR technicians' actual calibration and monitoring techniques:

(a.) Koch shall conduct biennial internal audits of each refinery's LDAR program. These audits will be conducted by sending representative LDAR personnel from one Koch refinery to the other. One refinery will have its first audit during the first full calendar year after the Consent Decree is lodged. The other refinery will conduct its first audit no later than the following calendar year; and

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(b.) Koch agrees to have a third party audit each refinery's LDAR program at least twice during the overall life of the Consent Decree.

79. By December 31, 2002, Koch shall implement an internal leak definition of 500 ppmv for all valves, and 2000 ppmv for all pumps. Koch may continue to report leak rates against the regulatory leak definition, or may elect to use the lower leak rate definition for reporting purposes.

80. Beginning January 1, 2001, Koch shall require LDAR personnel to make a "first attempt" at repairing any valve that has a reading above 50 ppmv, excluding control valves and other components that LDAR personnel are not authorized to repair. Koch will only record, track and remonitor leaks above Koch's internal leak definition.

81. Koch shall implement a program of more frequent monitoring by December 31, 2002, for all valves by choosing one of the following options on a process unit by process unit basis:

(a.) Quarterly monitoring with no ability to skip periods. This option cannot be chosen for process units subject to the HON or the modified-HON option in the Refinery MACT;

(b.) Implementation of a Sustainable Skip Period Program as set forth in Attachment 1 to this Consent Decree;

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(c.) Units that have already utilized a skip leak interval with a leak definition as listed in Paragraph 79, are not required to return to a more frequent monitoring interval upon application of the Sustainable Skip Period Program as of December 31, 2002, but shall immediately be subject to the requirements of the program on a going forward basis; and

(d.) Units that have not utilized the 500 ppmv leak definition prior to December 31, 2002, shall enter the program on a quarterly frequency, unless their current interval is shorter.

82. For process units complying with the Sustainable Skip Period Program in Attachment 1, Koch shall use the leak rate determined during an EPA or State inspection to require more frequent monitoring, if appropriate. Koch will utilize the more frequent monitoring program beginning at the start of the next calendar month, provided that if Koch is obligated under applicable regulations to complete its monitoring program for the prior monitoring period and if additional time is required to make the transition, EPA and Koch will agree on a later date to move to the more frequent period. The leak rate determination during EPA or state inspections shall be made based on the total number of leaking valves identified during the inspection divided by the total number of valves in the process unit that Koch uses

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to determine the leak rates, rather than the total number of valves monitored during the inspection.

83. Beginning July 1, 2001, Koch shall use dataloggers and/or electronic data storage for LDAR monitoring. Koch can use paper logs where necessary or more feasible (i.e. small rounds, remonitoring when dataloggers are not available or broken, inclement weather, etc).

84. By December 31, 2001, Koch shall have developed standards for new equipment (i.e., pumps, relief valves, sample connections, other valves) it is installing to minimize potential leaks. Koch will also make use of improved equipment, such as "leakless" valves for chronic leakers, where available, technically feasible, and economically reasonable.

85. If, during the life of this Consent Decree, Koch completely subcontracts its LDAR program at any of its refineries, Koch shall require its LDAR contractors to conduct a QA/QC review of all data before turning it over to Koch and to provide Koch with daily reports of its monitoring activity.

86. By December 31, 2001, Koch shall have established a program that will hold LDAR personnel accountable for the

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quality of monitoring and an overall refinery program to provide incentives for leak rate improvements.

87. Koch shall continue to maintain a position within the refinery (or under contract) responsible for LDAR coordination, with the authority to implement these and other recommended improvements.

88. By December 31, 2001, Koch shall have established a tracking program for maintenance records to ensure that components added to the refinery during maintenance and/or construction are added to the LDAR program.

89. Koch shall have the option of monitoring all components within a process unit within 30 days after the startup of the process unit after the turnaround without having the results of the monitoring used in the leak rate determination. Process unit t/a's are considered those activities that are planned on a typical 2-4 year cycle that require a complete unit shutdown.

90. Beginning January 1, 2001, Koch will conduct calibration drift assessments of the LDAR monitoring equipment in accordance with 40 C.F.R. Part 60, EPA Reference Test Method 21 at the end of each monitoring shift, at a minimum. Koch agrees that if any calibration drift

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assessment after the initial calibration shows a negative drift of more than 10%, it will remonitor all components since the last calibration that had readings above 50 ppmv.

91. Beginning the first calendar quarter following lodging of this Consent Decree, but no sooner than January 1, 2001, for valves that meet the regulatory requirements to be put on the "delay of repair" list for repair.

(a.) Koch shall require sign-off by the PL (unit foreman) or equivalent or higher authority before the component is eligible for the "delay of repair" list;

(b.) Koch shall set a leak level of 50,000 ppmv at which it will undertake "heroic" efforts to fix the leak rather than put the valve on the "delay of repair" list, unless there is a safety or major environmental concern posed by repairing the leak in this manner. For valves, heroic efforts/repairs shall be defined as non-routine repair methods, such as the drill and tap;

(c.) Koch shall include valves that are placed on the "delay of repair" list in its regular LDAR monitoring, and make "heroic" repair efforts, unless there is a safety or major environmental concern posed by repairing the leak in this manner, if leak reaches 50,000 ppmv; and

(d.) After April 1, 2001, Koch shall undertake heroic efforts to repair valves that have been on the "delay of repair" list for a period of longer than 36 months, unless there is a safety or major environmental concern posed by repairing the leak in this manner.

Recordkeeping and Reporting Requirements For Part VI

92. As part of the progress report submitted pursuant to Part XI, Koch shall submit the following information:

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(a.) As part of the first progress report required to be submitted after December 31, 2001, Koch shall include a copy of the written LDAR program for each refinery developed pursuant to Paragraph 75;

(b.) In the first progress report due after the training program required by Paragraph 77 has been implemented at each refinery, Koch shall submit a certification that the training has been implemented;

(c.) In its first progress report due under this Consent Decree, Koch shall submit a certification that the first attempt repair program as described in Paragraph 80 has been implemented;

(d.) As part of the first progress report required to be submitted after July 1, 2001, Koch shall submit a status report on the use of dataloggers and/or electronic data storage for data monitoring as required by Paragraph 83;

(e.) In the first progress report submitted after December 31, 2001, Koch shall include a description of the equipment standards developed pursuant to Paragraph 84;

(f.) As part of the first progress report submitted after December 31, 2001, Koch shall include a description of the accountability/incentive programs that are developed pursuant to Paragraph 86;

(g.) As part of the first progress report submitted after December 31, 2001, Koch shall include a description of the maintenance tracking program developed pursuant to Paragraph 88;

(h.) As part of its first progress report required by this Consent Decree, Koch shall submit a certification that it has implemented the calibration drift assessments described in Paragraph 90; and

(i.) As part of its first progress report required by this Consent Decree, Koch shall include a certification

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that it has implemented the "delay of repair" requirements described in Paragraph 91.

93. Koch shall maintain the audit results from Paragraph 78 and any corrective action implemented. The audit results shall be made available to the EPA and State authorities upon request.

94. As part of the semiannual monitoring reports required by 40 C.F.R. Part 63, Subparts H or CC, Koch shall provide a listing of those units that became subject to the program described in Paragraph 81 during the reporting interval. This report shall include the projected date of the next monitoring frequency for each process unit.

VII. PROGRAM ENHANCEMENTS RE: NSPS SUBPARTS A AND J
SULFUR DIOXIDE EMISSIONS FROM SULFUR RECOVERY PLANTS
("SRP") AND FLARING DEVICES

PROGRAM SUMMARY: Upon the lodging of this Consent Decree, Koch agrees to take the following measures, identified in this Section at all five of its Claus SRPs and certain flaring devices at its 3 refineries. Koch is committed to the goal of eliminating all reasonably preventable SO₂ emissions from flaring. Koch has taken a number of effective steps to reduce the frequency and duration of Flaring Incidents and to improve the refineries' sulfur recovery performance. Koch is also committed to extending the duration between SRP unscheduled and scheduled maintenance shutdowns to three years or greater.

95. DEFINITIONS: Unless otherwise expressly provided herein, terms used in this Part shall have the meaning given

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to those terms in the Clean Air Act, 42 U.S.C. §§ 7401 et seq., and the regulations promulgated thereunder. In addition, the following definitions shall apply to the terms contained within Part VII of this Consent Decree:

(a.) "Acid Gas" shall mean any gas that contains hydrogen sulfide and is generated at a refinery by the regeneration of an amine scrubber solution;

(b.) "AG Flaring" shall mean, for purposes of this Consent Decree, the combustion of Acid Gas and/or Sour Water Stripper Gas in a Flaring Device. Nothing in this definition shall be construed to modify, limit, or affect EPA's authority to regulate the flaring of gases that do not fall within the definitions contained in this Decree of Acid Gas or Sour Water Stripper Gas;

(c.) "AG Flaring Device" shall mean any device at the Refinery that is used for the purpose of combusting Acid Gas and/or Sour Water Stripper Gas, except facilities in which gases are combusted to produce sulfur or sulfuric acid. The combustion of Acid Gas and/or Sour Water Stripper Gas occurs at the following locations:

- (i) Pine Bend - one dedicated sour water stripper gas flare and the refinery main flare system
- (ii) Corpus Christi West - acid gas flare
- (iii) Corpus Christi East - acid gas flare

To the extent that the refinery utilizes Flaring Devices other than those specified herein for the purpose of combusting Acid Gas and/or Sour Water Stripper Gas, those Flaring Devices shall be covered under this Decree.

(d.) "AG Flaring Incident" shall mean the continuous or intermittent flaring/combustion of Acid Gas and/or Sour Water Stripper Gas that results in the emission of sulfur dioxide equal to, or greater than five-hundred (500) pounds in a twenty-four (24) hour period; provided, however, that if five-hundred (500) pounds or more of

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sulfur dioxide have been emitted in a twenty-four (24) hour period and Flaring continues into subsequent, contiguous, non-overlapping twenty-four (24) hour period(s), each period of which results in emissions equal to, or in excess of five-hundred (500) pounds of sulfur dioxide, then only one AG Flaring Incident shall have occurred. Subsequent, contiguous, non-overlapping periods are measured from the initial commencement of Flaring within the AG Flaring Incident.

(e.) "Day" shall mean a calendar day.

(f.) "Hydrocarbon Flaring" shall mean, for purposes of this Consent Decree, the combustion of refinery process gases, except for Acid Gas, Sour Water Stripper Gas, and/or Tail Gas, in a Hydrocarbon Flaring Device. Nothing in this definition shall be construed to modify, limit, or affect EPA's authority to regulate the flaring of gases that do not fall within the definitions contained in this Decree.

(g.) "Hydrocarbon Flaring Device" shall mean a flare device used to safely control (through combustion) any excess volume of a refinery process gas other than Acid Gas, Sour Water Stripper Gas, and/or Tail Gas. The subject Hydrocarbon Flaring Devices are:

- (i) Pine Bend - the refinery main flare system
- (ii) Corpus Christi West - the refinery main flare system
- (iii) Corpus Christi East - 36" Flare

To the extent that a refinery utilizes Flaring Devices that are functionally equivalent and are in the same service as those specified above, those Flaring Devices shall be covered under this Decree.

(h.) "Hydrocarbon Flaring Incident" shall mean the continuous or intermittent flaring of refinery process gases, except for Acid Gas, Sour Water Stripper Gas, or Tail Gas, at a Hydrocarbon Flaring Device equipped with a flare gas recovery system, that results in the emissions of sulfur dioxide equal to, or greater than five-hundred

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(500) pounds in a twenty-four (24) hour period (the 500 pound sulfur dioxide trigger will be determined on the amount of sulfur dioxide emissions above the flare permitted emission limit); provided, however, that if five-hundred (500) pounds or more of sulfur dioxide have been emitted in a twenty-four (24) hour period and Flaring continues into subsequent, contiguous, non-overlapping twenty-four (24) hour period(s), each period of which results in emissions equal to, or in excess of five-hundred (500) pounds of sulfur dioxide, then only one Hydrocarbon Flaring Incident shall have occurred. Subsequent, contiguous, non-overlapping periods are measured from the initial commencement of Flaring within the Hydrocarbon Flaring Incident.

(i.) "Malfunction" shall mean any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(j.) "Root Cause" shall mean the primary cause of an AG Flaring Incident, Hydrocarbon Flaring Incident, or a Tail Gas Incident, as determined through a process of investigation; provided, however, that if any such Incident encompasses multiple releases of sulfur dioxide, the "Root Cause" may encompass multiple primary causes.

(k.) "Scheduled Maintenance" of an SRP shall mean any shutdown of an SRP that Koch schedules at least ten (10) days in advance of the shutdown for the purpose of undertaking maintenance of that SRP.

(l.) "Shutdown" shall mean the cessation of operation of an affected facility for any purpose.

(m.) "Sour Water Stripper Gas" or "SWS Gas" shall mean the gas produced by the process of stripping or scrubbing refinery sour water.

(n.) "Startup" shall mean the setting in operation of an affected facility for any purpose.

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(o.) "Sulfur Recovery Plant" shall mean the devices at Koch's Refinery identified as:

- (i). Pine Bend: "Unit 45"(SRUs-3&4) and Unit 26 (SRU-5);
- (ii). Corpus Christi West: "SRU#1" and "SRU#2";
- (iii). Corpus Christi East, "East SRU".

(p.) "Tail Gas" shall mean exhaust gas from the Claus trains and/or the tail gas treating unit ("TGTU") section of the SRP;

(q.) "Tail Gas Incident" shall mean, for the purpose of this Consent Decree, combustion of Tail Gas that either:
i) is combusted in a flare and results in 500 pounds of sulfur dioxide emissions in a 24 hour period; or
ii) is combusted in a monitored incinerator and the amount of sulfur dioxide emissions in excess of the 250 ppm limit on a rolling twenty-four hour average exceeds 500 pounds.

(r.) "Upstream Process Units" shall mean all amine contactors, amine scrubbers, and sour water strippers at the refinery, as well as all process units at the refinery that produce gaseous or aqueous waste streams that are processed at amine contactors, amine scrubbers, or sour water strippers.

96. SRP NSPS SUBPART A and J APPLICABILITY:

(a.) With respect to all five of Koch's Claus Sulfur Recovery Plants at its three refineries, they are subject to and will continue to comply with the applicable provisions of NSPS Subpart A and J.

(b.) Koch agrees that all emission points (stacks) to the atmosphere for tail gas emissions from each of its Claus Sulfur Recovery Plants will continue to be monitored and

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reported upon as required by 40 C.F.R. §§ 60.7(c), 60.13, and 60.105(a)(5). This requirement is not applicable to the AG Flaring Devices identified in Paragraph 95(c).

(c.) Koch will continue to route all SRP sulfur pit emissions such that they are monitored and included as part of the SRP's emissions that are compared to the NSPS Subpart J limit for SO₂, a 12-hour rolling average of 250 ppmvd SO₂ at 0% oxygen, as required by 40 C.F.R. § 60.104(a)(2).

(d.) Koch will continue to conduct SRP emissions monitoring with CEMS at all of the emission points unless a sulfur dioxide alternative monitoring procedure has been approved by EPA, per 40 C.F.R. § 60.13(i), for any or all of the emission points.

(e.) For the purpose of determining compliance with the SRP emission limits, Koch shall apply the start-up shutdown provisions set forth in NSPS Subpart A to the Claus Sulfur Recovery Plant and not to the independent start-up or shut-down of its corresponding control device(s) (e.g. TGTU). However, the malfunction exemption set forth in NSPS Subpart A does apply to both the Claus Sulfur Recovery Plant and its control device(s) (e.g., TGTU).

(f.) At Corpus Christi East, by December 31, 2003, Koch will ensure that the Sour Water Stripper Tank off-gas is either removed from the SRP incinerator or independently controlled and monitored to meet NSPS Subpart J emission limit at 40 C.F.R. §60.104(a)(1).

97. SULFUR RECOVERY PLANT OPTIMIZATION:

(a.) Koch stipulates that it has performed and will continue to perform system reliability and optimization studies, utilizing Reliability Centered Maintenance (RCM) protocols, on its SRP's at all three refineries. The RCM protocols are being used to optimize the performance of the Claus train for the actual characteristics of the feed to the SRP.

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(b.) Koch has reviewed AG Flaring Incidents which occurred over the past four (4) years on a refinery by refinery basis. The information gained from these reviews was used to help ensure that the reliability studies focused on all known potential causes of AG Flaring due to the design, operation and maintenance of the SRPs, and to ensure that any historically identified corrective actions have been or will be implemented for addressing those causes.

(c.) Koch stipulates that it has performed a Root Cause Failure Analysis (RCFA) of the recent AG Flaring Incidents at all three refineries, identified causes of AG Flaring, and has implemented or is in the process of identifying and implementing corrective actions to minimize the number and duration of AG Flaring events attributable to problems within the SRP.

98. FLARING. By March 31, 2001, Koch shall, at the 3 refineries, implement procedures for evaluating whether future AG Flaring Incidents, Hydrocarbon Flaring Incidents, and Tail Gas Incidents are due to malfunctions. The procedures require root cause analysis and corrective action for all types of flaring and stipulated penalties for AG Flaring Incidents or Tail Gas Incidents if the root causes were not due to malfunctions.

99. HYDROCARBON FLARING. Koch and EPA stipulate for purposes of this Consent Decree that its main refinery flares at its 3 refineries are subject to NSPS Subpart J as fuel gas combustion devices in addition to being emergency control devices for quick and safe release of malfunction gases. Koch

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and EPA also stipulate that the best way to ensure compliance with those flares' NSPS obligations is through implementation of good air pollution control practices for minimizing flaring activity, as required by 40 C.F.R. §60.11(d), and not through monitoring of compliance with 40 C.F.R.

§60.104(a)(1). EPA and the Minnesota Pollution Control Agency ("MPCA") agree that Koch's operation of its refineries in conformance with Koch's Flare Policy, Attachment 2, ensures that Hydrocarbon Flaring is not subject to the emission limitation, monitoring or other requirements for refinery fuel gas found in 40 C.F.R. §§ 60.100 - 60.109. Koch shall implement the following additional mitigation measures:

(a.) For Hydrocarbon Flaring at Pine Bend and Corpus Christi West, Koch shall continue to operate and maintain the flare gas recovery systems and investigate, report and correct the cause of flaring in accordance with the procedures in Koch's Flare Policy, Attachment 2 to this Consent Decree.

(b.) For Hydrocarbon Flaring at Corpus Christi East, by December 31, 2003, Koch shall install a flare gas recovery system and then operate and maintain the flare gas recovery system. By January 7, 2004, Koch shall begin to investigate, report and correct the cause of the Hydrocarbon Flaring Incidents in accordance with the procedures in Koch's Flare Policy.

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100. TAIL GAS INCIDENTS. For Tail Gas Incidents, Koch shall follow the same investigative, reporting, corrective action and assessment of stipulated penalty procedures as outlined in Paragraph 101 for Acid Gas Flaring. Those procedures shall be applied to TGTU shutdowns, bypasses of a TGTU, unscheduled shutdowns of a SRP or other miscellaneous unscheduled SRP events which result in a Tail Gas Incident as defined in Paragraph 95 (q), with the exceptions that the provisions of Paragraph 101(c)(ii)(A) would not apply to a Tail Gas Incident and Tail Gas Incidents would not be counted in the tally of Acid Gas Flaring Incidents under Paragraph 101(c)(ii)(B).

101. REQUIREMENTS RELATED TO ACID GAS FLARING.

(a) INVESTIGATION AND REPORTING: No later than thirty (30) days following the end of an AG Flaring Incident or an event identified in Paragraph 100, Koch shall submit a report to the applicable EPA Regional Office and applicable State Agency that sets forth the following:

(i). The date and time that the AG Flaring Incident started and ended. To the extent that the AG Flaring Incident involved multiple releases either within a twenty-four (24) hour period or within subsequent, contiguous, non-overlapping twenty-four (24) hour periods, Koch shall set forth the starting and ending dates and times of each release;

(ii). An estimate of the quantity of sulfur dioxide that was emitted and the calculations that were used to determine that quantity;

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(iii). The steps, if any, that Koch took to limit the duration and/or quantity of sulfur dioxide emissions associated with the AG Flaring Incident;

(iv). A detailed analysis that sets forth the Root Cause and all contributing causes of that AG Flaring Incident, to the extent determinable;

(v). An analysis of the measures, if any, that are available to reduce the likelihood of a recurrence of a AG Flaring Incident resulting from the same Root Cause or contributing causes in the future. The analysis shall discuss the alternatives, if any, that are available, the probable effectiveness and cost of the alternatives, and whether or not an outside consultant should be retained to assist in the analysis. Possible design, operational, and maintenance changes shall be evaluated. If Koch concludes that corrective action(s) is (are) required under Paragraph 101(b), the report shall include a description of the action(s) and, if not already completed, a schedule for its (their) implementation, including proposed commencement and completion dates. If Koch concludes that corrective action is not required under Paragraph 101(b), the report shall explain the basis for that conclusion;

(vi). A statement that:

(A) specifically identifies each of the grounds for stipulated penalties in Paragraphs 101(c) of this Decree and describes whether or not the AG Flaring Incident falls under any of those grounds;

(B) describes which Paragraph 101(c)(iii)(A) or (B) applies, and why, if a AG Flaring Incident falls under Paragraph 101(c)(iii) of this Decree; and

(C) states whether or not Koch asserts a defense to the AG Flaring Incident, and if so, a description of the defense if an AG Flaring Incident falls under either Paragraph 101(c)(ii) or Paragraph 101(c)(iii)(B);

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(vii). To the extent that investigations of the causes and/or possible corrective actions still are underway on the due date of the report, a statement of the anticipated date by which a follow-up report fully conforming to the requirements of Paragraphs 101(a)(iv) and (v) will be submitted; provided, however, that if Koch has not submitted a report or a series of reports containing the information required to be submitted under this Paragraph within 45 days (or such additional time as EPA may allow) after the due date for the initial report for the AG Flaring Incident, the stipulated penalty provisions of Paragraph 103(b) shall apply, but Koch shall retain the right to dispute, under Part XVI (Dispute Resolution) of this Consent Decree, any demand for stipulated penalties that was issued as a result of Koch's failure to submit the report required under this Paragraph within the time frame set forth. Nothing in this Paragraph shall be deemed to excuse Koch from its investigation, reporting, and corrective action obligations under this Part for any AG Flaring Incident which occurs after an AG Flaring Incident for which Koch has requested an extension of time under this Paragraph.

(viii). To the extent that completion of the implementation of corrective action(s), if any, is not finalized at the time of the submission of the report required under this Paragraph, then, by no later than 30 days after completion of the implementation of corrective action(s), Koch shall submit a report identifying the corrective action(s) taken and the dates of commencement and completion of implementation.

(b.) CORRECTIVE ACTION: In response to any AG Flaring Incident, Koch, as expeditiously as practicable, shall take such interim and/or long-term corrective actions, if any, as are consistent with good engineering practice to minimize the likelihood of a recurrence of the Root Cause and all contributing causes of that AG Flaring Incident.

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(i). If EPA does not notify Koch in writing within sixty (60) days of receipt of the report(s) required by Paragraph 101(a) that it objects to one or more aspects of Koch's proposed corrective action(s), if any, and schedule(s) of implementation, if any, then that (those) action(s) and schedule(s) shall be deemed acceptable for purposes of Koch's compliance with Paragraph 101(b) of this Decree. EPA does not, however, by its agreement to the entry of this Consent Decree or by its failure to object to any corrective action that Koch may take in the future, warrant or aver in any manner that any of Koch's corrective actions in the future will result in compliance with the provisions of the Clean Air Act or its implementing regulations. Notwithstanding EPA's review of any plans, reports, corrective measures or procedures under this Section, Koch shall remain solely responsible for compliance with the Clean Air Act and its implementing regulations.

(ii). If EPA does object, in whole or in part, to Koch's proposed corrective action(s) and/or its schedule(s) of implementation, or, where applicable, to the absence of such proposal(s) and/or schedule(s), it shall notify Koch of that fact within sixty (60) days following receipt of the report(s) required by Paragraph 101(a) above. If Koch and EPA cannot agree within thirty (30) days on the appropriate corrective action(s), if any, to be taken in response to a particular AG Flaring Incident, either Party may invoke the Dispute Resolution provisions of Part XVI of this Decree.

Nothing in this Paragraph shall be construed as a waiver of EPA's rights under the Act and its regulations for future violations of the Act or its regulations. Nothing in this Paragraph shall be construed to limit Koch's right to take such corrective actions as it deems necessary and appropriate

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immediately following an AG Flaring Incident or in the period during preparation and review of any reports required under this Part.

(c). AG FLARING INCIDENTS AND STIPULATED PENALTIES:

(i) The stipulated penalty provisions of Paragraph 103(a) shall apply to any AG Flaring Incident for which the Root Cause was one or more of the following acts, omissions, or events:

(A). Error resulting from careless operation by the personnel charged with the responsibility for the SRPs, TGTUs, or Upstream Process Units;

(B). A failure of equipment that is due to a failure by Koch to operate and maintain that equipment in a manner consistent with good engineering practice.

Except for a Force Majeure event, Koch shall have no defenses to demand for stipulated penalties for a AG Flaring Incident falling under this Paragraph.

(ii) The stipulated penalty provisions of Paragraph 103(a) shall apply to any AG Flaring Incident that either:

(A). Results in emissions of sulfur dioxide at a rate of greater than twenty (20) pounds per hour continuously for three (3) consecutive hours or more; or

(B). Causes the total number of AG Flaring Incidents per refinery in a rolling twelve (12) month period to exceed five (5).

In the event that an AG Flaring Incident falls under both Paragraph 101(c)(i) and (ii), then Paragraph 101(c)(i) shall apply.

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(iii) With respect to any AG Flaring Incident other than those identified in Paragraphs 101(c)(i) and 101(c)(ii), the following provisions apply:

(A). First Time: If the Root Cause of the AG Flaring Incident was not a recurrence of the same Root Cause that resulted in a previous AG Flaring Incident that occurred since the effective date of this Decree for the Corpus Christi Refinery East and West, and since May 18, 1998 for Pine Bend Refinery, then:

(1). If the Root Cause of the AG Flaring Incident was sudden, infrequent, and not reasonably preventable through the exercise of good engineering practice, then that cause shall be designated as an agreed-upon malfunction for purposes of reviewing subsequent AG Flaring Incidents;

(2). If the Root Cause of the AG Flaring Incident was not sudden and infrequent, and was reasonably preventable through the exercise of good engineering practice, then Koch shall implement corrective action(s) pursuant to Paragraph 101(b).

(B) Recurrence: If the Root Cause is a recurrence of the same Root Cause that resulted in a previous AG Flaring Incident that occurred since the Effective Date of this Consent Decree, then Koch shall be liable for stipulated penalties under Paragraph 103(a) of this Decree unless:

(1) the AG Flaring Incident resulted from a Malfunction,

(2) the Root Cause previously was designated as an agreed-upon malfunction under Paragraph 101(c)(iii)(A)(1), or

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(3) the AG Flaring Incident was a recurrence of an event that Koch had previously developed a corrective action plan for and for which it had not yet completed implementation.

(iv.) In response to a demand by EPA for stipulated penalties, the United States and Koch both agree that Koch shall be entitled to assert a Malfunction defense with respect to any AG Flaring Incident or Tail Gas Incident falling under this Paragraph. In the event that a dispute arising under this Paragraph is brought to the Court pursuant to the Dispute Resolution provisions of this Decree, nothing in this Paragraph is intended or shall be construed to deprive Koch of its view that Startup, Shutdown, and Malfunction upset defenses are available for AG Flaring Incidents and Tail Gas Incidents, nor to deprive the United States of its view that such defenses are not available.

(v.) Other than for a Malfunction or Force Majeure, if no AG Flaring Incident or Tail Gas Incident occurs at a refinery for a rolling 36 month period, then the stipulated penalty provisions of Paragraph 103(a) no longer apply at that refinery. EPA may elect to reinstate the stipulated penalty provision if Koch has a flaring event which would otherwise be subject to stipulated penalties. EPA's decision shall not be subject to dispute resolution. Once reinstated, the stipulated penalty provision shall continue for the remaining life of this Consent Decree.

102. MISCELLANEOUS:

(a) Calculation of the Quantity of Sulfur Dioxide Emissions resulting from AG Flaring. For purposes of this Consent Decree, the quantity of sulfur dioxide

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emissions resulting from AG Flaring shall be calculated by the following formula:

Tons of Sulfur Dioxide = $[FR][TD][ConcH_2S][8.44 \times 10^{-5}]$.

The quantity of Sulfur Dioxide emitted shall be rounded to one decimal point. (Thus, for example, for a calculation that results in a number equal to 10.050 tons, the quantity of Sulfur Dioxide emitted shall be rounded to 10.1 tons.) For purposes of determining the occurrence of, or the total quantity of Sulfur Dioxide emissions resulting from, a AG Flaring Incident that is comprised of intermittent AG Flaring, the quantity of Sulfur Dioxide emitted shall be equal to the sum of the quantities of sulfur dioxide flared during each such period of intermittent AG Flaring.

(b) Calculation of the Rate of Sulfur Dioxide Emissions during AG Flaring. For purposes of Paragraph 101(c)(ii)(A) of this Consent Decree, the rate of sulfur dioxide emissions resulting from Flaring shall be expressed in terms of pounds per hour, and shall be calculated by the following formula: $ER = [FR][ConcH_2S][0.169]$. The emission rate shall be rounded

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to one decimal point. (Thus, for example, for a calculation that results in an emission rate of 19.95 pounds of sulfur dioxide per hour, the emission rate shall be rounded to 20.0 pounds of sulfur dioxide per hour; for a calculation that results in an emission rate of 20.05 pounds of sulfur dioxide per hour, the emission rate shall be rounded to 20.1.)

(c) Meaning of Variables and Derivation of Multipliers used in the Equations in Paragraphs 102(a) and 102(b):

ER = Emission Rate in pounds of Sulfur Dioxide per Hour

FR = Average Flow Rate to Flaring Device(s) during Flaring, in standard cubic feet per hour

TD = Total Duration of Flaring in hours

ConcH₂S = Average Concentration of Hydrogen Sulfide in gas during Flaring (or immediately prior to Flaring if all gas is being flared) expressed as a volume fraction (scf H₂S/scf gas)

$8.44 \times 10^{-5} = [\text{lb mole H}_2\text{S}/379 \text{ scf H}_2\text{S}][64 \text{ lbs SO}_2/\text{lb mole H}_2\text{S}][\text{Ton}/2000 \text{ lbs}]$

$0.169 = [\text{lb mole H}_2\text{S}/379 \text{ scf H}_2\text{S}][1.0 \text{ lb mole SO}_2/1 \text{ lb mole H}_2\text{S}][64 \text{ lb SO}_2/1.0 \text{ lb mole SO}_2]$

The flow of gas to the AG Flaring Device(s) - "FR" - shall be as measured by the relevant flow meter or

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determined by calculation. Hydrogen sulfide concentration - "ConcH₂S" - shall be determined from an SRP feed gas analyzer or by calculation. In the event that either of these data points is unavailable or inaccurate, the missing data point(s) shall be estimated according to best engineering judgment. The report required under Paragraph 101(a) shall include the data used in the calculation and an explanation of the basis for any estimates of missing data points.

(d) Calculation of the Quantity of Sulfur Dioxide Emissions resulting from a Tail Gas Incident. For the purposes of this Consent Decree, the quantity of sulfur dioxide emissions resulting from a Tail Gas Incident shall be calculated by the one of the following methods, based on the point of release:

(i) If the Tail Gas Incident is an event of flaring, the sulfur dioxide emissions are calculated as follows:

$$ER_{TGFL} = [FR_{TGFL}][ConcH_2S][0.169][TD_{TGFL}]$$

Where:

ER_{TGFL} = Emission Rate in pounds of Sulfur Dioxide
for Tail Gas Incident using flare

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FR_{TGFL} = Average Tail Gas Flow Rate to Flaring Device(s) during Flaring, in standard cubic feet per hour

TD_{TGFL} = Total Duration for flaring of Tail Gas Incident in hours

ConcH₂S = Average Concentration of Hydrogen Sulfide in tail gas during Flaring (or immediately prior to Flaring if all gas is being flared) expressed as a volume fraction (scf H₂S/scf gas)

0.169 = [lb mole H₂S/379 scf H₂S][1.0 lb mole SO₂/1 lb mole H₂S][64 lb SO₂/1.0 lb mole SO₂]

The flow of tail gas to the Flaring Device(s) - "FR_{TGFL}" - may be measured or estimated using engineering calculations or judgement. Hydrogen sulfide concentration - "ConcH₂S" - shall be determined or estimated from the TGTU or Claus process information.

(ii) If the Tail Gas Incident is released from a monitored SRP incinerator, then the following formula applies:

$$ER_{TGI} = \frac{[FR_{Inc.}] [Conc. SO_2 - 250] [0.169 \times 10^{-6}]}{[TD_{TGI}]}$$

Where:

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ER_{TGI} = Emissions from Tail Gas at the SRP
incinerator, SO₂ lbs. over a 24 hour period

FR_{Inc.} = Incinerator Exhaust Gas Flow Rate (standard
cubic feet per hour) (actual stack monitor data
or engineering estimate based on the acid gas
feed rate to the SRP)

Conc. SO₂ = Actual SO₂ concentration (CEM data) in
the incinerator exhaust gas, ppmvd at 0% O₂ and
average over 24 hour.

0.169 x 10⁻⁶ = [lb mole of SO₂ / 379 SO₂] [64 lbs
SO₂ / lb mole SO₂] [1x 10⁻⁶]

TD_{TGI} = Total duration (hours) when the Incinerator
CEM was exceeding 250 ppmvd at 0% O₂ on a
rolling twelve hour average, in a 24 hour
period.

In the event the Conc. SO₂. data point is inaccurate or not
available or a flow meter for FR_{Inc.}, does not exist or is
inoperable, then estimates will be used based on best
engineering judgement.

(e) Any disputes under the provisions of this Part shall be
resolved in accordance with the Part XVI (Dispute Resolution)
of this Decree.

103. STIPULATED PENALTIES UNDER THIS PART: Koch shall
be liable for the following stipulated penalties for
violations of the requirements of this Part. For each
violation that is assessed on a "per period" basis, the

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amounts identified below apply on the first day of violation and are calculated for each incremental period of violation (or portion thereof):

(a) AG Flaring Incidents for which Koch is liable under Paragraphs 101(c):

Tons Emitted in Flaring Incident	Length of Time from Commencement of Flaring within the Flaring Incident to Termination of Flaring within the Flaring Incident is 3 hours or less	Length of Time from Commencement of Flaring within the Flaring Incident to Termination of Flaring within the Flaring Incident is greater than 3 hours but less than or equal to 24 hours	Length of Time of Flaring within the Flaring Incident is greater than 24 hours
5 Tons or less	\$500 per Ton	\$750 per Ton	\$1,000 per Ton
Greater than 5 Tons, but less than or equal to 15 Tons	\$1,200 per Ton	\$1,800 per Ton	\$2,300 per Ton, up to, but not exceeding, \$27,500 in any one calendar day
Greater than 15 Tons	\$1,800 per Ton, up to, but not exceeding, \$27,500 in any	\$2,300 per Ton, up to, but not exceeding, \$27,500 in any	\$27,500 per calendar day for each calendar day over which the

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	one calendar day	one calendar day	Flaring Incident lasts

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(i) For purposes of calculating stipulated penalties pursuant to this SubParagraph, only one cell within the matrix shall apply. Thus, for example, for an AG Flaring Incident in which the AG Flaring starts at 1:00 p.m. and ends at 3:00 p.m., and for which 14.5 tons of sulfur dioxide are emitted, the penalty would be \$17,400 ($14.5 \times \$1,200$); the penalty would not be \$13,900 [$(5 \times \$500) + (9.5 \times \$1200)$].

(ii) For purposes of determining which column in the table set forth in this SubParagraph applies under circumstances in which AG Flaring occurs intermittently during an AG Flaring Incident, the AG Flaring shall be deemed to commence at the time that the AG Flaring that triggers the initiation of a AG Flaring Incident commences, and shall be deemed to terminate at the time of the termination of the last episode of AG Flaring within the AG Flaring Incident. Thus, for example, for AG Flaring within an AG Flaring Incident that (A) starts at 1:00 p.m. on Day 1 and ends at 1:30 p.m. on Day 1; (B) recommences at 4:00 p.m. on Day 1 and ends at 4:30 p.m. on Day 1; (C) recommences at 1:00 a.m. on Day 2 and ends at 1:30 a.m. on Day 2; and (D) no further AG Flaring occurs within the AG Flaring Incident, the AG Flaring within the AG Flaring Incident shall be deemed to last 12.5 hours -- not 1.5 hours -- and the column for AG Flaring of "greater than 3 hours but less than or equal to 24 hours" shall apply.

(b) Failure to timely submit any report required by this Part, or for submitting any report that does not conform to the requirements of this Part:
\$5,000 per week, per report.

(c) For those corrective action(s) which Koch is required to undertake following Dispute Resolution, then, from the 91st day after EPA's receipt of Koch's report under Paragraph 101(b) of this Decree until the date that

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either (i) a final agreement is reached between U.S. EPA and Koch regarding the corrective action or (ii) a court order regarding the corrective action is entered:

\$5,000 per month

(d) Failure to complete any corrective action under Paragraph 101(b) of this Decree in accordance with the schedule for such corrective action agreed to by Koch or imposed on Koch pursuant to the Dispute Resolution provisions of this Decree (with any such extensions thereto as to which EPA and Koch may agree in writing):

\$5,000 per week

104. Certification. All notices, reports or any other submissions required of Koch by this Part shall contain the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and that I have made a diligent inquiry of those individuals immediately responsible for obtaining the information and that to the best of my knowledge and belief, the information submitted herewith is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

105. The reporting requirements set forth in this Part do not relieve Koch of its obligation to any State, local authority, or EPA to submit any other reports or information required by the CAA, or by any other state, federal or local requirements.

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VIII. PERMITTING

106. Construction. Koch agrees to apply for and make all reasonable efforts to obtain in a timely manner all appropriate federally enforceable permits (or construction permit waivers) for the construction of the pollution control technology required to meet the above pollution reductions.

107. Operation. As soon as practicable, but in no event later than 60 days following a final determination of concentration limits, Koch shall apply for and make all reasonable efforts to incorporate the concentration limits required by this Consent Decree into NSR and other applicable permits for these facilities. Koch shall apply to incorporate NSPS applicability, where appropriate, into the relevant permits as set forth in Paragraph 106 above.

108. The Pine Bend Project. The parties agree that Koch initiated the planning of a project involving modifications to the #2 Crude Unit at the Pine Bend refinery prior to the signing of the Agreement in Principle dated June 30, 2000. This project is reflected in an air permit application submitted to the MPCA dated September 11, 2000. Among other things, Koch has proposed to install, as part of this

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project, a new heater (11H-6). While not subject to the terms of this Consent Decree, Koch has agreed to install "next generation" ultra low NO_x burners, as defined in this Consent Decree, in 11H-6 and to eliminate fuel oil firing at all heaters involved in this project. As a result, the project will result in reduced NO_x and SO₂ emissions. The parties agree that this project should be carried out in furtherance of the objectives of this Consent Decree. The parties also recognize the existence of the Findings and Order by Stipulation (Administrative Order), dated February 25, 1994, between Koch Refining Company (now Koch Petroleum Group) and MPCA. The Administrative Order was made part of the State Implementation Plan (SIP) for sulfur dioxide attainment in Minnesota. Koch is involved in a process to revise the Administrative Order and SIP to allow Koch to implement the projects set forth in this Consent Decree. The parties believe that these projects will further the goals of the Administrative Order and SIP, to reduce sulfur dioxide emissions to the ambient air. Therefore, the parties agree that so long as Koch conforms to the terms and conditions of the Consent Decree as it pertains to pollution reduction measures related to SO₂ emissions, MPCA will take no action

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against Koch for the failure to obtain a modification of the Administrative Order prior to construction of the new heaters. The parties agree to work expeditiously towards the modification of the Administrative Order and SIP to address construction and operation of the new heater, as well as to facilitate issuance of the Title V permit for the Pine Bend refinery and approvals for other projects required by this Consent Decree. If Koch submits timely and appropriate documentation to support the SIP revision, then no violation of the construction schedule in this Consent Decree will result if the SIP revision is otherwise delayed.

IX. ENVIRONMENTALLY BENEFICIAL PROJECTS

109. Koch and the United States agree that measures to reduce NO_x and SO₂ emissions from the FCCUs and heaters and boilers at the Pine Bend and Corpus Christi refineries, to the extent that they are not otherwise required by law, are pollution reduction projects and shall be considered for penalty mitigation pursuant to this Consent Decree.

110. Koch shall perform the following pollution reduction projects:

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(a.) Limitation of supplemental fuel oil burning at the Pine Bend refinery to 100,000 barrels per year at all process heaters and steam boilers (except where Koch can demonstrate that natural gas curtailment is an issue and fuel oil use is required as a back-up). This project will prevent approximately 400 tons of SO₂ emissions per year;

(b.) Installation of flare gas recovery system at the Corpus Christi East refinery;

(c.) Replacement, shutdown, or control of heaters and boilers to reduce NO_x emissions at the three refineries;

(d.) Reduction of NO_x emissions from the FCCUs at the three refineries; and

(e.) Continue the restriction on burning of any fuel oil in any of the heaters and boilers at the Corpus Christi East and West refineries.

111. Koch agrees that in any public statements regarding the funding of the projects identified in this Part, Koch must clearly indicate that these projects are being undertaken pursuant to this Consent Decree. Except as provided in Part IV, Section E (Emission Credit Generation and Classification), Koch shall not use or rely on the emission reductions generated as a result of its performance of these projects.

X. INCORPORATION OF RCRA CONSENT AGREEMENT AND FINAL ORDER

112. On August 31, 2000, EPA and Koch entered into a Consent Agreement and Final Order ("CAFO") resolving alleged

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RCRA violations at Koch's Pine Bend, Minnesota refinery, EPA docket number RCRA-5-2000-010. The terms of the CAF0 are hereby incorporated by reference and are fully enforceable by and through the relevant terms of this Consent Decree.

Koch's payment of \$3.5 million in civil penalties as referenced in the CAF0 shall be paid pursuant to Paragraph 117 of this Consent Decree. Stipulated penalties due under the CAF0 shall be paid as provided in the CAF0, and if not timely paid may be enforced under the CAF0 or this Consent Decree. A copy of the CAF0 is attached to this Consent Decree as Attachment 3.

XI. GENERAL RECORDKEEPING, RECORD RETENTION, AND REPORTING

113. Defendant shall retain all records required to be maintained in accordance with this Consent Decree for a period of five (5) years unless other regulations require the records to be maintained longer.

114. Beginning with the first full calendar quarter after entry of this Consent Decree, the Defendant shall submit a calendar quarterly progress report ("calendar quarterly report") to EPA within 30 days after the end of

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each of the calendar quarters during the life of this Consent Decree. This report shall contain the following:

- (a.) progress report on the implementation of the requirements of Parts IV-VIII (Compliance Programs) above;
- (b.) a summary of all Hydrocarbon Flaring Incidents;
- (c.) a summary of the emissions data as required by Parts IV-VIII, of this Consent Decree for the calendar quarter;
- (d.) a description of any problems anticipated with respect to meeting the Compliance Programs of Parts IV-VIII of this Consent Decree; and
- (e.) a description of all environmentally beneficial projects and implementation activity in accordance with Part IX this Consent Decree.

115. The calendar quarterly report shall be certified by a refinery manager or corporate officer responsible for environmental management and compliance at the refineries covered by the report, as follows:

"I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my directions and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete."

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XII. CIVIL PENALTY

116. Within thirty (30) calendar days of entry of this Consent Decree, the Defendant shall pay to the United States a civil penalty in the amount of \$4.5 million dollars (\$4,500,000). Of the total, \$3.5 million shall be paid in settlement of the United States' RCRA claims at the Pine Bend refinery and \$75,000 shall be paid to the EPA Hazardous Substances Superfund in settlement of the United States' CERCLA claims at Pine Bend. No amount of the civil penalties assessed relate to compliance issues at the Corpus Christi East refinery. Moreover, none of the civil penalties are attributable to alleged violations of the Benzene Waste NESHAP. Penalties for the Benzene Waste NESHAP violations are being addressed exclusively by a pending criminal action entitled U.S. v. Koch Industries, et al., (S.D. TX) Docket # C-00-325.

117. The monies shall be paid by Electronic Funds Transfer ("EFT") to the United States Department of Justice, in accordance with current EFT procedures, referencing the USAO File Number and DOJ Case Number 90-5-2-1-07110, and the civil action case name and case number of the District of Minnesota. The costs of such EFT shall be Koch's

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responsibility. Payment shall be made in accordance with instructions provided to Koch by the Financial Litigation Unit of the U.S. Attorney's Office in the District of Minnesota. Any funds received after 11:00 a.m. (EST) shall be credited on the next business day. Koch shall provide notice of payment, referencing the USAO File Number and DOJ Case Number 90-5-2-1-07110, and the civil action case name and case number, to the Department of Justice and to EPA, as provided in Paragraph 148 (Notice).

118. Upon entry of this Decree, this Decree shall constitute an enforceable judgment for purposes of postjudgment collection in accordance with Rule 69 of the Federal Rules of Civil Procedure, the Federal Debt Collection Procedure Act, 28 U.S.C. § 3001-3308, and other applicable federal authority. The United States shall be deemed a judgment creditor for purposes of collection of any unpaid amounts of the civil and stipulated penalties and interest.

119. No amount of the civil penalty to be paid by Koch shall be used to reduce its federal or state tax obligations.

XIII. STIPULATED PENALTIES

120. The Defendant shall pay stipulated penalties to the United States or the MPCA, where appropriate, for each

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failure by the Defendant to comply with the terms of this Consent Decree; provided, however, that the United States or the MPCA may elect to bring an action for contempt in lieu of seeking stipulated penalties for violations of this Consent Decree. For each violation, the amounts identified below shall apply on the first day of violation, shall be calculated for each incremental period of violation (or portion thereof), and shall be doubled beginning on the fourth consecutive, continuing period of violation, except such doubling shall not apply to Paragraphs 120(f) and 120(g)(i). In the alternative, at the option of the United States or the MPCA, stipulated penalties shall equal 1.2 times the economic benefit of Koch's delayed compliance, if this amount is higher than the amount calculated under this Paragraph.

(a.) Requirements for NO_x emission reductions from heaters and boilers (Part IV, Section A):

(i) Failure to install all the required burners by the December 31, 2006 deadline:
\$75,000 per quarter per unit

(ii) Failure to test for emissions or failure to establish operating parameters:
\$2000 per month per unit

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(iii) Failure to meet the emission limits established pursuant to Part IV, Section A:
\$800 per day for each heater or boiler with capacity of 150 mmBTU/hr (HHV) or greater;
\$400 per day for each heater or boiler with capacity of less than 150 mmBTU/hr (HHV);

(iv) Failure to install CEMS:
\$20,000 per month per unit

(v) Failure to submit the written proposals, feasibility determinations or annual reports to EPA pursuant to this Part:
\$1000 per proposal/determination/report per month

(b.) Requirements for NO_x emission reductions from FCCUs
(Part IV, Section B):

(i) Failure to conduct NO_x additive demonstrations:
\$30,000 per month per refinery

(ii) Failure to install SNCR on any one FCCU, or an alternative technology:
\$100,000 per quarter per refinery

(iii) Failure to meet emission limits established pursuant to Part IV, Section B:
\$1500 per day per unit

(iv) Failure to prepare a final report as required by Part IV, Section B:
\$1,000 per week per report

(c.) Requirements for SO₂ emission reductions from FCCUs
(Part IV, Section C):

(i) Failure to meet interim emission limits for the FCCU exhaust gas at Pine Bend:

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\$1500 per day

(ii) Failure to timely conduct optimization studies of the wet gas scrubbers at Corpus Christi West and East:

\$5000 per month per unit

(iii) Failure to meet final emission limits for the FCCU exhaust gas at each refinery:

\$3000 per day per unit

(d.) Requirements for Benzene Waste NESHAP program enhancements (Part V):

(i) Failure to timely conduct audit under Paragraph 64:

\$5,000 per month per audit

(ii) Failure to timely sample under Paragraph 66:
\$5,000 per week or \$30,000 per quarter, per stream
(whichever amount is greater, but not to exceed
\$150,000 per refinery per quarter)

(iii) Failure to timely install carbon canister under Paragraph 68(a):

\$5,000 per week per canister

(iv) Failure to timely replace carbon canister under Paragraph 68(d):

\$1,000 per day per canister

(v) Failure to perform monthly monitoring under Paragraph 71(a):

\$500 per month per drain

(vi) Failure to develop and timely implement training program under Paragraph 71(c):

\$10,000 per quarter per refinery

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(vii) Failure to mark segregated stormwater drains under Paragraph 71(f):

\$1,000 per week per drain

(viii) Failure to complete timely evaluations under Paragraph 72:

\$500 per week per evaluation

(ix) Failure to timely submit reports under this Part:

\$1,000 per week per report

(x) If it is discovered by an EPA or state investigator or inspector, or their agent, that Koch failed to include all benzene waste streams in its TAB, for each waste stream that is:

less than 0.03 Mg/yr - \$250

between 0.03 and 0.1 Mg/yr - \$1000

between 0.1 and 0.5 Mg/yr - \$5000

greater than 0.5 Mg/yr - \$10,000

(e) Requirements for Leak Detection and Repair program enhancements (Part VI):

(i). Failure to have a written LDAR program under Paragraph 75:

\$3000 per week

(ii) Failure to timely develop training program under Paragraph 77:

\$10,000 per month

(iii) Failure to timely conduct internal or external audit under Paragraph 78:

\$5,000 per month per audit

(iv) Failure to timely implement internal leak definition under Paragraph 79:

\$10,000 per month per process unit

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(v) Failure to develop and timely implement first attempt at repair program under Paragraph 80:

\$10,000 per month

(vi) Failure to implement and begin more frequent monitoring program under Paragraph 81:

\$10,000 per month per process unit

(vii) Failure to timely monitor under Paragraph 81 and 82:

\$5,000 per week per process unit

(viii) Failure to have dataloggers and electronic storage under Paragraph 83:

\$5,000 per month per refinery

(ix) Failure to establish new equipment standards under Paragraph 84:

\$1,000 per month

(x) Failure to implement subcontractor requirements (if required) under Paragraph 85:

\$5,000 per month per refinery

(xi) Failure to timely establish LDAR accountability under Paragraph 86:

\$5,000 per month per refinery

(xii) Failure to timely implement maintenance tracking program under Paragraph 88:

\$5,000 per month per refinery

(xiii) Failure to conduct calibration drift assessment or to remonitor components (if and as required) under Paragraph 90:

\$100 per day per refinery

(xiv) Failure to attempt "heroic" repairs under Paragraph 91:

\$5,000 per component

(xv) Failure to timely submit reports required under this Part:

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\$1,000 per week per report

(xvi) If it is discovered by an EPA or state investigator or inspector, or their agent, that Koch failed to include all required components in its LDAR program:

\$250 per component

(f) Requirements for NSPS Applicability to SRPs (Part VII):

(i) For those events not otherwise covered by Paragraph 100 (i.e., Tail Gas Incidents), each rolling 12-hour average of sulfur dioxide emissions from any SRP in excess of the limitation at 40 C.F.R. § 60.104(a)(2)(i) that is not attributable to Startup, Shutdown, or Malfunction of the SRP, or that is not attributable to Malfunction of the associated TGTU:

Number of rolling 12-hr average exceedances within calendar day	Penalty per rolling 12-hr average exceedance
1-12	\$ 350
Over 12	\$ 750

(ii) Operation of the SRP during Scheduled Maintenance of its associated TGTU (except that this Paragraph shall not apply during the period in which Koch is engaged in the Shutdown of an SRP for, or Startup of an SRP following, Scheduled Maintenance of the SRP):

\$25,000 per SRP per day

(g) Requirements for SRU Optimization and Flaring (Part VII):

(i) Stipulated penalties as identified and enumerated in Paragraph 103

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(ii) Failure to operate and maintain properly a flare gas recovery system pursuant to Koch's Flare Policy (Attachment 2) (this requirement does not apply to Corpus Christi East until January 7, 2004):
\$1,000 per day per refinery

(iii) Failure to timely install a flare gas recovery system at the Corpus Christi East refinery:
\$100,000 per quarter

(h) Requirements for Permitting (Part VIII):

Failure to timely submit a complete permit application under Paragraph 106 or 107 &:
\$1,000 per week per unit

(i) Requirements for Pollution Reduction Projects (Part IX);

Oil burning in violation of Paragraph 110:
\$15 per barrel

(j) Requirements for Reporting and Recordkeeping (Part XI):

Failure to timely submit a report required under Part XI:
\$1,000 per week per report

(k) Requirement to pay a Civil Penalty and to Escrow Stipulated Penalties:

(i) Failure to timely pay the civil penalty specified in Part XII of this Consent Decree:

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\$20,000 per week, plus interest on the amount overdue at the rate specified in 31 U.S.C. § 3717.

(ii) Failure to escrow stipulated penalties as required by Paragraph 122:
\$10,000 per week

121. Koch shall pay such stipulated penalties only upon written demand by the United States or the MPCA no later than thirty (30) days after Defendant receives such demand. Such demand will identify to which government agencies payment must be made. Stipulated penalties shall be paid to either the United States or the MPCA, unless the total amount of the stipulated penalty is apportioned between the United States and the MPCA. Such payment shall be made to the United States in the manner set forth in Part XII (Civil Penalty) of this Consent Decree, and to MPCA for deposit in the State Environmental Response, Compensation and Compliance Fund, and the environmental fund in the state treasury referred to in Minnesota Statutes Chapter 115.072.

122. Should Koch dispute its obligation to pay part or all of a stipulated penalty, it may avoid the imposition of the stipulated penalty for failure to pay a penalty due to the United States or the MPCA, by placing the disputed amount

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demanded by the United States or the MPCA, not to exceed \$50,500 for any given event or related series of events at any one refinery, in a commercial escrow account pending resolution of the matter and by invoking the Dispute Resolution provisions of Part XVI within the time provided in this Paragraph for payment of stipulated penalties. If the dispute is thereafter resolved in Defendant's favor, the escrowed amount plus accrued interest shall be returned to the Defendant, otherwise the United States or MPCA shall be entitled to the escrowed amount that was determined to be due by the Court plus the interest that has accrued on such amount, with the balance, if any, returned to the Defendant.

123. The United States and the MPCA reserve the right to pursue any other remedies to which they are entitled, including, but not limited to, additional injunctive relief for Defendant's violations of this Consent Decree. Nothing in this Consent Decree shall prevent the United States or the MPCA from pursuing a contempt action against Koch and requesting that the Court order specific performance of the terms of the Decree. Nothing in this Consent Decree authorizes MPCA to take action or make any determinations

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under this Consent Decree regarding Koch refineries outside the state of Minnesota.

124. Election of Remedy. The United States and the MPCA will not seek both stipulated penalties and civil penalties for the same actions or occurrences as those constituting a violation of the Consent Decree.

XIV. RIGHT OF ENTRY

125. Any authorized representative of the EPA or an appropriate state agency, including independent contractors, upon presentation of credentials, shall have a right of entry upon the premises of Koch's plants identified herein at any reasonable time for the purpose of monitoring compliance with the provisions of this Consent Decree, including inspecting plant equipment, and inspecting and copying all records maintained by Defendant required by this Consent Decree. Nothing in this Consent Decree shall limit the authority of EPA to conduct tests and inspections under Section 114 of the Act, 42 U.S.C. § 7414, or any other statutory and regulatory provision.

XV. FORCE MAJEURE

126. If any event occurs which causes or may cause a delay or impediment to performance in complying with any

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provision of this Consent Decree, Koch shall notify the United States and the MPCA, if the issue relates to the Pine Bend Refinery, in writing as soon as practicable, but in any event within twenty (20) business days of when Koch first knew of the event or should have known of the event by the exercise of due diligence. In this notice Koch shall specifically reference this Paragraph of this Consent Decree and describe the anticipated length of time the delay may persist, the cause or causes of the delay, and the measures taken or to be taken by Koch to prevent or minimize the delay and the schedule by which those measures will be implemented. Koch shall adopt all reasonable measures to avoid or minimize such delays.

127. Failure by Koch to comply with the notice requirements of Paragraph 126 as specified above shall render this Part XV voidable by the United States or the MPCA, if applicable to the Pine Bend refinery, as to the specific event for which Koch has failed to comply with such notice requirement, and, if voided, it shall be of no effect as to the particular event involved.

128. The United States and MPCA shall notify Koch in writing regarding Koch's claim of a delay or impediment to

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performance within twenty (20) business days of receipt of the Force Majeure notice provided under Paragraph 126. If the United States and MPCA, if applicable to the Pine Bend refinery, agree that the delay or impediment to performance has been or will be caused by circumstances beyond the control of Koch, including any entity controlled by Koch, and that Koch could not have prevented the delay by the exercise of due diligence, the parties shall stipulate to an extension of the required deadline(s) for all requirement(s) affected by the delay by a period equivalent to the delay actually caused by such circumstances, or such other period as may be appropriate in light of the circumstances. Such stipulation may be filed as a modification to this Consent Decree by agreement of the parties pursuant to the modification procedures established in this Consent Decree. Koch shall not be liable for stipulated penalties for the period of any such delay.

129. If the United States or the MPCA, if applicable to the Pine Bend refinery, do not accept Koch's claim of a delay or impediment to performance, Koch must submit the matter to this Court for resolution to avoid payment of stipulated penalties, by filing a petition for determination with this

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Court. In the event that the United States and MPCA are unable to reach agreement on acceptance of Koch's claim of a delay or impediment to performance under this Part, the final decision of the United States shall be binding. Once Koch has submitted this matter to this Court, the United States and MPCA, if applicable to the Pine Bend refinery, shall have twenty (20) business days to file its response to said petition. If Koch submits the matter to this Court for resolution and the Court determines that the delay or impediment to performance has been or will be caused by circumstances beyond the control of Koch, including any entity controlled by Koch, and that Koch could not have prevented the delay by the exercise of due diligence, Koch shall be excused as to that event(s) and delay (including stipulated penalties), for all requirements affected by the delay for a period of time equivalent to the delay caused by such circumstances or such other period as may be determined by the Court.

130. Koch shall bear the burden of proving that any delay of any requirement(s) of this Consent Decree was caused by or will be caused by circumstances beyond its control, including any entity controlled by it, and that Koch could not have

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prevented the delay by the exercise of due diligence. Koch shall also bear the burden of proving the duration and extent of any delay(s) attributable to such circumstances. An extension of one compliance date based on a particular event may, but does not necessarily, result in an extension of a subsequent compliance date or dates.

131. Unanticipated or increased costs or expenses associated with the performance of Koch's obligations under this Consent Decree shall not constitute circumstances beyond the control of Koch, or serve as a basis for an extension of time under this Part. However, failure of a permitting authority to issue a necessary permit in a timely fashion is an event of Force Majeure where the failure of the permitting authority to act is beyond the control of Koch and Koch has taken all steps available to it to obtain the necessary permit including but not limited to:

- (a.) submitting a complete permit application;
- (b.) responding to requests for additional information by the permitting authority in a timely fashion;
- (c.) accepting lawful permit terms and conditions; and
- (d.) prosecuting appeals of any unlawful terms and conditions imposed by the permitting authority in an expeditious fashion.

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132. Notwithstanding any other provision of this Consent Decree, this Court shall not draw any inferences nor establish any presumptions adverse to either party as a result of Koch delivering a notice of Force Majeure or the parties' inability to reach agreement.

133. As part of the resolution of any matter submitted to this Court under this Part XV, the parties by agreement, or this Court, by order, may in appropriate circumstances extend or modify the schedule for completion of work under this Consent Decree to account for the delay in the work that occurred as a result of any delay or impediment to performance agreed to by the United States or approved by this Court. Defendant shall be liable for stipulated penalties for its failure thereafter to complete the work in accordance with the extended or modified schedule.

XVI. DISPUTE RESOLUTION

134. The dispute resolution procedure provided by this Part XVI shall be available to resolve all disputes arising under this Consent Decree, except as otherwise provided in Part XV regarding Force Majeure, provided that the party making such application has made a good faith attempt to resolve the matter with the other party. In the event that

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the United States and MPCA make differing determinations or take differing actions that affect Koch's rights or obligations under this Consent Decree, the final decision of the United States shall be binding.

135. The dispute resolution procedure required herein shall be invoked upon the giving of written notice by one of the parties to this Consent Decree to another advising of a dispute pursuant to this Part XVI. The notice shall describe the nature of the dispute, and shall state the noticing party's position with regard to such dispute. The party receiving such a notice shall acknowledge receipt of the notice and the parties shall expeditiously schedule a meeting to discuss the dispute informally not later than fourteen (14) days from the receipt of such notice.

136. Disputes submitted to dispute resolution shall, in the first instance, be the subject of informal negotiations between the parties. Such period of informal negotiations shall not extend beyond thirty (30) calendar days from the date of the first meeting between representatives of the United States or the MPCA, if applicable to the Pine Bend refinery, and the Defendant, unless the parties' representatives agree to shorten or extend this period.

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137. In the event that the parties are unable to reach agreement during such informal negotiation period, the United States or the MPCA, if applicable to the Pine Bend refinery, shall provide the Defendant with a written summary of its position regarding the dispute. The position advanced by the United States or the MPCA, if applicable to the Pine Bend refinery, shall be considered binding unless, within fortyfive (45) calendar days of the Defendant's receipt of the written summary of the United States' or the MPCA's position, the Defendant files with this Court a petition which describes the nature of the dispute. In the event that the position advanced by the United States differs from the position advanced by the MPCA, if applicable to the Pine Bend refinery, the position of the United States shall be considered binding unless, within forty-five (45) calendar days of the Defendant's receipt of the written summary of the United States' position, the Defendant files with this Court a petition which describes the nature of the dispute. The United States or the MPCA, if applicable to the Pine Bend refinery, shall respond to the petition within forty-five (45) calendar days of filing.

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138. Where the nature of the dispute is such that a more timely resolution of the issue is required, the time periods set out in this Part XVI may be shortened upon motion of one of the parties to the dispute.

139. Notwithstanding any other provision of this Consent Decree, in dispute resolution, this Court shall not draw any inferences nor establish any presumptions adverse to either party as a result of invocation of this Part XVI or the parties' inability to reach agreement.

140. As part of the resolution of any dispute submitted to dispute resolution, the parties, by agreement, or this Court, by order, may, in appropriate circumstances, extend or modify the schedule for completion of work under this Consent Decree to account for the delay in the work that occurred as a result of dispute resolution. Defendant shall be liable for stipulated penalties for its failure thereafter to complete the work in accordance with the extended or modified schedule.

XVII. EFFECT OF SETTLEMENT

141. Satisfaction of all of the requirements of this Consent Decree constitutes full settlement of and shall resolve all civil liability of the Defendant to the United

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States and the Plaintiff-Intervener for the violations alleged in the United States' and Plaintiff-Intervener's Complaints and all civil liability of the Defendant for any violations at its Pine Bend and Corpus Christi East and West refineries based on events that occurred during the relevant time period under the following statutory and regulatory provisions: the New Source Performance Standards ("NSPS"), 40 C.F.R. Part 60, Subpart J; Leak Detection and Repair ("LDAR"), 40 C.F.R. Part 60, Subparts VV and GGG, and 40 C.F.R. Part 63, Subparts F, H, and CC; National Emission Standards for Hazardous Air Pollutants ("NESHAP") for Benzene, 40 C.F.R. Part 61, Subparts FF, J and V pursuant to Section 112(d) of the Act; and the Minnesota and Texas regulations which incorporate and/or implement the above listed federal regulations. For purposes of this Consent Decree the "relevant time period" shall mean the period beginning when the United States' claims and/or Plaintiff-Intervener's claims under the above statutes and regulations accrued through the date of entry of the Consent Decree. Koch's performance of all requirements of this Consent Decree shall resolve all civil liability under the Prevention of Significant Deterioration ("PSD") requirements at Part C of

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the Act, and the regulations promulgated thereunder at 40 C.F.R. § 52.21 (the "PSD" rules), and the Minnesota and Texas regulations which incorporate and/or implement those rules, for any increase in SO₂ and NO_x emissions resulting from Koch's construction, modification, or operation of the following process units occurring prior to entry of the Consent Decree: FCCUs, SRPs, and all process heaters and boilers at the Pine Bend, Corpus Christi East and West refineries, referred to in this Consent Decree as "netting units"; and for CO and PM emissions from the FCCUs. During the life of the Consent Decree, these units shall be on a compliance schedule and any modification to these units, as defined in 40 C.F.R. § 52.21, which is not required by this Consent Decree is beyond the scope of this release.

142. This Consent Decree is not a permit; compliance with its terms does not guarantee compliance with any applicable federal, state or local laws or regulations. Nothing in this Consent Decree shall be construed to be a ruling on, or determination of, any issue related to any federal, state or local permit.

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XVIII. GENERAL PROVISIONS

143. Other Laws. Except as specifically provided by this Consent Decree, nothing in this Consent Decree shall relieve Defendant of its obligation to comply with all applicable federal, state and local laws and regulations. Subject to Paragraph 124 (Election of Remedy), nothing contained in this Consent Decree shall be construed to prevent, alter or limit the ability of the United States' or the MPCA's rights to seek or obtain other remedies or sanctions available under other federal, state or local statutes or regulations, by virtue of Defendant's violation of this Consent Decree or of the statutes and regulations for violations of this Consent Decree. This shall include the United States' or the MPCA's right to invoke the authority of the Court to order Koch's compliance with this Consent Decree in a subsequent contempt action.

144. Third Parties. This Consent Decree does not limit, enlarge or affect the rights of any party to this Consent Decree as against any third parties.

145. Costs. Each party to this action shall bear its own costs and attorneys' fees.

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146. Public Documents. All information and documents submitted by the Defendant to the United States or the MPCA pursuant to this Consent Decree shall be subject to public inspection, unless subject to legal privileges or protection or identified and supported as business confidential by the Defendant in accordance with 40 C.F.R. Part 2, or any equivalent state statutes and regulations.

147. Public Comments. The parties agree and acknowledge that final approval by the United States and entry of this Consent Decree is subject to the requirements of 28 C.F.R. § 50.7, which provides for notice of the lodging of this Consent Decree in the Federal Register, an opportunity for public comment, and consideration of any comments.

148. Notice. Unless otherwise provided herein, notifications to or communications with the United States or the Defendant shall be deemed submitted on the date they are postmarked and sent either by overnight receipt mail service or by certified or registered mail, return receipt requested. When Koch is required to submit notices or communicate in writing under this Consent Decree to EPA relating to the Pine Bend Refinery, Koch shall also submit a copy of that notice or other writing to the Plaintiff-Intervener, State of

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Minnesota. Similarly Koch shall submit such copies to the State of Texas where notices or other written communications relate to the Corpus Christi East and West refineries.

Except as otherwise provided herein, when written notification or communication is required by this Consent Decree, it shall be addressed as follows:

As to the United States:

Chief
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, DC 20044-7611

United States Attorney
District of Minnesota
234 United States Courthouse
110 South Fourth Street
Minneapolis, Minnesota 55401

As to EPA:

Director
Air Enforcement Division (2242A)
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

With copies to the appropriate EPA Regional offices:

Chief
Air Enforcement and Compliance Assurance Branch
Air and Radiation Division, AE-17J
U.S. Environmental Protection Agency

Permit Issued: January 13, 2017

Permit Expires: January 9, 2018

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Region 5

77 West Jackson Boulevard

Chicago, Illinois 60604-3590

Attn: Compliance Tracker

Chief

Air, Toxics, and Inspection Coordination Branch (6EN-A)

Compliance Assurance and Enforcement Division

U.S. Environmental Protection Agency

Region 6

1445 Ross Avenue

Dallas, Texas 75202

As to Koch Petroleum Group, L.P.:

James L. Mahoney

Executive Vice President, Operations

Koch Petroleum Group, L.P.

P.O. Box 2256

Wichita, KS 67201

with copies to:

William A. Frerking

Associate General Counsel

Koch Industries, Inc.

P.O. Box 2256

Wichita, KS 67201

As to Plaintiff-Intervener the State of Minnesota:

Minnesota Pollution Control Agency

520 Lafayette Road North

St. Paul, Minnesota 55155

As to the State of Texas:

Texas Natural Resource and Conservation Commission

Corpus Christi Regional Office

6300 Ocean Drive

Suite 1200

Corpus Christi, TX 78412-5503

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149. All EPA approvals or comments required under this Decree shall come from EPA, AED at the address listed in Paragraph 148.

150. Any party may change either the notice recipient or the address for providing notices to it by serving all other parties with a notice setting forth such new notice recipient or address.

151. The information required to be maintained or submitted pursuant to this Consent Decree is not subject to the Paperwork Reduction Act of 1980, 44 U.S.C. §§ 3501 et seq.

152. This Consent Decree shall be binding upon all Parties to this action, and their successors and assigns. The undersigned representative of each Party to this Consent Decree certifies that he or she is duly authorized by the Party whom he or she represents to enter into the terms and bind that Party to them.

153. Modification. This Consent Decree may be modified only by the written approval of the United States, Koch, and the MPCA, if applicable to Pine Bend, or by Order of the Court.

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154. Continuing Jurisdiction. The Court retains jurisdiction of this case after entry of this Consent Decree to enforce compliance with the terms and conditions of this Consent Decree and to take any action necessary or appropriate for its interpretation, construction, execution, or modification. During the term of this Consent Decree, any party may apply to the Court for any relief necessary to construe or effectuate this Consent Decree.

155. This Consent Decree constitutes the entire agreement and settlement between the Parties.

XIX. TERMINATION

156. This Consent Decree shall be subject to termination upon motion by either party after the Defendant satisfies all requirements of this Consent Decree. The requirements for termination include payment of all penalties, including stipulated penalties, that may be due to the United States under this Consent Decree, installation of control technology systems as specified herein and the performance of all other Consent Decree requirements, the receipt of all permits specified herein, EPA's receipt of the first calendar quarterly progress report following the conclusion of Koch's operation for at least one year of all

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units in compliance with the emission limits established herein. At such time, if Koch believes that it is in compliance with the requirements of this Consent Decree and the permits specified herein, and has paid the civil penalty and any stipulated penalties required by this Consent Decree, then Koch shall so certify to the United States, and unless the United States objects in writing with specific reasons within 120 days of receipt of the certification, the Court shall order that this Consent Decree be terminated on Koch's motion. If the United States so objects to Koch's certification, then the matter shall be submitted to the Court for resolution under Part XVI (Dispute Resolution) of this Consent Decree. In such case, Koch shall bear the burden of proving that this Consent Decree should be terminated. Provided, however, that if Koch has incorporated all requirements set forth in Parts V and VI of this Consent Decree (Benzene Waste NESHAP and LDAR enhanced programs) in a refinery's federally enforceable operating permit, Koch may

Consent Decree -109-

petition EPA to terminate those Parts of the Consent Decree
as to any such refinery at any time thereafter.

So entered in accordance with the foregoing this_____day
of
_____, 200__.

United States District Court Judge
for the District of Minnesota

Permit Issued: January 13, 2017

Permit Expires: January 9, 2018

03700011-101

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Consent Decree -110-

FOR PLAINTIFF, UNITED STATES OF AMERICA:

B. Todd Jones
United States Attorney

By: _____

Friedrich A.P. Siekert
Attorney I.D. No. 142013
Assistant United States Attorney
234 United States Courthouse
110 South Fourth Street
Minneapolis, Minnesota 55401

Date: _____

Permit Issued: January 13, 2017

Permit Expires: January 9, 2018

03700011-101

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Consent Decree -111-

Date_____

Lois J. Schiffer
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
10th & Pennsylvania Avenue, N.W.
Washington, DC 20530

Date_____

Dianne M. Shawley
Senior Attorney
Environment and Natural Resources Division
U.S. Department of Justice
1425 New York Avenue, N.W.
Washington, DC 20005

Permit Issued: January 13, 2017

Permit Expires: January 9, 2018

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Consent Decree -112-

FOR U.S. ENVIRONMENTAL PROTECTION AGENCY:

_____ Date _____

Steven A. Herman

Assistant Administrator

Office of Enforcement and Compliance

Assurance

U.S. Environmental Protection Agency

Ariel Rios Building

1200 Pennsylvania Avenue, N.W.

Washington, DC 20460

Permit Issued: January 13, 2017

Permit Expires: January 9, 2018

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Consent Decree -113-

FOR PLAINTIFF-INTERVENER the STATE OF MINNESOTA:

Gordon E. Wegwart, P.E.
Assistant Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155

Peter L. Tester
Assistant Attorney General
Minnesota Attorney General's Office
445 Minnesota Street
900 North Central Like Tower
St. Paul, Minnesota 55101

Permit Issued: January 13, 2017
Permit Expires: January 9, 2018

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Appendix D: Stack Parameters Relied Upon to Demonstrate Compliance with the National Ambient Air Quality Standards for Particulate Matter less than 10 microns (PM₁₀)

Stack Parameters for 24-Hour and Annual Modeling of PM₁₀ Emission Units at Flint Hills Resources Pine Bend Refinery

Stack ID	TEMPO ID	Description	NAD83 UTM_E ¹	NAD83 UTM_N ¹	Elevation (m) ¹	24 Hour Emission Rate		Annual Emission Rate		Stack Height (m)	Exit Temp. (K) ²	Velocity (m/s) ²	Diameter (m)
						(g/s)	(lb/hr)	(g/s)	(lb/hr)				
K2_#3SRU	EQUI319, 320, 479, 480, STRU139	SRU3, SRU4, Tail Gas Treating Unit #1 (SCOT), TGTU #1 (SCOT) Incinerator	496906.7	4956921.9	282.7	0.070	0.559	0.070	0.559	60.96	519.30	17.40	1.448
K2_#3SRU	EQUI319, 320, 479, 480, STRU140	SRU3, SRU4, Tail Gas Treating Unit #1 (SCOT), TGTU #1 (SCOT) Incinerator	496909.3	4956954.0	282.7	0.044	0.349	0.044	0.349	53.70	parameters of #3 SRU bypass		1.000
K3_#5SRU	EQUI428, 503	SRU 5, Tail Gas Treating Unit #2	496868.5	4956631.4	277.6	0.053	0.423	0.053	0.423	65.00	449.82	9.30	2.103
K8_FCC	EQUI421	Fluid Catalytic Cracking Unit	496993.1	4956990.2	283.6	17.890	141.984	17.890	141.984	69.27	449.80	15.54	2.937
K10_32FG	EQUI554, 555, 556	Process Heater 32H-5,6,7	496775.9	4957022.0	281.9	0.150	1.190	0.150	1.190	62.48	436.00	2.80	2.730
K11_19FO	EQUI490	Process Heater 19H-1	496585.4	4957137.0	280.4	0.137	1.084	0.137	1.084	58.52	441.00	5.01	2.134
K13_12FG	EQUI487	Process Heater 12H-4	496667.2	4957137.0	280.9	0.130	1.030	0.130	1.030	60.50	449.80	5.13	2.070
K14_33FO	EQUI541	Process Heater 33H-31	496981.5	4956855.0	283.5	0.109	0.862	0.109	0.862	55.78	503.00	5.33	1.969
K15_16FG	EQUI488	Process Heater 16H-1	496627.7	4957108.0	280.8	0.222	1.765	0.222	1.765	58.83	505.00	3.80	3.340
K19_11FO	EQUI484	Process Heater 11H-1	496649.9	4957059.0	281.0	0.113	0.893	0.113	0.893	39.93	533.00	11.61	1.397
K20_37FG	EQUI560, 561, 565	Process Heater 37H-1,2,6	496870.1	4956697.0	280.2	0.115	0.916	0.115	0.916	60.96	427.04	13.37	1.009
K21_33FG	EQUI559	Process Heater 33H-32	496923.7	4956848.0	283.0	0.121	0.960	0.121	0.960	56.12	555.00	12.28	1.436
K23_11FG	EQUI485	Process Heater 11H-2	496637.9	4957060.0	281.0	0.054	0.425	0.054	0.425	35.05	561.00	1.71	1.867
K27_21FO	EQUI491	Process Heater 21H-1S	496551.5	4957092.5	280.7	0.124	0.984	0.124	0.984	38.71	518.00	3.69	1.410
K28_21FO	EQUI491	Process Heater 21H-1N	496551.5	4957101.5	280.6	0.124	0.984	0.124	0.984	38.71	518.00	3.69	1.410
K29_21FO	EQUI492	Process Heater 21H-2S	496550.8	4957025.2	280.9	0.124	0.984	0.124	0.984	39.93	518.00	3.69	1.410
K30_21FO	EQUI492	Process Heater 21H-2N	496550.8	4957034.2	280.9	0.124	0.984	0.124	0.984	39.93	518.00	3.69	1.410
K31_33FG	EQUI431, 432	Process Heater 33H-4 (33H- 1&2)	496921.1	4956899.0	282.9	0.172	1.363	0.172	1.363	30.48	516.00	7.87	1.829
K32_23FO	EQUI495	Process Heater 23H-1	496531.7	4956882.6	272.9	0.155	1.229	0.155	1.229	57.91	450.00	9.89	1.631
K33_31FG	EQUI545	Process Heater 31H-1	496768.3	4957087.0	281.9	0.022	0.171	0.022	0.171	20.42	528.00	3.49	1.111
K34_31FG	EQUI546	Process Heater 31H-2	496769.0	4957077.0	281.9	0.028	0.222	0.028	0.222	18.59	589.00	5.29	0.953
K36_31FG	EQUI548	Process Heater 31H-5	496802.9	4957102.0	282.2	0.009	0.075	0.009	0.075	17.98	394.00	2.18	0.800
K37_31FG	EQUI552	Process Heater 31H-10	496802.9	4957112.0	282.2	0.028	0.222	0.028	0.222	30.48	500.00	2.82	1.372

K41_32FG	EQUI557, 558	Process Heater 32H-9	496774.0	4957037.0	281.9	0.008	0.067	0.008	0.067	21.64	575.00	2.20	0.914
K42_37FG	EQUI562, 563, 564	Process Heater 37H-3,4,5	496914.2	4956703.2	279.8	0.367	2.913	0.367	2.913	71.20	449.98	5.33	3.417
K46_38FG	EQUI568	Process Heater 38H-1A	496952.1	4956560.5	281.5	0.027	0.216	0.027	0.216	44.50	561.00	1.77	1.803
K47_38FG	EQUI569	Process Heater 38H-1B	496952.1	4956571.3	281.5	0.027	0.216	0.027	0.216	44.50	561.00	1.77	1.803
K48_38FG	EQUI570	Process Heater 38H-2	496979.3	4956563.4	281.7	0.053	0.417	0.053	0.417	60.96	428.00	6.47	0.838
K50_25FG	EQUI500	Process Heater 25H-1	496755.4	4956642.0	274.5	0.238	1.885	0.238	1.885	65.00	436.00	3.01	3.600
K51_25FG	EQUI501	Process Heater 25H-3	496786.2	4956635.0	275.8	0.193	1.535	0.193	1.535	65.00	436.00	2.86	3.500
K52_25FG	EQUI526	Process Heater 25H-4	496800.5	4956636.9	276.8	0.153	1.215	0.153	1.215	60.96	436.00	6.76	1.930
K53_23FG	EQUI496	Process Heater 23H-2	496532.5	4956853.8	269.8	0.115	0.909	0.115	0.909	57.91	486.00	11.79	1.335
K54_27FG	EQUI543	Process Heater 27H-1	496725.5	4956511.4	277.1	0.751	5.961	0.751	5.961	45.72	411.00	11.87	3.132
K55_27FG	EQUI505	Process Heater 27H-101	496811.6	4956500.1	276.6	0.079	0.626	0.079	0.626	45.72	422.04	10.13	1.113
K56_27FG	EQUI542	Process Heater 27H-102	496813.3	4956402.9	276.0	0.079	0.626	0.079	0.626	45.72	422.04	10.13	1.113
K57_31FG	EQUI547	Process Heater 31H-4	496798.1	4957001.0	282.0	0.067	0.529	0.067	0.529	32.46	477.00	2.79	1.347
K58_31FG	EQUI549	Process Heater 31H-7	496798.0	4957025.0	282.0	0.064	0.510	0.064	0.510	28.65	672.00	6.27	1.067
K59_31FG	EQUI550	Process Heater 31H-8	496799.2	4957036.0	282.1	0.036	0.288	0.036	0.288	28.80	511.00	6.35	1.049
K60_31FG	EQUI551	Process Heater 31H-9	496798.8	4957018.0	282.0	0.047	0.373	0.047	0.373	24.84	541.00	7.02	0.905
K61_28FG	EQUI544	Process Heater 28H-1	496837.8	4956502.2	276.9	0.032	0.253	0.032	0.253	45.72	589.00	11.45	0.787
K62_BLR8	EQUI371	Process Heater 71B-8	496698.3	4956542.5	277.5	0.174	1.378	0.174	1.378	9.04	433.00	12.21	1.524
K63_27FG	EQUI377	Process Heater 27H-501	496722.3	4956358.0	275.1	0.446	3.539	0.446	3.539	35.05	411.00	6.97	3.150
K67_11FG	EQUI376	Process Heater 11H-6	496630.1	4956988.4	280.7	0.367	2.910	0.367	2.910	54.86	371.00	7.35	2.642
K68_BLR9	EQUI515	Process Heater 71B-9	496569.0	4957199.8	280.0	0.221	1.751	0.221	1.751	12.19	435.78	6.23	1.829
	EQUI1456	Process Heater 24H-1	496516.5	4956578.1	264.3	0.291	2.310	0.291	2.310	67.06	422.00	4.47	3.048
	EQUI1457	24 Unit Drum System	496470.8	4956581.0	262.2	0.049	0.393	0.044	0.350	55.47	322.00	0.001	0.381
K70_4H2	EQUI471	Heater 30H-401	496664.6	4956414.6	274.4	0.029	0.234	0.029	0.234	35.05	422.00	17.28	2.896
K71HCFD	EQUI469, 470	Heaters 29H-1, 29H-2	496923.0	4956351.0	277.0	0.225	1.783	0.225	1.783	40.78	422.00	0.23	2.629
K1006_BH	EQUI323	71B-6 Boiler	496566.9	4957213.0	280.1	0.011	0.089	0.011	0.089	21.34	433.00	6.52	1.372
K113 FG		SRU 3 Tail Gas Incinerator on Hot Standby	496901.4	4956953.5	282.7	0.044	0.350	0.044	0.350	53.68	588.70	2.30	1.016
K331_DSL	EQUI328	Diesel Engine 93P-160	496832.2	4956976.5	282.3	0.0485	0.385	0.0485	0.385	4.27	616.48	23.60	0.102

K332_DSL	EQUI365	Diesel Engine 93P-400	496753.3	4957695.5	270.9	0.202	1.600	0.202	1.600	4.57	616.48	37.90	0.152
K333_DSL	EQUI366	Diesel Engine 93P-570	495957.0	4956960.1	262.2	0.202	1.600	0.202	1.600	5.49	616.48	9.41	0.305
K407_DSL	EQUI502	Diesel Engine EE-1657	496799.3	4956593.5	275.1	0.053	0.420	0.053	0.420	6.10	616.48	20.43	0.203
K408_DSL	EQUI486	Diesel Engine EE-1852	496684.0	4957064.0	281.1	0.053	0.422	0.053	0.422	4.11	616.48	20.53	0.203
K435_DSL	EQUI497	Diesel Engine 23ME26	496526.5	4956971.5	278.6	0.060	0.480	0.060	0.480	7.01	616.48	41.60	0.152
K453_DSL	EQUI567	Diesel Engine EE-1309	496910.2	4956656.0	278.4	0.060	0.479	0.060	0.479	7.92	616.48	41.60	0.152
K465_DSL	EQUI489	Diesel Engine EE-1718	496908.4	4957114.5	283.0	0.053	0.422	0.053	0.422	4.57	616.48	20.53	0.203
K505_DSL	EQUI327	Diesel Engine 81P-159	496846.2	4956974.5	282.5	0.151	1.201	0.151	1.201	5.49	616.48	18.59	0.203
K506_DSL	EQUI329	Diesel Engine 81P-357	496838.3	4956933.5	282.2	0.139	1.100	0.139	1.100	6.10	616.48	17.02	0.203
K507_DSL	EQUI325	Diesel Engine 81P-444	496646.3	4956932.5	281.1	0.056	0.441	0.056	0.441	4.57	616.48	13.70	0.254
K508_DSL	EQUI326	Diesel Engine 81P-89	496639.3	4956990.5	280.9	0.0900	0.714	0.0900	0.714	4.57	616.48	43.83	0.102
K510_DSL		Diesel Engine - Wood River	495926.3	4957212.5	262.2	0.002	0.016	0.002	0.016	4.57	616.48	18.02	0.305
K511_DSL	EQUI324	Diesel Engine 71C-11	496987.9	4956786.1	282.1	0.062	0.493	0.062	0.493	6.10	616.48	15.33	0.254
	EQUI514	No. 6 Cooling Tower Diesel Pump	496672.2	4956267.5	271.9	0.102	0.808	0.102	0.808	9.80	477.40	14.02	0.300
	EQUI451	Central Buffer Zone Offgas	496863.0	4957372.0	280.9	0.007	0.054	0.007	0.054	9.10	298.00	5.61	2.400
	EQUI375	Track 8 Rail Loading	496544.9	4957429.0	280.5	0.016	0.127	0.016	0.127	9.10	298.00	5.61	2.400
K513_DSL		Diesel Cooling Water Pump	496672.2	4956267.3	271.9	0.002	0.016	0.002	0.016	9.75	477.44	14.02	0.305
FHR17V11	Volume	Fresh Catalyst Transfer to Hopper	496946.6	4957024.0	238.2	0.009	0.069	0.009	0.071	2.10			
FHR17V21	Volume	SpentCatalyst Transfer from Regenator to spent Catalyst Hopper and Spent Catalyst Transfer	497000.2	4956943.0	283.4	0.073	0.576	0.073	0.576	2.10			
FHRCOKLD	Volume	Cokepad Loading/Unloading	4966373.8	4956711.0	262.0	0.004	0.032	0.004	0.032	2.40			
FHRSV031	Volume	21H-1 Decoking	496522.1	4957082.0	280.6	0.015	0.119	0.015	0.121	1.50			
FHRSV31B	Volume	21H-2 Decoking	496528.9	4957029.0	280.8	0.015	0.121	0.015	0.121	1.50			
FHRSV035	Volume	23H-1,2 Decoking	496461.0	4956855.0	264.1	0.012	0.094	0.012	0.094	1.50			
	Volume	FUGI133 (Hopper)	496416.8	4956627.6	271.3	6.151E-03	0.049	6.151E-03	0.049	1.52			
	Volume	FUGI133 (Pile Drop)	496275.0	4956586.2	273.3	6.151E-03	0.049	6.151E-03	0.049	1.07			

¹ Adjustments were made to locations of stacks and buildings based on more recent aerial photographs and GIS data as well as the updated modeling program AERMOD that allow elevations from the USGS national seamless elevation dataset where the most recent elevation data was used.

² Some stack temperatures and exit velocities used in the PM₁₀ modeling demonstration differ from those stack parameters utilized in the subsequent SO₂ SIP modeling demonstration noted in Appendix B. FHR has re-run the PM₁₀ model using SIP 9 stack temperatures and velocities in the PM₁₀ modeling protocol and has verified that this also results in the demonstrated PM₁₀ Compliance. The modeled PM₁₀ parameters and the SIP 9 parameters are not limits but are referenced as stack flows and temperatures at maximum emission rates in order to determine when remodeling for PM₁₀ may be required.

Permit Issued: January 13, 2017
Permit Expires: January 9, 2018

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Appendix E: Mr. Greg Nizich's e-mail EPA referred to MACT GGGGG NOCS Report dated 11/3/2006



P.O. Box 64596
Saint Paul, Minnesota 55164
651.437.0700

November 3, 2006

EPA Region V
Director, Air and Radiation Division
77 West Jackson Blvd.
Chicago, IL 60604

RE: Flint Hills Resources, LP Pine Bend Refinery ("FHR")
Notification of Compliance Status (NOCS)
40 CFR Part 63, Subparts GGGGG & A

Dear Mr. Sir/Madam:

FHR operates a petroleum refinery located at 12555 Clark Road, Rosemount, MN 55122 ("Pine Bend Refinery"). This facility is a major source of hazardous air pollutants (HAPs). The purpose of this letter is to provide a Notification of Compliance Status (NOCS) report that addresses the compliance status of remediation management units, process vents, and equipment leak sources subject to the Site Remediation MACT rule (Subpart GGGGG) and the Applicability requirements pursuant to §63.7950(e)(2) and §63.9(h), respectively. Relevant information as required per §63.9(h), §63.7937, and §63.7938 is also provided in the NOCS.

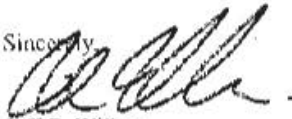
All affected sources at FHR are considered to be existing sources that must comply with the applicable emission limitations, work practice standards, and operation and maintenance requirements by no later than October 9, 2006. FHR's Pine Bend Refinery contains affected remediation management units, process vents, and affected equipment leak sources as discussed in the attached document. All affected sources at the refinery are already subject to the requirements of 40 CFR 61 Subpart FF so, as Subpart GGGGG allows, FHR is complying with this Subpart GGGGG by meeting Subpart FF standards.

I certify that I am the Responsible Official and that, based on information and belief formed after reasonable inquiry, the information contained in this NOCS report is true, accurate, and complete.

Flint Hills Resources, LP - Pine Bend Refinery
Subpart GGGG NOCS

If you have any questions or need any additional information concerning this report, please contact Bev Kiecker at (651) 437-0636.

Sincerely,



Jeff C. Wilkes
Vice President and Manufacturing Manager

cc: Compliance Tracker, MPCA

Flint Hills Resources, L.P. - Pine Bend Refinery
Subpart GGGGG NOCS

SITE REMEDIATION MACT NOCS

Submission of this information satisfies the requirement to provide a notification of compliance status (NOCS), pursuant to §63.7950(c)(2) and §63.9(h), for site remediation management units (RMMU), process vents, and equipment leak sources for FHR. Relevant information as required per §63.9(h), §63.7937, and §63.7938 is provided below.

Site Remediation Management Units, Process Vents, and Equipment Leaks:

Pursuant to §63.7886, FHR has affected sources that include tanks, transfer lines, and containers otherwise known as remediation material management units (RMMU). Pursuant to §63.7885, FHR has affected sources that include vents from fixed roof vessels and/or containers that are controlled by either a thermal oxidizer or carbon canisters. Pursuant to §63.7882(a)(3)(i), FHR has determined that it is not subject to the standards for equipment leaks because all equipment components associated with the groundwater recovery systems are not affected sources because these components (pumps, valves, etc.) contact remediation material that contains less than 10 percent by weight HAP.

FHR operates a groundwater recovery system that is subject to the site remediation MACT rule. The recovered groundwater (remediation material) from these remediation recovery systems are pumped through transfer lines to downstream RMMU for further treatment. A number of the downstream RMMU have process vents that are routed to control devices for treatment. The following information in the NOCS summarizes the compliance methods utilized by FHR to comply with the site remediation MACT.

All affected sources subject to this rule are already subject to 40 CFR 61, Subpart FF ("FF"). FHR is meeting its Subpart GGGGG compliance obligations by meeting the requirements of FF. FHR has verified, through documented discussion with EPA that, in light of this compliance option, 40 CFR 63, Subpart A requirements do not apply to sources utilizing the FF option.

The following information is provided pursuant to §63.9(h), §63.7937(b)(3)(i)-(ii) and §63.7937(c)(3)(i)-(ii) as follows:

A) The methods that were used to determine compliance (§63.9(h)(2)(i)(A)):

Pursuant to §63.7886(b)(3), FHR's RMMU and process vents are subject to other subparts under either 40 CFR part 61 or 40 CFR part 63. Affected RMMU and process vents comply with the applicable emission standards and work practices specified in each applicable NESHAP subpart except where otherwise noted in deviation and/or periodic reports. FHR does not utilize any exemptions from the emissions limitations and work practice standards allowed by these NESHAP applicable subparts for any equipment that is also subject to Subpart GGGGG. Applicable part 61 and part 63 regulations used to demonstrate initial and

Filar Hills Resources, LP – Pine Bend Refinery
 Subpart GGGG NOCS

continuous compliance with the Site Remediation MACT are included for each affected source in Table 1 below.

Pursuant to §63.7882(a)(3)(i), equipment components (pumps, valves, etc.) associated with the groundwater recovery well system at FHR are not considered affected sources because the equipment components contact remediation material containing less than 10 percent by weight HAP. Thus, these components are not subject to the Subpart GGGG equipment leak provisions.

Finally, FHR conducts remediation spill cleanups in accordance with the requirements of FF. RMMU used by FHR during spill cleanups include but are not limited to vacuum trucks, 55 gallon drums, roll-off boxes, and other containers as needed.

The compliance options for each affected source have been summarized in Table 1 below:

Table 1: Affected Source Compliance Options

Affected Sources	Controls	Regulatory Compliance Option
EU 276 Central Buffer Zone Offgas (Soil Vapor Extraction Unit 1) SV-143/86H-41	Direct Flame Afterburner	40 CFR 61 subpart FF
EU 277 West Buffer Zone Offgas (Soil Vapor Extraction Unit 2) SV-142/88H-2	Direct Flame Afterburner	40 CFR 61 subpart FF
EU 282 OSWTP – Thermal Oxidizer/SV 125 - 94H1 Stack	Direct Flame Afterburner	40 CFR 61 subpart FF
EU 282 OSWTP – Thermal Oxidizer/SV 146 - 94H3 Stack	Direct Flame Afterburner	40 CFR 61 subpart FF
Groundwater Recovery Well and Soil Vapor Extraction Units Transfer Lines	Controlled as Subpart FF Individual drain systems (§61.346)	40 CFR 61 subpart FF
Carbon Canisters (Process Vents Control Device)	Operated in accordance with Subpart FF (§ 61.349)	40 CFR 61 subpart FF
Containers/Vacuum Trucks/Roll-Off Bins	Controlled as Subpart FF Container Controls (§ 61.345)	40 CFR 61 subpart FF

(B) The results of any performance tests, opacity or visible emission observations, continuous monitoring system (CMS) performance evaluations, and/or other monitoring procedures or methods that were conducted; (§63.9(h)(2)(i)(B))

Pursuant to §63.7886(b)(3) remediation management units and process vents that are subject to another subpart under 40 CFR part 61 or 40 CFR part 63 can control emissions by meeting the emission limitations and work practices of the applicable standard. All affected process vents, remediation material management units, and affected equipment leak sources at Pine Bend Refinery are subject to other applicable standards as noted in Table 1 in Section A of this document. FHR is in compliance with the performance testing, monitoring procedures, and

Flint Hills Resources, LP - Pine Bend Refinery
 Subpart GGGGG NOCS

methods of the applicable part 61 or part 63 regulations and maintains these records at the facility as required by the applicable standard. There are no new additional testing requirements under 40 CFR part 63 subpart GGGGG that apply to the affected sources at FHR.

(C) The methods that will be used for determining continuing compliance, including a description of monitoring and reporting requirements and test methods; (§63.9(h)(2)(i)(C))

Pursuant to §63.7885(b)(3), remediation management units and process vents that are subject to another subpart under 40 CFR part 61 or 40 CFR part 63 can control emissions by meeting the emission limitations and work practices of the applicable standard. All affected process vents and remediation material management units at Pine Bend Refinery are subject to other applicable standards as noted in Table 1 in Section A of this document. Table 2, below, contains more detail regarding the applicable monitoring, work practices, emissions limitations and reporting requirements for each affected source.

Table 2: Specified Emission Limitations & Work Practice Standards

Affected Sources	Monitoring, Work Practices, and Emission Limitation Requirements	Reporting Requirements
EU 276 Central Buffer Zone Offgas (Soil Vapor Extraction Unit 1) SV-143/86H-41	Monitoring, emission limitations, and work practice standards in accordance with § 61.342(a)(3), §61.346, §61.354, and other parts of 40 CFR 61 subpart FF as required.	Reporting in accordance with §61.357, and §63.7950, §63.7951, and other parts of 40 CFR 61 subparts A and FF as required.
EU 277 West Buffer Zone Offgas (Soil Vapor Extraction Unit 2) SV-142/88H-2	Monitoring, emission limitations, and work practice standards in accordance with § 61.342(a)(3), §61.346, §61.354, and other parts of 40 CFR 61 subpart FF as required.	Reporting in accordance with §61.357, and §63.7950, §63.7951, and other parts of 40 CFR 61 subparts A and FF as required.
EU 282 OSWTP - Thermal Oxidizer/SV 125 - 94H1 Stack	Monitoring, emission limitations, and work practice standards in accordance with §61.345, §61.354, §61.349 and other parts of 40 CFR 61 subpart FF as required.	Reporting in accordance with §61.357, and §63.7950, §63.7951, and other parts of 40 CFR 61 subparts A and FF as required.
EU 282 OSWTP - Thermal Oxidizer/SV 146 - 94H3 Stack	Monitoring, emission limitations, and work practice standards in accordance with § 61.342(a)(3), §61.346, §61.354, and other parts of 40 CFR 61 subpart FF as required.	Reporting in accordance with §61.357, and §63.7950, §63.7951, and other parts of 40 CFR 61 subparts A and FF as required.

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Affected Sources	Monitoring, Work Practices, and Emission Limitation Requirements	Reporting Requirements
Groundwater Recovery Well Transfer Lines	Monitoring, emission limitations, and work practice standards in accordance with § 61.342(a)(3), §61.346, §61.354, and other parts of 40 CFR 61 subpart FF as required.	Reporting in accordance with §61.357, and §63.7950, §63.7951, and other parts of 40 CFR 61 subparts A and FF as required.
Carbon Canisters (Process Vent Control Device)	Monitoring, emission limitations, and work practice standards in accordance with § 61.342(a)(3), §61.346, §61.354, and other parts of 40 CFR 61 subpart FF as required.	Reporting in accordance with §61.357, and §63.7950, §63.7951, and other parts of 40 CFR 61 subparts A and FF as required.
Containers/Vacuum Trucks/Roll-Off Bins	Monitoring, emission limitations, and work practice standards in accordance with §61.345, §61.354, §61.349, and other parts of 40 CFR 61 subpart FF as required.	Reporting in accordance with §61.357, and §63.7950, §63.7951, and other parts of 40 CFR 61 subparts A and FF as required.

(D) The type and quantity of hazardous air pollutants emitted by the source (or surrogate pollutants if specified in the relevant standard), reported in units and averaging times and in accordance with the test methods specified in the relevant standard; (§63.9(h)(2)(i)(D))

The type of HAPs emitted by the affected sources are expected to be those HAP's that are commonly found at petroleum refineries including but not limited to benzene, toluene, xylene, ethylbenzene, naphthalene, and hexane. The quantity of HAP's emitted by the affected sources will vary from year to year based on the type and size of remediation activities subject to 40 CFR subpart GGGGG being conducted at FHR. The control of hazardous air pollutants (HAP) emissions from the affected remediation material management units is in compliance with the standards specified in each applicable subpart except where otherwise noted in deviation and/or periodic reports. Pursuant to §63.7937(b)(3) and §63.7937(c)(3), remediation management units and process vents that are subject to another subpart under 40 CFR part 61 can control emissions by meeting the emission limitations and work practices of the applicable standard. All affected process vents and remediation management units at FHR are subject to other applicable standards as noted in Section A of this document. Therefore, FHR complies with the emission limitations for hazardous air pollutants within the Site Remediation MACT through compliance with other applicable 40 CFR part 61 or 40 CFR part 63 requirements.

(E) If the relevant standard applies to both major and area sources, an analysis demonstrating whether the affected source is a major source (using the emissions data generated for this notification); (§63.9(h)(2)(i)(E))

FHR is a major source as defined in §63.2 and is subject to the site remediation MACT standard. Section 63.7881(a)(3) confirms that the site remediation MACT standard does not apply to area

Flint Hills Resources, LP – Pine Bend Refinery
Subpart GGGGG NOCS

sources as defined in §63.2. Therefore, FHR is not required to perform an analysis demonstrating whether the affected source is a major source.

(F) A description of the air pollution control equipment (or method) for each emission point, including each control device (or method) for each hazardous air pollutant and the control efficiency (percent) for each control device (or method); and (§63.9(h)(2)(i)(F))

The air pollution control equipment for each emission point has been summarized in Tables 1 and 2 of this letter. All air pollution control equipment meets the required control efficiency for each applicable subpart except where otherwise noted in deviation and/or periodic reports. The affected flares, thermal oxidizers, and carbon canisters meet the control device requirements as applicable in 40 CFR subpart 61 and/or 40 CFR Subpart 63.

(G) A statement by the owner or operator of the affected existing, new, or reconstructed source as to whether the source has complied with the relevant standard or other requirements. (§63.9(h)(2)(i)(G))

FHR does hereby certify that the HAP emissions are controlled from the affected process vents to meet standards in another subpart under 40 CFR part 61 or 40 CFR part 63 according to §63.7885(b)(3) and §63.7937(b)(3)(i) and (ii) except where otherwise noted in deviation and/or periodic reports.

FHR does hereby certify that the HAP emissions are controlled from the affected RMMU to meet standards in another subpart under 40 CFR part 61 according to §63.7886(b)(3) and §63.7837(c)(3)(i) and (ii) except where otherwise noted in deviation and/or periodic reports.

FHR does hereby certify that equipment components (pumps, valves, etc.) associated with the groundwater recovery systems at the FHR facility are not considered affected sources, because, pursuant to §63.7882(a)(3)(i), these components contact remediation material that contains less than 10 percent by weight hazardous air pollutants.

Continuous compliance with the applicable requirements of the Site Remediation MACT standard are met by complying with all applicable emissions limitations and work practice standards specified by the referenced part 61 and/or part 63 regulations for all affected remediation management and process vents.

Subject: Flat Hills Resources, LP Pine Bend Refinery ("Pine Bend Refinery")
Notification of Compliance Status (NOCS)
40 CFR Part 63, Subparts GGGGG & A - Remediation MACT
Internal Data Verification and Certification Form

Date: November 3, 2006

File No: 0041-15.01.06

Reason for Submitting the NOCS

FHR Pine Bend has certain units that are subject to the requirements of the Remediation MACT 40 CFR Subpart GGGGG. Subpart GGGGG allows sources that are also subject to the Benzene Waste Operations NESHAP (BWON) to meet the GGGGG obligations by complying with BWON requirements. As indicated in FHR's initial compliance letter dated January 22, 2004, FHR is utilizing BWON compliance option.

It is unclear under the rules whether a source choosing the BWON option must meet the MACT Subpart A requirements, particularly the obligation to have a startup, shutdown, and malfunction plan (SSMP). FHR's initial compliance letter references a conversation with an EPA official who indicated that it was EPA's intent that no plan is necessary under these circumstances.

To clarify this, FHR contacted the EPA official who provided the initial clarification. The following is the communication (email dated 10/31/2006) received from the official on this topic:

Section 63.7886(b)(3) allows for compliance with a part 61 subpart for remediation material management units where the VOIAP regulated under part 63 subpart GGGGG is controlled through the part 61 subpart. That does not mean that a unit exempt under a part 61 subpart is compliant with subpart GGGGG. If that requirement is met, and remediation material management units are the only affected source subject to subpart GGGGG then the source complying with the part 61 subpart should follow the general provisions in part 61 rather than part 63. If the facility also has affected sources subject to part 63 subpart GGGGG, then the general provisions in part 63 would apply for those sources.

*Greg Nizich,
USEPA Office of Air Quality Planning and Standards Coatings and Chemicals
Group
919-341-3078*

Based on this clarification FHR concluded that general provisions of the 40 CFR 61 Subpart A would not apply. As a result, startup, shutdown, and

malfunction (SSM) plans are not necessary for Site Remediation MACT affected equipment.

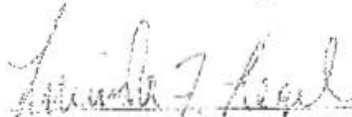

Signature of Pine Bend Air STA
Krishna Row
11/1/2006
Date


Signature of Pine Bend Project Manager
Lowell Stolte
11/1/06
Date


Signature of Pine Bend Remediation Engineer
Dana Slade
11/1/06
Date


Signature of Pine Bend Air Programs CSO
Sue Anderson
11/2/06
Date


Signature of Environmental Attorney
Jon Bloomberg
11/1/06
Date
note: 22 pages of letter should be on letterhead paper


Signature of Pine Bend Environmental Director
Lucinda Lege
11/1/06
Date

Appendix F: FUGI68 PM, PM₁₀, PM_{2.5} Calculations

FUGI68 Emissions Calculation Supplement

Overall Emissions Total

Total annual coke pad emissions are a function of 4 distinct activities which generate particulate emissions.

$$\text{Total Coke Pad (PM/PM}_{10}\text{/PM}_{2.5}) = A + B + C + D + E + F \quad \text{Eq. 1}$$

Where:

A = PM/PM₁₀/PM_{2.5} emissions from loading and unloading activities

B = PM/PM₁₀/PM_{2.5} emissions from unpaved roads - pile creation

C = PM/PM₁₀/PM_{2.5} emissions from rail shipments

D = PM/PM₁₀/PM_{2.5} emissions from unpaved road truck traffic

E = PM/PM₁₀/PM_{2.5} emissions from paved road truck traffic

F = coke pile wind erosion based PM/PM₁₀/PM_{2.5} emissions

A. PM/PM₁₀/PM_{2.5} Emissions from Loading and Unloading Activities¹

Komatsu loading/unloading activity emissions are a function of 1) the amount of coke produced and shipped, 2) average monthly wind speed, 3) coke moisture content, 4) the number of coke handling activities (e.g., coke loaded to pile, coke loaded to rail, coke loaded to truck, coke fines management).

$$A = A_1 \times C_p + A_2 \times C_s \quad \text{Eq. 2}$$

Where:

A = PM/PM₁₀/PM_{2.5} emissions from loading and unloading activities

A₁ = production activities emission factor (lb/ton)

C_p = quarterly coke production number is tracked by FHR Accounting and includes an assumed coke per drum factor couple with pile scans to reconcile difference against the assumed amount of coke produced

A₂ = shipping activities emission factor (lb/ton)

C_s = amount of coke shipped by truck or rail which is tracked by FHR Accounting

A1. Loading/Unloading Emissions for Production Activities - Coke is 1) loaded to a dump truck (conservative since a portion is directly loaded to truck or rail car, 2) loaded to a pile, 3) loaded from a pile, 4) 25% of year bridge crane down (x2 for pick up and drop), 5) coke fines handling and management which is 5% of production -loaded to temporary pile, 6) fines handling and management at 5% of production - loaded from temporary pile, 7) fines handling at 5% of production - added to main pile after blending. The combination of these production activities is equal to F_{load}.

$$A_1 = F_{load} \times \left[k \times (0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right] \times \frac{1 \text{ ton}}{2000 \text{ lb}} \quad \text{Eq. 3}$$

$$A_1 = (3 + 2 \times 0.25 + 0.05 \times 3) \left[k \times (0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right] \times \frac{1 \text{ ton}}{2000 \text{ lb}} \quad \text{Eq. 4}$$

Where:

A₁ = production activities emission factor (lb/ton)

F_{load} = production activities factor (dimensionless)

k = particle size multiplier, PM = 0.74, PM₁₀ = 0.35, PM_{2.5} = 0.053

U = mean wind speed (mph), 10 from MSP data

M = material moisture content (%), 6.04% from 1987-1988 data

Number of coke handling activities (2, 3) = fixed for transporting coke to the piles then truck or rail car but could change fines handling practices to lower the number of handling activities

A2. Loading/Unloading Emissions for Shipment Activities - Coke is 1) loaded from a pile (conservative since it accounts for a few double movement activities), 2) loaded to a truck or rail car. The combination of these production activities is equal to F_{load}.

$$A_2 = F_{load} \times \left[k \times (0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right] \times \frac{1 \text{ ton}}{2000 \text{ lb}} \quad \text{Eq. 5}$$

$$A_2 = 2 \times \left[k \times (0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right] \times \frac{1 \text{ ton}}{2000 \text{ lb}} \quad \text{Eq. 6}$$

Where:

A₂ = shipment activities emission factor (lb/ton)

F_{load} = production activities factor (dimensionless)

k = particle size multiplier, PM = 0.74, PM₁₀ = 0.35, PM_{2.5} = 0.053

U = mean wind speed (mph), 10 from MSP data

M = material moisture content (%), 6.04% from 1987-1988 data

Number of coke handling activities (2) = fixed for transporting coke to the piles then truck or rail car but could change fines handling practices to lower the number of handling activities

B. PM/PM₁₀/PM_{2.5} Emissions from Unpaved Roads - Pile Creation

Unpaved road traffic emissions are a function of 1) road silt content, 2) average vehicle weight, 3) vehicle miles traveled (i.e., storage pile creation), 4) road watering control efficiency.

$$E = k \times \left(\frac{s}{12}\right)^a \times \left(\frac{W}{3}\right)^b \times (1 - CE) \quad \text{Eq. 7}$$

Where:

E = size specific emission factor (lb/VMT)

s = surface material silt content (%), PM = 10.4, PM₁₀ = 10.4, PM_{2.5} = 10.4, from 2003 data

W = mean vehicle weight (tons), Pile = 84.6

k = empirical constant (lb/VMT), PM = 4.9, PM₁₀ = 1.5, PM_{2.5} = 0.15

a = empirical constant, PM = 0.7, PM₁₀ = 0.9, PM_{2.5} = 0.9

b = empirical constant, PM = 0.45, PM₁₀ = 0.45, PM_{2.5} = 0.45

CE = annual control efficiency = 57.6%, per the Fugitive Dust Control Plan = (80% control efficiency) x (80% of the roads) x (90% days/year)

$$B = E \times VMT \quad \text{Eq. 8}$$

Where:

B = PM/PM₁₀/PM_{2.5} emissions from unpaved road truck traffic for pile creation (lb/yr)

E = particle size specific emission factor (lb/VMT)

VMT = vehicle miles traveled from storage pile creation

C. PM/PM₁₀/PM_{2.5} Emissions from Rail Shipments

Unpaved road traffic emissions are a function of 1) road silt content, 2) average vehicle weight, 3) vehicle miles traveled (i.e., rail shipment), 4) road watering control efficiency.

$$E = k \times \left(\frac{s}{12}\right)^a \times \left(\frac{W}{3}\right)^b \times (1 - CE) \quad \text{Eq. 9}$$

Where:

E = size specific emission factor (lb/VMT)

s = surface material silt content (%), PM = 10.4, PM₁₀ = 10.4, PM_{2.5} = 10.4, from 2003 data

W = mean vehicle weight (tons), Rail = 78.5

k = empirical constant (lb/VMT), PM = 4.9, PM₁₀ = 1.5, PM_{2.5} = 0.15

a = empirical constant, PM = 0.7, PM₁₀ = 0.9, PM_{2.5} = 0.9

b = empirical constant, PM = 0.45, PM₁₀ = 0.45, PM_{2.5} = 0.45

CE = annual control efficiency = 57.6%, per the Fugitive Dust Control Plan = (80% control efficiency) x (80% of the roads) x (90% days/year)

$$C = E \times VMT \quad \text{Eq. 10}$$

Where:

C = PM/PM₁₀/PM_{2.5} emissions from rail shipment (lb/yr)

E = particle size specific emission factor (lb/VMT)

VMT = vehicle miles traveled from rail shipment

D. PM/PM₁₀/PM_{2.5} Emissions from Unpaved Road Truck Traffic²

Unpaved road traffic emissions are a function of 1) road silt content, 2) average vehicle weight (i.e., Komatsu versus dump truck), 3) vehicle miles traveled (i.e., truck shipment), 4) road watering control efficiency.

$$E = k \times \left(\frac{s}{12}\right)^a \times \left(\frac{W}{3}\right)^b \times (1 - CE) \quad \text{Eq. 11}$$

Where:

E = size specific emission factor (lb/VMT)

s = surface material silt content (%), PM = 10.4, PM₁₀ = 10.4, PM_{2.5} = 10.4, from 2003 data

W = mean vehicle weight (tons), Truck = 46.9

k = empirical constant (lb/VMT), PM = 4.9, PM₁₀ = 1.5, PM_{2.5} = 0.15

a = empirical constant, PM = 0.7, PM₁₀ = 0.9, PM_{2.5} = 0.9

b = empirical constant, PM = 0.45, PM₁₀ = 0.45, PM_{2.5} = 0.45

CE = annual control efficiency = 57.6%, per the Fugitive Dust Control Plan = (80% control efficiency) x (80% of the roads) x (90% days/year)

$$D = E \times VMT \quad \text{Eq. 12}$$

Where:

D = PM/PM₁₀/PM_{2.5} emissions from unpaved road truck traffic (lb/yr)

E = particle size specific emission factor (lb/VMT)

VMT = vehicle miles traveled from truck shipment

E. PM/PM₁₀/PM_{2.5} Emissions from Paved Road Truck Traffic³

Paved road traffic emissions are a function of 1) road silt content, 2) average vehicle weight (i.e., semi-truck), 3) vehicle miles traveled, 4) road watering control efficiency.

$$E = k \times (sL)^{0.91} \times (W)^{1.02} \times (1 - CE) \quad \text{Eq. 13}$$

Where:

E = particulate emission factor (lb/VMT)

k = particle size multiplier (lb/VMT), PM = 0.011, PM₁₀ = 0.0022, PM_{2.5} = 0.00054

sL = road surface silt loading (g/m²), 12 g/m², AP-42 default value

W = average weight (tons) of the vehicles traveling the road, 27.3 tons, Olson Carrier vehicle weight

CE = annual control efficiency = 72%, per the Fugitive Dust Control Plan = (80% control efficiency) x (100% of the haul road) x (90% days/year)

$$D = E \times VMT \quad \text{Eq. 14}$$

Where:

D = PM/PM₁₀/PM_{2.5} emissions from unpaved road truck traffic

E = size specific emission factor (lb/VMT)

VMT = vehicle miles traveled, Gate 9 to coke pad

F. Coke Pile Wind Erosion Based PM/PM₁₀/PM_{2.5} Emissions⁴

Wind erosion particulate emissions at the coke pile are a function of three primary variables: 1) acreage of the coke pile, 2) silt content of the material in the coke pile and 3) the number of days in the year with a wind speed exceeding 12 mph and annual days with precipitation.

$$WE = A \times \left[k \times 1.7 \times \left(\frac{s}{1.5} \right) \times \left(\frac{365-p}{235} \right) \times \left(\frac{f}{15} \right) \right] \times \left(\frac{365}{2000} \right) \quad \text{Eq. 15}$$

Where:

WE = Coke Pile Wind Erosion

A = coke storage area, number of coke piles and acreage with the piles; not a function of height

k = particle size multiplier, PM = 1.0, PM₁₀ = 0.5, PM_{2.5} = 0.075

s = material silt content, 4.5%, fixed constant from historical information

p = annual precipitation days, 115 days from historical information

f = monthly percent of time wind speed is greater than 12 mph, 35%, fixed value

¹ Equation from AP-42 13.2.4 Equation (1), particle size multipliers from AP-42 13.2.4, Mean wind speed is based on MSP data, Coke moisture content is the average from May 1987 through December 1988

² Empirical constants from AP-42 Table 13.2.2-2; Equation from AP-42 13.2.2 Equation (1a)

³ Particle size multiplier from AP-42 13.1.1; Equation from AP-42 13.1.1 Equation (1)

⁴ Particle size multipliers from AP-42 13.2.5; Equation from EPA-450/3-88-008 Control of Fugitive Dust Sources which is referenced in AP-42 13.2.5

Appendix G: COMG103 VOC Calculations

COMG103 24 Unit VOC Emissions Calculation Supplement

Total annualized (12-month rolling sum) VOC emissions from the 24 Unit (#4 Coker Unit) under COMG103 are comprised of EQUI1456, EQUI1457 and FUGI132 as shown in Equation (Eq.) 1. The first compliance date for the VOC emissions limit is 12 months after startup of any VOC emissions unit associated with COMG103 in conjunction with the startup of 24H1 heater (EQUI1456). For purposes of complying with the VOC emissions limit, annual or “tpy” emissions in the calculations are the 12-month rolling sum.

$$\text{Total 24 Unit Emissions (VOC)} = A + B + C \quad \text{Eq. 1}$$

Where:

A = VOC emissions from 24H1 (EQUI1456)

B = VOC emissions from equipment leaks in the 24 Unit (FUGI132)

C = VOC emissions from 24 Unit Drum System (EQUI1457)

A. VOC emissions from 24H1 (EQUI1456)

VOC emissions from 24H1 are from natural gas/refinery fuel gas combustion. The actual VOC emissions are based on the actual operating duty of the heater and VOC stack test data. See Eq. 2.

$$A = \sum Q_n \times C_{\text{VOC}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \quad \text{Eq. 2}$$

Where:

A = VOC emissions from 24H1 (tpy)

Q = Actual duty of 24H1 (mmBtu/hr)

n = nth hour of operation during year

C_{VOC} = Concentration of VOC based on manufacturer specification for actual emissions or on stack testing (lb/mmBtu). If and until a stack test is performed and that data is available, the emissions factor of 0.003 lb VOC/mmBtu will be used as C_{VOC}.

B. VOC emissions from fugitive equipment in the 24 Unit (FUGI132)

VOC emissions from components due to fugitive equipment are dependent on the type of component (e.g. valve, pump, flange, etc.) and the service of the equipment (e.g. gas/vapor, light liquid, heavy liquid). Equation 3 is the sum of VOC emissions from monitored and unmonitored equipment or components. For components that are monitored through the LDAR program, emissions will be determined utilizing the monitored measurements and the EPA's Protocol for Equipment Leak Emission Estimates Screening Value Correlations (Table 2-10) as shown in Equations 4 through 11. For components that are not monitored under the LDAR program, the VOC emission factor and actual component counts will be used to determine actual emissions as shown in Equations 12 through 19.

$$B = E_{\text{mon}} + E_{\text{unmon}} \quad \text{Eq. 3}$$

Where:

B = VOC emissions from equipment leaks in the 24 Unit (tpy)

E_{mon} = VOC emissions from equipment leaks of monitored components (tpy)

E_{unmon} = VOC emissions from equipment leads of unmonitored components (tpy)

$$E_{mon} = E_{mon, valve} + E_{mon, pump} + E_{mon, flange} + E_{mon, relief} + E_{mon, sample} + E_{mon, drain} + E_{mon, compressor} \quad \text{Eq. 4}$$

Where:

E_{mon} = VOC emissions from fugitive equipment (leaks) of monitored components (tpy)

$E_{mon, valve}$ = VOC emissions from monitored gas/vapor and light liquid valves (tpy)

$E_{mon, pump}$ = VOC emissions from monitored light liquid pumps (tpy)

$E_{mon, flange}$ = VOC emissions from monitored gas/vapor and light liquid flanges (tpy)

$E_{mon, relief}$ = VOC emissions from monitored relief valves (tpy)

$E_{mon, sample}$ = VOC emissions from monitored sample connections (tpy)

$E_{mon, drain}$ = VOC emissions from monitored drains (tpy)

$E_{mon, compressor}$ = VOC emissions from monitored compressors (tpy)

$$E_{mon, valve} = \sum 2.29 \times 10^{-6} \times SV^{0.746} \times \frac{2.2 \text{ lb}}{\text{kg}} \times t_n \quad \text{Eq. 5}$$

Where:

$E_{mon, valve}$ = VOC emissions from monitored gas/vapor and light liquid valves (tpy)

n = nth monitored component during applicable monitoring period

SV = screening value from monitor (ppmv)

t_n = number of hours during applicable monitoring period

$$E_{mon, pump} = \sum 5.03 \times 10^{-5} \times SV^{0.610} \times \frac{2.2 \text{ lb}}{\text{kg}} \times t_n \quad \text{Eq. 6}$$

Where:

$E_{mon, pump}$ = VOC emissions from monitored light liquid pumps (tpy)

n = nth monitored component during applicable monitoring period

SV = screening value from monitor (ppmv)

t_n = number of hours during applicable monitoring period

$$E_{mon, flange} = \sum 1.53 \times 10^{-5} \times SV^{0.735} \times \frac{2.2 \text{ lb}}{\text{kg}} \times t_n \quad \text{Eq. 7}$$

Where:

$E_{mon, flange}$ = VOC emissions from monitored gas/vapor and light liquid flanges (tpy)

n = nth monitored component during applicable monitoring period

SV = screening value from monitor (ppmv)

t_n = number of hours during applicable monitoring period

$$E_{mon, relief} = \sum 1.36 \times 10^{-5} \times SV^{0.589} \times \frac{2.2 \text{ lb}}{\text{kg}} \times t_n \quad \text{Eq. 8}$$

Where:

$E_{mon, relief}$ = VOC emissions from monitored relief valves (tpy)

n = nth monitored component during applicable monitoring period

SV = screening value from monitor (ppmv)

t_n = number of hours during applicable monitoring period

$$E_{mon, sample} = \sum 1.36 \times 10^{-5} \times SV^{0.589} \times \frac{2.2 \text{ lb}}{\text{kg}} \times t_n \quad \text{Eq. 9}$$

Where:

$E_{mon, sample}$ = VOC emissions from monitored sample connections (tpy)

n = nth monitored component during applicable monitoring period

SV = screening value from monitor (ppmv)

t_n = number of hours during applicable monitoring period

$$E_{mon,drain} = \sum 1.36 \times 10^{-5} \times SV^{0.589} \times \frac{2.2 \text{ lb}}{\text{kg}} \times t_n \quad \text{Eq. 10}$$

Where:

$E_{mon,drain}$ = VOC emissions from monitored drains (tpy)

n = nth monitored component during applicable monitoring period

SV = screening value from monitor (ppmv)

t_n = number of hours during applicable monitoring period

$$E_{mon,compressor} = \sum 1.36 \times 10^{-5} \times SV^{0.589} \times \frac{2.2 \text{ lb}}{\text{kg}} \times t_n \quad \text{Eq. 11}$$

Where:

$E_{mon,compressor}$ = VOC emissions from monitored compressors (tpy)

n = nth monitored component during applicable monitoring period

SV = screening value from monitor (ppmv)

t_n = number of hours during applicable monitoring period

$$E_{unmon} = E_{unmon,valve} + E_{unmon,pump} + E_{unmon,flange} + E_{unmon,relief} + E_{unmon,sample} + E_{unmon,drain} + E_{unmon,compressor} \quad \text{Eq. 12}$$

Where:

E_{unmon} = VOC emissions from equipment leaks of unmonitored components (tpy)

$E_{unmon,valve}$ = VOC emissions from unmonitored heavy liquid valves (tpy)

$E_{unmon,pump}$ = VOC emissions from unmonitored heavy liquid pumps (tpy)

$E_{unmon,flange}$ = VOC emissions from unmonitored heavy liquid flanges (tpy)

$E_{unmon,relief}$ = VOC emissions from unmonitored relief valves (tpy)

$E_{unmon,sample}$ = VOC emissions from unmonitored sample connections (tpy)

$E_{unmon,drain}$ = VOC emissions from unmonitored drains (tpy)

$E_{unmon,compressor}$ = VOC emissions from unmonitored compressors (tpy)

$$E_{unmon,valve} = \sum 1.76 \times 10^{-4} \times EC \times \frac{2.2 \text{ lb}}{\text{kg}} \times t \quad \text{Eq. 13}$$

Where:

$E_{unmon,valve}$ = VOC emissions from unmonitored heavy liquid valves (tpy)

EC = Equipment Count

t = number of hours in service per year

$$E_{unmon,pump} = \sum 8.52 \times 10^{-3} \times EC \times \frac{2.2 \text{ lb}}{\text{kg}} \times t \quad \text{Eq. 14}$$

Where:

$E_{unmon,pump}$ = VOC emissions from unmonitored heavy liquid pumps (tpy)

EC = Equipment Count

t = number of hours in service per year

$$E_{unmon,flange} = \sum 7.93 \times 10^{-5} \times EC \times \frac{2.2 \text{ lb}}{\text{kg}} \times t \quad \text{Eq. 15}$$

Where:

$E_{unmon,flange}$ = VOC emissions from unmonitored heavy liquid flanges (tpy)

EC = Equipment Count

t = number of hours in service per year

$$E_{unmon,relief} = \sum 0.353 \times EC \times \frac{2.2 \text{ lb}}{\text{kg}} \times t \times (1 - CE) \quad \text{Eq. 16}$$

Where:

$E_{unmon,relief}$ = VOC emissions from unmonitored relief valves (tpy)

EC = Equipment Count

t = number of hours in service per year

CE = control efficiency, 97%, based on TCEQ Method 28RCT - consistent with NSPS quarterly monitoring and repair within 15 days.

$$E_{unmon,sample} = \sum 0.0031 \times EC \times \frac{2.2 \text{ lb}}{\text{kg}} \times t \times (1 - CE) \quad \text{Eq. 17}$$

Where:

$E_{unmon,sample}$ = VOC emissions from unmonitored sample connections (tpy)

EC = Equipment Count

t = number of hours in service per year

CE = control efficiency, 97%, based on TCEQ Method 28RCT - consistent with NSPS quarterly monitoring and repair within 15 days.

$$E_{unmon,drain} = \sum 3.4 \times 10^{-3} \times EC \times \frac{2.2 \text{ lb}}{\text{kg}} \times t \quad \text{Eq. 18}$$

Where:

$E_{unmon,drain}$ = VOC emissions from unmonitored drains (tpy)

EC = Equipment Count

t = number of hours in service per year

$$E_{unmon,compressor} = \sum 1.4 \times EC \times \frac{2.2 \text{ lb}}{\text{kg}} \times t \times (1 - CE) \quad \text{Eq. 19}$$

Where:

$E_{unmon,compressor}$ = VOC emissions from unmonitored compressors (tpy)

EC = Equipment Count

t = number of hours in service per year

CE = control efficiency, 90%, based on EPA's Protocol for Equipment Leak Emission Estimates Table 5-1 with closed vent system.

C. VOC Emissions from 24 Unit Drum System (EQUI1457)

VOC emissions from the 24 Unit Drum System are comprised of emissions from 1) coke drum activities including venting, draining, opening and coke cutting; and 2) the use of the coke drum quench and cooling water systems. See Equation 20.

$$C = VOC_{drum} + VOC_{water} \quad \text{Eq. 20}$$

For actual emission calculations used to comply with the VOC emissions limit, FHR shall utilize the methods currently for determining actual emissions at the existing coke drum systems.

Drum Venting Depressurization and Coke Cutting Emissions Volume

A polynomial relationship will be developed (shown in Equation 22) to determine the VOC emission factor at a specified initial pressure of release to the atmosphere. The polynomial relationship will be developed by plotting a range of initial pressures versus the VOC emission factor calculated using Equation 21.

$$VOC_{drum} \left(\frac{lb}{drum\ event} \right) = V_{total} \times C \times \frac{1\ mol}{385\ scf} \times \frac{1}{10^6} \times MW \quad Eq. 21$$

Where:

V_{total} = total volume for drum venting and coke cutting (scf)

C = typical drum vent emission concentration (ppm wet as propane)

MW = molecular weight of propane (42 lb/lb-mol)

$$VOC \left(\frac{lb}{drum\ event} \right) = D \times P_o^2 + E \times P_o + F \quad Eq. 22$$

Where:

P_o = initial pressure prior to discharging the coke drum steam exhaust to the atmosphere (psig)

D = polynomial coefficient

E = polynomial coefficient

F = polynomial coefficient

The coke drum volume during venting is calculated for a range of pressures when first routed to atmosphere. The coke cutting volume is based on the fixed drum dimensions. The total volume for drum venting and coke cutting is summed in Equation 23.

$$V_{total} = V_{depress} + V_{void} \quad Eq. 23$$

Where:

V_{total} = total volume for drum venting and coke cutting (scf)

$V_{depress}$ = volume for drum venting (scf)

V_{void} = volume for coke cutting (scf)

Based on the initial pressure prior to discharging the coke drum steam exhaust to the atmosphere, the volume of vapor released is estimated using differential pressure calculation methodologies.

To determine the depressurization vent total volume over a range of initial vent pressures to atmosphere, the polynomial equation in Equation 24 will be developed from measured values. The drum void volume is calculated in Equation 25.

$$V_{depress} (ft^3) = 385 \frac{scf}{mol} \times MW \times A \times P_o^2 + B \times P_o \quad Eq. 24$$

Where:

$V_{depress}$ = volume for drum venting (scf)

MW = molecular weight of gas (18 lb/lb-mol)

P_o = initial pressure (psig)

A = polynomial coefficient (developed using system measurements)

B = polynomial coefficient (developed using system measurements)

$$V_{void} (ft^3) = H \times \pi \times \frac{D^2}{4} \times F_{void} \quad Eq. 25$$

Where:

V_{void} = volume for coke cutting (scf)

H = height of drum (ft)

D = diameter of drum (ft)

F_{void} = void space factor, 0.6

Coke Drum Quench and Cooling Water Systems

The VOC emissions from the coke drum quench and cooling water systems are based on the VOC concentration and volume of water from overflow and draining of the drum system. The VOC concentrations of the drum overflow and drain water will be based on the 23 Unit tested concentrations of 0.40 mg/L and 0.01 mg/L, respectively, unless and until measurements are also conducted at the 24 Unit. The volume of overflow water will be measured via flowmeter, and the drain volume is based on the size of the drum. See Equations 26 and 27.

$$VOC_{\text{water}} \left(\frac{\text{lb}}{\text{drum event}} \right) = \frac{8.34 \text{ lb/MMgal}}{1 \text{ mg/L}} \times \left(VOC_{\text{overflow}} \times \frac{V_{\text{overflow}}}{10^6} + VOC_{\text{drain}} \times \frac{V_{\text{drain}}}{10^6} \right) \quad \text{Eq. 26}$$

Where:

VOC_{overflow} = VOC concentration of the overflow water (mg/L)

V_{overflow} = volume of overflow water (gallon)

VOC_{drain} = VOC concentration of the drain water (mg/L)

V_{drain} = volume of drain water (gallon)

$$V_{\text{drain}} = \rho_{\text{water}} \times \left(V_{\text{water}} - \frac{M_{\text{coke}}}{\rho_{\text{particle}}} \right) \times \frac{\text{gal}}{8.34 \text{ lb}} \quad \text{Eq. 27}$$

Where:

V_{water} = total volume of space that contains water in coke drum (ft³)

M_{coke} = mass of coke at the end of coking cycle (lb)

ρ_{coke} = density of coke (84.3 lb/ft³)

The total volume of space that contains water in the coke drum is based on the volume of the coke drum cylinder and bottom cone. The mass of coke will be based on actual coke production from the 24 Unit.

Permit Issued: January 13, 2017
Permit Expires: January 9, 2018

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Appendix H: Subject Item Details Report

Agency Interest: Flint Hills Resources Pine Bend Refinery
Agency Interest ID: 734
Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Equipment

SI Type: Aboveground Storage Tank

Subject Item Type Description Aboveground Storage Tank	Subject Item ID	Subject Item Name	Capacity (gal)	AST Substance	Strand	Medium Truss										Confidentiality Flag
						Column Spreader (Wt)	Column Spreader (Ht)	Deck Type	Interior Spreader (Wt)	Interior Spreader (Ht)	Vapor Pressure (Psi)	Construction Type	Seal Type	Support Type		
ES0164	ES0164	W6062	1600000	Other	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
ES0165	ES0165	W6065	1600000	Other	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
ES0161	ES0161	U3147	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
ES0163	ES0163	U3149	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
ES0172	ES0172	66TK101..	1762000	Fuel Oil#1	Null	Null	Null	60	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0174	ES0174	66TK103.T.	6600000	Crude Oil	Null	Null	Welded	150	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0175	ES0175	66TK114.	8400000	Fuel Oil#1	Null	Null	Null	140	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0177	ES0177	45TK103.	330000	Chemical Other Crk..	Null	Null	Null	19	19	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0178	ES0178	66TK127..	1260000	Aviation Gas	1	1	Welded	67	48	Null	Null	Internal Floating Roof	Mechanical; w/ shoe mounted	Column, construction type not	Null	Not Confidential
ES0179	ES0179	35TK105.T.	158174	Chemical Solids	Null	Null	Null	50	50	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0181	ES0181	66TK123..	1360000	Other	Null	Null	Welded	70	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0182	ES0182	66TK122.	2100000	Gasoline Blends (E+C..	Null	Null	Welded	80	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0183	ES0183	26TK116.	260000	Other	Null	Null	Null	52	40	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0183	ES0183	26TK115.	650000	Other	Null	Null	Null	48	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0184	ES0184	26TK114.	28000	Other	Null	Null	Null	14	24	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0184	ES0184	66TK164..	10500000	Gasoline Blends (E+C..	Null	Null	Welded	200	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0185	ES0185	66TK167..	10500000	Gasoline Blends (E+C..	Null	Null	Welded	200	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0186	ES0186	66TK166.	2380000	Gasoline Blends (E+C..	1	8	Welded	80	50	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0187	ES0187	66TK165.	3300000	Gasoline Blends (E+C..	1	8	Welded	60	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0188	ES0188	66TK164..	1600000	Gasoline Blends (E+C..	Null	Null	Welded	60	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Null	Null	Not Confidential
ES0189	ES0189	66TK163..	650000	Gasoline Blends (E+C..	Null	Null	Welded	55	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0190	ES0190	66TK160.	4200000	Gasoline Blends (E+C..	Null	Null	Welded	125	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Null	Null	Not Confidential
ES0190	ES0190	66TK160..	1762000	Gasoline Blends (E+C..	Null	Null	Welded	60	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0190	ES0190	66TK107..	22117918	Crude Oil	1	8	Welded	590	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Column, construction type not	Null	Not Confidential
ES0190	ES0190	66TK166..	6500000	Fuel Oil#1	Null	Null	Welded	150	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0191	ES0191	66TK167..	6500000	Fuel Oil#1	Null	Null	Welded	150	48	Null	Null	Internal Floating Roof	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0191	ES0191	66TK166..	6500000	Gasoline Blends (E+C..	Null	Null	Welded	150	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0192	ES0192	66TK165..	1050000	Aviation Gas	Null	Null	Welded	60	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Null	Null	Not Confidential
ES0193	ES0193	66TK164..	1360000	Other	Null	Null	Welded	70	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0181	ES0181	66TK123..	1360000	Fuel Oil#1	Null	Null	Welded	60	56	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0182	ES0182	66TK121..	1176000	Fuel Oil#1	Null	Null	Welded	60	56	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0187	ES0187	66TK107..	2026000	Crude Oil	Null	Null	Welded	280	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0192	ES0192	66TK107..	11277000	Crude Oil	Null	Null	Welded	200	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0193	ES0193	66TK123..	4200000	Fuel Oil#1	1	8	Welded	125	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0194	ES0194	66TK126..	4200000	Fuel Oil#1	1	8	Welded	125	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0195	ES0195	66TK127..	3310000	Fuel Oil#1	Null	Null	Null	60	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK146..	1560000	Fuel Oil#1	Null	Null	Null	70	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0197	ES0197	66TK126.	3860000	Other	Null	Null	Null	110	58	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK123.	3860000	Other	Null	Null	Null	110	58	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0192	ES0192	66TK116.	1470000	Other	Null	Null	Null	228	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0193	ES0193	66TK117.	1470000	Other	Null	Null	Null	228	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0194	ES0194	66TK116.	2040000	Other	Null	Null	Null	125	58	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0195	ES0195	66TK115.	1280000	Other	Null	Null	Null	146	58	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK114.	12600000	Other	Null	Null	Null	232	40	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK112.	2040000	Other	Null	Null	Null	134	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK111.	2040000	Other	Null	Null	Null	134	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0191	ES0191	66TK107..	6500000	Crude Oil	Null	Null	Welded	120	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0192	ES0192	66TK106.	2840000	Other	Null	Null	Null	85	58	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK106.	474800	Petroleum Other	Null	Null	Null	42	44	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK107..	5000000	Other	Null	Null	Null	134	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0194	ES0194	45TK106.	270371	Sewage	Null	Null	Null	35	38	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	45TK107.	552000	Sewage	Null	Null	Null	35	38	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0174	ES0174	66TK105.	420000	Petroleum Other	Null	Null	Null	45	56	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0179	ES0179	66TK106.	117900	Other	Null	Null	Null	25	22	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0179	ES0179	35TK101.	20400	Chemical Solids	Null	Null	Null	21	20	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0180	ES0180	35TK102.	20400	Chemical Solids	Null	Null	Null	21	20	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0191	ES0191	66TK103.	2800000	Petroleum Other	Null	Null	Null	150	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0192	ES0192	35TK103.	20400	Chemical Solids	Null	Null	Null	21	20	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0193	ES0193	35TK104.	20400	Chemical Solids	Null	Null	Null	21	20	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0191	ES0191	66TK101..	840000	Petroleum Other	Null	Null	Null	60	40	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0194	ES0194	47TK103.	23600	Chemical Other Crk..	Null	Null	Null	15	19	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK100..	840000	Petroleum Other	Null	Null	Null	60	40	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK103..	1762000	Other	Null	Null	Null	60	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK106.	2616000	Gasoline Blends (E+C..	1	8	Welded	120	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0190	ES0190	66TK105.	1260000	Aviation Gas	1	1	Welded	67	48	Null	Null	Internal Floating Roof	Mechanical; w/ shoe mounted	Column, construction type not	Null	Not Confidential
ES0191	ES0191	66TK105..	1260000	Gasoline Blends (E+C..	1	1	Welded	67	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0192	ES0192	66TK106..	1260000	Gasoline Blends (E+C..	1	1	Welded	67	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0193	ES0193	66TK123..	1762000	Fuel Oil#1	Null	Null	Null	60	48	Null	Null	Internal Floating Roof	Null	Null	Null	Not Confidential
ES0194	ES0194	66TK123..	1762000	Fuel Oil#1	Null	Null	Null	60	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0195	ES0195	66TK121..	1762000	Fuel Oil#1	Null	Null	Null	60	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0199	ES0199	66TK106.	360000	Other	1	1	Welded	30	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0199	ES0199	66TK105.	360000	Other	1	1	Welded	36	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0191	ES0191	105TK102.	20400	Fuel Oil#1	Null	Null	Null	12	38	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0191	ES0191	105TK103.	20400	Fuel Oil#1	Null	Null	Null	12	38	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0191	ES0191	66TK102..	6500000	Crude Oil	Null	Null	Welded	120	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0194	ES0194	66TK119..	1000000	Petroleum Other	Null	Null	Null	60	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential
ES0195	ES0195	66TK119.	2040000	Gasoline Blends (E+C..	1	8	Welded	124	48	Null	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not	Null	Not Confidential
ES0196	ES0196	66TK117..	1762000	Aviation Gas	1	1	Welded	60	48	Null	Null	Internal Floating Roof	Mechanical; w/ shoe mounted	Column, construction type not	Null	Not Confidential
ES0197	ES0197	66TK161.	4200000	Gasoline Blends (E+C..	Null	Null	Welded	125	48	Null	Null	Internal Floating Roof	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0196	ES0196	66TK160.	4200000	Gasoline Blends (E+C..	Null	Null	Welded	125	48	Null	Null	External Roa roof, welded tan.	Mechanical; w/ shoe mounted	Null	Null	Not Confidential
ES0191	ES0191	66TK116.	1762000	Aviation Gas	1	1	Welded	60	48	Null	Null	Internal Floating Roof	Mechanical; w/ shoe mounted	Column, construction type not	Null	Not Confidential
ES0192	ES0192	66TK114.	1580000	Fuel Oil#1	Null	Null	Null	70	48	Null	Null	Road Roof	Null	Null	Null	Not Confidential

Aboveground Storage Tanks, General

Agency Interest: Flint Hills Resources Pine Bend Refinery
Agency Interest ID: 734
Activity: IND20160001 (Major Amendment)

Details for:
SI Category: Equipment
SI Type: Aboveground Storage Tank

Subject Item Type	Subject Item Description	Subject Item ID	Subject Item Name	Capacity (gal)	AGT Substance Stored	Column Diameter (ft)	Column Count	Deck Type	Interior Diameter (ft)	Interior Height (ft)	True Vapor Pressure (psia)	Construction Type	Seal Type	Support Type	Confidentiality Flag
Aboveground Storage Tank		EQUN001	48TK150..4200000		Fuel Oil#1	Null	Null	Null	125	48	Null	Road Roof	Null	Null	Not Confidential
		EQUN002	48TK121..4200000		Gasoline/Glands (E1-E..	Null	Null	Welded	125	48	Null	External/flat roof, welded tan..	Mechanical; w/ shoe mounted ..	Null	Not Confidential
		EQUN003	48TK150..4200000		Gasoline/Glands (E1-E..	Null	Null	Welded	125	48	Null	External/flat roof, welded tan..	Mechanical; w/ shoe mounted ..	Null	Not Confidential
		EQUN004	48TK150..17850000		Gasoline/Glands (E1-E..	1	1	Welded	80	48	Null	Internal Floating Roof	Mechanical; w/ shoe mounted ..	Column, construction type not ..	Not Confidential
		EQUN005	48TK161..7320000		Gasoline/Glands (E1-E..	1	1	Welded	80	48	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not ..	Not Confidential
		EQUN007	48TK190..4400000		Fuel Oil#1	Null	Null	Null	175	48	Null	Road Roof	Null	Null	Not Confidential
		EQUN008	48TK190..4400000		Fuel Oil#1	Null	Null	Null	175	48	Null	Road Roof	Null	Null	Not Confidential
		EQUN009	48TK191..4410000		Fuel Oil#1	Null	Null	Null	125	48	Null	Road Roof	Null	Null	Not Confidential
		EQUN090	48TK190..4410000		Fuel Oil#1	Null	Null	Null	125	48	Null	Road Roof	Null	Null	Not Confidential
		EQUN091	48TK191..5240000		Gasoline/Glands (E1-E..	1	4	Welded	154	48	Null	Internal Floating Roof	Mechanical; w/ shoe mounted ..	Column, construction type not ..	Not Confidential
		EQUN093	48TK191..5240000		Gasoline/Glands (E1-E..	1	4	Welded	154	48	Null	Internal Floating Roof	Mechanical; w/ shoe mounted ..	Column, construction type not ..	Not Confidential
		EQUN095	48TK111..5240000		Gasoline/Glands (E1-E..	1	4	Welded	154	48	Null	Internal Floating Roof	Mechanical; w/ shoe mounted ..	Column, construction type not ..	Not Confidential
		EQUN097	48TK101..5240000		Gasoline/Glands (E1-E..	1	4	Welded	154	48	Null	Internal Floating Roof	Mechanical; primary seal only	Column, construction type not ..	Not Confidential
		EQUN066	52V17K..Null	Null		Null	Null	Null	0	0	Null	Null	Null	Null	Null
		EQUN009	48TK117..6919000		Crude Oil	Null	Null	Welded	150	48	Null	External/flat roof, welded tan..	Mechanical; w/ shoe mounted ..	Null	Not Confidential
		EQUN107	11V31T..1723		Other	Null	Null	Null	0	0	Null	Road Roof	Null	Null	Not Confidential
		EQUN110	14TK117..4400		Petroleum Other	Null	Null	Null	4	20	Null	Road Roof	Null	Null	Not Confidential
		EQUN134	31V18TK..Null	Null		Null	Null	Null	0	0	Null	Road Roof	Null	Null	Not Confidential
		EQUN191	48TK500..4400000		Fuel Oil#1	Null	Null	Welded	155	44	Null	Internal Floating Roof	Mechanical; w/ shoe mounted ..	Column, construction type not ..	Not Confidential
		EQUN195	103TK15..305274		Diesel Fuel	Null	Null	Null	35	42	Null	Road Roof	Null	Null	Not Confidential
		EQUN196	48TK529..21620000		Fuel Oil#1	Null	Null	Welded	225	44	Null	Internal Floating Roof	Mechanical; w/ shoe mounted ..	Column, construction type not ..	Not Confidential
		EQUN143	48TK517..2100000		Gasoline/Glands (E1-E..	Null	Null	Null	194	34	Null	Other	Null	Null	Not Confidential
		EQUN164	31TK500..Null	Null		Null	Null	Null	20	38	Null	Road Roof	Null	Null	Not Confidential
		EQUN190	31TK500..Null	Null		Null	Null	Null	30	40	Null	Road Roof	Null	Null	Not Confidential
		EQUN181	33TK501..Null	Null		Null	Null	Null	12	13	Null	Road Roof	Null	Null	Not Confidential
		EQUN180	33TK500..Null	Null		Null	Null	Null	35	30	Null	Road Roof	Null	Null	Not Confidential
		EQUN105	45TK365..Null	Null		Null	Null	Null	0	0	Null	Null	Null	Null	Not Confidential
		EQUN1010	71TK314..Null	Null		Null	Null	Null	34	33	Null	Road Roof	Null	Null	Not Confidential
		EQUN111	71TK319..Null	Null		Null	Null	Null	34	33	Null	Road Roof	Null	Null	Not Confidential
		EQUN134	48TK115..Null	Null		Null	Null	Null	0	0	Null	Pressure Tank	Null	Null	Not Confidential
		EQUN136	48TK117..Null	Null		Null	Null	Null	0	0	Null	Pressure Tank	Null	Null	Not Confidential
		EQUN141	48TK505..Null	Null		Null	Null	Null	44	44	Null	Road Roof	Null	Null	Not Confidential
		EQUN178	102TK15..Null	Null		Null	Null	Null	10	34	Null	Underground	Null	Null	Not Confidential
		EQUN145	48TK506..4980000		Other	Null	Null	Welded	100	44	Null	External/flat roof, welded tan..	Mechanical; w/ shoe mounted ..	Null	Not Confidential
		EQUN1452	48TK507..4980000		Other	Null	Null	Welded	100	44	Null	External/flat roof, welded tan..	Mechanical; w/ shoe mounted ..	Null	Not Confidential

Emission Units 1

Agency Interest: Flint Hills Resources Pine Bend Refinery
Agency Interest ID: 734
Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Equipment

SI Type: Aging Equipment, Barge Loading Equipment, Buffing Equipment and 24 more

Subject Item Type	Subject Item ID	Subject Item Description	Manufacturer	Model	Max Design Capacity	Max Design Capacity Units (numerator)	Max Design Capacity Units (denominator)	Material	Construction Start Date	Operation Start Date	Modification Date	Confidentiality Flag
Aging Equipment	EU0333	EU0331	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barge Loading Equipment	EU0373	EU007	NA	NA	NA	NA	NA	NA	1/1/1972	NA	NA	Not Confidential
	EU0374	EU008	NA	NA	NA	NA	NA	NA	1/1/1972	NA	NA	Not Confidential
Buffing Equipment	EU0451	EU078	NA	NA	7.2	million British	hours	Heat	1/1/1995	NA	NA	NA
	EU0452	EU077	NA	NA	7.2	million British	hours	Heat	1/1/1995	NA	NA	NA
Coke Handling Equipment	EU0383	EU019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0384	EU020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0385	EU021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0386	EU024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0387	EU025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0388	EU026	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Compressor	EU0324	EU027	Deltron Diesel	NA	705	horsepower	unknown	Energy	1/1/1993	4/19/1993	NA	NA
	EU0310	EU008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cooler	EU0321	EU019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Crusher	EU0327	EU025	Pioneer	4230	150	tons	hours	Coke	NA	NA	NA	NA
	EU0328	EU026	Pioneer	4233	100	tons	hours	Coke	NA	NA	NA	NA
Digester	EU0393	EU032	NA	NA	NA	NA	NA	NA	1/1/1977	1/31/1977	NA	NA
Disolver	EU0329	EU027	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Defibration Equipment	EU0464	EU005	Strickland	NA	119.9	million British	hours	Heat	1/1/1995	NA	NA	NA
	EU0395	EU050	Tulsa Heatlers	NA	84	million British	hours	Heat	1/1/1993	8/14/1993	NA	NA
	EU0394	EU051	Tulsa Heatlers	NA	84	million British	hours	Heat	1/1/1993	8/14/1993	NA	NA
Fractionation Equipment	EU0346	EU055	Multiple Manufacturers	NA	23	million British	hours	Heat	1/1/1995	12/31/1995	NA	NA
Hopper	EU0442	EU052	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Loading/Unloading Equipment	EU0371	EU004	Hebraake	NA	150000	pounds	hours	Steam	1/1/1993	4/19/1993	NA	NA
	EU0372	EU005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0380	EU018	NA	NA	NA	NA	NA	NA	1/1/1993	NA	NA	Not Confidential
	EU0381	EU017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0382	EU018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0404	EU050	NA	NA	1125	barrels	hours	Product	2/1/2013	8/1/2014	NA	NA
	EU0481	EU085	NA	NA	NA	NA	NA	NA	1/1/1995	NA	NA	NA
	EU0483	EU086	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0483	EU084	NA	NA	NA	NA	NA	NA	1/1/1999	NA	NA	NA
Material Handling Equipment	EU0422	EU030	NA	NA	12.5	tons	hours	Unknown	NA	NA	NA	NA
	EU0423	EU031	NA	NA	80	tons	hours	Unknown	NA	NA	NA	NA
	EU0424	EU032	NA	NA	12.5	tons	hours	Unknown	NA	NA	NA	NA
	EU0448	EU058	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0481	EU083	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0518	EU014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0524	EU022	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0534	EU022	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mixing Equipment	EU0359	EU055	NA	NA	NA	NA	NA	NA	1/1/1977	1/31/1977	NA	NA
	EU0360	EU059	NA	NA	NA	NA	NA	NA	1/1/1989	12/31/1989	NA	NA
Neutralizer	EU0477	EU059	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Emission Unit	EU0378	EU014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0400	EU046	Siemens	Custom	NA	NA	NA	NA	1/1/2007	1/1/2011	NA	NA
	EU0472	EU097	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0473	EU096	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0474	EU099	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0513	EU011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0517	EU015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0518	EU016	NA	NA	NA	NA	NA	NA	2/18/1992	10/15/1992	8/18/2014	Not Confidential
	EU0519	EU017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0522	EU030	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0533	EU031	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	EU0530	EU028	The River Corporation Ltd	NA	1955	million British	hours	Heat	NA	NA	NA	NA
	EU0531	EU029	Seuder Custom Fab	NA	NA	NA	NA	NA	NA	NA	NA	NA
Process Heater	EU0320	EU044	Basico	NA	1.58	million British	hours	Heat	1/1/1982	12/31/1982	NA	NA
	EU0321	EU045	NA	NA	1.58	million British	hours	Heat	1/1/1970	12/31/1970	NA	NA
	EU0332	EU046	NA	NA	1.58	million British	hours	Heat	1/1/1970	12/31/1970	NA	NA
	EU0333	EU049	NA	NA	1.6	million British	hours	Heat	NA	12/31/1969	NA	NA
	EU0334	EU057	Basico	NA	1.58	million British	hours	Heat	1/1/1970	12/31/1970	NA	NA
	EU0335	EU058	Basico	NA	1.58	million British	hours	Heat	1/1/1970	12/31/1970	NA	NA
	EU0336	EU059	Basico	NA	1.58	million British	hours	Heat	1/1/1970	12/31/1970	NA	NA
	EU0337	EU060	Basico	NA	1.58	million British	hours	Heat	1/1/1970	12/31/1970	NA	NA
	EU0338	EU063	Basico	NA	1.58	million British	hours	Heat	1/1/1971	12/31/1971	NA	NA
	EU0339	EU064	Basico	NA	1.58	million British	hours	Heat	1/1/1971	12/31/1971	NA	NA
	EU0340	EU065	Basico	NA	1.58	million British	hours	Heat	1/1/1974	12/31/1974	NA	NA
	EU0341	EU066	NA	NA	1.58	million British	hours	Heat	1/1/1976	12/31/1976	NA	NA
	EU0342	EU067	NA	NA	1.58	million British	hours	Heat	1/1/1976	12/31/1976	NA	NA
	EU0343	EU068	NA	NA	1.58	million British	hours	Heat	1/1/1977	12/31/1977	NA	NA
	EU0344	EU069	NA	NA	1.58	million British	hours	Heat	1/1/1977	12/31/1977	NA	NA
	EU0345	EU070	Thermal Pintube	NA	1.58	million British	hours	Heat	1/1/1989	12/31/1989	NA	NA
	EU0346	EU071	Thermal Pintube	NA	1.58	million British	hours	Heat	1/1/1989	12/31/1989	NA	NA

Emission Units 1

Agency Interest: Flint Hills Resources Pine Bend Refinery
Agency Interest ID: 734
Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Equipment

SI Type: Aging Equipment, Barge Loading Equipment, Buffing Equipment and 24 more

Subject Item Type Description Process Header	Subject Item ID	Subject Item Designation	Manufacturer	Model	Max Design Capacity	Max Design Capacity Units (numerator)	Max Design Capacity Units (denominator)	Material	Construction Start Date	Operation Start Date	Modificatio n Date	Confidentiality Flag
	EQUI347	EU172	Thermal Rintube	NA	1.56	million British	hours	Heat	1/1/1989	12/31/1989	Null	Null
	EQUI348	EU173	Thermal Rintube	NA	1.56	million British	hours	Heat	1/1/1989	12/31/1989	Null	Null
	EQUI377	EU213	Technip	NA	475	million British	hours	Heat	1/1/2000	Null	Null	Not Confidential
	EQUI408	EU352	TBO	TBO	241.6	thousand cu.	hours	Fuel	Null	Null	Null	Null
	EQUI407	EU353	TBO	TBO	219.6	thousand cu.	hours	Fuel	Null	Null	Null	Null
	EQUI420	EU227	NA	NA	Null	Null	Null	Null	Null	Null	Null	Null
	EQUI431	EU240	Selas	NA	9	million British	hours	Heat	1/1/1973	Null	Null	Null
	EQUI432	EU241	Selas	NA	174	million British	hours	Heat	1/1/1973	Null	Null	Null
	EQUI449	EU274	NA	NA	6.5	million British	hours	Heat	Null	Null	Null	Null
	EQUI450	EU275	NA	NA	1.5	million British	hours	Heat	Null	Null	Null	Null
	EQUI469	EU294	Null	Null	141	million British	hours	Heat	Null	Null	Null	Null
	EQUI485	EU008	Petrochem	NA	57	million British	hours	Heat	1/1/1955	Null	Null	Null
	EQUI487	EU016	Petrochem	NA	135.2	million British	hours	Heat	1/1/1977	Null	Null	Null
	EQUI488	EU019	NA	NA	236.9	million British	hours	Heat	1/1/1973	Null	Null	Null
	EQUI490	EU028	Born	NA	145.6	million British	hours	Heat	1/1/1955	Null	Null	Null
	EQUI491	EU028	Alcom	NA	132	million British	hours	Heat	1/1/1955	Null	Null	Null
	EQUI492	EU030	Econothem	NA	132	million British	hours	Heat	1/1/1953	Null	Null	Null
	EQUI495	EU034	Pulman Kellogg	NA	165	million British	hours	Heat	1/1/1953	Null	Null	Null
	EQUI498	EU035	Econothem	NA	122	million British	hours	Heat	3/31/1955	Null	Null	Null
	EQUI499	EU037	NA	NA	165	million British	hours	Heat	1/1/1953	Null	Null	Null
	EQUI499	EU038	NA	NA	122	million British	hours	Heat	3/31/1955	Null	Null	Null
	EQUI500	EU040	Petrochem	NA	252	million British	hours	Heat	1/1/1955	6/30/1955	Null	Null
	EQUI501	EU041	Petrochem	NA	205	million British	hours	Heat	1/1/1955	6/30/1955	Null	Null
	EQUI528	EU324	Null	Null	163	million British	hours	Heat	Null	Null	Null	Null
	EQUI541	EU054	Petrochem	NA	115.7	million British	hours	Heat	1/1/1973	Null	Null	Null
	EQUI543	EU052	Multiple Manufacturers	NA	600	million British	hours	Heat	1/1/1993	4/23/1993	Null	Null
	EQUI545	EU054	Petrochem	NA	23	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI547	EU056	Babcock & Wilcox	NA	71	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI548	EU057	Petrochem	NA	10	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI549	EU058	NA	NA	85.4	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI550	EU059	NA	NA	35.8	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI551	EU060	Petrochem	NA	50	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI552	EU061	Econothem	NA	29.8	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI554	EU073	Powerformer	NA	135	million British	hours	Heat	1/1/1980	Null	Null	Null
	EQUI555	EU074	Powerformer	NA	135	million British	hours	Heat	1/1/1980	Null	Null	Null
	EQUI556	EU075	Powerformer	NA	135	million British	hours	Heat	1/1/1980	Null	Null	Null
	EQUI557	EU076	Powerformer	NA	9	million British	hours	Heat	1/1/1955	Null	Null	Null
	EQUI559	EU085	Petrochem	NA	125.5	million British	hours	Heat	1/1/1973	Null	Null	Null
	EQUI560	EU093	THI	NA	24	million British	hours	Heat	1/1/1981	Null	Null	Null
	EQUI562	EU095	Petrochem	NA	391	million British	hours	Heat	1/1/1981	Null	Null	Null
	EQUI563	EU096	Petrochem	NA	391	million British	hours	Heat	1/1/1981	Null	Null	Null
	EQUI564	EU097	Petrochem	NA	391	million British	hours	Heat	1/1/1981	Null	Null	Null
	EQUI565	EU102	Petrochem	NA	29	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI568	EU103	Petrochem	NA	29	million British	hours	Heat	1/1/1955	12/31/1955	Null	Null
	EQUI570	EU104	OPP	NA	56	million British	hours	Heat	1/1/1985	12/31/1985	Null	Null
Pump	EQUI1456	Null	TBO	TBO	310000	million British	hours	Fuel	Null	Null	Null	Not Confidential
	EQUI1325	EU128	Caterpillar	NA	630	horsepower	unknown	Energy	1/1/1976	5/31/1976	Null	Null
	EQUI1326	EU129	Caterpillar	NA	325	horsepower	unknown	Energy	1/1/1982	1/31/1982	Null	Null
	EQUI1327	EU130	Caterpillar	NA	546	horsepower	unknown	Energy	1/1/1987	1/31/1987	Null	Null
	EQUI1329	EU132	Caterpillar	NA	500	horsepower	unknown	Energy	1/1/1979	5/31/1979	Null	Null
	EQUI1365	EU196	Caterpillar	NA	650	horsepower	unknown	Energy	Null	4/30/1953	Null	Null
	EQUI1366	EU199	Caterpillar	NA	650	horsepower	unknown	Energy	Null	5/31/1953	Null	Null
	EQUI1460	EU285	NA	NA	Null	Null	Null	Null	1/1/1990	Null	Null	Null
	EQUI5111	EU309	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
	EQUI5112	EU310	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
Overarching Equipment	EQUI493	EU032	NA	NA	132	million British	hours	Heat	1/1/1955	Null	Null	Null
	EQUI494	EU033	NA	NA	132	million British	hours	Heat	1/1/1953	Null	Null	Null
Reactor	EQUI544	EU053	Optimized Process Furnaces	NA	34	million British	hours	Heat	1/1/1993	8/29/1993	Null	Null
Refining Equipment	EQUI349	EU177	NA	NA	Null	Null	Null	Null	1/1/1977	1/31/1977	Null	Null
	EQUI351	EU182	NA	NA	Null	Null	Null	Null	1/1/1977	1/31/1977	Null	Null
	EQUI354	EU183	NA	NA	Null	Null	Null	Null	1/1/1977	1/31/1977	Null	Null
	EQUI355	EU184	NA	NA	Null	Null	Null	Null	1/1/1977	1/31/1977	Null	Null
	EQUI356	EU185	NA	NA	Null	Null	Null	Null	1/1/1990	Null	Null	Null
	EQUI357	EU186	NA	NA	Null	Null	Null	Null	1/1/1977	1/31/1977	Null	Null
	EQUI358	EU187	NA	NA	Null	Null	Null	Null	1/1/1989	12/31/1989	Null	Null
	EQUI361	EU190	NA	NA	Null	Null	Null	Null	1/1/1977	1/31/1977	Null	Null
	EQUI362	EU191	NA	NA	Null	Null	Null	Null	1/1/1989	12/31/1989	Null	Null
	EQUI364	EU197	NA	NA	Null	Null	Null	Null	1/1/1990	12/31/1990	Null	Null
	EQUI369	EU200	Null	NA	Null	Null	Null	Null	Null	Null	Null	Null
	EQUI370	EU201	NA	NA	Null	Null	Null	Null	Null	Null	Null	Null
	EQUI376	EU212	NA	NA	375.2	thousand cu.	hours	Fuel	1/1/1999	Null	Null	Not Confidential
	EQUI379	EU215	NA	NA	Null	Null	Null	Null	Null	Null	Null	Null
	EQUI399	EU245	Siemens	Custom	Null	Null	Null	Null	1/1/2007	1/1/2011	Null	Null

Agency interest: Flint Hills Resources Pine Bend Refinery
Agency interest ID: 734
Activity: IND20160001 (Major Amendment)

SI Category: Equipment
SI Type: Aging Equipment, Barge Loading Equipment, Buffing Equipment and 24 more

Equipment Inventory & Maintenance Log									
Equipment ID	Equipment Name	Category	Manufacturer	Purchase Date	Warranty End	Performance Metrics			Status
						Usage Hours	Efficiency (%)	Condition Score	
Section 1: Heavy Machinery									
EQUIP001	Excavator	Hydraulic	John Deere	2018-01-15	2023-01-15	1200	95	8.5	Active
				2018-01-15	2023-01-15	1200	95	8.5	Active
				2018-01-15	2023-01-15	1200	95	8.5	Active
				2018-01-15	2023-01-15	1200	95	8.5	Active
				2018-01-15	2023-01-15	1200	95	8.5	Active
EQUIP002	Tractor	Diesel	Case IH	2019-03-20	2024-03-20	800	92	8.0	Active
				2019-03-20	2024-03-20	800	92	8.0	Active
				2019-03-20	2024-03-20	800	92	8.0	Active
				2019-03-20	2024-03-20	800	92	8.0	Active
				2019-03-20	2024-03-20	800	92	8.0	Active
EQUIP003	Generator	Gasoline	Honda	2020-05-10	2025-05-10	500	98	9.0	Active
				2020-05-10	2025-05-10	500	98	9.0	Active
				2020-05-10	2025-05-10	500	98	9.0	Active
				2020-05-10	2025-05-10	500	98	9.0	Active
				2020-05-10	2025-05-10	500	98	9.0	Active
Section 2: Light Equipment									
EQUIP004	Saw	Electric	Skil	2021-07-01	2026-07-01	300	90	7.5	Active
				2021-07-01	2026-07-01	300	90	7.5	Active
				2021-07-01	2026-07-01	300	90	7.5	Active
				2021-07-01	2026-07-01	300	90	7.5	Active
				2021-07-01	2026-07-01	300	90	7.5	Active
EQUIP005	Drill	Cordless	Makita	2022-02-15	2027-02-15	250	88	7.0	Active
				2022-02-15	2027-02-15	250	88	7.0	Active
				2022-02-15	2027-02-15	250	88	7.0	Active
				2022-02-15	2027-02-15	250	88	7.0	Active
				2022-02-15	2027-02-15	250	88	7.0	Active
Section 3: Specialized Tools									
EQUIP006	Welding Machine	Inverter	Lincoln Electric	2017-09-01	2022-09-01	1500	85	6.5	Active
				2017-09-01	2022-09-01	1500	85	6.5	Active
				2017-09-01	2022-09-01	1500	85	6.5	Active
				2017-09-01	2022-09-01	1500	85	6.5	Active
				2017-09-01	2022-09-01	1500	85	6.5	Active
EQUIP007	Paint Sprayer	Airless	Graco	2020-11-01	2025-11-01	400	93	8.2	Active
				2020-11-01	2025-11-01	400	93	8.2	Active
				2020-11-01	2025-11-01	400	93	8.2	Active
				2020-11-01	2025-11-01	400	93	8.2	Active
				2020-11-01	2025-11-01	400	93	8.2	Active
Section 4: Maintenance & Repair									
EQUIP008	Compressor	Air	Ingersoll Rand	2019-06-01	2024-06-01	600	91	7.8	Active
				2019-06-01	2024-06-01	600	91	7.8	Active
				2019-06-01	2024-06-01	600	91	7.8	Active
				2019-06-01	2024-06-01	600	91	7.8	Active
				2019-06-01	2024-06-01	600	91	7.8	Active
EQUIP009	Lift Jack	Hydraulic	Snap-on	2021-04-01	2026-04-01	100	96	9.2	Active
				2021-04-01	2026-04-01	100	96	9.2	Active
				2021-04-01	2026-04-01	100	96	9.2	Active
				2021-04-01	2026-04-01	100	96	9.2	Active
				2021-04-01	2026-04-01	100	96	9.2	Active
Section 5: Safety Equipment									
EQUIP010	Hard Hat	Safety	3M	2022-08-01	2027-08-01	50	99	9.8	Active
				2022-08-01	2027-08-01	50	99	9.8	Active
				2022-08-01	2027-08-01	50	99	9.8	Active
				2022-08-01	2027-08-01	50	99	9.8	Active
				2022-08-01	2027-08-01	50	99	9.8	Active
EQUIP011	Safety Vest	High Visibility	Gorham	2023-01-01	2028-01-01	100	97	9.5	Active
				2023-01-01	2028-01-01	100	97	9.5	Active
				2023-01-01	2028-01-01	100	97	9.5	Active
				2023-01-01	2028-01-01	100	97	9.5	Active
				2023-01-01	2028-01-01	100	97	9.5	Active
Section 6: Storage & Logistics									
EQUIP012	Pallet Forklift	Electric	Toyota	2016-03-01	2021-03-01	2000	80	5.5	Active
				2016-03-01	2021-03-01	2000	80	5.5	Active
				2016-03-01	2021-03-01	2000	80	5.5	Active
				2016-03-01	2021-03-01	2000	80	5.5	Active
				2016-03-01	2021-03-01	2000	80	5.5	Active
EQUIP013	Truck	Diesel	Ford	2015-09-01	2020-09-01	15000	75	4.5	Active
				2015-09-01	2020-09-01	15000	75	4.5	Active
				2015-09-01	2020-09-01	15000	75	4.5	Active
				2015-09-01	2020-09-01	15000	75	4.5	Active
				2015-09-01	2020-09-01	15000	75	4.5	Active
Section 7: Office & Support Equipment									
EQUIP014	Printer	Laser	HP	2020-01-01	2025-01-01	5000	90	8.0	Active
				2020-01-01	2025-01-01	5000	90	8.0	Active
				2020-01-01	2025-01-01	5000	90	8.0	Active
				2020-01-01	2025-01-01	5000	90	8.0	Active
				2020-01-01	2025-01-01	5000	90	8.0	Active
EQUIP015	Scanner	Flatbed	Epson	2019-06-01	2024-06-01	3000	85	7.0	Active
				2019-06-01	2024-06-01	3000	85	7.0	Active
				2019-06-01	2024-06-01	3000	85	7.0	Active
				2019-06-01	2024-06-01	3000	85	7.0	Active
				2019-06-01	2024-06-01	3000	85	7.0	Active
Section 8: Miscellaneous									
EQUIP016	Toolbox	Metal	Milwaukee	2021-03-01	2026-03-01	200	95	8.5	Active
				2021-03-01	2026-03-01	200	95	8.5	Active
				2021-03-01	2026-03-01	200	95	8.5	Active
				2021-03-01	2026-03-01	200	95	8.5	Active
				2021-03-01	2026-03-01	200	95	8.5	Active
EQUIP017	Workbench	Wood	DeWalt	2020-07-01	2025-07-01	150	92	8.0	Active
				2020-07-01	2025-07-01	150	92	8.0	Active
				2020-07-01	2025-07-01	150	92	8.0	Active
				2020-07-01	2025-07-01	150	92	8.0	Active
				2020-07-01	2025-07-01	150	92	8.0	Active
Section 9: Spare Parts & Consumables									
EQUIP018	Spare Parts Kit	Various	Generic	2022-04-01	2027-04-01	100	90	7.0	Active
				2022-04-01	2027-04-01	100	90	7.0	Active
				2022-04-01	2027-04-01	100	90	7.0	Active
				2022-04-01	2027-04-01	100	90	7.0	Active
				2022-04-01	2027-04-01	100	90	7.0	Active
EQUIP019	Consumable	Paper	Xerox	2021-11-01	2026-11-01	5000	88	7.5	Active
				2021-11-01	2026-11-01	5000	88	7.5	Active
				2021-11-01	2026-11-01	5000	88	7.5	Active
				2021-11-01	2026-11-01	5000	88	7.5	Active
				2021-11-01	2026-11-01	5000	88	7.5	Active
Section 10: Calibration & Testing Equipment									
EQUIP020	Calibration Tool	Precision	Mitutoyo	2020-02-01	2025-02-01	100	95	8.5	Active
				2020-02-01	2025-02-01	100	95	8.5	Active
				2020-02-01	2025-02-01	100	95	8.5	Active
				2020-02-01	2025-02-01	100	95	8.5	Active
				2020-02-01	2025-02-01	100	95	8.5	Active
EQUIP021	Testing Machine	Hydraulic	Instron	2018-08-01	2023-08-01	1000	82	6.0	Active
				2018-08-01	2023-08-01	1000	82	6.0	Active
				2018-08-01	2023-08-01	1000	82	6.0	Active
				2018-08-01	2023-08-01	1000	82	6.0	Active
				2018-08-01	2023-08-01	1000	82	6.0	Active
Section 11: Safety & Compliance									
EQUIP022	Fall Protection	Harness	3M	2021-05-01	2026-05-01	50	98	9.0	Active
				2021-05-01	2026-05-01	50	98	9.0	Active
				2021-05-01	2026-05-01	50	98	9.0	Active
				2021-05-01	2026-05-01	50	98	9.0	Active
				2021-05-01	2026-05-01	50	98	9.0	Active
EQUIP023	First Aid Kit	Medical	First Aid Only	2022-01-01	2027-01-01	20	99	9.5	Active
				2022-01-01	2027-01-01	20	99	9.5	Active
				2022-01-01	2027-01-01	20	99	9.5	Active
				2022-01-01	2027-01-01	20	99	9.5	Active
				2022-01-01	2027-01-01	20	99	9.5	Active
Section 12: Training & Development									
EQUIP024	Training Module	Digital	Blackboard	2020-09-01	2025-09-01	100	90	7.0	Active
				2020-09-01	2025-09-01	100	90	7.0	Active
				2020-09-01	2025-09-01	100	90	7.0	Active
				2020-09-01	2025-09-01	100	90	7.0	Active
				2020-09-01	2025-09-01	100	90	7.0	Active
EQUIP025	Webinar Series	Online	Coursera	2021-02-01	2026-02-01	50	92	7.5	Active
				2021-02-01	2026-02-01	50	92	7.5	Active
				2021-02-01	2026-02-01	50	92	7.5	Active
				2021-02-01	2026-02-01	50	92	7.5	Active
				2021-02-01	2026-02-01	50	92	7.5	Active
Section 13: Research & Innovation									
EQUIP026	Prototype Machine	3D Printing	Formlabs	2022-03-01	2027-03-01	200	85	6.5	Active
				2022-03-01	2027-03-01	200	85	6.5	Active
				2022-03-01	2027-03-01	200	85	6.5	Active
				2022-03-01	2027-03-01	200	85	6.5	Active
				2022-03-01	2027-03-01	200	85	6.5	Active
EQUIP027	Data Logger	IoT	Arduino	2021-10-01	2026-10-01	100	95	8.0	Active
				2021-10-01	2026-10-01	100	95	8.0	Active
				2021-10-01	2026-10-01	100	95	8.0	Active
				2021-10-01	2026-10-01	100	95	8.0	Active
				2021-10-01	2026-10-01	100	95	8.0	Active
Section 14: Environmental Monitoring									
EQUIP028	Weather Station	Wireless	Davis	2020-06-01	2025-06-01	50	90	7.0	Active
				2020-06-01	2025-06-01	50	90	7.0	Active
				2020-06-01	2025-06-01	50	90	7.0	Active
				2020-06-01	2025-06-01	50	90	7.0	Active
				2020-06-01	2025-06-01	50	90	7.0	Active
EQUIP029	Air Quality Monitor	Real-time	Bosch	2021-01-01	2026-01-01	100	88	7.5	Active
				2021-01-01	2026-01-01	100	88	7.5	Active
				2021-01-01	2026-01-01	100	88	7.5	Active
				2021-01-01	2026-01-01	100	88	7.5	Active
				2021-01-01	2026-01-01	100	88	7.5	Active
Section 15: Quality Control									
EQUIP030	Inspection Tool	Digital	Mitutoyo	2020-12-01	2025-12-01	100	95	8.5	Active
				2020-12-01	2025-12-01	100	95	8.5	Active
				2020-12-01	2025-12-01	100	95	8.5	Active
				2020-12-01	2025-12-01	100	95	8.5	Active
				2020-12-01	2025-12-01	100	95	8.5	Active
EQUIP031	Dimensional Analyzer	Laser	Hexagon	2019-04-01	2024-04-01	500	80	5.0	Active
				2019-04-01	2024-04-01	500	80	5.0	Active
				2019-04-01	2024-04-01	500	80	5.0	Active
				2019-04-01	2024-04-01	500	80	5.0	Active
				2019-04-01	2024-04-01	500	80	5.0	Active
Section 16: Energy & Power									
EQUIP032	Solar Panel Array	Monocrystalline	SunPower	2021-08-01	2026-08-01	1000	90	7.0	Active
				2021-08-01	2026-08-01	1000	90	7.0	Active
				2021-08-01	2026-08-01	1000	90	7.0	Active
				2021-08-01	2026-08-01	1000	90	7.0	Active
				2021-08-01	2026-08-01	1000	90	7.0	Active
EQUIP033	Wind Turbine	Vertical Axis	Vestas	2020-11-01	2025-11-01	2000	85	6.0	Active
				2020-11-01	2025-11-01	2000	85	6.0	Active
				2020-11-01	2025-11-01	2000	85	6.0	Active
				2020-11-01	2025-11-01	2000	85	6.0	Active
				2020-11-01	2025-11-01	2000	85	6.0	Active
Section 17: Transportation									

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Agency Interest: Film Hills Resource: Pine Bend Refinery
Agency Interest ID: 724
Activity: 18020160001 (Major Amendment)

SI Category: Equipment
SI Type: Boiler, Stucc Burner, Ind heater and 2 more

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000

Details for:

SI Category: Equipment

SI Type: Continuous Emission Monitor & Continuous Opacity Monitor

Subcategory Type Description Confidence Monitor	Subject Item ID	Subcategory Attributes		Parameter Identification		Primary or Secondary monitor?	On-Screen Capability?	Monitor Install/Date	Certification Date	Certification Body	On-Screen	System Full Scale Value	Optical Path Length	Confidentiality Flag
		Subcategory Name	Manufacturer	Model	Serial Number									
Optical Scientific	EQJ1	MR144	N/A	N/A	N/A	Sulfur Dioxide	N/A	K	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ2	MR145	Optical Scientific	OP2-2000	N/A	Air Flow Rate	N/A	H	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ3	MR146	Optical Scientific	OP2-2000	N/A	Air Flow Rate	N/A	H	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ6	MR111	N/A	N/A	N/A	Sulfur Dioxide	N/A	H	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ7	MR110	N/A	N/A	N/A	Oxygen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ8	MR113	N/A	N/A	N/A	Air Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ9	MR114	N/A	N/A	N/A	Nitrogen Oxides	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ10	MR116	N/A	N/A	N/A	Carbon Monoxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ11	MR122	Q60	Urea 11	N/A	Nitrogen Oxides	N/A	K	N/A	N/A	N/A	N/A	N/A	N/A
	EQJ14	MR123	Q60	Urea 26	N/A	Carbon Monoxide	N/A	H	N/A	N/A	N/A	N/A	N/A	N/A
EQJ15	MR124	Q60	Magne 206	N/A	Oxygen	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A	
EQJ16	MR125	EURC	DP-20	Q60	Air Flow Rate	N/A	H	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ17	MR144	Ametek	Thermo	Q60	Nitrogen Oxides	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ18	MR148	Ametek	Thermo	Q60	Carbon Monoxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ19	MR158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ24	MR161	N/A	N/A	N/A	N/A	Sulfur Dioxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ25	MR162	N/A	N/A	N/A	N/A	Sulfur Dioxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ28	MR166	N/A	N/A	N/A	N/A	Oxygen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ30	MR167	N/A	N/A	N/A	N/A	Nitrogen Oxides	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ61	MR153	N/A	N/A	N/A	N/A	Carbon Monoxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ63	MR136	Q60	Jidance Opt.	N/A	Sulfur Dioxide	N/A	N/A	11/2/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ64	MR137	Siemens	Oxygas SF	N/A	Oxygen	N/A	K	11/11/1993	N/A	N/A	N/A	N/A	N/A	N/A
EQJ66	MR140	N/A	N/A	N/A	N/A	Air Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ68	MR143	Q60	Jidance Opt.	N/A	Nitrogen Oxides	N/A	N	12/14/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ70	MR144	Q60	Jidance Opt.	N/A	Carbon Monoxide	N/A	H	12/14/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ71	MR145	Ametek	Thermo WD.	N/A	Oxygen	N/A	K	9/17/1994	N/A	N/A	N/A	N/A	N/A	N/A
EQJ73	MR147	Ametek/Thermo	Thermo WD.	N/A	Oxygen	N/A	H	9/17/1994	N/A	N/A	N/A	N/A	N/A	N/A
EQJ74	MR148	Ametek	Thermo WD.	N/A	Oxygen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ80	MR181	Ametek	Thermo WD.	N/A	Oxygen	N/A	H	12/14/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ81	MR184	Ametek	Thermo WD.	N/A	Oxygen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ82	MR185	Ametek	Thermo II W.	N/A	Oxygen	N/A	H	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ84	MR188	Q60	Oxygas USA.	N/A	Sulfur Dioxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ87	MR175	Ametek	6561000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ109	MR180	Siemens	Jidance Opt.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ109	MR181	Siemens	Oxygas SF	N/A	Oxygen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ130	MR186	Siemens	Oxygas SF	N/A	Oxygen	N/A	K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ131	MR184	Siemens	2500 03-GEN	N/A	Sulfur Dioxide	N/A	K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ134	MR190	EURC	N/A	N/A	Air Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ135	MR193	Ametek	Thermo WD.	N/A	Oxygen	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ141	MR194	Q60	N/A	N/A	Sulfur Dioxide	N/A	H	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ142	MR197	Siemens	6903	N/A	Carbon Monoxide	N/A	Y	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ149	MR114	Q60	Jidance Opt.	N/A	Carbon Monoxide	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ155	MR190	Q60	Jidance Opt.	N/A	Nitrogen Oxides	N/A	K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ158	MR191	Q60	Jidance Opt.	N/A	Carbon Monoxide	N/A	K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ157	MR192	Q60	Oxygas Mag.	N/A	Oxygen	N/A	K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ161	MR198	Siemens	2510 03-GEN	N/A	Carbon Monoxide	N/A	Y	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ162	MR194	Siemens	Jidance Plus	N/A	Volatile Organic C.	N/A	K	9/25/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ163	MR195	Q60	Jidance Opt.	N/A	Carbon Monoxide	N/A	K	2/25/2002	N/A	N/A	N/A	N/A	N/A	N/A
EQJ164	MR197	Q60	Jidance Opt.	N/A	Nitrogen Oxides	N/A	K	2/25/2002	N/A	N/A	N/A	N/A	N/A	N/A
EQJ166	MR110	Ametek	WDG111	N/A	Oxygen	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ165	MR110	Q60	Jidance Opt.	N/A	Oxygen	N/A	N/A	10/7/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ167	MR114	Q60	Jidance Opt.	N/A	Carbon Monoxide	N/A	N/A	12/7/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ167	MR116	Q60	Jidance Opt.	N/A	Nitrogen Oxides	N/A	N	12/7/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ169	MR116	Q60	Jidance Opt.	N/A	Nitrogen Oxides	N/A	N/A	3/26/1999	N/A	N/A	N/A	N/A	N/A	N/A
EQJ180	MR118	Siemens	2520 TR	N/A	Sulfur Dioxide	N/A	N/A	3/26/1999	N/A	N/A	N/A	N/A	N/A	N/A
EQJ182	MR124	N/A	N/A	N/A	Air Flow Rate	N/A	N/A	3/26/1999	N/A	N/A	N/A	N/A	N/A	N/A
EQJ185	MR107	Ametek	Thermo WD.	N/A	Oxygen	N/A	N	12/11/1992	N/A	N/A	N/A	N/A	N/A	N/A
EQJ189	MR149	Q60	Urea 11	N/A	Nitrogen Oxides	N/A	N/A	4/9/2008	N/A	N/A	N/A	N/A	N/A	N/A
EQJ189	CM101	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ189	MR186	Thermo	Thermo II	N/A	Oxygen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ190	MR181	Siemens	2500 03-GEN	N/A	Sulfur Dioxide	N/A	N	12/15/2001	N/A	N/A	N/A	N/A	N/A	N/A
EQJ190	MR194	Q60	Jidance Opt.	N/A	Nitrogen Oxides	N/A	N	2/25/2002	N/A	N/A	N/A	N/A	N/A	N/A
EQJ179	MR131	Siemens	2503	N/A	Carbon Monoxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ179	MR188	EURC	N/A	N/A	Air Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ181	MR184	N/A	N/A	N/A	Air Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ183	MR193	Ametek	Thermo WD.	N/A	Oxygen	N/A	K	1/29/1992	N/A	N/A	N/A	N/A	N/A	N/A
EQJ186	MR198	Siemens	1101/1151	N/A	Oxygen	N/A	Y	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ187	MR191	N/A	N/A	N/A	Oxygen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ186	MR182	N/A	N/A	N/A	Oxygen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ189	CM102	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ186	MR179	N/A	N/A	N/A	Nitrogen Oxides	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ187	MR190	N/A	N/A	N/A	Carbon Monoxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ189	MR179	N/A	N/A	N/A	Nitrogen Oxides	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ190	MR190	N/A	N/A	N/A	Carbon Monoxide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQJ1910	MR192	Q60	Magne 106	N/A	Oxygen	N/A	K	12/12/1992	N/A	N/A	N/A	N/A	N/A	N/A
EQJ1911	MR192	Q60	Urea 11	N/A	Nitrogen Oxides	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details for:

SI Category: Equipment

SI Type: Continuous Emission Monitor & Continuous Opacity Monitor

Subsystem Type	Description	Subject Item ID	Subproject and Details		Model	Serial Number	Parameter Monitored (units/rank)	Primary or Backup Monitor?	On-Screen Capability?	Monitor Involvement	Certification Date	Certification Body	On-Screen	System Full Scale Value	Optical Path Length	Confidentiality	
			nation	Manufacturer													
Continuous Observation Monitor	SQU0112	MR194	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	
	SQU0115	MR151	LSB	NLS	Uras 14	NLS	Carbon Monoxide	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	
	SQU0114	MR191	LSB	NLS	Magnus 206	NLS	Oxygen	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	
	SQU0116	MR183	LSB	NLS	Linax 11	NLS	Nitrogen Oxides	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	
	SQU0116	MR193	LSB	NLS	Uras 26	NLS	Carbon Monoxide	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	
	SQU0922	CM047	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0925	CM050	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0928	CM051	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0927	CM052	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0929	CM053	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0930	CM001	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0934	CM005	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0936	CM007	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0937	CM008	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0943	CM013	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0945	CM014	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0945	CM016	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0946	CM017	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0947	CM016	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0948	CM019	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0948	CM020	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0950	CM022	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0951	CM023	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0952	CM024	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0955	CM026	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0956	CM028	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0956	CM033	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0960	CM034	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0961	CM035	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0962	CM036	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0963	CM037	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0964	CM039	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0965	CM038	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0967	CM041	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0969	CM043	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0970	CM044	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0972	CM048	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0975	CM090	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	SQU0981	NLS	NLS	NLS	NLS	Oxygen	P	N	NLS	NLS	40 CFR Pt 60	22	22	NLS	Not Confidential	NLS	NLS
	SQU0982	NLS	NLS	NLS	NLS	Nitrogen Oxides	P	N	NLS	NLS	40 CFR Pt 60	44	44	NLS	Not Confidential	NLS	NLS
	SQU0983	NLS	NLS	NLS	NLS	Carbon Monoxide	P	N	NLS	NLS	40 CFR Pt 60	445	20	NLS	Not Confidential	NLS	NLS
	SQU0984	NLS	NLS	NLS	NLS	NLS	P	N	NLS	NLS	NLS	NLS	NLS	NLS	Not Confidential	NLS	NLS
	SQU0985	NLS	NLS	NLS	NLS	NLS	P	N	NLS	NLS	40 CFR Pt 60	NLS	NLS	Not Confidential	NLS	NLS	NLS
	SQU0986	NLS	Rosenbaum	SO5147/2M	1993914	NLS	P	N	1/10005	6/10015	NLS	NLS	NLS	Not Confidential	NLS	NLS	NLS
	SQU0987	NLS	Juliana Optima	Linax 11	33029495	Nitrogen Oxides	P	N	1/162006	6/102056	40 CFR Pt 60	44	20	NLS	Not Confidential	NLS	NLS
Continuous Capacity Monitor	SQU0370	MS017	United Sciences	United Science	NLS	Optical	NLS	NLS	NLS	5347929	NLS	NLS	NLS	NLS	NLS	NLS	
	SQU0624	CM049	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS	

Permit Issued: January 13, 2017

Permit Expires: January 9, 2018

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Parametric Mon, General

Agency Interest: Flint Hills Resources Pine Bend Refinery

Agency Interest ID: 734

Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Equipment

SI Type: Parametric Monitor

Subject Item ID	Subject Item Designation	Manufacturer	Model	Serial Number	Parameter Monitored (parametric monitors)	Pm Bypass Flag	Pm Install Date	Confidentiality Flag	
EQUI5	MR216	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI11	MR206	Null	Null	Null	Fuel Usage	N	Null	Null	■
EQUI12	MR207	Null	Null	Null	Fuel Usage	N	Null	Null	■
EQUI59	MR155	Null	Null	Null	Fuel Usage	Null	Null	Null	■
EQUI62	MR035	Rosemount	3051S1CD3A2F12A2AB3K5	Null	Fuel Usage	Null	Null	Null	■
EQUI65	MR038	Rosemount	3051CD2A02A1AH2E5B1	Null	Fuel Usage	Null	Null	Null	■
EQUI67	MR041	Rosemount	3051CD3A02A1AH2B3E5	Null	Fuel Usage	Null	Null	Null	■
EQUI68	MR042	NA	NA	Null	Temperature	N	Null	Null	■
EQUI74	MR051	Rosemount	3051CD2A02A1AH2B3E5	Null	Fuel Usage	N	Null	Null	■
EQUI75	MR056	Rosemount	3051CD2A02A1AH2B3E5	Null	Fuel Usage	N	Null	Null	■
EQUI76	MR087	Rosemount	3095MA2CAJA10AA000BBD	Null	Fuel Usage	Null	Null	Null	■
EQUI77	MR053	Rosemount	3051CD2A02A1AH2B3E5	Null	Fuel Usage	N	Null	Null	■
EQUI78	MR055	NA	NA	Null	Fuel Usage	N	Null	Null	■
EQUI79	MR058	Rosemount	3051CD1A02A1AC1B3K5H2..	Null	Fuel Usage	Null	Null	Null	■
EQUI83	MR088	Rosemount	3051CD2A02A1AH2B3E5	Null	Fuel Usage	Null	Null	Null	■
EQUI85	MR071	Rosemount	3144PD1A2E5B4	Null	Temperature	N	8/23/1994	Null	■
EQUI86	MR072	Rosemount	3051CG3A02A1AH2B3D3K5	Null	Fuel Usage	N	8/23/1994	Null	■
EQUI127	MR077	Rosemount	3051CD3	Null	Fuel Usage	N	8/12/2001	Null	■
EQUI132	MR086	Rosemount	1151DP5E12B1	Null	Fuel Usage	N	10/5/1989	Null	■
EQUI133	MR087	Rosemount	3051CD3A02A1AH2B3K5D3	Null	Fuel Usage	Null	Null	Null	■
EQUI136	MR095	Rosemount	3044CA1B4M5	Null	Temperature	N	8/11/2001	Null	■
EQUI137	MR097	NA	NA	Null	Temperature	N	Null	Null	■
EQUI138	MR100	John Zink	ZCT274031828XX	Null	Temperature	N	Null	Null	■
EQUI139	MR101	Rosemount	3051CD3A02A1AH2B3K5D3	Null	Fuel Usage	N	Null	Null	■
EQUI140	MR103	Rosemount	3244MV1K5B4M5	Null	Temperature	N	Null	Null	■
EQUI143	MR108	Rosemount	3095MA23AJA10AA000BB	Null	Fuel Usage	Null	Null	Null	■
EQUI144	MR109	Rosemount	3095MA23AJA10AA000BB	Null	Fuel Usage	Null	Null	Null	■
EQUI145	MR110	Rosemount	3095MA2CAJA10AA000BBD	Null	Fuel Usage	Null	Null	Null	■
EQUI146	MR111	Rosemount	3095MA2CAJA10AA000BBD	Null	Fuel Usage	Null	Null	Null	■
EQUI147	MR112	Rosemount	3051CD3A02A1AH2B3E5	Null	Fuel Usage	Null	Null	Null	■
EQUI148	MR113	Rosemount	3051CD3A02A1AH2B3E5	Null	Fuel Usage	Null	Null	Null	■
EQUI150	MR115	Rosemount	3051CD3A02A1AC1B3K5H2..	Null	Fuel Usage	Null	Null	Null	■
EQUI151	MR116	Rosemount	3051CD3A02A1AH2E5	Null	Fuel Usage	Null	Null	Null	■
EQUI152	MR117	Rosemount	3051CD3A02A1AH2E5	Null	Fuel Usage	Null	Null	Null	■
EQUI153	MR118	Rosemount	3051CD2A02A1AH2E5	Null	Fuel Usage	Null	Null	Null	■
EQUI154	MR119	Rosemount	3095MV	Null	Fuel Usage	Null	Null	Null	■
EQUI155	MR120	Rosemount	3051CD3A02A1AH2E5	Null	Fuel Usage	Null	Null	Null	■
EQUI196	MR121	Rosemount	3095MA23AJA10AA000BB	Null	Fuel Usage	Null	Null	Null	■
EQUI197	MR122	Rosemount	3095MA23AJA10AA001BB	Null	Fuel Usage	Null	Null	Null	■
EQUI198	MR123	Rosemount	3051CD2A02A1AH2E5B	Null	Fuel Usage	Null	Null	Null	■
EQUI199	MR124	Rosemount	3051CD3A02A1AH2E5	Null	Fuel Usage	Null	Null	Null	■
EQUI200	MR125	Rosemount	3095MA25AJA10AA001BB	Null	Fuel Usage	Null	Null	Null	■
EQUI201	MR126	Rosemount	3095MA25AJA10AA001BB	Null	Fuel Usage	Null	Null	Null	■
EQUI202	MR127	Rosemount	3095MA23AJA10AA001BB	Null	Fuel Usage	Null	Null	Null	■
EQUI203	MR128	Rosemount	3051CD3A02A1AH2B3K5	Null	Fuel Usage	Null	Null	Null	■

Parametric Mon, General

Agency Interest: Flint Hills Resources Pine Bend Refinery
 Agency Interest ID: 734
 Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Equipment

SI Type: Parametric Monitor

Subject Item ID	Subject Item Designation	Manufacturer	Model	Serial Number	Parameter Monitored (parametric monitors)	Pm Bypass Flag	Pm Install Date	Confidentiality Flag	
EQUI204	MR129	Rosemount	3051CD3A02A1AH2B3K5	Null	Fuel Usage	Null	Null	Null	■
EQUI208	MR133	Rosemount	3051CD3A02A1AH2B3K5D3	Null	Fuel Usage	Null	Null	Null	■
EQUI209	MR134	Rosemount	1151DP4E12M2B1	Null	Fuel Usage	Null	Null	Null	■
EQUI210	MR135	Rosemount	1151DP4E12M2B1	Null	Fuel Usage	Null	Null	Null	■
EQUI211	MR136	Rosemount	3095MA3CAJA10AA000BB	Null	Fuel Usage	Null	Null	Null	■
EQUI212	MR137	Rosemount	3095MA2CAJA10AA000BB	Null	Fuel Usage	Null	Null	Null	■
EQUI213	MR138	Rosemount	3051	Null	Fuel Usage	Null	Null	Null	■
EQUI215	MR140	Rosemount	3051CD2A02A1AH2B3K5	Null	Fuel Usage	Null	Null	Null	■
EQUI216	MR141	Rosemount	3051CD2A02A1AH2B3E35	Null	Fuel Usage	Null	Null	Null	■
EQUI217	MR142	Rosemount	3051CD2A02A1AH2BE5M5	Null	Fuel Usage	Null	Null	Null	■
EQUI218	MR143	Rosemount	1151DP4522B3M3	Null	Fuel Usage	Null	Null	Null	■
EQUI219	MR001	Rosemount	3144D1K5B4	Null	Null	Null	Null	Null	■
EQUI220	MR002	NA	NA	Null	Fuel Usage	N	Null	Null	■
EQUI221	MR003	NA	NA	Null	Temperature	N	Null	Null	■
EQUI231	MR008	Rosemount	3095MA34A0011AA00NBBS5	Null	Fuel Usage	Null	Null	Null	■
EQUI232	MR009	Rosemount	3051CD2A02A1AH2E5	Null	Fuel Usage	Null	Null	Null	■
EQUI234	MR011	Rosemount	3051CD3A02A1AH2B3K5	Null	Fuel Usage	Null	Null	Null	■
EQUI238	MR016	Rosemount	3095MA34A0013AA00NBBS5	Null	Fuel Usage	Null	Null	Null	■
EQUI241	MR023	Rosemount	3051CD3A02A1AH2B3D3K5	Null	Fuel Usage	Null	Null	Null	■
EQUI243	MR025	NA	NA	Null	Temperature	Null	3/24/1993	Null	■
EQUI244	MR026	Rosemount	3051CD3A02A1AH2B3K5	Null	Fuel Usage	Null	Null	Null	■
EQUI246	MR028	Rosemount	1151DP4E12	Null	Fuel Usage	Null	Null	Null	■
EQUI247	MR030	Rosemount	1151DP4E12	Null	Fuel Usage	Null	Null	Null	■
EQUI250	MR031	Rosemount	3051CD3A02A1AH2B3K5D3	Null	Fuel Usage	Null	Null	Null	■
EQUI253	MR049	Rosemount	3051CD3A02A1AH2B3E5	Null	Fuel Usage	Null	Null	Null	■
EQUI254	MR052	Rosemount	3051CD2A02A1AB3E5H2	Null	Fuel Usage	Null	Null	Null	■
EQUI255	MR054	Rosemount	3051CD3A02A1AH2B3E5	Null	Fuel Usage	N	Null	Null	■
EQUI256	MR057	Rosemount	3051S1GD3A2F12A2AB3K5	Null	Fuel Usage	Null	Null	Null	■
EQUI257	MR063	Rosemount	3051CD1A02A1AH2B3K5	Null	Fuel Usage	N	9/28/1993	Null	■
EQUI259	MR073	Rosemount	3051CD3020A1AH2B3K5	Null	Fuel Usage	N	8/23/1994	Null	■
EQUI260	MR076	Rosemount	3095MA33A002AA001BBN502	Null	Fuel Usage	Null	Null	Null	■
EQUI261	MR079	EMRC	NA	Null	Temperature	Null	Null	Null	■
EQUI263	MR085	Rosemount	1151DP	Null	Fuel Usage	N	10/5/1989	Null	■
EQUI264	MR088	Rosemount	3095MA33A0012AA001BBN5..	Null	Fuel Usage	Null	Null	Null	■
EQUI266	MR094	Rosemount	3051CD2A02A1AH2B3K5	Null	Fuel Usage	Null	Null	Null	■
EQUI267	MR099	John Zink	ZCT3840428XX	Null	Temperature	N	Null	Null	■
EQUI268	MR102	Rosemount	444TK2U1A215	Null	Temperature	N	Null	Null	■
EQUI271	MR022	Rosemount	3051CD2	Null	Fuel Usage	Null	Null	Null	■
EQUI272	MR029	Rosemount	1151DP4E12	Null	Fuel Usage	Null	Null	Null	■
EQUI274	MR039	Rosemount	3051S1CD3A2F12A1AB3K5..	Null	Fuel Usage	Null	Null	Null	■
EQUI275	MR060	Rosemount	3095MV	Null	Fuel Usage	Null	Null	Null	■
EQUI276	MR062	Rosemount	3051CD2A02A1AH2B3E5	Null	Fuel Usage	Null	Null	Null	■
EQUI277	MR074	Rosemount	3051CD3A03A1AH2B3E5	Null	Fuel Usage	Null	Null	Null	■
EQUI278	MR078	EMRC	NA	Null	Temperature	Null	Null	Null	■
EQUI280	MR098	NA	NA	Null	Temperature	N	Null	Null	■

Permit Issued: January 13, 2017

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Parametric Mon, General

Agency Interest: Flint Hills Resources Pine Bend Refinery

Agency Interest ID: 734

Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Equipment

SI Type: Parametric Monitor

Subject Item ID	Subject Item Designation	Manufacturer	Model	Serial Number	Parameter Monitored (parametric monitors)	Pm Bypass Flag	Pm Install Date	Confidentiality Flag	
EQUI282	CM057	Null	Null	Null	Null	Null	Null	Null	■
EQUI285	MR105	FCI	LT81AAIBF3B2B2CA	Null	Fuel Usage	Null	Null	Null	■
EQUI290	MR189	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI291	MR185	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI292	MR186	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI293	MR187	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI294	MR188	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI305	MR200	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI306	MR198	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI307	MR199	Null	Null	Null	Temperature	Null	Null	Null	■
EQUI309	MR195	TBD	TBD	Null	Fuel Usage	Null	Null	Null	■
EQUI317	MR194	TBD	TBD	Null	Fuel Usage	Null	Null	Null	■
EQUI623	CM048	Null	Null	Null	Null	Null	Null	Null	■
EQUI629	CM054	Null	Null	Null	Null	Null	Null	Null	■
EQUI631	CM002	Null	Null	Null	Null	Null	Null	Null	■
EQUI632	CM003	Null	Null	Null	Null	Null	Null	Null	■
EQUI633	CM004	Null	Null	Null	Null	Null	Null	Null	■
EQUI635	CM006	Null	Null	Null	Null	Null	Null	Null	■
EQUI638	CM009	Null	Null	Null	Null	Null	Null	Null	■
EQUI639	CM010	Null	Null	Null	Null	Null	Null	Null	■
EQUI640	CM011	Null	Null	Null	Null	Null	Null	Null	■
EQUI641	CM012	Null	Null	Null	Null	Null	Null	Null	■
EQUI644	CM015	Null	Null	Null	Null	Null	Null	Null	■
EQUI653	CM025	Null	Null	Null	Null	Null	Null	Null	■
EQUI654	CM027	Null	Null	Null	Null	Null	Null	Null	■
EQUI657	CM029	Null	Null	Null	Null	Null	Null	Null	■
EQUI659	CM033	Null	Null	Null	Null	Null	Null	Null	■
EQUI666	CM040	Null	Null	Null	Null	Null	Null	Null	■
EQUI668	CM042	Null	Null	Null	Null	Null	Null	Null	■
EQUI671	CM045	Null	Null	Null	Null	Null	Null	Null	■
EQUI674	CM031	Null	Null	Null	Null	Null	Null	Null	■
EQUI679	MR190	John Zink	Null	Null	Temperature	N	Null	Null	■
EQUI680	MR096	NA	NA	Null	Temperature	Null	Null	Null	■

Permit Issued: January 13, 2017

Permit Expires: January 9, 2018

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Data Acquisition System, General

Agency Interest: Flint Hills Resources Pine Bend Refinery

Agency Interest ID: 734

Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Equipment

SI Type: Data Acquisition System

Subject Item ID	Subject Item Designation	Manufacturer	Model	Serial Number	Primary or backup DAS?	Das Install Date	Confidentiality Flag	
EQUI675	DA004	OSI	Null	Null	Null	Null	Null	■
EQUI676	DA001	Null	Null	Null	Null	Null	Null	■
EQUI677	DA002	OSI	Null	Null	Null	Null	Null	■
EQUI678	DA003	OSI	Null	Null	Null	Null	Null	■
EQUI1458	Null	OSI	Null	Null	P	Null	Not Confidential	■
EQUI1459	Null	OSI	Null	Null	P	Null	Not Confidential	■
EQUI1460	Null	OSI	Null	Null	P	Null	Not Confidential	■

Fugitive Sources

Agency Interest: Flint Hills Resources Pine Bend Refinery

Agency Interest ID: 734

Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Fugitive

SI Type: Cooling Tower, Equipment Leaks, Fugitive-Other and 4 more

Subject Item Type	Subject Item ID	Subject Item Designation	Install Year	Parameter Monitored (fugitive)	Confidentiality Flag	
Cooling Tower	FUGI96	EU354	Null	Null	Null	■
	FUGI97	EU268	Null	Null	Null	■
	FUGI98	EU269	Null	Null	Null	■
	FUGI99	EU270	Null	Null	Null	■
	FUGI100	EU271	Null	Null	Null	■
	FUGI101	EU272	Null	Null	Null	■
	FUGI101	EU272	Null	Null	Null	■
Equipment Leaks	FUGI10	FS097	Null	Volatile Organic Compounds	Null	■
	FUGI73	FS117	Null	Volatile Organic Compounds	Null	■
	FUGI76	FS130	Null	Null	Null	■
	FUGI81	FS123	Null	Volatile Organic Compounds	Null	■
	FUGI83	FS056	2002	Volatile Organic Compounds	Null	■
	FUGI84	FS098	Null	Volatile Organic Compounds	Null	■
	FUGI95	FS057	Null	Volatile Organic Compounds	Null	■
	FUGI132	Null	Null	Hydrogen Sulfide (H2S)	Not Confidential	■
				Methane	Not Confidential	■
				Volatile Organic Compounds	Not Confidential	■
Fugitive-Other	FUGI103	FS141	Null	Null	Null	■
Material Handling/Transfer/Storage	FUGI65	FS138	Null	Volatile Organic Compounds	Null	■
	FUGI71	FS006	1999	Volatile Organic Compounds	Null	■
	FUGI87	FS008	1955	Volatile Organic Compounds	Null	■
	FUGI88	FS016	1972	Volatile Organic Compounds	Null	■
	FUGI90	FS002	1993	Null	Null	■
	FUGI92	FS137	Null	Volatile Organic Compounds	Null	■
	FUGI94	FS133	2002	Volatile Organic Compounds	Null	■
	FUGI124	FS001	Null	Volatile Organic Compounds	Null	■
	FUGI133	Null	Null	PM < 2.5 micron	Not Confidential	■
				PM < 10 micron	Not Confidential	■
				Total Particulate Matter	Not Confidential	■
Open Air Source	FUGI79	FS119	1976	Volatile Organic Compounds	Null	■
Piles	FUGI68	FS009	Null	Total Particulate Matter	Null	■
Process Emissions	FUGI6	FS132	1998	Volatile Organic Compounds	Null	■
	FUGI7	FS041	1955	Volatile Organic Compounds	Null	■
	FUGI8	FS039	1973	Volatile Organic Compounds	Null	■
	FUGI9	FS128	1994	Volatile Organic Compounds	Null	■
	FUGI11	FS079	1981	Volatile Organic Compounds	Null	■

Fugitive Sources

Agency Interest: Flint Hills Resources Pine Bend Refinery

Agency Interest ID: 734

Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Fugitive

SI Type: Cooling Tower, Equipment Leaks, Fugitive-Other and 4 more

Subject Item Type	Subject Item ID	Subject Item Designation	Install Year	Parameter Monitored (fugitive)	Confidentiality Flag	
Process Emissions	FUGI63	FS104	1989	Volatile Organic Compounds	Null	■
	FUGI64	FS029	1962	Volatile Organic Compounds	Null	■
	FUGI66	FS106	1955	Volatile Organic Compounds	Null	■
	FUGI67	FS027	1962	Volatile Organic Compounds	Null	■
	FUGI69	FS054	1993	Volatile Organic Compounds	Null	■
	FUGI70	FS083	1985	Volatile Organic Compounds	Null	■
	FUGI72	FS058	1993	Volatile Organic Compounds	Null	■
	FUGI74	FS060	1955	Volatile Organic Compounds	Null	■
	FUGI75	FS048	1988	Volatile Organic Compounds	Null	■
	FUGI77	FS031	1968	Volatile Organic Compounds	Null	■
	FUGI78	FS070	1973	Volatile Organic Compounds	Null	■
	FUGI80	FS042	1963	Volatile Organic Compounds	Null	■
	FUGI82	FS045	1983	Volatile Organic Compounds	Null	■
	FUGI85	FS024	1988	Volatile Organic Compounds	Null	■
	FUGI86	FS018	1955	Volatile Organic Compounds	Null	■
	FUGI89	FS022	1977	Volatile Organic Compounds	Null	■
	FUGI91	FS032	1993	Volatile Organic Compounds	Null	■
	FUGI93	FS019	1962	Volatile Organic Compounds	Null	■
	FUGI102	FS095	1973	Volatile Organic Compounds	Null	■
	FUGI105	FS099	1974	Volatile Organic Compounds	Null	■
	FUGI106	FS096	1973	Volatile Organic Compounds	Null	■
	FUGI107	FS091	1955	Volatile Organic Compounds	Null	■
	FUGI108	FS088	1984	Volatile Organic Compounds	Null	■
	FUGI109	FS087	1983	Volatile Organic Compounds	Null	■
	FUGI110	FS085	1993	Volatile Organic Compounds	Null	■
	FUGI111	FS080	1981	Volatile Organic Compounds	Null	■
	FUGI112	FS077	1978	Volatile Organic Compounds	Null	■
	FUGI113	FS075	1960	Volatile Organic Compounds	Null	■
	FUGI114	FS069	1973	Volatile Organic Compounds	Null	■
	FUGI115	FS064	1984	Volatile Organic Compounds	Null	■
	FUGI116	FS055	1993	Volatile Organic Compounds	Null	■
	FUGI117	FS052	1993	Volatile Organic Compounds	Null	■
	FUGI118	FS110	1992	Volatile Organic Compounds	Null	■
	FUGI119	FS093	1963	Volatile Organic Compounds	Null	■
	FUGI120	FS063	1985	Volatile Organic Compounds	Null	■

Fugitive Sources

Agency Interest: Flint Hills Resources Pine Bend Refinery

Agency Interest ID: 734

Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Fugitive

SI Type: Cooling Tower, Equipment Leaks, Fugitive-Other and 4 more

Subject Item Type	Subject Item ID	Subject Item Designation	Install Year	Parameter Monitored (fugitive)	Confidentiality Flag	
Process Emissions	FUGI121	FS036	1988	Volatile Organic Compounds	Null	■
	FUGI122	FS139	Null	Volatile Organic Compounds	Null	■
	FUGI123	FS035	1968	Volatile Organic Compounds	Null	■
	FUGI125	FS140	Null	Carbon Dioxide	Null	■
				Hydrogen Sulfide (H2S)	Null	■
				Volatile Organic Compounds	Null	■
	FUGI126	FS136	Null	Volatile Organic Compounds	Null	■
	FUGI127	FS134	Null	Volatile Organic Compounds	Null	■
	FUGI128	FS112	1992	Volatile Organic Compounds	Null	■
	FUGI129	FS109	1992	Volatile Organic Compounds	Null	■
	FUGI130	FS102	1993	Volatile Organic Compounds	Null	■
	FUGI131	FS062	1980	Volatile Organic Compounds	Null	■

Stack/Vent, General

Agency Interest: Flint Hills Resources Pine Bend Refinery

Agency Interest ID: 734

Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Structure

SI Type: Stack/Vent

Subject Item Type	Subject Item Description	Subject Item ID	Subject Item Designation	Stack Height (feet)	Stack Diameter (feet)	Stack Length (feet)	Stack Width (feet)	Stack Flow Rate (scfm)	Discharge Temp (°F)	Info Source Desc	Discharge Direction	Confidentiality Flag
STRU1		SV157	50	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null	
STRU2		SV158	50	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null	
STRU3		SV159	Null	Null	Null	Null	Null	Null	Null	Null	Null	
STRU4		SV160	80	0.33	Null	Null	17	Null	Estimate	Upwards with no cap on stack/vent	Null	
STRU5		SV161	80	0.4	Null	Null	346	300	Estimate	Upwards with no cap on stack/vent	Null	
STRU6		SV162	10	0.67	Null	Null	1000	Null	Estimate	Horizontally	Null	
STRU7		SV163	15	0.67	Null	Null	534	350	Estimate	Upwards with no cap on stack/vent	Null	
STRU8		SV001	35	Null	8	8	Null	Null	Null	Upwards with no cap on stack/vent	Null	
STRU9		SV003	35	0.63	Null	Null	26700	70	Estimate	Upwards with a cap on stack/vent	Null	
STRU10		SV004	131	4.58	Null	Null	36635	500	Estimate	Upwards with no cap on stack/vent	Null	
STRU11		SV005	115	6.13	Null	Null	27902	539	Estimate	Upwards with no cap on stack/vent	Null	
STRU12		SV176	200	6.33	Null	Null	42151	325	Estimate	Upwards with no cap on stack/vent	Null	
STRU56		SV006	13.5	0.67	Null	Null	1402	650	Estimate	Upwards with a cap on stack/vent	Null	
STRU58		SV097	20	0.83	Null	Null	1643	650	Estimate	Upwards with a cap on stack/vent	Null	
STRU61		SV138	15	3	Null	Null	Null	1400	Manufacturer	Upwards with no cap on stack/vent	Null	
STRU62		SV135	3.9	0.24	Null	Null	357	1100	Manufacturer	Upwards with a cap on stack/vent	Null	
STRU63		SV136	3.9	0.24	Null	Null	357	1100	Manufacturer	Upwards with a cap on stack/vent	Null	
STRU64		SV137	7	0.32	Null	Null	1507	1550	Manufacturer	Upwards with a cap on stack/vent	Null	
STRU65		SV133	190	13.3	Null	Null	54330	250	Manufacturer	Upwards with no cap on stack/vent	Null	
STRU66		SV134	170	15.7	Null	Null	75730	250	Manufacturer	Upwards with no cap on stack/vent	Null	
STRU68		SV107	395	4.5	Null	Null	Null	Null	Null	Upwards with no cap on stack/vent	Null	
STRU69		SV164	70	4.5	Null	Null	122264	421	Estimate	Upwards with no cap on stack/vent	Null	
STRU70		SV165	133.86	3.83	Null	Null	Null	650	Estimate	Upwards with no cap on stack/vent	Null	
STRU71		SV166	115	9.5	Null	Null	127012	311	Manufacturer	Upwards with no cap on stack/vent	Null	
STRU72		SV167	110.5	1.25	Null	Null	788	95	Manufacturer	Upwards with a cap on stack/vent	Null	
STRU73		SV168	110.5	1.25	Null	Null	2817	90	Manufacturer	Upwards with a cap on stack/vent	Null	
STRU74		SV169	110.5	1.25	Null	Null	5067	100	Manufacturer	Upwards with a cap on stack/vent	Null	
STRU75		SV171	29.5	0.85	Null	Null	6501	973	Manufacturer	Upwards with a cap on stack/vent	Null	
STRU77		SV172	30	0.13	Null	Null	985	212	Manufacturer	Upwards with no cap on stack/vent	Null	
STRU78		SV173	50	5	Null	Null	52736	487	Estimate	Upwards with no cap on stack/vent	Null	
STRU79		SV174	51.5	0.34	Null	Null	1460	212	Estimate	Null	Null	
STRU81		SV181	Null	Null	Null	Null	Null	Null	Null	Null	Null	
STRU82		SV131	190	3.67	Null	Null	Null	300	Null	Null	Null	
STRU83		SV042	213.25	6.9	Null	Null	67258	350	Estimate	Upwards with no cap on stack/vent	Null	
STRU84		SV177	Null	Null	Null	Null	Null	Null	Null	Null	Null	
STRU85		SV178	Null	Null	Null	Null	Null	Null	Null	Null	Null	
STRU86		SV179	Null	Null	Null	Null	Null	Null	Null	Null	Null	
STRU89		SV189	170	12	Null	Null	193140	200	Estimate	Upwards with no cap on stack/vent	Null	
STRU90		SV182	40	3	Null	Null	30000	1000	Estimate	Upwards with no cap on stack/vent	Null	
STRU91		SV190	195	2.75	Null	Null	10324	220	Manufacturer	Upwards with no cap on stack/vent	Null	
STRU93		SV015	198.5	6.79	Null	Null	43712	350	Estimate	Upwards with no cap on stack/vent	Null	
STRU94		SV017	193	10.96	Null	Null	68731	505	Estimate	Upwards with no cap on stack/vent	Null	
STRU95		SV019	263	9.64	Null	Null	428024	450	Continuous monitor	Upwards with no cap on stack/vent	Null	
STRU97		SV023	15	0.67	Null	Null	1402	650	Estimate	Upwards with a cap on stack/vent	Null	
STRU98		SV025	152	7	Null	Null	55475	324	Estimate	Upwards with no cap on stack/vent	Null	
STRU99		SV027	127	4.63	Null	Null	13466	500	Estimate	Upwards with no cap on stack/vent	Null	
STRU100		SV028	127	4.63	Null	Null	13466	500	Estimate	Upwards with no cap on stack/vent	Null	
STRU101		SV029	131	4.63	Null	Null	13466	500	Estimate	Upwards with no cap on stack/vent	Null	
STRU102		SV030	131	4.63	Null	Null	13466	500	Estimate	Upwards with no cap on stack/vent	Null	
STRU103		SV031	3.2	3.19	Null	Null	1120	120	Estimate	Upwards with a cap on stack/vent	Null	
STRU104		SV032	190	5.35	Null	Null	36212	350	Estimate	Upwards with no cap on stack/vent	Null	
STRU105		SV033	190	4.38	Null	Null	34108	415	Estimate	Upwards with no cap on stack/vent	Null	
STRU106		SV034	23	0.5	Null	Null	1588	650	Estimate	Upwards with a cap on stack/vent	Null	
STRU107		SV035	0	Null	Null	Null	872	120	Estimate	Upwards with no cap on stack/vent	Null	
STRU108		SV036	50	0.5	Null	Null	Null	227	Estimate	Upwards with no cap on stack/vent	Null	
STRU110		SV038	241.83	8	Null	Null	43622	325	Estimate	Upwards with no cap on stack/vent	Null	
STRU111		SV039	20	0.67	Null	Null	1395	650	Estimate	Upwards with a cap on stack/vent	Null	
STRU112		SV044	150	3.65	Null	Null	18801	300	Estimate	Upwards with no cap on stack/vent	Null	
STRU113		SV045	150	3.65	Null	Null	18801	300	Estimate	Upwards with no cap on stack/vent	Null	
STRU114		SV046	150	10.28	Null	Null	148879	280	Estimate	Upwards with no cap on stack/vent	Null	
STRU115		SV047	150	2.58	Null	Null	9400	600	Estimate	Upwards with no cap on stack/vent	Null	
STRU116		SV048	67	3.65	Null	Null	8876	491	Estimate	Upwards with no cap on stack/vent	Null	
STRU117		SV049	61	3.13	Null	Null	6409	600	Estimate	Upwards with no cap on stack/vent	Null	
STRU118		SV050	105.5	4.42	Null	Null	15480	398	Estimate	Upwards with no cap on stack/vent	Null	
STRU119		SV051	59	2.63	Null	Null	2599	250	Estimate	Upwards with no cap on stack/vent	Null	
STRU120		SV052	94	3.5	Null	Null	19647	750	Estimate	Upwards with no cap on stack/vent	Null	
STRU121		SV053	94.5	3.44	Null	Null	21847	460	Estimate	Upwards with no cap on stack/vent	Null	

Stack/Vent, General

Agency Interest: Flint Hills Resources Pine Bend Refinery

Agency Interest ID: 734

Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Structure

SI Type: Stack/Vent

Subject Item Type	Subject Item ID	Subject Item Designation	Stack Height (feet)	Stack Diameter (feet)	Stack Length (feet)	Stack Width (feet)	Stack Flow Rate (scfm)	Discharge Temp (°F)	Info Source Desc	Discharge Direction	Confidentiality Flag
Stack/Vent	STRU122	SV054	81.5	2.97	Null	Null	12090	514	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU123	SV055	100	4.5	Null	Null	20111	440	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU124	SV056	205	3.96	Null	Null	53968	325	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU125	SV057	71	3	Null	Null	6020	575	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU126	SV058	77.5	0.74	Null	Null	733	490	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU127	SV073	100	6	Null	Null	49825	469	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU128	SV074	183	6.46	Null	Null	39098	445	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU129	SV075	184.13	4.71	Null	Null	33871	539	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU130	SV082	200	3.31	Null	Null	23482	309	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU131	SV083	269	11.21	Null	Null	67243	350	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU132	SV084	142	0.5	Null	Null	1011	900	Estimate	Downward	Null
Stack/Vent	STRU133	SV085	26	0.5	Null	Null	1588	650	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU135	SV087	150	2.42	Null	Null	9308	550	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU136	SV088	150	2.42	Null	Null	9308	550	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU137	SV089	200	2.75	Null	Null	18313	309	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU139	SV093	200	4.75	Null	Null	53642	525	Continuous monitor	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU140	SV094	176.1	3.33	Null	Null	4879	600	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU141	SV096	15	0.33	Null	Null	1468	650	Estimate	Horizontally	Null
Stack/Vent	STRU142	SV099	15	0.33	Null	Null	587	650	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU143	SV100	18	0.67	Null	Null	1269	650	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU144	SV102	20	0.67	Null	Null	1162	650	Estimate	Horizontally	Null
Stack/Vent	STRU145	SV104	232	3.5	Null	Null	Null	Null	Null	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU146	SV105	250	3	Null	Null	Null	Null	Null	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU147	SV106	250	3	Null	Null	Null	Null	Null	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU148	SV108	53	0.83	Null	Null	522	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU149	SV109	61	0.67	Null	Null	1044	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU150	SV110	Null	Null	Null	Null	Null	Null	Null	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU151	SV113	45	0.67	Null	Null	313	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU152	SV114	53	0.83	Null	Null	1046	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU153	SV115	53	0.83	Null	Null	1046	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU154	SV116	45	0.83	Null	Null	1046	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU155	SV117	61	0.83	Null	Null	522	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU156	SV118	61	0.83	Null	Null	1046	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU157	SV119	53	0.83	Null	Null	522	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU158	SV120	53	0.83	Null	Null	522	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU159	SV121	61	0.83	Null	Null	1046	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU160	SV122	61	0.83	Null	Null	1046	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU161	SV123	35	Null	8	8	Null	Null	Null	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU162	SV125	71.7	5.83	Null	Null	56000	1300	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU163	SV126	15	0.5	Null	Null	637	650	Estimate	Horizontally	Null
Stack/Vent	STRU164	SV127	20	0.5	Null	Null	1619	866	Estimate	Horizontally	Null
Stack/Vent	STRU165	SV128	45	0.67	Null	Null	313	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU166	SV129	15	0.67	Null	Null	534	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU167	SV130	53	0.67	Null	Null	1044	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU168	SV132	48.5	5	Null	Null	39740	320	Estimate	Null	Null
Stack/Vent	STRU169	SV133	10.5	1.83	Null	Null	1120	120	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU170	SV134	50	0.5	Null	Null	Null	227	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU171	SV135	50	0.67	Null	Null	Null	Null	Null	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU172	SV136	150	10.28	Null	Null	148879	280	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU173	SV137	25	0.33	Null	Null	Null	227	Estimate	Null	Null
Stack/Vent	STRU174	SV138	50	0.17	Null	Null	Null	228	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU175	SV139	53	0.83	Null	Null	1046	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU176	SV142	40	7	Null	Null	25000	1400	Continuous monitor	Null	Null
Stack/Vent	STRU177	SV143	40	8	Null	Null	500000	1400	Continuous monitor	Null	Null
Stack/Vent	STRU178	SV144	58	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU179	SV145	68	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU180	SV146	50	9.13	Null	Null	81700	1300	Estimate	Upwards with no cap on stack/vent	Null
Stack/Vent	STRU181	SV147	72	0.83	Null	Null	1044	350	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU182	SV148	50	0.5	Null	Null	600	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU183	SV149	50	0.5	Null	Null	600	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU184	SV150	50	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU185	SV151	58	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU186	SV152	50	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU187	SV153	50	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU188	SV154	42	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU189	SV155	58	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null
Stack/Vent	STRU190	SV156	58	0.67	Null	Null	1500	130	Estimate	Upwards with a cap on stack/vent	Null

Stack/Vent, General

Agency Interest: Flint Hills Resources Pine Bend Refinery
 Agency Interest ID: 734
 Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Structure
 SI Type: Stack/Vent

Subject Item Type	Subject Item Description	Subject Item ID	Subject Item Designation	Stack Height (feet)	Stack Diameter (feet)	Stack Length (feet)	Stack Width (feet)	Stack Flow Rate (scfm)	Discharge Temp (°F)	Info Source Desc	Discharge Direction	Confidentiality Flag
Stack/Vent		STRU215	Null	220	10	Null	Null	71450	350	Manufacturer	Upwards with no cap on stack/vent	Not Confidential
		STRU216	Null	Null	Null	Null	Null	Null	Null	Null	Null	Not Confidential
		STRU217	SV191	5	0.17	Null	Null	636	1100	Manufacturer	Upwards with no cap on stack/vent	Not Confidential
		STRU218	SV192	35	1	Null	Null	530.5	400	Estimate	Upwards with a cap on stack/vent	Not Confidential
		STRU219	SV193	14	1	Null	Null	570.5	400	Estimate	Upwards with a cap on stack/vent	Not Confidential
		STRU220	SV194	33.5	0.5	Null	Null	377.43	400	Estimate	Horizontally	Not Confidential

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SI Category: Treatment
SI Type: 013 -Gas Scrubber (General, Not Classified) & 050 -Packed-Gas Adsorption Column

[illegible]

Other Control Equipment

Agency Interest: Flint Hills Resources Pine Bend Refinery
Agency Interest ID: 734
Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Treatment
SI Type: 014 -Mist Eliminator - High Velocity, V>250 Ft/Min, 015 -Mist Eliminator - Low Velocity, V<250 Ft/Min, 023 -Flaring and 4 more

Subject Item Type Description	Subject Item ID	Subject Item Designation	Manufacturer	Model	Install Start Date	Pollutant Controlled (treatment)	Capture Efficiency (%)	Destruction/Collection Efficiency (%)	Subject to CAM?	Large PSEU?	Efficiency Basis	Other operating parameters description	Other operating parameters description	Confidentiality Flag
14- Mist Eliminator -High Velocity, V>250 Ft/Min	TR0A07	CS001	Marley	TU-12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	TEMPO Migration Va.	N/A
	TR0A08	CS002	Marley	TU-12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	TEMPO Migration Va.	N/A
	TR0A09	CS003	Marley	TU-12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	TEMPO Migration Va.	N/A
	TR0A70	CS004	Marley	TU-12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	TEMPO Migration Va.	N/A
	TR0A71	CS005	Marley	TU-12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	TEMPO Migration Va.	N/A
15- Mist Eliminator -Low Velocity, V<250 Ft/Min	TR0A75	CS006	Holston-Tapease	Custom	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A04	CS016	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A05	CS015	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A06	CS016	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A07	CS017	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A08	CS018	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A09	CS019	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A10	CS020	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A11	CS021	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A12	CS022	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A13	CS023	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A14	CS024	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A15	CS025	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A16	CS026	Enraf Fabricato.	Flexibar	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
023-Flaring	TR0A17	EL001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A18	EL002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A19	EL003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A20	EL004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A21	CS027	John Zink	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A22	CS028	John Zink	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A23	CS029	John Zink	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A24	CS030	John Zink	2GT-2-4-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A25	CS031	John Zink	2GT-2-4-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A26	CS032	John Zink	KIP-100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
046-Activated Carbon Adsorption	TR0A10	CS001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A09	CS003	John Zink	H&T-350	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A70	CS070	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
099-Other	TR0A05	CS014	Flint Hills Resour.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A11	CS021	C/O	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A10	CS019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A21	CS030	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A05	CS006	Flint Hills Resour.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A09	CS003	Flint Hills Resour.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A07	CS004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A09	CS006	Flint Hills Resour.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A70	CS070	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A01	CS001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A02	CS008	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A03	CS008	Ely Energy	2/150000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
107-Selective Noncatalytic ...	TR0A03	CS078	TSD	TSD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A04	CS079	TSD	TSD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A05	CS079	TSD	TSD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A06	CS074	TSD	TSD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
109-GCR (Selective Catalytic Reduction)	TR0A08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TR0A10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The view is broken down by Subject Item Type Description, Subject Item ID, Subject Item Designation, Manufacturer, Model, Install Start Date, Pollutant Controlled (treatment), Capture Efficiency (%), Destruction/Collection Efficiency (%), Subject to CAM?, Large PSEU?, Efficiency Basis, Other operating parameters description, Other operating parameters description and Confidentiality Flag. Details are shown for Agency Interest ID and Activity Type Label. The data is filtered on Agency Interest Name, Subject Item Category Description, Activity ID and Effective Flag. The Agency Interest Name filter keeps Flint Hills Resources Pine Bend Refinery. The Subject Item Category Description filter keeps Treatment. The Activity ID filter keeps IND20160001. The Effective Flag filter keeps Other permit activities. The view is filtered on Subject Item Type Description, which keeps 36 of 235 members.

Permit Issued: January 13, 2017
Permit Expires: January 9, 2018

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Electromagnetic Precipitators, General

Agency Interest: Film Mills Resources Fine Sand Refinery

Agency Interest ID: 734

Activity: 18020160001 (Major Amendment)

Details for:

Category: Treatment

DI Type: DYS - Electromagnetic Precipitator - High Efficiency

As noted in "Remedial Investigation" (see attached) monitoring results show



Permit Issued: January 13, 2017
Permit Expires: January 9, 2018

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Catalytic Oxidizers, General

Agency Interest: Flint Hills Resources Pine Bend Refinery
Agency Interest ID: 734
Activity: IND20160001 (Major Amendment)

Details for:

SI Category: Treatment
SI Type: 109 -Catalytic Oxidizer

Subject Item ID	Subject Item Description	Manufacturer	Model	Pollutant		Capture Efficiency (%)	Destruction/Collection Efficiency (%)	Subjective Rating	Large Particle Removal (%)	Efficiency Score	Catalyst Bed Reactivity	Burner Capacity (kW)	Catalytic Converter Inlet Temperature (°C)	Outlet Temperature (°C)	Confidence Level
				Initial Start	Controlled										
Subject Item ID: 123456	Subject Item Description: Industrial Gas Purifier	Manufacturer: ABC Corp	Model: X-2000	Initial Start: 95%	Controlled: 98%	Capture Efficiency (%)	Destruction/Collection Efficiency (%)	Subjective Rating: 4.5	Large Particle Removal (%)	Efficiency Score: 92	Catalyst Bed Reactivity: High	Burner Capacity: 1500 kW	Catalytic Converter Inlet Temperature: 450 °C	Outlet Temperature: 550 °C	Confidence Level: High
Subject Item ID: 789012	Subject Item Description: Air Filtration Unit	Manufacturer: DEF Ltd	Model: Y-1500	Initial Start: 90%	Controlled: 95%	Capture Efficiency (%)	Destruction/Collection Efficiency (%)	Subjective Rating: 4.0	Large Particle Removal (%)	Efficiency Score: 88	Catalyst Bed Reactivity: Medium	Burner Capacity: 1200 kW	Catalytic Converter Inlet Temperature: 400 °C	Outlet Temperature: 500 °C	Confidence Level: Medium

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SI Category: Treatment
SI Type: 021 -Direct Flame Afterburner & 022 -Direct Flame Afterburner with Heat Exchanger

[illegible]

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Agency Interest: Flint Hills Resources Pine Bend Refinery
Agency Interest ID: 734
Activity: IND20160001 (Major Amendment)

SI Category: Treatment
SI Type: 047 -Vapor Recyc Sys-Condensers , Hoods, Othr Enclos & 073 -Refrigerated Condenser

[illegible]