VEOLIA ES TECHNICAL SOLUTIONS, L.L.C. RESPONSES TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S REQUEST TO PROVIDE INFORMATION PURSUANT TO THE CLEAN AIR ACT DATED JANUARY 29, 2009

Exhibits K - N

K

VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
SAUGET, IL

DOCUMENT OF COMPLIANCE (DOC)
NATIONAL EMISSION STANDARDS
FOR HAZARDOUS AIR POLLUTANTS
FROM HAZADOUS WASTE COMBUSTORS
40 CFR PART 63, SUBPART EEE
OCTOBER 14, 2008

VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
SAUGET, IL

DOCUMENT OF COMPLIANCE
NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FROM HAZARDOUS WASTE COMBUSTORS
40 CFR PART 63, SUBPART EEE
OCTOBER 14, 2008

Veolia ES Technical Solutions, L.L.C., certifies that:

(i) Required CEMs and CMS are installed, calibrated, and continuously operating in compliance with the requirements of this subpart; and

(ii) Based on an engineering evaluation prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information and supporting documentation, and considering at a minimum the design, operation, and maintenance characteristics of the combustor and emission control equipment, the types, quantities, and characteristic of feedstreams, and available emissions data:

(A) Veolia ES Technical Solutions is in compliance with the emission standards of this subpart; and

(B) The limits on the operating parameters under 63.1209 ensure compliance with the emission standards of this subpart.

Doug Harris
Doug Harris
General Manager

10/14/08
Date

DOCUMENT OF COMPLIANCE
TABLE OF CONTENT

Applicable Emission Standards And Operating Parameters	Section 1
Start-up, Shutdown and Malfunction Plan Operating and Maintenance Plan CMS Plan ESV Plan AWFCO Plan Feed Stream Analysis Plan CEMs Plan (QA/QC Plan)	Section 2
Relative Accuracy Test Audit For CEMs	Section 3
Specification Sheets for Hydrated Lime Specification Sheets for Carbon Residence Time Calculations	Section 4
Operator Certification Training	Section 5

HWC MACT Emission Standards

Parameter	Units	Standard (@7% O2)	Method of Compliance
Dioxin/Furan (D/F)	ng/dscm TEQ	0.20	Operating Parameter Limits
Mercury (Hg)	ug/dscm	130	Operating Parameter Limits
Semivolatile Metals (SVM) Cadmium, Lead	ug/dscm	230	Operating Parameter Limits
Low Volatile Metals (LVM) Arsenic, Beryllium, Chromium	ug/dscm	92	Operating Parameter Limits
Carbon Monoxide (CO)	ppmv	100	Continuous Emissions Monitor
Hydrogen Chloride/Chlorine (HCl/Cl2)	ppmv	77	Operating Parameter Limits
Particulate	gr/dscf	0.013	Operating Parameter Limits

UNITS 2/3 OPERATING PARAMETER LIMITS [1]

Operating Parameter	Units	Limits	Test Date	Performance Standards
Maximum Total Pumpable Waste (Hourly Rolling Total)	Lb/hr	3107	May, 2004	DRE, D/F
Maximum Total Hazardous Waste (Hourly Rolling Total)	Lb/hr	4017	May, 2004	DRE, D/F
Maximum Stack Gas Flow Rate (Hourly Rolling Average)	Acfm	15,147	Sept., 2008	DRE, D/F, Part., SVM, LVM
Minimum Primary Combustion Chamber Temperature (Hourly Rolling Average)	Deg F	1734	May, 2004	DRE, D/F
Minimum Secondary Combustion Chamber Temperature (Hourly Rolling Average)	Deg F	1849	Nov., 1996	DRE, D/F
Maximum Baghouse Inlet Temperature (Hourly Rolling Average)	Deg F	420	Aug., 2008	D/F, SVM, LVM
Max. Pump. Low Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	46	Sept., 2008	LVM
Max. Total Low Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	47	Sept., 2008	LVM
Maximum Semi Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	63	Sept., 2008	SVM
Maximum Mercury Feedrate (12 Hour Rolling Total)	Lb/hr	0.0034	Aug., 2008	Hg
Maximum Chlorine Feedrate (12 Hour Rolling Total)	Lb/hr	218	Aug., 2008	SVM, LVM HCl/Cl2
Maximum Ash Feedrate (12 Hour Rolling Total)	Lb/hr	673	Nov., 1996	Part.
Minimum Sorbent Feedrate (Hourly Rolling Average)	Lb/lb Cl_2	1.76	Nov., 1996	HCl/Cl2
Minimum Carrier Fluid Flowrate (Hourly Rolling Average)	Gal/lb Cl_2	1.70	Nov., 1996	HCl/Cl2

[1] Operating parameter limits in table reflect more conservative value between Unit 2 and Unit 3 test data.

UNIT 4 OPERATING PARAMETER LIMITS

Operating Parameter	Units	Limits	Test Date	Performance Standards
Maximum Total Pumpable Waste (Hourly Rolling Total)	Lb/hr	PCC - 3256 SCC - 1006	Sept., 2003 Cond. 1	DRE, D/F
Maximum Total Hazardous Waste (Hourly Rolling Total)	Lb/hr	PCC – 13,796 SCC - 1006	Sept., 2003 Cond. 1	DRE, D/F
Maximum Stack Gas Flow Rate (Hourly Rolling Average)	Acfm	38,086	Aug., 2008	DRE, D/F, Part., SVM, LVM
Minimum Primary Combustion Chamber Temperature (Hourly Rolling Average)	Deg F	1507	Sept., 2003 Cond. 1	DRE, D/F
Minimum Secondary Combustion Chamber Temperature (Hourly Rolling Average)	Deg F	1886	Sept., 2003 Cond. 1	DRE, D/F
Maximum Baghouse Inlet Temperature (Hourly Rolling Average)	Deg F	434	Aug., 2008	D/F, SVM, LVM
Max. Pump. Low Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	47	Aug., 2008	LVM
Max. Total Low Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	50	Aug., 2008	LVM
Maximum Semi Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	64	Aug., 2008	SVM
Maximum Mercury Feed rate (12 Hour Rolling Total)	Lb/hr	0.026	Aug., 2008	Hg
Maximum Chlorine Feed rate (12 Hour Rolling Total)	Lb/hr	252	Aug., 2008	SVM, LVM, HCl/Cl2
Maximum Ash Feed Rate (12 Hour Rolling Total)	Lb/hr	8777	Dec., 1995	Part.
Carbon Injection Feedrate (Hourly Rolling Average)	Lb/hr	6.2	Aug., 2008	D/F, Hg
Minimum Sorbent Feedrate (Hourly Rolling Average)	Lb/lb Cl_2	1.01	Dec., 1995	HCl/Cl2
Minimum Carrier Fluid Flowrate (Hourly Rolling Average)	Gal/lb Cl_2	1.61	Dec., 1995	HCl/Cl2

CONTINUOUS MONITORING SYSTEM QUALITY CONTROL PROGRAM

Prepared for:

Veolia ES Technical Solutions, LLC
Sauget, Illinois

Prepared by:

Franklin Engineering Group, Inc.
Franklin, Tennessee

October 2008

TABLE OF CONTENTS

1.0 INTRODUCTION AND BACKGROUND 1
- 1.1 SUMMARY OF FACILITY INFORMATION 4
  - *1.1.1 Fixed Hearth Incinerators* *4*
  - *1.1.2 Rotary Kiln Incinerator* *5*
- 1.2 CMS INSTRUMENTATION 6

2.0 CMS CALIBRATION AND PREVENTIVE MAINTENANCE 13
- 2.1 CMS CALIBRATION 13
  - *2.1.1 Initial CMS Calibration* *13*
  - *2.1.2 Subsequent CMS Calibration* *13*
  - *2.1.3 CEMS Calibration Audits and Calibration* *14*
- 2.2 CMS CALIBRATION AUDITS 14
- 2.3 PREVENTIVE MAINTENANCE 19

3.0 CMS RECORDKEEPING AND REPORTING 20
- 3.1 RECORDKEEPING 20
- 3.2 REPORTING 21

4.0 CMS CORRECTIVE ACTIONS 24

INDEX OF TABLES

TABLE 1-1 REGULATORY CHECKLIST FOR THE CMS QA PROGRAM 2
TABLE 1-2 CMS INSTRUMENT SPECIFICATIONS 7
TABLE 2-1 CMS CALIBRATION AUDIT REQUIREMENTS 15
TABLE 3-1 REPORTING REQUIREMENTS 23

1.0 INTRODUCTION AND BACKGROUND

Veolia ES Technical Solutions, LLC (Veolia) owns and operates two fixed hearth incinerators (Units 2 and 3) and a rotary kiln incinerator (Unit 4) at its facility located in Sauget, Illinois. The incinerators are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWC), Part 63, Subpart EEE (§ 63.1200 to § 63.1221). The NESHAP specifies emissions standards which reflect emissions performance of Maximum Achievable Control Technologies (MACT), and is commonly referred to as the HWC MACT.

Hazardous waste combustors are required [per § 63.8(d)(2)] to establish and implement a Continuous Monitoring System (CMS) Quality Control (QC) Program. The purpose of the QC Program is to outline procedures used to verify that the CMS are properly installed, calibrated, and collecting accurate data on an ongoing basis. The CMS performance evaluation test plan was submitted as part of the Comprehensive Performance Test Plan.

The QC Program demonstrates Veolia's compliance with the requirements set forth in § 63.8(d)(2), as well as the additional quality assurance (QA) requirements. The QC Program is required to contain descriptions of initial and subsequent CMS calibration, calibration drift, preventive maintenance, data recording, calculations and reporting; and a corrective action plan for malfunctioning CMS. Table 1-1 presents the regulatory references related to the QC program, followed by the section of this plan that addresses each specific requirement. Some references are made to other HWC MACT required facility operating plans.

This QC Program is intended to fulfill the requirements of § 63.8(d)(2), and includes information related to the procedures for each of the following operations:

- Initial and subsequent calibration of the CMS
- Determination and adjustment of the calibration drift of the CMS
- Preventive maintenance of the CMS, including spare parts inventory
- Data recording, calculations, and reporting
- Program of corrective action for malfunctioning CMS.

Table 1-1
Regulatory Checklist for the CMS QA Program

Regulatory Citation	Description	Plan Section
§ 63.8(c)(1)(i)	Operation and maintenance of each CMS	Section 1.2, 2.3 O&M Plan CEMS Plan
§ 63.8(c)(1)(iii)	Startup, shutdown, and malfunction plan for CMS	SSMP Plan
§ 63.8(c)(3)	Verification of operational status	CMS PET Plan
§ 63.8(c)(7)(ii)	Out-of-control CMS data will not be used in averages and calculations.	Section 4.0
§ 63.8(c)(7)(ii)	Corrective actions for an out-of-control CMS	Section 4.0 and SSMP Plan
§ 63.8(c)(8)	Out-of-control CMS information to be submitted	Section 4.0
§ 63.8(d)(2)	Develop and implement QC portion of CMS QA program	Section 1.0
§ 63.8(d)(2)	QA program includes the development and submittal of the performance evaluation test plan	Section 2.1.1
§ 63.8(d)(2)(i)	Develop written procedures for initial and subsequent calibrations	Sections 2.1.1, 2.1.2
§ 63.8(d)(2)(ii)	Develop written procedures for determination and adjustment of calibration drifts	Section 2.2
§ 63.8(d)(2)(iii)	Develop written procedures for preventive maintenance and spare parts inventory	Section 2.3
§ 63.8(d)(2)(iv)	Data recording, calculations, and reporting	Sections 3.1, 3.2
§ 63.8(d)(2)(vi)	Corrective actions for malfunctioning CMS	Section 4.0
§ 63.8(e)(3)	Performance evaluation of CMS	CMS PET Plan
§ 63.8(g)	Reduction of monitoring data	Section 3.2
§ 63.10(b)(1)	Maintaining files	Section 3.1
§ 63.10(b)(2)(ix)	Maintain records of measurements from performance evaluations	Section 3.1
§ 63.10(b)(2)(vi)	Maintain records of each period during which a CMS is malfunctioning, or inoperative and out of control	Section 4.0 and SSMP Plan
§ 63.10(b)(2)(vii)	Maintain records of measurements to demonstrate compliance	Section 3.1
§ 63.10(b)(2)(viii)	Maintain records of results of CMS performance evaluations and opacity and visible emission observations	Section 3.1
§ 63.10(b)(2)(x)	Maintain records of CMS calibration checks	Section 2.1.2

Table 1-1 (continued)
Regulatory Checklist for the CMS QA Program

Regulatory Citation	Description	Plan Section
§ 63.10(b)(2)(xi)	Maintain records of all adjustments and maintenance performed on the CMS	Section 3.1
§ 63.10(c)(1)	Recordkeeping requirements for CMS measurements (including unavoidable breakdowns and out-of-control situations)	Section 3.1
§ 63.10(c)(13)	Maintain records of total process operating time during the reporting period	Section 3.1
§ 63.10(c)(14)	Develop and implement CMS QA program procedures	Section 1.0
§ 63.10(c)(5)	Maintain records of date and time for CMS inoperability (except for zero and high-level checks)	Section 3.1
§ 63.10(c)(6)	Maintain records of date and time for CMS out-of-control periods	Section 3.1
§ 63.10(c)(8)	Maintain records of identification of each time period of exceedances - does not include periods of Startup, Shutdown, Malfunction (SSM)	Section 3.1
§ 63.10(e)(3)(i)	Submittal of semiannual excess emissions and CMS performance report	Section 3.1
§ 63.10(e)(3)(v)	Content and submittal data of excess emissions and CMS performance report	Section 3.2
§ 63.10(e)(3)(vi)	Content of summary report required by (e)(3)(vii) and (e)(3)(viii) to this section	Section 3.2
§ 63.10(e)(3)(vii)	Condition for submitting only the summary report	Section 3.2
§ 63.10(e)(3)(viii)	Condition for submitting both the summary report and excess emissions and CMS performance report	Section 3.2
§ 63.1209(b)(2)(i)	Calibration of thermocouples and pyrometers	Section 2.1
§ 63.1209(b)(3)	Frequency of CMS sampling, evaluation, computing, and recording of regulated parameter	Section 3.1
§ 63.1209(b)(5)	Calculation of rolling averages	Section 3.1
§ 63.1209(f)(1)	§ 63.1211(c) requires that CMS are installed, calibrated, and operational by the compliance date	CMS PET Plan

Notes:
PET Performance Evaluation Test
SSMP Startup, Shutdown, Malfunction Plan
SDP Standard Division Practices

The data collected from CMS instrumentation is used to demonstrate the unit's compliance with the performance requirements promulgated in the Interim HWC Maximum Achievable Control Technology (MACT) standard. The QA Program outlines procedures used to verify that the CMS are properly calibrated and collecting accurate data on an ongoing basis.

Due to the similarity of the three CMS systems (one for each incinerator system), general references to a CMS system or incinerator system in this document will imply all three systems. Information that is only applicable to one or two of the three systems will be clearly identified.

This document is organized as follows:

Section 1.0	Introduction and Background
Section 2.0	CMS Calibration and Preventive Maintenance
Section 3.0	CMS Recordkeeping and Reporting
Section 4.0	CMS Corrective Actions

This plan also assimilates information and procedures found in other documents. As required by § 63.6(e)(3)(vi), other documents containing procedures or information referred to in this plan will be made available for inspection when requested by the Administrator.

The remainder of this section provides an overview of the incineration system followed by a discussion on the CMS instrumentation. Section 2.0 discusses CMS initial and continuing calibration and preventive maintenance requirements. Section 3.0 addresses requirements related to facility documentation and reporting. Section 4.0 defines and discusses nonstandard operations of the CMS and applicable corrective actions.

1.1 Summary of Facility Information

Brief summaries which describe the fixed hearth incinerators and the rotary kiln incinerator are presented in this section.

1.1.1 Fixed Hearth Incinerators

Each of the fixed hearth incinerators includes the following components:

- Feed equipment

VES 003892

- Primary and secondary combustion chambers
- Lime injection system
- Spray dryer absorber (SDA)
- Fabric filter baghouse
- Solids and ash removal systems
- Induced draft (ID) fan and stack
- Instrumentation, controls, and data acquisition systems

Various solid and liquid wastes and gaseous feedstreams are thermally treated in the fixed hearth incinerators. Solid waste is fed to the primary (lower) combustion chamber via a feed conveyor system and pneumatic ram. Liquid waste from tanks and tanker trucks are fed to the primary combustion chamber through two atomized liquid injectors. Liquid waste from containers are fed to the primary combustion chamber through a specialty feed injector. A gaseous feedstream is fed to the Unit 2 primary combustion chamber directly from gas cylinders. Off gases from a hooded feed emission control system and from a waste handling glove box are fed directly to the Unit 3 secondary combustion chamber. Combustion chamber temperatures are maintained using natural gas fired to a dedicated burner in both the primary and secondary chambers.

Combustion gas exits the secondary combustion chamber and enters the SDA, which provides acid gas removal and cooling of the combustion gas. Combustion gas exits the SDA and is distributed to the fabric filter baghouses, which provide particulate matter removal. The induced draft fan, located downstream of the baghouses, moves the combustion gas through the system and exhausts the gas through the main stack.

Hot, wet gas is extracted downstream of the baghouse through a continuous emissions monitoring system. This system features a multi-component infrared gas analyzer that detects hydrogen chloride, carbon monoxide, and water vapor concentrations. An integrated zirconium oxide-based analyzer detects oxygen concentrations.

1.1.2 Rotary Kiln Incinerator

The rotary kiln incinerator includes the following components:

- Waste feed system
- Primary and secondary combustion chambers
- Tempering chamber
- Lime injection system
- Spray dryer absorber

- Carbon injection system
- Fabric filter baghouse
- Solids and ash removal systems
- ID fan and stack
- Instrumentation, controls, and data acquisition systems

Various solid and liquid wastes are thermally treated in the rotary kiln incinerator. Solid wastes are fed to a ram feeder via a clamshell, a drum feed conveyor, and an auxiliary feed conveyor. A hydraulic ram pushes the solid waste into the kiln. Liquid waste from tanks and tanker trucks is fed to the primary and secondary combustion chambers through atomized liquid injectors. Combustion chamber temperatures are maintained using natural gas fired to a dedicated burner in both the primary and secondary chambers.

Combustion gas exits the secondary combustion chamber and enters the tempering chamber, which provides cooling of the combustion gases. The combustion gas exits the tempering chamber and is distributed between two identical SDAs, which provide acid gas removal and additional gas cooling. A carbon injection system is utilized for controlling dioxin/furan and mercury emissions. The activated carbon is air injected into the combustion gas immediately downstream of the convergence of combustion gases from the SDAs. From the SDAs, combustion gas is distributed to fabric filter baghouses, which provide particulate matter removal. The ID fan, located downstream of the baghouses, moves the combustion gas through the system and exhausts the gas through the main stack.

Hot, wet gas is extracted downstream of the ID fan through a continuous emissions monitoring system. This system features a multi-component infrared gas analyzer that detects hydrogen chloride, carbon monoxide, and water vapor concentrations. An integrated zirconium oxide-based analyzer detects oxygen concentrations.

1.2 CMS Instrumentation

This section describes the CMS instruments used monitor regulated process parameters for demonstrating on-going compliance with the Interim HWC MACT emission standards. A summary of specifications for CMS instrumentation is provided in Table 1-2.

The Interim HWC MACT standard requires all CMS's be installed in locations that provide representative measurements of emissions or process parameters. All CMS

Table 1-2
CMS Instrument Specifications

Application	Instrument	Tag Number	Manufacturer	Model	Operating Range	Location
Unit No. 2						
High BTU Liquid Feedrate	Mass Flowmeter	FT-215	Micro Motion	D 40S-SS	0-3,600 lb/hr	Feed Line
High BTU Liquid Direct Injection Feedrate	Scale	WT-215DI	Weigh-Tronix	WI-.130	0-60,000 lb	Feed Line
Low BTU Liquid Feedrate	Mass Flowmeter	FT-216	Micro Motion	D 40S-SS	0-3,600 lb/hr	Feed Line
Low BTU Liquid Direct Injection Feedrate	Scale	WT-215DI	Weigh-Tronix	WI-.130	0-60,000 lb	Feed Line
Specialty Feed Weight	Weigh Scale	WT-204	Toledo	8140 EXP	0-4,000 lb	# 204 Specialty Feeder
Drummed Solids Feed Weight	Weigh Scale	WT-210	Toledo	A140	0-400 lb	Solid Charge Conveyor
Cylinder Gas Feedrate	dP Cell	FT-217	Yokogawa	YA11F	0-10 in. w.c. (0-60 lb/min)	Cylinder Gas Feed System
PCC Temperature	Type K Thermocouple	TT-200A/B	Modicon	B883-200	0-2500 °F	Primary Chamber
SCC Temperature	Type K Thermocouple	TT-219A/B	Modicon	B883-200	0-2500 °F	Secondary Chamber
PCC Pressure	Pressure Transmitter	PT-200	Rosemont	1151DP	-7.5 to 2.5 in. w.c.	Primary Chamber
ESV Position	Position Switch	ZS-224	Square-D	9007 CG2B2	open/close	Emergency Stack
Baghouse Inlet Temperature	Type K Thermocouple	TT-270	Modicon	833-200	0-2500 °F	SDA Outlet
Combustion Gas Flow Rate	dP Cell	FT-283	Rosemount	1151DR	0-20,000 acfm	Stack
Stack Gas Oxygen Concentration	Zirconium Oxide Analyzer	AT-289	COSA	ZFN-11YA1-2Z1	0-25%	CEMS Building
Stack Gas Carbon Monoxide Concentration	Multicomponent Infrared Photometer	AT-288E	EcoChem	MC3	0-200 / 0-3000 ppmv	CEMS Building
Stack Hydrogen Chloride Concentration					0-1000 ppmv	
Stack Gas Moisture Concentration					0-60%	
Lime Slurry Flow Rate	Mag. Flowmeter	FT-288	Fischer & Porter	10D1475	0 – 10 GPM	SDA Penthouse
Lime Slurry Density	Density Transducer	AT-968	Solartron Mobrey	7846	0 – 100 Lb/Ft^3	SDA Penthouse

Table 1-2(continued)
CMS Instrument Specifications

Application	Instrument	Tag Number	Manufacturer	Model	Operating Range	Location
Unit No. 3						
High BTU Liquid Feedrate	Mass Flowmeter	FT-315	Micro Motion	DS-040	0-3,600 lb/hr	Feed Line
High BTU Liquid Direct Injection Feedrate	Scale	WT-315 DI	Weigh-Tronix	WI-130	0-60,000 lb	Feed Line
Low BTU Liquid Feedrate	Mass Flowmeter	FT-316	Micro Motion	DS-040	0-3,600 lb/hr	Feed Line
Low BTU Liquid Direct Injection Feedrate	Scale	WT-315 DI	Weigh-Tronix	WI-130	0-60,000 lb	Feed Line
Specialty Feed Weight	Weigh Scale	WT-304	Toledo	AI40 EXP	0-2,000 lb	#304 Hooded Feeder
Drummed Solids Feed Weight	Weigh Scale	WT-310	Toledo	A140	0-400 lb	Solid Charge Conveyor
PCC Temperature	Type K Thermocouple	TT-300A/B	Modicon	883-200	0-2500 °F	Primary Chamber
SCC Temperature	Type K Thermocouple	TT-319A/B	Modicon	883-200	0-2500 °F	Secondary Chamber
PCC Pressure	Pressure Transmitter	PT-300	Rosemount	1151 dP	-7.5 to 2.5 in. w.c.	Feed Line
TRV Position	Position Switch	ZS-324	Square-D	9007 CG2B2	open/close	Emergency Stack
Baghouse Inlet Temperature	Type K Thermocouple	TT-370	Modicon	833-200	0-2500 °F	SDA Outlet
Combustion Gas Flow Rate	dP Cell	FT-383	Rosemount	1151 DR	0-20,000 acfm	Stack
Stack Gas Oxygen Concentration	Zirconium Oxide Analyzer	AT-389	COSA	ZFN-11YA1-2Z1	0-25%	CEMS Building
Stack Gas Carbon Monoxide Concentration	Multicomponent Infrared Photometer	AT-388E	EcoChem	MC3	0-200 / 0-3000 ppmv	CEMS Building
Stack Hydrogen Chloride Concentration					0-1000 ppmv	
Stack Gas Moisture Concentration					0-60%	
Lime Slurry Flow Rate	Mag. Flowmeter	FT-388	Fischer & Porter	10D1475	0 – 10 GPM	SDA Penthouse
Lime Slurry Density	Density Transducer	AT-969	Solartron Mobrey	7846	0 – 100 Lb/Ft^3	SDA Penthouse

VES 003896

Table 1 (continued)
CMS Instrument Specifications

Application	Instrument	Tag Number	Manufacturer	Model	Operating Range	Location
Unit No. 4						
Waste Feedrate to X-10 Nozzle	Mass Flowmeter	FT-129	Micro Motion	DS100S 128	0-7,000 lb/hr	Feed Line
Waste Feedrate to X-11 Nozzle	Mass Flowmeter	FT-138	Micro Motion	D100S-HY	0-6,000 lb/hr	Feed Line
Waste Feedrate to X-12 Nozzle	Mass Flowmeter	FT-145	Micro Motion	DL100S-SS	0-8,000 lb/hr	Feed Line
Waste Feedrate to X-22 Nozzle	Mass Flowmeter	FT-212	Micro Motion	D1D00S-SS	0-7,000 lb/hr	Feed Line
Clam Shell Feed Weight (shredded solids)	Load Cell	WT-001	Toledo	8140	0-2,000 lb	Ram Feed Hopper
Drum Conveyor Solids Weight	Load Cell	WT-014A	Toledo	8140	0-1,000 lb	Drum Conveyor
Auxiliary Conveyor Solids Weight	Load Cell	WT-14B	Toledo	8140	0-200 lb	Auxiliary Conveyor
PCC Temperature	Pyrometer	TT-305A/B	Ircon	Modline4 44-99-F-1-0-1	0-3,000 °F	Kiln Outlet
SCC Temperature	Type R Thermocouple	TT-317A/B	Chessel	3510	0-3,000 °F	SCC Outlet
PCC Pressure	Pressure Transmitter	PT-300	Rosemount	1151DR2F	-9.0 to 1.0 in. w.c.	Kiln Hood
Surge Vent Position	Position Switch	ZSC-026	Square-D	9007.CG2B2	open/close	Kiln Face
TRV Position	Position Switch	ZSC-316	Square-D	9007 CG2B2	open/close	Emergency Stack
Carbon Feedrate	Feeder	C-17	K-Tron	K2T35	0-100	Carbon Inject. System
Carbon Injection Carrier Gas Supply Pressure	Pressure Switch	PSL-438A	Dwyer	3330	Trip Points: ± 5 in. w.c.	Carbon Injection Line
Carbon Feeder Discharge Pressure	Pressure Switch	PSH-438B	Dwyer	3215	Trip Points: < 3 psig > 13 psig	Carbon Injection Line

Table 1 (continued)
CMS Instrument Specifications

Application	Instrument	Tag Number	Manufacturer	Model	Operating Range	Location
Unit No. 4 (continued)						
SDA X-18 Outlet Temperature (Baghouse Inlet Temperature)	Type K Thermocouple	TT-417A/B	Modicon	B883-200	0-2,500 °F	SDA X-18 Outlet
SDA X-19 Outlet Temperature (Baghouse Inlet Temperature)	Type K Thermocouple	TT-418A/B	Modicon	B883-200	0-2,500 °F	SDA X-19 Outlet
Combustion Gas Flowrate	Pitot Tube/dP Cell	FT-559A/B	Automation Service	1151DRF2283	0-55,000 acfm	Stack
Stack Gas Oxygen Concentration	Zirconium Oxide Analyzer	AT-560A/B	COSA	ZFN-11YA1-2Z1	0-20%	CEMS Building
Stack Gas Carbon Monoxide Concentration	Multicomponent Infrared Photometer	AT-556E	EcoChem	MC3	0-200 / 0-3000 ppmv	CEMS Building
Stack Hydrogen Chloride Concentration					0-1000 ppmv	
Stack Gas Moisture Concentration					0-60%	
Lime Slurry Flow Rate	Mag. Flowmeter	FT-615	Fischer & Porter	10D1475	0 – 80 GPM	SDA Nozzles
Lime Slurry Density	Density Transducer	DIT-609	Solartron Mobrey	7846	0 – 100 Lb/Ft^3	Lime Silo

operating parameter measurement devices at the Veolia facility are installed in compliance with this requirement. A description of the types of CMS instrumentation follows:

Mass/Feedrate Monitors: Liquid waste feedrates from tanks are measured by coriolis mass flowmeters. Direct inject liquid feedrates from tanker truck are calculated using the continuously monitored weight of the tanker. All solid waste charges are weighed using a scale/load cell prior to being feed to the incinerator. These measurements are used to calculate pumpable waste, total waste, and constituent feedrates.

For Unit 4, the output of a calibrated feeder is utilized to calculate the feedrate of powdered activated carbon, which is injected into the plenum upstream of the baghouses.

Pressure/Differential Pressure Monitors: Primary combustion chamber pressure is measured by diaphragm actuated pressure transmitters. The position of the damper immediately upstream of the ID fan is varied to control stack gas flowrate and to maintain kiln combustion chamber negative pressure (draft). The primary combustion chamber pressure is interlocked with waste feeds.

For Unit 2, pressure drop in the cylinder gas feedstream is measured and converted to a feedrate. The feedrate is used to calculate this feedstream's contribution to the chlorine, low volatile metals, and semivolatile metals feedrates to the incinerator.

For Unit 4, pressure switches are utilized to ensure that the carbon feeder discharge pressure, and the carbon injection air blower discharge pressure are within the design limits.

The pressure drop across a pitot tube in the stack is continuously monitored and used to calculate the stack gas flowrate.

Temperature Monitors: For Units 2 and 3, redundant thermocouples are used to measure the temperature in both combustion chambers. A thermocouple is also located at the exit to the SDA and is the primary element for the SDA exit temperature control loop.

Unit 4 is equipped with redundant pyrometers in the primary chamber and redundant thermocouples in the secondary chamber. Each SDA outlet is equipped with redundant thermocouples used for temperature control and monitoring of the baghouse inlet temperature.

Emergency Safety Vent Position Monitors: The position of the emergency safety vent (ESV) is indicated as open or closed by a position transmitter. No waste or fuel can be fed if the ESV position is "open". The Emergency Safety Vent (ESV) Plan provides details on the ESV systems.

Bag Leak Detection System: A triboelectric sensor is located downstream of the ID fan and monitors the relative particulate matter loading of the combustion gas exiting the baghouses. Alarms and interlocks based on this relative measurement are indications of a potential bag leak or failure. Procedures for setup and adjustments to the bag leak detection system are not covered by this QC program. The Operation and Maintenance Plan provides details on the bag leak detection system.

Continuous Emissions Monitoring System: The CEMS continuously samples and analyzes stack gas for the concentrations of carbon monoxide (CO), Hydrogen Chloride (HCl), and moisture using a multicomponent infrared photometer. The oxygen concentration is analyzed simultaneously using a zirconium oxide analyzer. These data are used to calculate the stack gas CO concentration on a dry basis, corrected to 7% O_2. The CEMS QA Plan provides additional details on the CEMS.

2.0 CMS CALIBRATION AND PREVENTIVE MAINTENANCE

This section discusses the calibration and preventive maintenance requirements to meet the requirements of § 63.8(d).

2.1 CMS Calibration

To ensure ongoing compliance with the Interim HWC MACT standard, it is essential that the data collected from the CMS be measured and recorded in an accurate manner. Initial calibrations, subsequent calibration, and CEMS calibrations are described in this section.

2.1.1 Initial CMS Calibration

As part of Veolia's Quality Control Program, the CMS instruments were initially calibrated prior to the Interim HWC MACT compliance date. Calibration prior to the compliance date is required so that all collected data are reliable and accurate. All initial calibration data are part of the operating record. Initial calibrations of new/replacement instruments will be performed per the manufacture's written procedures. In lieu of an initial calibration for new/replacement instruments or instrument components, the facility may use a manufacturer's certification.

2.1.2 Subsequent CMS Calibration

Subsequent calibrations on CMS instrumentation will be performed as needed and in accordance with the manufacture's written procedures. Calibrations will be performed as corrective measures for high calibration drift. Calibrations may be required when restoring CMS instruments after maintenance or repairs. All calibration adjustments will be documented by records of the calibration drift determined before and after the instrument was serviced.

Some instruments such as differential pressure cells must be removed from service and bench calibrated. To minimize downtime these instruments may be replaced with a calibrated spare. The Unit 4 primary combustion chamber pyrometers will be replaced at least annually with a factory calibrated pyrometer. Electronic checks and replacements of thermocouples will be performed per the facility's Thermocouple Calibration, Operation, and Replacement Procedure.

A calibration record form is available for each CMS instrument and will be used to document calibration audits, calibrations, and replacements. The most recently completed calibration record documents that the instrument in service meets the quality control criteria set forth by this program. These calibration records contain "calibration notes" which provide the instrument technician with procedures specific to a given instrument. The calibration record forms for CMS instruments are incorporated in this QC Program by reference.

2.1.3 CEMS Calibration Audits and Calibration

CEMS QA/QC procedures are provided by the *Continuous Emission Monitoring System Quality Assurance Plan*. These procedures are maintained at the facility and describe the requirements for CEMS drift checks, audits, calibrations, preventive maintenance, and recordkeeping.

2.2 CMS Calibration Audits

CMS calibration audits are performed to determine the calibration drift (CD) of CMS instruments. Calibration Drift (CD) is the bias between the CMS instrument reading and a calibration reference. Table 2-1 presents the requirements for CMS calibration audits. Each CMS instrument will be subjected a calibration audit at the frequency indicated in Table 2-1. The calibration audit will be performed at the low-level (zero) and high-level checks indicated. The calibration check will confirm that all process variable indications (e.g., local reading, control room display) at the high-level value agree with the calibration reference within ½ of the required tolerance. Calibration adjustments/corrective actions must be taken if this calibration drift is greater than ½ of the required tolerance. If the calibration drift exceeds the required tolerance, the instrument is considered out-of-control. Section 4.0 describes the corrective actions for out-of-control, inoperative, and malfunctioning CMS.

If the accuracy of a CMS instrument is in question, the CD is determined and documented prior to performing maintenance, repairs, or adjustments. The troubleshooting/calibrations of CMS instruments will be performed in a manner consistent with the manufacturer's written procedures and recommendations. The CD determined after calibrations/corrective actions have been taken will document the effects of the adjustments and demonstrate that the instrument is performing properly.

Calibration records will document CD, which is an indicator of the stability of the CMS calibration over time. The amount of drift and stability is dependant on the type of instrument and the calibration frequency. Veolia may increase or decrease the frequency of particular calibration audits to the extent warranted by an assessment of an instrument's stability. Veolia will maintain regularly scheduled calibration audit intervals for each CMS instrument. Calibrations will be performed to prevent excessive CD and to maintain the validity of the data collected from the monitoring system.

T[illegible]2-1
CMS Calibration Audit Requirements

Application	Instrument	Tag Number	Frequency of Calibration Audit	Low Level Check Point	High Level Check Point	Tolerance
Unit No. 2						
High BTU Liquid Feedrate	Mass Flowmeter	FT-215	Annually	0-5 lb/min	15-25 lb/min	10%
High BTU Liquid Direct Injection Feedrate	Scale	WT-215DI	Quarterly	0 lb	25,000 lb	10%
Low BTU Liquid Feedrate	Mass Flowmeter	FT-216	Annually	0-5 lb/min	15-25 lb/min	10%
Low BTU Liquid Direct Injection Feedrate	Scale	WT-215DI	Quarterly	0 lb	25,000 lb	10%
Specialty Feed Weight	Weigh Scale	WT-204	Quarterly	0 lb	~500 lb	10%
Drummed Solids Feed Weight	Weigh Scale	WT-210	Quarterly	0 lb	~50 lb	10%
Cylinder Gas Feedrate	dP Cell	FT-217	Annually	0 in. w.c.	10 in. w.c.	10%
Primary Combustion Chamber Temperature	Type K Thermocouple	TT-200A/B	Refer to the Thermocouple Calibration, Operation, and Replacement Procedure			
Secondary Combustion Chamber Temperature	Type K Thermocouple	TT-219A/B	Refer to the Thermocouple Calibration, Operation, and Replacement Procedure			
Primary Combustion Chamber Pressure	Pressure Transmitter	PT-200	Quarterly	-7.5 to -6.5	1.5 to 2.5 in w.c.	10%
ESV Position	Position Switch	ZS-224	Annually	AWFCO interlock energized when open		Pass
Baghouse Inlet Temperature	Type K Thermocouple	TT-270	See Calibration Record Form			
Combustion Gas Flow Rate	dP Cell	FT-283	Annually	0-0.05 in. w.c.	0.45-0.50 in. w.c.	10%
Lime Slurry Flow Rate	Mag. Flowmeter	FT-288	Annually	0 gpm	1-10 gpm	10%
Lime Slurry Density	Density Transducer	AT-968	Replace, as required, with factory serviced transducer			
Stack Gas Oxygen Concentration	Zirconium Oxide Analyzer	AT-289	Per CEMS QA Plan			
Stack Gas Carbon Monoxide Concentration	Multicomponent Infrared Photometer	AT-288E	Per CEMS QA Plan			
Stack Hydrogen Chloride Concentration						
Stack Gas Moisture Concentration						

VES 003904

Table 2 (continued)
CMS Calibration Audit Requirements

Application	Instrument	Tag Number	Frequency of Calibration Audit	Low Level Check Point	High Level Check Point	Tolerance
Unit No. 3						
High BTU Liquid Feedrate	Mass Flowmeter	FT-315	Annually	0-5 lb/min	15-25 lb/min	10%
High BTU Liquid Direct Injection Feedrate	Scale	WT-315DI	Annually	0 lb	25,000 lb	10%
Low BTU Liquid Feedrate	Mass Flowmeter	FT-316	Annually	0-5 lb/hr	15-25 lb/min	10%
Low BTU Liquid Direct Injection Feedrate	Scale	WT-315DI	Annually	0 lb	25,000 lb	10%
Specialty Feed Weight	Weigh Scale	WT-304	Quarterly	0 lb	~200 lb	10%
Drummed Solids Feed Weight	Weigh Scale	WT-310	Quarterly	0 lb	~50 lb	10%
Primary Combustion Chamber Temperature	Type K Thermocouple	TT-300A/B	Refer to the Thermocouple Calibration, Operation, and Replacement Procedure			
Secondary Combustion Chamber Temperature	Type K Thermocouple	TT-319A/B	Refer to the Thermocouple Calibration, Operation, and Replacement Procedure			
Primary Combustion Chamber Pressure	Pressure Transmitter	PT-300	Quarterly	-7.5 to -6.5	1.5 to 2.5 in w.c.	10%
ESV Position	Position Switch	ZS-324	Annually	AWFCO interlock energized when open		Pass
Baghouse Inlet Temperature	Type K Thermocouple	TT-370	Refer to the Thermocouple Calibration, Operation, and Replacement Procedure			
Combustion Gas Flow Rate	dP Cell	FT-383	Annually	0-0.05 in. w.c.	0.45-0.50 in. w.c.	10%
Lime Slurry Flow Rate	Mag. Flowmeter	FT-388	Annually	0 gpm	1-10 gpm	10%
Lime Slurry Density	Density Transducer	AT-969	Replace, as required, with factory serviced transducer			
Stack Gas Oxygen Concentration	Zirconium Oxide Analyzer	AT-389	Per CEMS QA Plan			
Stack Gas Carbon Monoxide Concentration	Multicomponent Infrared Photometer	AT-388E	Per CEMS QA Plan			
Stack Hydrogen Chloride Concentration						
Stack Gas Moisture Concentration						

VES 003905

Table 2 (continued)
CMS Calibration Audit Requirements

Application	Instrument	Tag Number	Frequency of Drift Check/Accuracy Audit	Low Level Check Point	High Level Check Point	Tolerance
Unit No. 4						
Waste Feedrate to X-10 Nozzle	Mass Flowmeter	FT-129	Annually	0-5 lb/min	15-25 lb/min	10%
Waste Feedrate to X-11 Nozzle	Mass Flowmeter	FT-138	Annually	0 lb	21,000 lb	10%
Waste Feedrate to X-12 Nozzle	Mass Flowmeter	FT-145	Annually	0-5 lb/min	15-25 lb/min	10%
Waste Feedrate to X-22 Nozzle	Mass Flowmeter	FT-212	Annually	0 lb	21,000 lb	10%
Clam Shell Feed Weight (shredded solids)	Load Cell	WT-001	Quarterly	0 lb	~200 lb	10%
Drum Conveyor Solids Weight	Load Cell	WT-014A	Quarterly	0 lb	~ 100 lb	10%
Auxiliary Conveyor Solids Weight	Load Cell	WT-14B	Quarterly	0 lb	~50 lb	10%
Primary Combustion Chamber Temperature	Pyrometer	TT-305A/B	Replace at least annually with factory calibrated Pyrometer			
Secondary Combustion Chamber Temperature	Type R Thermocouple	TT-317A/B	Refer to the Thermocouple Calibration, Operation, and Replacement Procedure			
Primary Combustion Chamber Pressure	Pressure Transmitter	PT-300	Quarterly	-9.0 to -8.0 in. w.c.	0 to 1.0 in. w.c.	10%
Surge Vent Position	Position Switch	ZS-026	Annually	AWFCO interlock energized when open		Pass
ESV Position	Position Switch	ZS-324	Annually	AWFCO interlock energized when open		Pass
Carbon Feedrate	Feeder	WT-438	Quarterly	0 lb/min	6-30 lb/min	10%
Carbon Injection Carrier Gas Low Pressure	Pressure Switch	PSL-438A	Annually	Energize Switch		Pass
Carbon Injection Carrier Gas High Pressure	Pressure Switch	PSH-438B	Annually	Energize Switch		Pass

VES 003906

Table 2-(continued)
CMS Calibration Audit Requirements

Application	Instrument	Tag Number	Frequency of Drift Check/Accuracy Audit	Low Level Check Point	High Level Check Point	Tolerance
Unit No. 4 (continued)						
SDA X-18 Outlet Temperature (Baghouse Inlet Temperature)	Type K Thermocouple	TT-417A/B	Refer to the Thermocouple Calibration, Operation, and Replacement Procedure			
SDA X-19 Outlet Temperature (Baghouse Inlet Temperature)	Type K Thermocouple	TT-418A/B	Refer to the Thermocouple Calibration, Operation, and Replacement Procedure			
Combustion Gas Flowrate	Pitot Tube/dP Cell	FT-559A/B	Annually	0 in. w.c.	1.74 in w.c.	10%
Lime Slurry Flow Rate	Mag. Flowmeter	FT-615	Annually	0 gpm	1-10 gpm	10%
Lime Slurry Density	Density Transducer	DIT-609	Replace, as required, with factory serviced transducer			
Stack Gas Oxygen Concentration	Zirconium Oxide Analyzer	AT-560A/B	Per CEMS QA Plan			
Stack Gas Carbon Monoxide Concentration	Multicomponent Infrared Photometer	AT-556E	Per CEMS QA Plan			
Stack Hydrogen Chloride Concentration						
Stack Gas Moisture Concentration						

2.3 Preventive Maintenance

Veolia takes daily proactive measures to assure that potential problems with the CMS are quickly identified and avoided, if possible. Daily maintenance checks include:

- Verification that process variables are reasonable
- Comparison of readings from redundant instruments
- Cleaning and visual check of monitoring equipment
- Communication between operators and instrument technicians

These checks are documented on a daily logsheet for each incinerator. The preventive maintenance on the CMS also includes the calibration audits previously described. All necessary parts for routine repairs of the affected CMS equipment are made readily available onsite. A spare parts inventory for each component of the CMS is included in the records maintained by the Maintenance Department. Additional details regarding preventive maintenance applicable to the CMS are provided in the facility's Operation and Maintenance Plan and the CEMS QA Plan.

3.0 CMS RECORDKEEPING AND REPORTING

This section discusses recordkeeping and reporting requirements for CMS instrumentation as specified by § 63.1211.

3.1 Recordkeeping

Veolia will follow the recordkeeping requirements as specified in § 63.10(b), including the semiannual excess emissions and CMS performance report. Veolia will maintain these records of CMS data for a minimum of 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 will be retained onsite. Below is a brief summary of these requirements.

Veolia will maintain records on the following:

- The occurrence and duration of each startup, shutdown, or malfunction of operation.
- The occurrence and duration of each malfunction of the air pollution control and monitoring equipment. Maintenance performed on the air pollution control and monitoring equipment
- Actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore the process or air pollution control system to normal operation) when such actions are different the procedures outlined in the SSMP
- All information necessary to demonstrate conformance with the SSMP
- Each period in which a CMS is malfunctioning or inoperative (including out-of-control periods)
- All required measurements needed to demonstrate compliance with a relevant standard.
- All results of performance tests, CMS performance evaluations, and opacity and visible emission observations
- All CMS calibration checks
- All adjustments and maintenance performed on CMS
- All required CMS measurements (including data recorded during unavoidable CMS breakdowns and out-of-control periods)
- The date and time identifying each period during which the CMS was inoperative except for zero (low level) and high level checks

- The date and time identifying each period during which the CMS was out-of-control as defined by § 63.8(c)(7)
- The specific identification (date and time of commencement and completion) of each period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard, that occurs during periods other than startup, shutdowns, and malfunctions.
- The nature and cause of any malfunction
- The corrective action taken or preventive measures adopted
- The nature of the repairs or adjustments to the CMS that was inoperative or out-of-control
- The total process operating time during the reporting period
- All procedures that are part of quality control program developed and implemented for CMS under § 63.8(d).

All CMS instrumentation will be operated on a continuous basis. The detector response will be evaluated at least every 15 seconds, and these values will be used to calculate regulated parameters. For parameters interlocked with the AWFCO system on an hourly rolling average basis, raw data will be averaged and recorded at least once per minute. One minute averages will be used to calculate the hourly rolling averages. The pumpable waste, total waste, and constituent feedrate operating parameter limits are bases on rolling totals in lieu of rolling averages.

An integral part of the CMS is the data acquisition and data historian systems, which records all operating data generated by the CMS instruments. The data historian and associated archive files are part of the operating record. CMS instrument calibrations, maintenance activities, and corrective actions are recorded and kept in the operating record. All data collected during CMS PETs are recorded and kept in the operating record.

3.2 Reporting

Veolia will follow the reporting requirements as specified in § 63.10. In addition, Veolia will develop and include in the operating record a Documentation of Compliance (DOC) per § 63.1211(c). The DOC must include a signed and dated certification that the CEMS and CMS are installed, calibrated, and continuously operating in compliance with the requirements of Subpart EEE.

Raw data from the CMS will be collected, reduced as described in § 63.8(g), and included in the CMS PET report. This data will be analyzed to determine compliance with the HWC MACT and the results will be submitted as part of the notification of compliance required by § 63.1207(j).

The content and deadline requirements for the excess emissions and monitoring system performance reports are specified in § 63.10(e)(3)(v). The requirements for the summary report are given in § 63.10(e)(3)(vi).

As noted in § 63.10(e)(3)(vii), Veolia is required to only submit the summary report if the total duration of excess emissions or process or control system parameter exceedances for the reporting period is less than one percent of the total operating time for the reporting period, and CMS downtime for the reporting period is less than five percent of the total operating time for the reporting period. Conversely, additional reporting is required by § 63.10(e)(3)(viii) if the total duration of exceedances, or the total CMS downtime during the reporting period, is greater than the allowable percentage of the reporting period. Table 3-1 provides a list of Veolia's reporting requirements.

Table 3-1 Reporting Requirements

Regulatory Citation	Description	Frequency
§ 63.1211(c)	Record Documentation of Compliance in the operating record	Once
§ 63.10(d)(2)	Before Title V permit has been issued, owner operator must submit results of performance test.	By the 60th day following every performance test
§ 63.10(d)(2)	After Title V permit has been issued, owner operator must submit results of required performance tests.	By the 60th day following required performance test
§ 63.10(d)(4)	Progress reports	As specified in written extension of compliance
§ 63.10(d)(5)(i)	Periodic startup, shutdown, and malfunction reports (during reporting period)	Submitted simultaneous with excess emission report
§ 63.10(d)(5)(ii)	Startup, shutdown, and malfunction reports when actions are taken that are inconsistent with SSMP.	2 working days from commencement of action, followed with a letter explaining extent within 7 working days.
§ 63.10(e)(3)(i)	Submittal of semiannual excess emissions and CMS performance report	Semiannually - by the 30th day following the end of each calendar half performance test

4.0 CMS CORRECTIVE ACTIONS

If a CMS is found to be out-of-control, inoperative, or malfunctioning; corrective actions must be taken to return the CMS to normal operation. Definitions used in determining the type of corrective action required are given below.

Out-of-control: A CMS is out-of-control if:

- The zero (low level), mid-level, or high-level calibration drift exceeds two times the applicable CD specification in the applicable performance specification or procedure; or
- The CMS fails a performance test audit, relative accuracy audit, relative accuracy test audit, or linearity test audit.

The only applicable performance specification to the CMS is Performance Specification (PS) 4B of 40 CFR Part 63, Appendix B. PS 4B applies to the O_2 and CO CEMS. The requirements of PS 4B and additional requirements Veolia imposes on the CEMS are detailed in the CEMS QA Plan. In the absence of promulgated performance specification applicable to non-CEMS CMS instruments, Veolia has self-imposed a high-level CD specification, as described in Section 2.0.

When a CMS is out-of-control, Veolia will take the necessary corrective action and shall repeat all necessary tests which indicate that the system is out-of-control. Corrective actions and retesting will continue until the CMS is returned to normal operation. The beginning of the out-of-control period is the hour that the calibration drift indicates that the CMS has exceeded its performance specifications. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the CMS is within its allowable limits. During the period the CMS is out-of-control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this part.

Veolia will submit all information concerning out-of-control periods, including start and end dates and hours, and descriptions of corrective actions taken, in the excess emissions and continuous monitoring system performance report required by § 63.10(e)(3).

Malfunction: For use in this plan, malfunction is defined as any sudden, infrequent, and not reasonably preventable failure of air pollution control or monitoring equipment.

Malfunction also includes the failure of a process or any process equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

The *Program of Corrective Actions for Malfunctions* is Attachment 4 of the SSMP Plan. This program addresses how the incinerator will be operated and maintained during malfunctions. In this program, potential malfunctions are listed for each portion of the incinerator system. The malfunctions are events that are recognized by the operator, or indicated by an alarm, and threaten to cause an exceedance. In the response to the malfunction and/or alarms, the operator will apply discretion and attempt to maintain the incinerator system within regulatory limits. In the program of corrective actions, potential causes of each malfunction are listed. The operator will utilize process knowledge, job experience, and, if needed, assistance from other personnel to identify the cause of the malfunction. For each potential cause, actions to correct the failure are listed. The corrective actions prescribed may require the collaboration of multi-disciplined personnel who are qualified to return the incinerator system to proper working conditions (i.e., maintenance personnel, instrument technicians, engineering)

CONTINUOUS EMISSIONS MONITORING SYSTEM QUALITY ASSURANCE PLAN

Prepared for:

Veolia ES Technical Solutions, LLC
Sauget, Illinois

Prepared by:

Franklin Engineering Group, Inc.
Franklin, Tennessee

October 2008

TABLE OF CONTENTS

1.0 INTRODUCTION AND BACKGROUND 1
- 1.1 DESCRIPTION OF CEMS 1
- 1.2 OVERVIEW OF REGULATORY REQUIREMENTS 2

2.0 CEMS CALIBRATIONS AND PERFORMANCE 5
- 2.1 DAILY DRIFT CHECKS 5
- 2.2 CALIBRATION 8
- 2.3 ABSOLUTE CALIBRATION AUDIT 10
- 2.4 INTERFERENCE RESPONSE TEST 10
- 2.5 RELATIVE ACCURACY TEST AUDIT 11

3.0 CEMS MAINTENANCE 14
- 3.1 DAILY SYSTEM AUDIT 14
- 3.2 SPARE PARTS INVENTORY 14
- 3.3 CALIBRATION GAS SUPPLY AND CERTIFICATION 15
- 3.4 CORRECTIVE ACTION FOR MALFUNCTIONING CEMS 17

4.0. INTEGRATION OF THE CEMS WITH THE AWFCO SYSTEM 18
- 4.1 EMISSION STANDARDS 18
- 4.2 DRIFT LIMITS 18

5.0. RECORDKEEPING AND QUALITY ASSURANCE REVIEWS 19

6.0 OPERATOR TRAINING AND CERTIFICATION 21

INDEX OF TABLES

TABLE 1-1	REGULATORY REQUIREMENTS FOR THE CEMS QC PROGRAM AND THE CEMS QA PLAN	3
TABLE 2-1	OVERVIEW OF CEMS PERFORMANCE REQUIREMENTS	6
TABLE 3-1	SUMMARY OF CONCENTRATION REQUIREMENTS FOR CALIBRATION GASES	16

LIST OF APPENDICES

APPENDIX A CEMS DATA SHEETS AND CHECKLISTS

1.0 INTRODUCTION

Veolia ES Technical Solutions, LLC (Veolia) owns and operates two fixed hearth incinerators (Units 2 and 3) and a transportable rotary kiln incinerator (Unit 4) at its facility located in Sauget, Illinois. These incinerators are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWCs), Part 63, Subpart EEE (§§63.1200 to 63.1221). The NESHAP for HWCs specifies emissions standards which reflect emissions performance of maximum achievable control technologies (MACT), and is commonly referred to as the HWC MACT.

For each incinerator, Veolia utilizes a continuous emissions monitoring system (CEMS) for demonstrating on-going compliance with the carbon monoxide (CO) emission standard. These CEMS are subject to the requirements of the Appendix to 40 CFR Part 63, Subpart EEE—*Quality Assurance Procedures for Continuous Emissions Monitors Used for Hazardous Waste Combustors*. This plan has been developed per the CEMS quality assurance (QA)/quality control (QC) requirements. Implementation of this plan will ensure that the CEMS generates, collects, and reports valid data that is precise, accurate, complete, and of a quality that meets the requirement of the HWC MACT Standard and the applicable performance specification.

1.1 Description of CEMS

Each incinerator is equipped with an EcoChem Analytics MC3 CEMS, which consists of the following major components:

- Heated stack sample probe
- Heated traced umbilical
- Heated sample pump
- EcoChem MC3 multicomponent infrared (IR) gas analyzer
- Zirconium oxide-based oxygen analyzer
- System controller and data acquisition system

Hot, wet stack gas is drawn through the heated stack sample probe and heat traced umbilical using a heated sample pump. The sampling location is downstream of the induced draft (ID) fan. The umbilical supplies instrument air to the filter probe to allow for automated periodic blowback. It also supplies calibration gases through the sampling system. The stack gas sample is maintained at approximately 185°C through the sampling equipment and analyzer sample cell to prevent the removal of pollutants from the sample through contact with condensed moisture.

The sample cell consists of multiple mirrors that were adjusted and aligned at the factory to set the path length appropriate for the specific application. The MC3 multicomponent IR photometer uses a Gas Filter Correlation analytical technique to continuously monitor the stack gas concentrations of HCl and CO. The Single Beam Dual Wavelength analytical technique is used to continuously monitor stack gas water vapor (H_2O) concentrations.

A technical description and specification for the CEMS is presented in Section 2.0 of the MC3 *Operations Guide, Section* 2.1.1 documents the lowest range for each component and an accuracy of ±2% of full-scale value. The lower threshold is 1% of the lowest range. These technical specifications document that the CEMS is capable of meeting the requirements of the Appendix to Part 63, Subpart EEE and Performance Specification 4B of 40 CFR Part 60, Appendix B.

The system controller controls the sampling system temperatures, purge/blowback, calibration checks, data handling, messaging, and alarms. The CEMS controller is integrated with the incinerator data acquisition system, automatic waste feed cutoff (AWFCO) system, and the main control system.

All three incinerators are equipped with COSA model ZFN-11YA1-2Z1 O_2 analyzers. These analyzers are zirconium oxide cells and are located downstream of the ID fan.

1.2 Overview of Regulatory Requirements

Cross-references and summaries of the applicable regulatory requirements are presented in Table 1-1. This table indicates the sections, tables, and figures of this document that address each particular requirement.

Table 1-1
Regulatory Requirements for the CEMS QC Program and the CEMS QA Plan

Regulatory Reference: Appendix to Subpart EEE of Part 63	Description	CEMS QA Plan Section
Section 3.1.a.1	Checks for component failures, leaks, and other abnormal conditions	3.0 3.1
Section 3.1.a.2	Calibration of CEMS	2.2
Section 3.1.a.3	Calibration Drift determination and adjustment of CEMS	2.1, 2.2 Appendix A
Section 3.1.a.4	Integration of CEMS with the AWFCO system	4.0
Section 3.1.a.5	Preventive Maintenance of CEMS (including spare parts inventory)	3.0 Appendix A
Section 3.1.a.6	Data recording, calculations, and reporting	4.1 5.0
Section 3.1.a.7	Checks of record keeping	5.0
Section 3.1.a.8	Accuracy audit procedures, including sampling and analysis methods	2.3, 2.5 Appendix A
Section 3.1.a.9	Program of corrective action for malfunctioning CEMS	3.4
Section 3.1.a.10	Operator training and certification	6.0
Section 3.1.b	Reporting of excessive inaccuracies	5.0
Section 3.2.1	QA responsibilities	5.0
Section 3.2.2	Schedules for: (1) daily checks (2) periodic audits (3) preventive maintenance	(1) 3.0, 3.1 (2) 2.0, Table 2-1 (3) 3.0
Section 3.2.3	Check lists and data sheets	Appendix A
Section 3.2.4	Preventive maintenance procedures	3.0

Table 1-1 (Continued)
Regulatory Requirements for the CEMS QC Program and the CEMS QA Plan

Regulatory Reference: Appendix to Subpart EEE of Part 63	Description	CEMS QA Plan Section
Section 3.2.5	Description of the media, format, and location of all records and reports	5.0
Section 3.2.6	Provisions for review of the CEMS data; revisions or updates of the QA plan based on review	5.0
Section 4.1	Check, record, quantify: (1) Zero Drift (2) Calibration Drift	2.1
Section 4.2	Recording Requirements for: (1) Zero Drift (2) Calibration Drift	2.1 Appendix A
Section 4.3	Daily System Audit	3.1
Section 4.4	Data recording and reporting	5.0
Section 5.1	Relative Accuracy Test Audit (RATA)	2.5
Section 5.2	Absolute Calibration Audit (ACA)	2.3
Section 5.3	Interference Response Test (IRT)	2.4
Section 5.4	Excessive audit inaccuracies	Table 2-1 2.3 2.5

2.0 CEMS CALIBRATIONS AND PERFORMANCE

The CEMS must be operated, calibrated, and maintained to ensure conformance with the Appendix to Part 63, Subpart EEE and the EPA Performance Specification 4B (PS 4B). Calibration drift checks and performance demonstrations are performed periodically on the CEMS based on the following schedule:

- Daily calibration checks for determination of Calibration Drift (CD) and Zero Drift (ZD).
- Quarterly Absolute Calibration Audit (ACA) for determining calibration error (CE) for O_2, CO, and HCl.
- Annual Relative Accuracy Test Audit (RATA) for determining the CEMS relative accuracy (RA) for CO emissions.

The procedures, QC criteria, corrective actions, and recordkeeping associated with these drift checks and audits are described in this section. A summary of the QC criteria and corrective actions is presented in Table 2-1. Blank data sheets are provided in Appendix A.

2.1 Daily Drift Checks

Daily drift checks are automatically initiated by the CEMS controller. During the automated calibration sequence, calibration gases are injected from pressurized cylinders through the sampling system. The sequence starts with the IR analyzer zero gas that is free of any of the constituents analyzed by the IR analyzer. This zero gas may also serve as the span gas for the integrated O_2 analyzer. The zero gas flows through the system with enough time allowed for the analyzer to fully respond to the gas. Then the analyzer response to the zero gas is recorded for one minute and averaged. The next calibration gas in the calibration sequence is the first IR analyzer span gas. This span gas is a calibration standard that has one or more constituent concentrations at the analyzer span value (this gas may also be used as the zero gas for the O_2 analyzer). The first span gas flows through the system to allow the analyzer enough time to fully respond to the gas. Then the analyzer response to the first span gas is recorded for one minute and averaged. This is then repeated for the second span gas and then possibly a third span gas depending upon the composition of the span gases. The total duration of this calibration sequence has been designed to not exceed the 20 minute maximum allowable CEMS downtime while burning hazardous waste.

Table 2-1
Overview of CEMS Performance Requirements

Analyzer Parameter (Span Value)	QC Parameter	Minimum Frequency	QC Limit	Corrective Action
H_2O (60%)	ZD	Daily	±2% of span	Zero Adjustment
O_2 (25%)	ZD and CD	Daily	±0.5% O_2	Zero/Span Adjustment
	CD	Daily	±1.0% O_2	Shut off waste, service/calibrate, conduct ACA
	Cumulative Span Adjustment	Per Adjustment	±1.5% O_2	Shut off waste, service/calibrate, conduct ACA
	CE	Quarterly [1]	0.5% O_2	Shut off waste, service/calibrate, conduct RATA
	RA	Annually	1.0% O_2	Shut off waste, service/calibrate, repeat RATA
CO (200 ppm)	ZD and CD	Daily	±3% of span	Zero/Span Adjustment
	CD	Daily	±5% of span for 6 out of 7 day	Shut off waste, service/calibrate, conduct ACA
	CD	Daily	±6% of span	Shut off waste, service/calibrate, conduct ACA
	Cumulative Span Adjustment	Per Adjustment	±9% of span	Shut off waste, service/calibrate, conduct ACA
	CE	Quarterly [1]	5%	Shut off waste, service/calibrate, conduct RATA
	RA [2]	Annually	5 ppmdv @ 7% O_2 (See Section 2.5)	Shut off waste, service/calibrate, conduct RATA

[1] The ACAs for determining the O_2 and CO CE are conducted quarterly, except in a quarter when a RATA is conducted instead.

[2] The RA accuracy for CO is based on the units of the CO emission standard (ppmdv @ 7% O_2). CO data collected from the analyzer during the RATA will include low and or high range values per the normal operating requirements.

Table 2-1 (continued)

Overview of CEMS Performance Requirements

Analyzer Parameter (Span Value)	QC Parameter	Minimum Frequency	QC Limit	Corrective Action
CO (3000 ppm)	ZD and CD	Daily	±3% of span	Zero/Span Adjustment
	CD	Daily	±5% of span for 6 out of 7 day	Shut off waste, service/calibrate, conduct ACA
	CD	Daily	±6% of span	Shut off waste, service/calibrate, conduct ACA
	Cumulative Span Adjustment	Per Adjustment	±9% of span	Shut off waste, service/calibrate, conduct ACA
	CE	Quarterly [3]	5%	Shut off waste, service/calibrate, conduct RATA
HCl (1000 ppm)	ZD and CD	Daily	±3% of span	Zero/Span Adjustment
	CD	Daily	±5% of span for 6 out of 7 day	Shut off waste, service/calibrate, conduct ACA
	CD	Daily	±6% of span	Shut off waste, service/calibrate, conduct ACA
	Cumulative Span Adjustment	Per Adjustment	±9% of span	Shut off waste, service/calibrate, conduct ACA
	CE	Quarterly [4]	5%	Shut off waste, service/calibrate, conduct ACA

[3] The ACAs for determining the O_2 and CO CE are conducted quarterly, except in a quarter when a RATA is conducted instead.

[4] A RATA for HCl may be performed annually in lieu of performing an ACA in that quarter.

The drift for each stack gas constituent is determined as the difference between the known constituent concentration in the calibration gas and the analyzer reading. ZD is the drift determined using zero gas. CD is the drift determined using span gases. ZD and CD are determined daily for O_2, CO, and HCl. ZD for H_2O is also determined daily.

The ZD and CD are recorded by the CEMS datalogger as a percent of full-scale deviation (Dev%). Given that the "span value" is equal to the "full-scale" value, Dev% is calculated as follows:

$$Dev\% = |Drift\,\%|$$

$$Drift\,\% = \frac{reference\ concetration\ -\ analyzer\ responce}{span\ value} \cdot 100$$

For CO and O_2, if Dev% for CD exceeds the limits specified in the applicable Performance Specifications in 40 CFR Part 60, Appendix B, the analyzer must be calibrated. If the Dev% for CD is greater than the preset tolerance (Tol%) the instrument technician will notify the incinerator operator and waste feeds will be shut off until corrective measures have been taken. The CD tolerances for both O_2 and CO have been set at the two times the performance specification limits. A calibration failure alarm indicates that the analyzer is out-of-control and must be serviced and recalibrated. An ACA must be conducted to document that the analyzer is within the performance specifications prior to resuming hazardous waste burning.

For CO, if the Dev% for CD is greater than 5% for 6 out of 7 days, then the analyzer is out-of-control and must be serviced and recalibrated. An ACA must be conducted to document that the analyzer is within the performance specifications prior to resuming hazardous waste burning.

Similar requirements for drift limits apply to HCl, except that no performance specifications have been promulgated for CEMS monitoring these parameters. In lieu of limits specified by an EPA Performance Specification, Veolia has developed self-imposed performance specification limits for HCl. These limits are specified in Table 2-1.

2.2 Calibration

Calibration of the analyzer will be conducted periodically to ensure that the results of drift checks, ACAs, or RATAs meet the applicable performance specifications.

Calibration for each IR channel (H_2O, CO, and HCl) may be performed daily during the automated calibration sequence used to determine calibration drift. For each calibration gas used during the automated sequence, the automatic calibration will reset the analyzer response to correspond with the known reference concentrations. Any automated calibration adjustment will be made immediately after the analyzer response to the calibration gas is recorded electronically. The drift determined immediately prior to a calibration adjustment is equal to the magnitude of the adjustment. The oxygen analyzer uses a two-point calibration curve. The first calibration point resets the measured concentration of air to 20.94%. The second calibration point resets the measured concentration of a low concentration calibration gas to its known concentration. This calibration is performed manually. To document the calibration adjustment, the actual measurement at each calibration point prior to adjustment will be recorded.

Following service to the MC3 analyzer that could affect its calibration, each IR channel, and the O_2 analyzer will be calibrated. The CEMS Drift and Calibration Data Sheet in the Appendix to this document will be used to track the cumulative span adjustments (i.e., change in the calibration factor). Section 5.5 of the MC3 CEMS *Operations Guide* and Section 4.4 of the MC3 CEMS *System Guide* should be referred to as needed for additional detail regarding calibration of the CEMS.

If the cumulative calibration adjustment for CD is three times the performance specification limits at any time, hazardous waste burning will be cutoff. The analyzer will be serviced, recalibrated, and an ACA will document that hazardous waste burning can recommence. A calibration factor that has been verified through an ACA will become the new reference point for assessing the cumulative adjustments made to correct for calibration drift.

The incinerator can remain on hazardous waste during CEMS drift checks, calibrations, purges, and corrective actions for CEMS failures provided that the CEMS downtime does not exceed 20 minutes. During these times, the instantaneous values used to determine one-minute averages of dry, oxygen corrected concentrations of CO are discarded. This allowance is provided by Section 6.2 and 6.5.1 of the Appendix to Subpart EEE. The applicable regulatory requirements do not limit the frequency that this allowance can be utilized. Typically, this allowance will only be utilized once per day for the daily drift checks. Since the oxygen analyzer cannot be calibrated during the automatic calibration of the IR channels, calibration of the oxygen analyzer will require additional downtime.

If a there is a CEMS failure, the incinerator may remain on hazardous waste provided that the CEMS can be restored within 20 minutes.

Following downtime, the CEMS must be within the performance specifications described in this document. Otherwise, hazardous waste burning will cease until the appropriate corrective measures can be taken. To ensure that the hourly rolling average (HRA) for CO is representative of current operating conditions, CEMS data validity must be at least 75% (i.e., 60 valid one minute averages per 80 minutes of normal operations).

2.3 Absolute Calibration Audit

An ACA is conducted quarterly for O_2, CO (high and low range), and HCl. For O_2 and CO, an ACA is not conducted in the quarter that the required annual RATA is performed. The ACA is conducted according to the calibration error (CE) test procedure described in the Performance Specifications 4B. During the ACA, the analyzer is challenged over each range with EPA Protocol 1 cylinder gases. The EPA Protocol 1 cylinder gases are NIST traceable calibration standards. For a given parameter, the analyzer response is recorded at three measurement points. This is then repeated twice to give three sets of data. The CE at each measurement point is determined as follows:

$$CE = \left| \frac{d}{FS} \right| \cdot 100\%$$

where d is the mean difference between the CEMS response and the known reference concentration and FS is the span value.

For CO and HCl, the CE determined at each measurement point cannot exceed 5%. For O_2, CE cannot exceed 2%. If an ACA fails to pass the QC criterion (i.e., the audit indicates excessive inaccuracy), then hazardous waste burning cannot resume until corrective measures have been taken and a RATA demonstrates that the CEMS is operating within the performance specifications.

2.4 Interference Response Test

The MC3 analyzer corrects for interferences using additive and multiplicative interference tables. These tables were generated per the manufacturer's procedure at the initial setup of the CEMS system. An Interference Response Test (IRT) is listed in the Appendix to Subpart EEE, however, the Performance Specification 4B does not include requirements or acceptance criteria for an interference response test. Veolia will perform

Interference Response Tests at such time as US EPA specifies the test procedures and acceptable criteria for an Interference Response Test.

2.5 Relative Accuracy Test Audit

The Relative Accuracy Test Audit (RATA) is required annually for O_2 and CO CEMS. The Relative Accuracy (RA) test procedures required by Section 7.2 of PS 4B references incorrect sections of PS 3 (for O_2) and PS 4A (for CO). The applicable sections of the performance specifications are:

- RATA procedures: Sections 8.4.3 through 8.4.5 of PS 2.
- O_2 reference methods: Section 8.2 of PS 3
- CO reference methods: Section 8.2 of PS 4A.
- O_2 RA calculations: Section 12.0 of PS 3
- CO RA calculations: Section 12.0 of PS 2
- O_2 RA criterion: Section 13.2 of PS 3
- CO RA criteria: Section 13.2 of PS 4A

A brief summary of the applicable reference methods are provided below:

<u>US EPA Method 3/3A (Stack Gas Composition and Molecular Weight)</u>

The sampling and analytical procedures outlined in this method will be used to determine the O_2 composition of the stack gas during the RATA. Using this method, a gas sample is extracted from the stack at a constant rate for determination of O_2, CO_2 and molecular weight. The integrated gasbag collection option will be employed. The gasbags will be analyzed using an Orsat analyzer. As an alternative, the Method 3A (instrumental analyzer) method may be used for analysis of the sample.

<u>US EPA Method 4 (Stack Gas Moisture Content)</u>

If necessary, the sampling and analytical procedures outlined in this method will be used to determine the moisture content of the stack gas during the RATA. Using this method, a gas sample is extracted from the stack. The gas passes through a series of impingers that contain reagents. The impingers are connected in series and are contained in an ice bath in order to assure condensation of the moisture in the gas stream. Any moisture that is not condensed in the impingers is captured in the silica gel, ensuring that all moisture can be weighed and entered into moisture calculations.

<u>US EPA Method 10 (Carbon Monoxide CEMS)</u>

A continuous emissions monitor will be used to continuously sample exhaust gas for carbon monoxide analysis as described in EPA Method 10. Using this method, a continuous gas sample is extracted from the exhaust gas, and is analyzed for carbon monoxide (CO) using a Luft-type Non-Dispersive Infrared Analyzer (NDIR), or another equivalent analyzer. This sampling and analysis will occur continuously throughout the duration of each run of the RATA.

During a test run of the RATA, US EPA reference methods are utilized to obtain stack gas data. These data are used to calculate the stack gas dry O_2 concentration and the stack gas CO concentration corrected to seven percent oxygen in units of parts per million, dry volume (i.e., in the units of the emission standard, 100 ppmdv CO @ 7% O_2). The average stack gas O_2 (%, dry) and CO (ppmdv, @ 7% O_2) concentrations—as calculated from the installed CEMS over the duration of the run—are compared to the value obtained using the reference methods. The RATA consists of a minimum of 9 test runs. If more test runs are conducted, at least 9 data sets will be used to determine RA, and no more than three sets of data will be rejected. The O_2 and CO RA calculations and acceptance criteria are presented below.

$$RA_{oxygen} = \left|\overline{d}\right| \leq 1.0\%\, O_2,\, dry$$

$$RA_{CO} = \begin{cases} \dfrac{\left|\overline{d}\right| + \left|CC\right|}{\overline{RM}} \cdot 100\% \leq 10\% \ldots for\ \overline{RM} \geq 50\,ppmdv\,@\,7\%\,O_2 \\ \left|\overline{d}\right| + \left|CC\right| \leq 5\,ppmdv\,@\,7\%\,O_2 \ldots for\ \overline{RM} < 50\,ppmdv\,@\,7\%\,O_2 \end{cases}$$

where;

$\overline{d}$ = $\frac{1}{n}\sum_{1}^{n}\left(RM_i - CEMS_i\right)$

n = number of test runs

RM_i = the concentration determined by the reference method for the i^{th} test run

$CEMS_i$ = the concentration determined by the CEMS for the i^{th} test run

CC = the 2.5 percent error confidence coefficient (see Section 12.4 of PS 2)

If a RATA fails to pass the QC criterion (i.e., the audit indicates excessive inaccuracy), then hazardous waste burning cannot resume until corrective measures have been taken and a RATA demonstrates that the CEMS is operating within the performance specifications. If CO emission levels are significantly low, it may be difficult to produce meaningful results using the RA test procedure. Under these circumstances, Veolia will request approval to utilize the Alternative RA Procedure prescribed by Section 7.3 of PS 4B.

3.0 CEMS MAINTENANCE

Veolia has developed a preventative maintenance program for the CEMS. This program includes frequent inspections of the CEMS in order to identify potential component failures, leaks, and data quality issues. The CEMS preventative maintenance program also includes scheduled replacement of critical components and maintenance of spare parts inventory. All scheduled and unscheduled maintenance of the CEMS will be documented in a CEMS logbook maintained for each incinerator. Section 8.0 of the MC3 CEMS *Operations Guide* provides details for daily, weekly, monthly, quarterly, and annual inspection and maintenance activities. Procedures and recordkeeping for the specific inspection and maintenance activities are described below.

3.1 Daily System Audit

The Daily System Audit includes:

- Review of the daily drift check data
- Inspection of the recording system
- Check for controller alarms and error/warning messages
- Check expected calibration values
- Check of current data status
- Check of calibration gas cylinder pressures
- Check calibration gas pressure regulator settings
- Inspection of the instrument air pressure
- Inspection of the stack gas sampling system

The Daily System Audit Checklist will be used to document the findings from the daily system audit. A CEMS Drift and Calibration Data Sheet will be completed during the daily system audit in order to track and evaluate drift and adjustments made to the CEMS.

3.2 Spare Parts Inventory

CEMS spare parts are maintained in sufficient quantities on-site to perform routine maintenance activities. It is anticipated that these spare parts and typical maintenance supplies will be adequate to service the CEMS. Some services and replacement of components must be performed by an EcoChem Analytics Service Engineer to avoid violation of the system certification.

The following consumable parts have been targeted for periodic inspection and replacement for maintaining the CEMS:

- Air conditioner filters for CEMS shelter
- Instrument air coalescing filters
- Sample pump Teflon diaphragm
- Sample pump Teflon flapper valve
- Sample probe internal filter
- Sample probe gaskets
- Probe-tip filter

The following spare parts are not part of routine maintenance and would be replace by an EcoChem Service Engineer:

- Cell front cover gasket
- Cell inlet filter
- Cell windows with o-ring gaskets
- Cell mirrors

The CEMS Calibration Gas and Spare Parts Log is provided in Appendix A and will be used as needed to keep track of inventory.

3.3 Calibration Gas Supply and Certification

A summary of the calibration gases needed to perform the daily drift checks, calibrations, and ACAs is presented in Table 3-1. The number of gas cylinders maintained on-site depends on the specific mixture of gases in each cylinder and the lead time required for placing orders. An inventory of calibration gases will be conducted in conjunction with the spare parts inventory to ensure that the appropriate gases are available for use. Certification from the supplier of calibration gas quality will be kept with the most recent spare parts inventory documentation.

Each calibration sequence depletes approximately 40 psi, and a cylinder with less than 150 psi should be replaced. The daily system audit includes inspection of the calibration gas cylinder pressures and will be used track usage and to predict when to reorder.

Table 3-1
Summary of Concentration Requirements for Calibration Gases

Constituent	QC Parameter	Concentration Requirement	Accuracy
H_2O	ZD	0%	per gas supplier
O_2	ZD	0%	per gas supplier
	CD	25%	per gas supplier
	ACA	0-2%	EPA Protocol 1/NIST Traceable
	ACA	8-10%	EPA Protocol 1/NIST Traceable
	ACA	14-16%	EPA Protocol 1/NIST Traceable
CO (low range)	ZD	0 ppm	per gas supplier
	CD	200 ppm	per gas supplier
	ACA	0-40 ppm	EPA Protocol 1/NIST Traceable
	ACA	60-80 ppm	EPA Protocol 1/NIST Traceable
	ACA	140-160 ppm	EPA Protocol 1/NIST Traceable
CO (high range)	ZD	0 ppm	per gas supplier
	CD	3000 ppm	per gas supplier
	ACA	0-600 ppm	EPA Protocol 1/NIST Traceable
	ACA	900-1200 ppm	EPA Protocol 1/NIST Traceable
	ACA	2100-2400 ppm	EPA Protocol 1/NIST Traceable
HCl	ZD	0 ppm	per gas supplier
	CD	1000 ppm	per gas supplier
	ACA	0-200 ppm	EPA Protocol 1/NIST Traceable
	ACA	300-400 ppm	EPA Protocol 1/NIST Traceable
	ACA	700-800 ppm	EPA Protocol 1/NIST Traceable

3.4 Corrective Action for Malfunctioning CEMS

It is Veolia's policy to minimize the occurrence of malfunctions by taking a proactive approach to facility maintenance. Proactive measures include the preventive maintenance described in this section, and the calibration and performance testing described in Section 2.0. Frequent inspections and availability of spare parts allow for the timely completion of as needed service to the CEMS prior to a major malfunction.

Operating and maintaining the incinerator during a malfunction will be conformance with the *Startup, Shutdown, and Malfunction Plan* (SSMP). Attachment 4 to the SSMP is the *Program of Corrective Action for Malfunctions.* Section 9.2 of the *Program of Corrective Action for Malfunctions* addresses corrective actions for malfunctioning CEMS. Section 9.0 through 9.2 of the MC3 CEMS *Operations Guide* may be referred to as needed for troubleshooting and corrective maintenance of the CEMS.

4.0. INTEGRATION OF THE CEMS WITH THE AWFCO SYSTEM

The CEMS is integrated with the automatic waste feed cutoff (AWFCO) system to assure on-going compliance with CO emission standards. The AWFCO system is designed to immediately and automatically shut of all waste to the incinerator in the event of an exceedance of an emission or operating limit. The CEMS is integrated with AWFCO system through interlocks. These interlocks are conditions which trigger a relay causing the AWFCO system to activate. This section describes the AWFCO interlocks associated with the CEMS.

4.1 Emission Standards

The CEMS raw data for O_2 (% vol), H_2O (% vol), and CO (ppmv) consists of instantaneous values which have not been smoothed or averaged, evaluated once every 15 seconds. These values are used to calculate CO emissions in the units of emission standards. Calculations equivalent to the following procedures are performed to compare the stack gas emissions to the CO emission standard.

First 15-second data in the units of the emission standards are calculated:

$$CO\,@7\%\,O_2,ppmdv = \frac{CO,ppmv}{100\% - (H_2O,\%)} \cdot \left(\frac{14\%}{21\% - \dfrac{O_2,\%}{100\% - (H_2O,\%)}} \right)$$

The calculated 15-second data are then used to calculate one-minute averages (OMAs). The current minute OMA is averaged with the previous 59 OMAs to generate an hourly rolling average (HRA). All rounding is avoided for the numbers used to calculate HRAs. The HRA of CO emissions are rounded to two significant figures.

If the HRA CO emission concentration exceeds the CO emission standard of 100 ppmdv @ 7% O_2, an AWFCO will occur.

4.2 Drift Limits

As described in Section 2.1, waste feeds will be manually shut off in case a drift limit is exceeded. For CO and O_2, drift limits are equal to 2 times the performance specifications. Comparable drift limits have been established for excessive H_2O drift.

5.0. RECORDKEEPING AND QUALITY ASSURANCE REVIEWS

Documentation generated from CEMS QA/QC procedures and monitoring will be kept on-site for a period of five years. The data and documentation that is generated and reviewed is kept in various locations at the Veolia facility. Table 6-1 below lists the storage location and format of this documentation.

Maintenance and Instrument Technicians have the primary responsibility for creating and organizing CEMS data sheets, daily system audit checklists, maintenance logbook, and spare part inventory records. The Environmental Engineer/Specialist or designee will check these records quarterly to verify completion and organization. This review will also consider the following requirements:

1. Whenever excessive audit inaccuracies occur for two consecutive quarters, the current written procedures will be revised or the CEMS modified or replaced to correct the deficiency causing the excessive inaccuracies. Previous versions of written procedures will be kept on record and made available for inspection.

2. If the ZD and/or CD exceed(s) two times the limits in the Performance Specifications, or if the cumulative adjustment to the ZD and/or CD exceed(s) three times the limits in the Performance Specifications, the CEMS is considered "out-of-control" (as defined in 40 CFR 63.8(c)(7)), and the event will be reported in the facility's semi-annual "Excess Emissions and CMS Performance Report". Further detail on this report can be found in the facility CMS Quality Assurance Program.

On an annual basis the Environmental Engineer/Specialist or designee will review all CEMS data generated for the previous 12 months and prepare a brief internal report/memo summarizing findings. Based on this review, the Environmental Engineer/Specialist or designee will solicit recommendations for revisions to the CEMS Quality Assurance Plan. The CEMS Quality Assurance Plan will be revised as needed to maintain QA/QC of the CEMS. All versions of this plan for the last five years remain in the operating record.

Table 5-1 CEMS Records and Reports

Record/Report	Storage Location	Media/Format [1]
CEMS QA Plan – Current Version – Previous Version	Incinerator Manager's Office Operating Records Archives	HD and/or P RD
CEMS Readings and HRA – Previous year through year to date – Remaining archives	Data Historian Operating Records Archives	HD and/or RD RD
Drift and Calibration Data: – Previous year through year to date – Remaining archives	Operating Records Archives	P and/or RD
Absolute Calibration Audit – Previous year though year to date – Remaining archives	Operating Record Archives	P and/or RD
Relative Accuracy Test Audit – Previous year through year to date – Remaining archives	Operating Record Archives	P and/or RD
Daily System Audit – Previous year through year to date – Remaining archives	Operating Record Archives	P and/or RD
Preventive Maintenance Logbook – Previous year through year to date – Remaining archives	Operating Records Archives	P and/or RD
Spare Parts Inventory – Previous year through year to date – Remaining archives	Operating Records Archives	P and/or RD
Annual Review of CEMS Data	Operating Records Archives	P and/or HD and/or RD

[1] Media Format:

HD - Computer or network hard drive
RD – Removable drive (floppy, CD, backup tape)
P - Paper documentation

6.0 OPERATOR TRAINING AND CERTIFICATION

Training is provided to Veolia employees on the basis of their job title. Individuals specifically involved in the operation of the incinerator and associated CEMS are the Instrument Technicians, Incinerator Operators, and Environmental Engineer/Specialist. The Veolia operator training and certification program meets the requirements outlined in 40 CFR 63.1206(c)(6). Documentation of employee training and certification is kept with the Training Director, and is available for review upon request.

APPENDIX A

CEMS DATA SHEETS AND CHECKLISTS

NOTE: THE FOLLOWING SHEETS ARE FOR EXAMPLE PURPOSES ONLY. VEOLIA MAY UTILIZE EQUIVALENT DOCUMENTATION FOR ANY OF THE SHEETS INCLUDED.

CEMS DRIFT AND CALIBRATION DATA SHEET

Parameter (Span Value)	Date & Time	Concentration		Drift %	Adjustment %	Cumulative Adjustment %
		Reference	Analyzer			
H_2O (60 %)						
Zero						
O_2 (25%)						
Zero						
Calibration						
CO (200 ppm)						
Zero						
Calibration						
CO (3000 ppm)						
Zero						
Calibration						
HCl (1000 ppm)						
Zero						
Calibration						

$$\text{Drift \%} = \frac{\text{Reference} - \text{Analyzer}}{\text{Span Value}} \cdot 100\%$$

Adjustment % = Drift % (if zero/span was reset during drift check)

Cumulative Adjustment % = (Previous Cumulative Adjustment %) + (Current Adjustment %)

____
(Name & Title)

____
(Signature)

ABSOLUTE CALIBRATION AUDIT (ACA)
DATA SHEET

Parameter	NIST Traceable Calibration Standards			
☐ O_2 ☐ CO-low range ☐ CO-high range ☐ HCl	Gas	Concentration		
	Low (Zero)		±	
	Mid		±	
	High		±	

RUN NUMBER	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1 – Low				--	--
2 – Mid					--
3 – High			--	--	
4 – Low				--	--
5 – Mid			--		--
6 – High			--	--	
7 – Low				--	--
8 – Mid			--		--
9 – High			--		
		MEAN DIFFERENCE =			
		CALIBRATION ERROR =	%	%	%

$$\text{Calibration Error} = \frac{\text{Mean Difference}}{\text{Span Value}} * 100$$

______________________ (Name) ______________________ (Title)

______________________ (Signature) ______________________ (Date)

VES 003940

RELATIVE ACCURACY TEST AUDIT RATA
DATA SHEET

Run	Reference Method			CEMS	Difference	Reference Method			CEMS	Difference
	H_2O, % (if applicable)	O_2, % wet (if applicable)	O_2, % dry	O_2, % dry	O_2, % dry	CO ppmv (if applicable)	CO ppmdv	CO ppmdv @ 7% O_2	CO ppmdv @ 7% O_2	CO ppmdv @ 7% O_2
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

O_2 RA	

Mean Difference	
Standard Deviation	
Confidence Coefficient	
CO RA	

(Name) (Title)

(Signature) (Date)

CEMS DAILY SYSTEM AUDIT

	Initials
Verify that the most recent drift checks and calibration adjustments are within limits. Complete Drift and Calibration Data Sheet. Corrective Actions:	
Verify proper operation of CEMS data recording and printing Corrective Actions:	
Check for controller alarms and error/warning messages Corrective Actions:	
Check expected calibration values Corrective Actions:	
Check current emissions data status Corrective Actions:	
Verify calibration gas cylinder pressures (>150 psi) Corrective Actions:	
Verify pressure regulator settings (approximately 25-35 psi) Corrective Actions:	
Verify proper instrument air pressure to CEMS umbilical Corrective Actions:	
Perform visual inspection of the stack gas sampling system Corrective Actions:	

(Name) (Title)

(Signature) (Date)

CEMS CALIBRATION GAS AND SPARE PARTS LOG

CALIBRATION GASES:

(Attach all certification forms)

Zero gas: ______________cylinders Composition:______________________

Span gas 1: ______________cylinders Composition:______________________

Span gas 2: ______________cylinders Composition:______________________

Span gas 3: ______________cylinders Composition:______________________

ACA Gases: ____

____

____

____

PARTS:

Air conditioner filters for CEMS shelter ______________________

Instrument air coalescing filters ______________________

Sample pump Teflon diaphragm______________________

Sample pump Teflon flapper valve______________________

Sample probe internal filter ______________________

Sample probe gaskets ______________________

Probe-tip filter______________________

Cell front cover gasket ______________________

Cell inlet filter______________________

Cell windows with o-ring gaskets______________________

Cell mirrors ______________________

Tubing______________________

Fittings ______________________

Solenoid Values ______________________

Thermocouples ______________________

Electronic parts ______________________

____

____

Other spare parts ______________________

____

____

Inventory taken by: ______________________ **Date:** ______________

AUTOMATIC WASTE FEED CUTOFF PLAN

Prepared for:

Veolia ES Technical Solutions, LLC
Sauget, Illinois

Prepared by:

Franklin Engineering Group, Inc.
Franklin, Tennessee

October 2008

TABLE OF CONTENTS

1.0 **INTRODUCTION AND BACKGROUND** **1**

1.1 SUMMARY OF FACILITY INFORMATION 1

1.1.1 Fixed Hearth Incinerators *1*

1.1.2 Rotary Kiln Incinerator *2*

1.2 DESCRIPTION OF THE AWFCO SYSTEM 5

2.0 **AWFCO OPERABILITY TEST PROCEDURES** **11**

3.0 **RESPONCE TO AN AWFCO EVENT** **12**

3.1 REPORTING REQUIREMENTS 13

4.0 **MANUAL WASTE FEED CUT-OFF PROCEDURES** **14**

LIST OF TABLES

TABLE 1-1 REGULATORY REQUIREMENTS FOR AN AWFCO PLAN AND CORRESPONDING SECTION THAT ADDRESSES THE REQUIREMENT 4

TABLE 1-2 AUTOMATIC WASTE FEED CUTOFF INTERLOCKS 6

1.0 INTRODUCTION AND BACKGROUND

Veolia ES Technical Solutions, LLC (Veolia) owns and operates two fixed hearth incinerators (Units 2 and 3) and a rotary kiln incinerator (Unit 4) at its facility located in Sauget, Illinois. These incinerators are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWCs), Part 63, Subpart EEE (§§63.1200 to 63.1221). The NESHAP for HWCs specifies emissions standards which reflect emissions performance of maximum achievable control technologies (MACT), and is commonly referred to as the HWC MACT.

Hazardous Waste Combustors are required to have a functioning system that immediately and automatically cuts off the hazardous waste feed under certain conditions. The Automatic Waste Feed Cut-Off (AWFCO) System must follow the requirements described in 40 CFR 63.1206(c)(3). This Automatic Waste Feed Cut-Off Plan demonstrates Veolia's compliance with these requirements.

This plan includes information about AWFCO systems, procedures for responding to an AWFCO event, and procedures for testing the operability of the AWFCO systems. Table 1-1 presents the regulatory references related to AWFCO Plans and the section of this plan that addresses each specific requirement.

Due to the similarity of the three AWFCO systems (one for each incinerator system), general references to an AWFCO system or incinerator system in this document will imply all three systems. Information that is only applicable to one or two of the three systems will be clearly identified.

1.1 Summary of Facility Information

Brief summaries which describe the fixed hearth incinerators and the rotary kiln incinerator are presented in this section.

1.1.1 Fixed Hearth Incinerators

Each of the fixed hearth incinerators includes the following components:

- Feed equipment
- Primary and secondary combustion chambers
- Lime injection system
- Spray dryer absorber (SDA)

- Fabric filter baghouse
- Solids and ash removal systems
- Induced draft (ID) fan and stack
- Instrumentation, controls, and data acquisition systems

Various solid and liquid wastes and gaseous feedstreams are thermally treated in the fixed hearth incinerators. Solid waste is fed to the primary (lower) combustion chamber via a feed conveyor system and pneumatic ram. Liquid waste from tanks and tanker trucks are fed to the primary combustion chamber through two atomized liquid injectors. Liquid waste from containers are fed to the primary combustion chamber through a specialty feed injector. A gaseous feedstream is fed to the Unit 2 primary combustion chamber directly from gas cylinders. Off gases from a hooded feed emission control system and from a waste handling glove box are fed directly to the Unit 3 secondary combustion chamber. Combustion chamber temperatures are maintained using natural gas fired to a dedicated burner in both the primary and secondary chambers.

Combustion gas exits the secondary combustion chamber and enters the SDA, which provides acid gas removal and cooling of the combustion gas. Combustion gas exits the SDA and is distributed to the fabric filter baghouses, which provide particulate matter removal. The induced draft fan, located downstream of the baghouses, moves the combustion gas through the system and exhausts the gas through the main stack.

Hot, wet gas is extracted downstream of the baghouse through a continuous emissions monitoring system. This system features a multi-component infrared gas analyzer that detects hydrogen chloride, carbon monoxide, and water vapor concentrations. An integrated zirconium oxide-based analyzer detects oxygen concentrations.

1.1.2 Rotary Kiln Incinerator

The rotary kiln incinerator includes the following components:

- Waste feed system
- Primary and secondary combustion chambers
- Tempering chamber
- Lime injection system
- Spray dryer absorber
- Carbon injection system
- Fabric filter baghouse

- Solids and ash removal systems
- ID fan and stack
- Instrumentation, controls, and data acquisition systems

Various solid and liquid wastes are thermally treated in the rotary kiln incinerator. Solid wastes are fed to a ram feeder via a clamshell, a drum feed conveyor, and an auxiliary feed conveyor. A hydraulic ram pushes the solid waste into the kiln. Liquid waste from tanks and tanker trucks is fed to the primary and secondary combustion chambers through atomized liquid injectors. Combustion chamber temperatures are maintained using natural gas fired to a dedicated burner in both the primary and secondary chambers.

Combustion gas exits the secondary combustion chamber and enters the tempering chamber, which provides cooling of the combustion gases. The combustion gas exits the tempering chamber and is distributed between two identical SDAs, which provide acid gas removal and additional gas cooling. A carbon injection system is utilized for controlling dioxin/furan and mercury emissions. The activated carbon is air injected into the combustion gas immediately downstream of the convergence of combustion gases from the SDAs. From the SDAs, combustion gas is distributed to fabric filter baghouses, which provide particulate matter removal. The ID fan, located downstream of the baghouses, moves the combustion gas through the system and exhausts the gas through the main stack.

Hot, wet gas is extracted downstream of the ID fan through a continuous emissions monitoring system. This system features a multi-component infrared gas analyzer that detects hydrogen chloride, carbon monoxide, and water vapor concentrations. An integrated zirconium oxide-based analyzer detects oxygen concentrations.

Table 1-1
Regulatory Requirements for AWFCO Plan and Corresponding Section that Addresses the Requirement

Regulatory Citation	Description	Plan Section
§ 63.1206(c)(3)(i)	Facility must have a functioning AWFCO system	Section 1.0
§ 63.1206(c)(3)(i)(A)	System must cut off waste when any of the following are exceeded: (1) Operating Parameter Limit (2) Emission standard monitored by CEMS (3) Allowable Combustion Chamber Pressure	(1) Section 1.2 (2) Section 1.2 (3) Section 1.2
§ 63.1206(c)(3)(i)(B)	System must cut off waste when span value of any CMS detector is met or exceeded	Section 1.2
§ 63.1206(c)(3)(i)(C)	System must cut off waste upon malfunction of a CMS monitoring an OPL or emission level	Section 1.2
§ 63.1206(c)(3)(i)(D)	Waste cut-off must occur when any component of the AWFCO system fails	Section 1.2
§ 63.1206(c)(3)(ii)	Ducting of combustion gases	Section 3.0
§ 63.1206(c)(3)(iii)	Restarting waste feed	Section 3.0
§ 63.1206(c)(3)(iv)	Failure of AWFCO system	Section 4.0
§ 63.1206(c)(3)(v)	Corrective measures	Section 3.0
§ 63.1206(c)(3)(vi)	Reporting exceedance of emission standard or operating requirement	Section 3.1
§ 63.1206(c)(3)(vii)	AWFCO system testing	Section 2.0
§ 63.1206(c)(3)(viii)	Ramping down waste feed	NA
§ 63.1209(b)(4)	Interlock span of non-CEMS CMS into the AWFCO system	Section 1.2

1.2 Description of the AWFCO System

The AWFCO system includes all hardware and software (i.e., control logic) necessary to immediately and automatically cutoff waste feeds to the incinerator in the event that an AWFCO interlock is triggered. Table 1-2 lists the parameter and setpoint for each required AWFCO interlock. In addition to the interlocks specified in Tables 1-2, the following conditions are interlocked with each AWFCO system:

- The span value of each CMS instrument (except for a CEMS instrument)
- CMS Malfunction
- AWFCO System Malfunction

AWFCO interlocks ensure that the pneumatically actuated waste feed block valves cannot open or remain open unless all regulated operating parameters and conditions are within limits. Additionally, the waste feed block valves will fail in the closed position if there is a loss of electrical power or instrument air supply. The parameters interlocked with the AWFCO system are described below in further detail.

- **Maximum Pumpable Hazardous Waste Feedrate** – Each pumpable hazardous waste feed line to the incinerator is equipped with a mass flowmeter. The pumpable hazardous waste feedrate is continuously calculated as the sum of the individual flowrates. If the hourly rolling total (HRT) pumpable hazardous waste feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

- **Maximum Total Hazardous Waste Feedrate** – For Units 2 and 3, solid waste is fed to the primary combustion chamber via a feed conveyor and pneumatic ram. A scale in the feed conveyor monitors the weight of each charge of solid waste. For Unit 4, solid wastes are fed to a ram feeder via a clamshell, a drum feed conveyor, and an auxiliary feed conveyor. The clamshell empties into a hopper equipped with a load cell that monitors each charge weight. The solid feed conveyors are equipped with weigh scales. For each incinerator, the time between charges is used to convert these charge weights to a solid waste feedrate. The solid waste feedrate is summed with the pumpable hazardous waste feedrate to calculate the total hazardous waste feedrate. If the HRT of the total hazardous waste feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

Table 1-2
Automatic Waste Feed Cutoff Interlocks

Operating Parameter	Averaging Period	Units	AWFCO Interlock Setpoint	
			Unit 2/3	Unit 4
Maximum Pumpable Waste Feedrate	HRT	lb/hr	3,107	PCC-3256/SCC-1006
Maximum Total Waste Feed Rate	HRT	lb/hr	4,017	PCC-13,796/SCC-1006
Maximum Ash Feed Rate	12-HRT	lb/hr	673	8,777
Maximum Chlorine/Chloride Feedrate	12-HRT	lb/hr	218	252
Maximum Mercury Feedrate Limit	12-HRT	lb/hr	0.0047	0.031
Maximum Semi Volatile Metals Feedrate	12-HRT	lb/hr	63	65
Maximum Total Low Volatile Metals Feedrate	12-HRT	lb/hr	46	55
Maximum Pumpable Low Volatile Metals Feedrate	12-HRT	lb/hr	47	47
Maximum Primary Combustion Chamber Pressure	Instantaneous	in. w.c.	> 0.0 for 5 seconds	> 0.0 for 5 seconds
Minimum Primary Combustion Chamber Temperature	HRA	°F	1,734	1,507
Minimum Secondary Combustion Chamber Temperature	HRA	°F	1,849	1,886
Emergency Safety Vent Position	Instantaneous	--	TRV Open	Surge Vent Open TRV Open
Maximum Baghouse Inlet Temperature	HRA	°F	420	434
Maximum Bag Leak Detector Output	10 seconds	% of scale	> 30 % for 6 minutes	> 15% for 12 minutes
Minimum Carbon Feedrate	HRA	lb/hr	--	6.2
Minimum Carbon Feeder Exit Pressure	Instantaneous	psig	--	4
Maximum Carbon Carrier Gas Supply Pressure	Instantaneous	in. w.c.	--	1
Maximum Stack Gas Flow Rate	HRA	acfm	15,147	38,086
Stack Gas Carbon Monoxide Concentration	HRA	ppmdv @ 7% O_2	100	100
Minimum Sorbent Feed Rate	HRA	Lb/lb Cl2	1.76	1.01
Minimum Carrier Fluid Flow Rate	HRA	Gal/lb Cl2	1.70	1.61

Notes:
HRA = Hourly Rolling Average
HRT = Hourly Rolling Total
12-HRT = 12-Hour Rolling Total
TRV = Thermal Relief Vent

- **Maximum Ash Feedrate** – The ash concentration of each waste feed is determined in accordance with the Feedstream Analysis Plan. The CMS uses the waste ash concentration and the continuously monitored waste feedrate to calculate the ash feedrate of each waste stream. If the 12-hour rolling total (12-HRT) of the combined ash feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

- **Maximum Chlorine/Chloride Feedrate** - The chlorine/chloride concentration of each waste feed is determined in accordance with the Feedstream Analysis Plan. The CMS uses the chlorine/chloride concentration and the continuously monitored waste feedrate to calculate the chlorine/chloride feedrate of each waste stream. If the 12-HRT of the combined chlorine/chloride feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

- **Maximum Mercury Feedrate** - The concentration of mercury in each waste feed is determined in accordance with the Feedstream Analysis Plan. The CMS uses the mercury concentration and the continuously monitored waste feedrate to calculate the mercury of each waste stream. If the 12-HRT of the combined LVM feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

- **Maximum SVM Feedrate** - The concentrations of cadmium and lead in each waste feed is determined in accordance with the Feedstream Analysis Plan. The semivolatile metals (SVM) concentration in each waste stream is the sum of these metal concentrations. The CMS uses the SVM concentration and the continuously monitored waste feedrate to calculate the SVM feedrate of each waste stream. If the 12-HRT of the combined SVM feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

- **Maximum Total LVM Feedrate** - The concentrations of arsenic, beryllium, and chromium in each waste feed is determined in accordance with the Feedstream Analysis Plan. The low volatile metals (LVM) concentration in each waste stream is the sum of these metal concentrations. The CMS uses the LVM concentration and the continuously monitored waste feedrate to calculate the LVM feedrate of each waste stream. If the 12-HRT of the combined LVM feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

- **Maximum Pumpable LVM Feedrate** – The LVM feedrate from pumpable waste feedstreams are summed to obtain the combined pumpable LVM feedrate. If the 12-HRT pumpable LVM feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

- **Maximum Primary Combustion Chamber Pressure** – The primary chambers for Units 2 and 3 are totally sealed. Both the feed and discharge ends of the kiln (Unit 4) are equipped with an air pressurized double seal system that is comprised of steel spring plates with self-lubricating seal shoes. Fugitive emissions are prevented by these measures and the negative primary combustion chamber pressure maintained by the ID fan. An AWFCO interlock will be triggered if the primary combustion chamber pressure meets or exceeds the maximum limit (0.0 in. w.c. gauge) for greater than five seconds. Continuous video surveillance of the combustion chamber exterior is utilized to determine if an AWFCO caused by high primary combustion chamber pressure corresponds with fugitive emissions. There must be visual evidence of fugitive emissions from the primary combustion chamber for a positive pressure event to be considered an exceedance.

- **Minimum Primary Combustion Chamber Temperature** – The temperature of combustion gas inside the primary chamber is monitored by redundant thermocouples. If the hourly rolling average (HRA) primary combustion chamber temperature meets or exceeds its limit, an AWFCO interlock is triggered.

- **Minimum Secondary Combustion Chamber Temperature** – The temperature of combustion gas inside the secondary chamber is monitored by redundant thermocouples. If the HRA secondary combustion chamber temperature meets or exceeds its limit, an AWFCO interlock is triggered.

- **Emergency Safety Vent Position** – Each incinerator's secondary combustion chamber is equipped with an emergency stack and emergency safety vent (ESV), which is also referred to as the thermal relief vent (TRV). The TRV allows hot combustion gas to vent from the combustion system during certain scenarios to protect the downstream APCS from excessive temperature situations. Unit 4 is also equipped with a second ESV located at the kiln face. This ESV is referred to as the surge vent and provides emergency pressure relief of the kiln. To minimize excessive emissions during an ESV opening, the output from the ESV position transmitter is interlocked with the AWFCO system. If the ESV position is detected as open, an AWFCO interlock is triggered.

- **Maximum Baghouse Inlet Temperature** – For Units 2 and 3, the baghouse inlet temperature (i.e., spray dryer absorber exit gas temperature) is continuously monitored by a thermocouple. Unit 4 is equipped with redundant thermocouples at the exit of each SDA. If the HRA baghouse inlet temperature meets or exceeds its limit, an AWFCO interlock will occur.

- **Maximum Bag Leak Detector Output** – A triboelectric sensor is located in the duct downstream of the ID fan and continuously monitors the relative particulate matter loading of the gas. An AWFCO interlock will be triggered if the bag leak detector output remains at or above it high-high setpoint for the duration of the alarm delay time.

- **Minimum Carbon Feedrate** – Powdered activated carbon is air injected into the plenum immediately upstream of the Unit 4 baghouses. A calibrated feeder is used to continuously monitor the addition rate of carbon to the carbon-air stream. If the HRA carbon feedrate meets or exceeds its limit, an AWFCO interlock is triggered.

- **Carbon Injection System Operating Pressures** – The Unit 4 carbon injection system is equipped with a high level pressure switch located between the carbon feeder and the eductor. A low level pressure switch is located downstream of the blower that supplies air as the carbon carrier fluid. Both pressure switches have two setpoints, which define the permissible operating range at each location. These setpoints are interlocked with AWFCO system.

- **Maximum Stack Gas Flowrate** – The pressure drop across a pitot tube located in the exhaust stack is utilized to continuously monitor the stack gas flowrate. If the HRA stack gas flowrate meets or exceeds it limit, an AWFCO interlock is triggered.

- **Maximum Stack Gas Carbon Monoxide Concentration** – The CEMS continuously samples and analyzes stack gas for the concentrations of carbon monoxide (CO), and moisture using a multicomponent infrared photometer. The oxygen concentration of the sampled gas is analyzed simultaneously using a zirconium oxide analyzer. A back-up zirconium oxide O_2 analyzer also monitors stack gas O_2 concentration. These data are used to calculated the stack gas CO concentration on a dry basis, corrected to 7% O_2. If the CO concentration meets or exceeds the HWC MACT emission standard for CO (100 ppm dry volume, corrected to 7% oxygen), an AWFCO interlock is triggered.

2.0 AWFCO OPERABILITY TEST PROCEDURES

The AWFCO interlocks are tested bi-weekly, as weekly testing would unduly interfere with operations, cause excessive downtime, and substantially increase operating costs. Testing of the AWFCO system is a time-consuming and manpower intensive process. The current testing program has been in place under the RCRA permit for a number of years and has proven to be adequate in detecting problems.

AWFCO system operability testing is conducted by manually simulating input of process conditions to the programmable logic controller (PLC). The simulated input for each OPL will be set outside of limits to trigger the AWFCO interlock and associated alarms. The point at which the simulated input activates the control logic for the closure of the waste feed block valves will be observed and documented. Waste feed valves will not actually close during AWFCO testing. In addition to this AWFCO system control logic testing, the functionality of the waste feed block valves are confirmed during startups, shutdowns, actual AWFCO conditions, and when transitioning to and from warm stand-by mode

Tests of the AWFCO system interlocks and associated alarms are documented an a AWFCO Testing Log and are maintained separately as part of the unit's operating record.

3.0 RESPONCE TO AN AWFCO EVENT

While an AWFCO event will trigger an alarm, and automatically (and immediately) cutoff waste feed to the incinerator, the other portions of the incinerator system will remain operational and functioning (the APCS, CEMS, etc). Combustion chamber temperatures will be maintained on natural gas fired to the main burners, if possible.

An AWFCO event is initiated in the following manner:

1) An alarm is activated at a level below the permit limit in the case of a maximum limit or above the permit limit in the case of a minimum operating condition. This alarm indicates that the system is approaching a regulatory set point. The alarm also indicates a potential malfunction.
2) At this point, the operator reviews the situation and takes action to correct the situation, up to and including a manual shutdown of the affected system. These corrective actions will be consistent with the Startup, Shutdown, and Malfunction Plan (SSMP).
3) If the corrective actions taken are not effective, and the operating parameter reaches its permit limit or a permit preemptive set point, an AWFCO is initiated. An AWFCO Log form will be used to document the event.

If an AWFCO event corresponds with an exceedance while hazardous waste remains in the combustion chamber, it must be determined if the event meets the regulatory definition of a malfunction. If such an event is a malfunction, a malfunction recordkeeping form will be used. Regardless of whether the hazardous waste residence time has transpired, if there is an exceedance that corresponds with an AWFCO event the following actions will be taken:

- Investigate the cause of the AWFCO;
- Take appropriate corrective measures to minimize future AWFCOs; and
- Record the findings and corrective measures in the operating record.

After an AWFCO has occurred, all operating parameters must be within limits prior to restarting hazardous waste feeds.

3.1 Reporting Requirements

For each set of ten[1] exceedances of an emission standard or operating parameter limit, and each exceedance occurs while hazardous waste remains in the combustion chamber, a written report will be submitted by Veolia to the Illinois Environmental Protection Agency (IEPA). The written report will be submitted within five calendar days of the tenth[1] exceedance and will document the exceedances and results of the investigation and corrective measures taken.

---

[1] Exceedances occurring during malfunction are not included in this tally. The Startup, Shutdown, and Malfunction Plan summarizes the reporting requirements associated with exceedances occurring during malfunctions.

4.0 MANUAL WASTE FEED CUT-OFF PROCEDURES

If an AWFCO interlock fails to cutoff the feed of hazardous waste to the incinerator, the operator will manually cutoff all waste feeds to the incinerator in a quick and safe manner. This response is consistent with the procedure prescribed by the SSMP and will be documented on a malfunction recordkeeping form. The *Program of Corrective Actions for Malfunctions*, Attachment 4 to the SSMP, will be followed for the restoring the AWFCO system.

STARTUP, SHUTDOWN AND MALFUNCTION PLAN

Prepared for:

Veolia ES Technical Solutions, LLC
Sauget, Illinois

Prepared by:

Franklin Engineering Group, Inc.
Franklin, Tennessee

October 2008

TABLE OF CONTENTS

1.0 INTRODUCTION **1**

1.1 REGULATORY REQUIREMENTS 2

1.2 RECORDKEEPING AND REPORTING PROCEDURES 2

1.2.1 Records *4*

1.2.2 Reports *4*

2.0 ENGINEERING DESCRIPTION **6**

3.0 STARTUP AND SHUTDOWN PROCEDURES **13**

3.1 STARTUP 13

3.2 NORMAL SHUTDOWN 15

4.0 MALFUNCTIONS **16**

4.1 MEASURES TO MINIMIZE THE FREQUENCY OF MALFUNCTIONS 16

4.2 MEASURES TO MINIMIZE THE SEVERITY OF MALFUNCTIONS 18

4.3 CORRECTIVE MEASURES 19

LIST OF TABLES

TABLE 1-1 OVERVIEW OF REGULATIONS REGARDING STARTUP, SHUTDOWN AND MALFUNCTION 3
TABLE 4-1 SUMMARY OF POTENTIAL MALFUNCTIONS AND CAUSES 17
TABLE 4-2 REDUNDANT EQUIPMENT AND SYSTEMS FOR MINIMIZING THE FREQUENCY OR SEVERITY OF MALFUNCTIONS 20

LIST OF FIGURES

FIGURE 2-1 FIXED HEARTH INCINERATOR, UNIT 2, BLOCK FLOW DIAGRAM 7
FIGURE 2-2 FIXED HEARTH INCINERATOR, UNIT 3, BLOCK FLOW DIAGRAM 8
FIGURE 2-3 ROTARY KILN INCINERATOR, UNIT 4, BLOCK FLOW DIAGRAM 11

LIST OF ATTACHMENTS

ATTACHMENT 1 STARTUP RECORDKEEPING FORM
ATTACHMENT 2 SHUTDOWN RECORDKEEPING FORM
ATTACHMENT 3 MALFUNCTION RECORDKEEPING FORM
ATTACHMENT 4 PROGRAM OF CORRECTIVE ACTIONS FOR MALFUNCTIONS

1.0 INTRODUCTION

Veolia ES Technical Solutions, LLC (Veolia) owns and operates two fixed hearth incinerators (Units 2 and 3) and a rotary kiln incinerator (Unit 4) at its facility located in Sauget, Illinois. The incinerators are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWC), 40 CFR, Part 63, Subpart EEE (§ 63.1200 to § 63.1221). The NESHAP specifies emissions standards which reflect emissions performance of Maximum Achievable Control Technologies (MACT), and is commonly referred to as the HWC MACT.

The HWC MACT Standard defines the control of emissions during normal, day-to-day operations. In order to address the control of emissions during transient periods, the development of a Startup, Shutdown, and Malfunction Plan (SSMP) is required. Startup, shutdown, and malfunction (SSM) are defined in § 63.2 as follows:

- *Startup* – the setting in operation of an affected source or portion of an affected source for any purpose
- *Shutdown* – the cessation of operation of an affected source or portion of an affected source for any purpose
- *Malfunction* – any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions

During these transient periods of operations, a source must conform with its SSMP. Therefore, during periods of startup, shutdown, and malfunctions the operating and maintaining of the incinerator will be consistent with the procedures and corrective actions that are prescribed in this plan. This will ensure that emissions are minimized, to the extent practical.

The purpose of this startup, shutdown, and malfunction plan is to:

- Prescribe procedures for operating the incinerator systems during periods of startup, shutdown, and malfunction that are consistent with safety and good air pollution control practices
- Describe measures for the prevention and minimization of excess emissions during periods of startup, shutdown, and malfunction
- Reduce the reporting burden associated with periods of startup, shutdown, and malfunction
- Satisfy the requirements of § 63.1206(c) and § 63.6(e)(3), as shown in Table 1-1

Due to the similarity of the three incinerator systems, general references to an incinerator in this document will imply all three incinerator systems. Information that is only applicable to one or two of the three units will be clearly identified either parenthetically or delineated by the section heading.

As required by §§ 63.6(e)(v) and 63.6(e)(vi), this plan and other documents containing procedures or information referred to in this plan will be made available for inspection when requested by the Administrator. If Veolia is required to submit copies of this plan or portions of this plan (or related documents) confidential business information entitled to protection from disclosure will be clearly designated.

The remainder of this section provides an overview of regulatory requirements and a program for compliance with the recordkeeping and reporting requirements. Section 2.0 references an engineering description of the incinerator, air pollution control system, and continuous monitoring system. Section 3.0 addresses the startup and shutdown of the incinerator system. Section 4.0 addresses potential malfunctions of the incinerator system.

1.1 Regulatory Requirements

One of the objectives for this document is to establish a program that will ensure compliance with relevant sections of the Interim MACT Standards. Table 1-1 includes the regulatory requirements and the location of each requirement addressed herein.

1.2 Recordkeeping and Reporting Procedures

This section addresses the recordkeeping and reporting requirements related to periods of SSM. The startup, shutdown, and malfunction reports discussed in this plan ensure that Veolia is satisfying the general duty to minimize emissions and document that actions taken during those periods are consistent with this plan. These reports and records provide the necessary documentation to shield transient events from the HWC MACT emission standards imposed on steady-state operations.

As long as actions taken during a transient event sufficiently maintain the incinerator system within limits, there is no justification in distinguishing that event from steady-state operations. For example, problems may arise that meet the definition of a malfunction yet do not impact the ability to maintain the incinerator system within limits. In these cases, maintaining the incinerator system within limits substantiates that the actions taken sufficiently met the objectives of this SSMP and minimized emissions to a greater degree than required by regulations.

Table 1-1

Overview of Regulations Regarding Startup, Shutdown and Malfunction

Regulatory Citation	Description	SSMP Section
§ 63.6(e)(3)(i)	Purpose of the SSMP	1.0
§ 63.6(e)(3)(i)	Procedures for operating and maintaining the source during startup	3.1, Table 3-1
§ 63.6(e)(3)(i)	Procedures for operating and maintaining the source during shutdown	3.2, Table 3-1
§ 63.6(e)(3)(i)	Procedures for operating and maintaining the source during malfunction	Attachment 4
§ 63.6(e)(3)(i)	A program of corrective action for malfunctioning process	Attachment 4
§ 63.6(e)(3)(ii)	During SSM, operate and maintain source in accordance with SSMP	1.0
§ 63.6(e)(3)(iii)	Records and reports when actions conform with SSMP	1.2.1
§ 63.6(e)(3)(iv)	Records and reports when actions do not conform with SSMP and result in an exceedance	1.2.2
§ 63.6(e)(3)(v)	Availability of current and superseded SSMPs	1.2
§ 63.6(e)(3)(vi)	Use and availability of other plans	1.0
§ 63.6(e)(3)(viii)	Revisions to the SSMP	1.2.2
§ 63.10(b)(1)	Maintaining files	1.2
§ 63.10(b)(2)(i)	Record occurrence and duration of each startup and shutdown	1.2.1
§ 63.10(b)(2)(ii)	Record occurrence and duration of each malfunction	1.2.1
§ 63.10(b)(2)(iv)	Records of actions inconsistent with SSMP	1.2.1
§ 63.10(b)(2)(v)	Records demonstrating conformance with SSMP	1.2.1
§ 63.10(b)(2)(vi)	Record periods of malfunctioning CMS	1.2.1
§ 63.10(d)(5)(i)	Periodic startup, shutdown, and malfunction reports	1.2.2
§ 63.10(d)(5)(ii)	Immediate startup, shutdown, and malfunction reports	1.2.2
§ 63.1206(c)(2)(ii)(A)	Description of potential causes of malfunctions	Table 4-1, Attachment 4
§ 63.1206(c)(2)(ii)(A)	Actions to minimize the frequency and severity of malfunctions	4.1, 4.2 Table 4-2 Attachment 4
§ 63.1206(c)(2)(ii)(C)	Changes to the plan	1.2.2
§ 63.1206(c)(2)(iii)	Projected oxygen correction factor to use during startup and shutdown	3.0
§ 63.1206(c)(2)(iv)	Record plan in the operating record	1.2
§ 63.1206(c)(2)(v)(A)(1)	AWFCO requirements during malfunctions	3.0
§ 63.1206(c)(2)(v)(A)(3)(i)	Investigation and evaluation of excessive exceedances during malfunctions	1.2.2
§ 63.1206(c)(2)(v)(A)(3)(i)	Revisions to SSMP due to excessive exceedances during malfunctions	1.2.2
§ 63.1206(c)(2)(v)(A)(3)(ii)	Record results from investigation and evaluation of excessive exceedances	1.2.2
§ 63.12006(c)(2)(v)A(3)(ii)	Additions to excess emissions report [§ 63.10(e)(3)] due to excessive exceedances during malfunctions	1.2.2
§ 63.1206(c)(2)(v)(B)(1)	Waste feed restrictions and other OPLs during startup and shutdown	3.0
§ 63.1206(c)(2)(v)(B)(2)	Interlock OPLs of (c)(2)(v)(B)(1) with AWFCO system	3.0
§ 63.1206(c)(2)(v)(B)(3)	AWFCO due to exceedance of startup/shutdown OPL	3.0

Accordingly, the recordkeeping and reporting requirements presented in this section are only applicable to periods of SSM in which there is a reasonable expectation that an OPL or emission standard can not be met. This includes all startups, all shutdowns, and all malfunctions that result in an exceedance of an operating limit or emission standard. Malfunctions that prevent the ability to document on-going compliance are also subject to recordkeeping and reporting requirements.

This plan, all revisions to this plan, and all records and reports described in this section will be retained in the operating record for at least five years.

1.2.1 Records

SSM records will include the following:

- Date and time of each SSM
- The duration of each SSM
- Documentation to demonstrate that actions taken during periods of SSM are consistent with this SSMP
- Description of any actions taken during periods of SSM that are not consistent with procedures in this SSMP
- Results of investigations and evaluations of excessive exceedances occurring during malfunctions

Attachments 1, 2, and 3 are blank recordkeeping forms for startups, shutdowns, and malfunctions, respectively. The information recorded on these forms will be utilized to document conformance with the SSMP and to comply with the reporting requirements. The startup, shutdown, and malfunction reporting requirements are described in the next section.

1.2.2 Reports

Revisions to this SSMP may be made without prior agency approval to reflect changes in equipment and procedures and to meet the regulatory requirements. Any such revisions made during a semiannual reporting period will be submitted with the periodic SSM report. Revisions to this plan—which alter the scope of activities during a startup, shutdown, or malfunction—will not take effect until a written notice, describing the revisions, is submitted to the permitting authority. Changes made to this plan that may significantly increase emissions are subject to approval by the Administrator. A written request for approval of the changes and the revised SSMP will be submitted to the

Administrator within 5 days after making such a change to this plan. Should an SSM event occur that is not addressed or inadequately addressed in this SSMP, Veolia will make the appropriate revisions to this plan within 45 days after the event.

An investigation and evaluation will be performed on each set of 10 exceedances of a specific emission standard or a specific operating parameter limit that occur during malfunctions within a 60 day period. Within 45 days of the 10th exceedance, the investigation will determine plausible causes for each excessive exceedance. The evaluation will conclude how to minimize the frequency, duration, and severity of each excessive exceedance. The excessive emissions report required under § 63.10(e)(3) will include a summary of each investigation and evaluation required during the semiannual reporting period. In addition, the excessive emissions report will include any changes to this plan that may result from required investigations and evaluations of excessive exceedances occurring during malfunctions.

Periodic SSM reports will be submitted to the Administrator semiannually, if a startup, shutdown, or malfunction occurred during that semiannual reporting period. This report will take the form of a letter to the Administrator and include the following information:

- A statement that actions taken during all periods of startup, shutdown, or malfunction were consistent with the procedures given in this SSMP
- The number, duration, and a brief description of each malfunction
- The name, title, and signature of the owner/operator (or other responsible official) certifying the accuracy of the report

An immediate SSM report will be submitted if an action performed during a period of SSM is not consistent with this plan; and an OPL or emission standard is exceeded. Within two working days after such an action, the Administrator will be advised via telephone or fax. Within 7 working days after such an action, a letter to the Administrator will be delivered or postmarked. The letter will explain the event, reasons for not following this plan, and descriptions of the excess emissions and/or operating parameter monitoring exceedances believed to have occurred. The letter will also include the name, title, and signature of the owner/operator (or other responsible official) certifying the accuracy of the report.

2.0 ENGINEERING DESCRIPTION

Brief descriptions of the fixed hearth incinerators and the rotary kiln incinerator are presented in this section. A detailed engineering description of the Unit 2 and 3 incinerators is provided by *Technical Description—Fixed Hearth, Incinerators Units NOS. 2 & 3.* A detailed engineering description of the Unit 4 incinerators is provided by *Technical Description, Transportable Rotary Kiln Incinerator Unit No. 4.* Drawing numbers PFD-2000, PFD-3000, PFD-4000 are the process flow diagrams for these incinerators. These documents and drawings are incorporated here by reference.

2.1 Fixed Hearth Incinerators

Each of the fixed hearth incinerators includes the following components:

- Feed equipment
- Primary and secondary combustion chambers
- Lime injection system
- Spray dryer absorber (SDA)
- Fabric filter baghouse
- Solids and ash removal systems
- Induced draft (ID) fan and stack
- Instrumentation, controls, and data acquisition systems

Figure 2-1 presents a block flow diagram of the Unit 2 incinerator system. The block flow diagram for Unit 3 is presented in Figure 2-2.

A variety of solid, liquid, and gaseous wastes are thermally treated in the fixed hearth incinerators. Solid waste is fed to the primary (lower) combustion chamber via a feed conveyor system and pneumatic ram. Liquid waste from tanks and tanker trucks are fed to the primary combustion chamber through two atomized liquid injectors.

Both Units 2 and 3 are equipped with a specialty waste feed systems. The Unit 2 primary waste from liquid containers and gas cylinders are fed to the Unit 2 primary combustion chamber through a specialty feed port. Waste from liquid containers is fed from a hooded feed system to the Unit 3 primary combustion chamber through a specialty feed injector. Off gases from the hooded feed emission control system are fed directly to

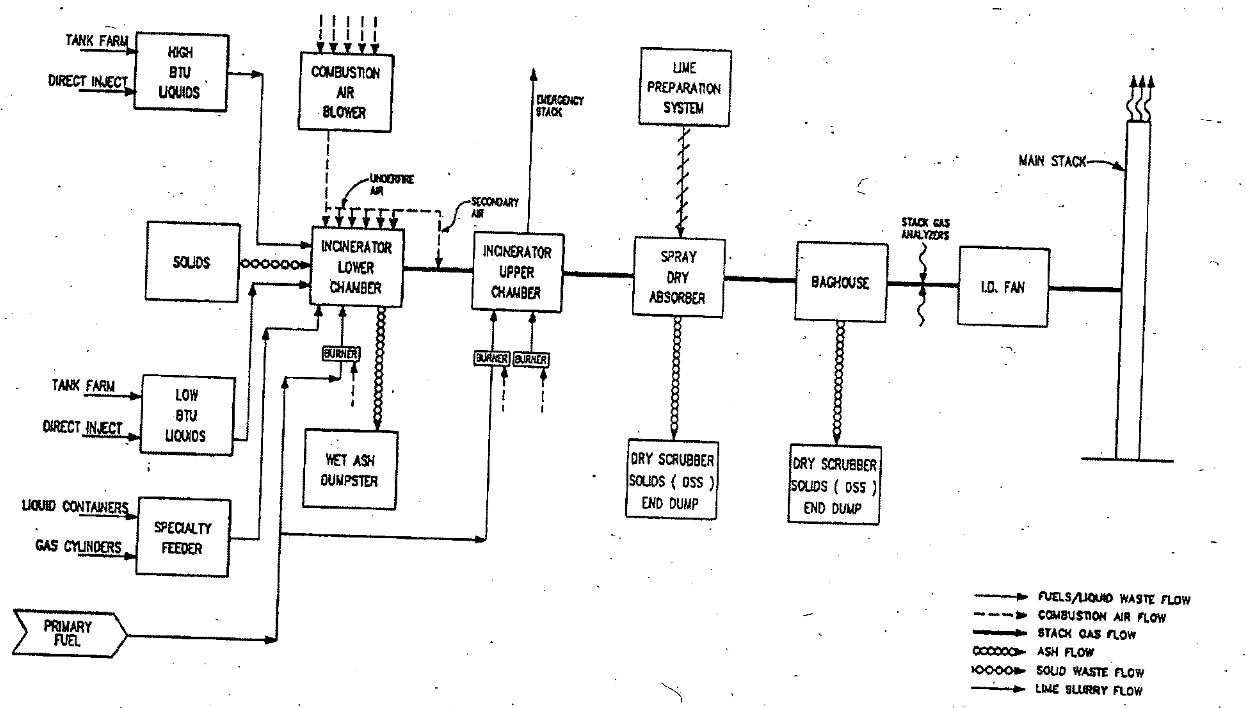

Figure 2-1 **Fixed Hearth Incinerator, Unit 2, Block Flow Diagram**

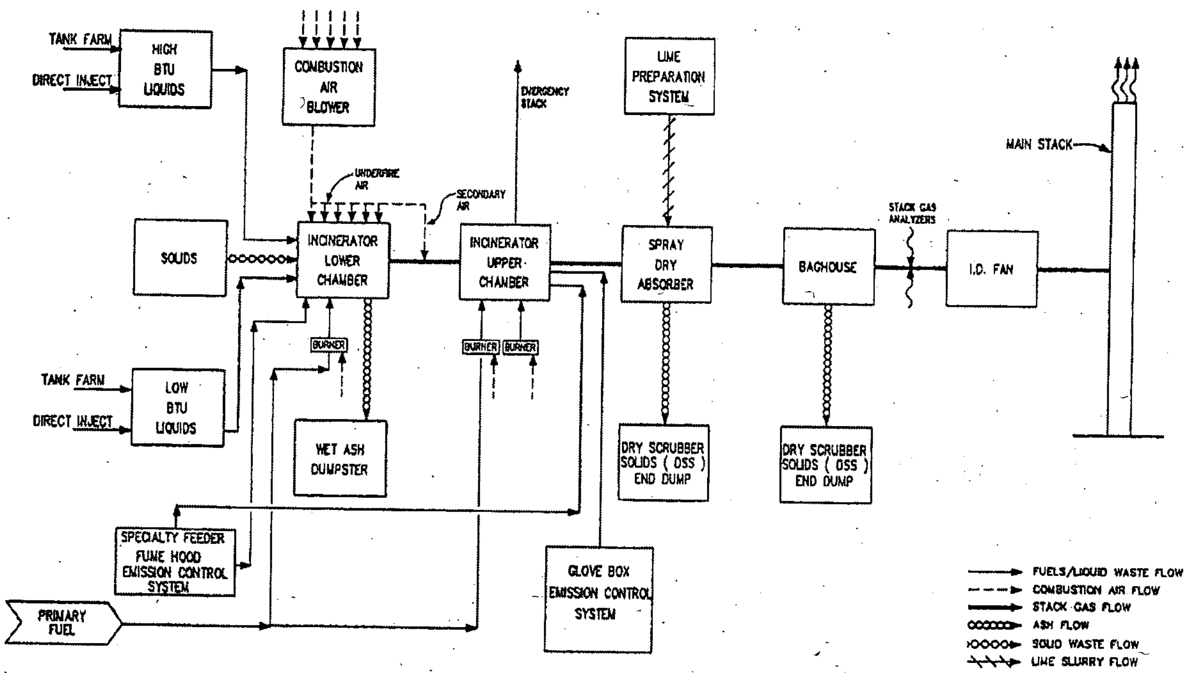

Figure 2-2 **Fixed Hearth Incinerator, Unit 3, Block Flow Diagram**

the Unit 3 secondary combustion chamber. Off gases from a waste handling glove box are also fed directly to the Unit 3 secondary combustion chamber.

The primary combustion chamber main burner and the secondary combustion chamber main burner are used to maintain temperatures on natural gas. Combustion gases exit the primary combustion chamber and enter into the secondary combustion chamber, which serves as an afterburner. Combustion gases exit the secondary combustion chamber and enter the SDA. The secondary combustion chamber is equipped with an emergency stack.

Lime slurry and water are fed to the SDA atomizer. The atomizer has a rapidly spinning wheel that atomizes the lime slurry and water into a cloud of fine droplets. Combustion gases are directed upward through a disperser in the SDA and into the cloud of fine droplet created by the atomizer. This provides acid gas removal and cooling of the combustion gas. Dried spent chemicals and ash settle to the bottom of the SDA and are discharged to the ash removal system.

Combustion gas exits the SDA and is distributed to the fabric filter modules. Unit 2 has four fabric filter modules and Unit 3 has three fabric filter modules. Combustion gas passes through Teflon-coated fiberglass cloth bags. Particles in the combustion gases are deposited on the outside of each bag in the filter module. During the bag cleaning cycle, a burst of air in the direction opposite to the gas flow dislodges particulate matter from the bag.

The induced draft fan is located downstream of the fabric filter baghouse. The induced draft fan moves the combustion gas through the system and exhausts the gas through the main stack.

Hot, wet gas is extracted downstream of the baghouse through a continuous emissions monitoring system. This system features a multi-component infrared gas analyzer that detects hydrogen chloride, carbon monoxide, and water vapor concentrations. An integrated zirconium oxide-based analyzer detects oxygen concentrations.

2.2 Rotary Kiln Incinerator

The rotary kiln incinerator includes the following components:

- Waste feed system

- Primary and secondary combustion chambers
- Tempering chamber
- Lime injection system
- Spray dryer absorber
- Carbon injection system
- Fabric filter baghouse
- Solids and ash removal systems
- Induced draft (ID) fan and stack
- Instrumentation, controls, and data acquisition systems

Figure 2-3 presents a block flow diagram of the Unit 4 incinerator system.

A variety of solid and liquid wastes are thermally treated in the rotary kiln incinerator. Solid wastes are fed to a ram feeder via a clamshell, a drum feed conveyor and an auxiliary feed conveyor. A hydraulic ram pushes the solid waste into the kiln. Liquid waste from tanks and tanker trucks is fed to the primary and secondary combustion chambers through atomized liquid injectors.

The primary combustion chamber main burner and the secondary combustion chamber main burner are used to maintain temperatures on natural gas. Combustion gases exit the primary combustion chamber and enter into the secondary combustion chamber, which serves as an afterburner. A surge vent is located at the front of the kiln and the secondary combustion chamber is equipped with a thermal relief vent.

Combustion gases exit the secondary combustion chamber and enter the tempering chamber. Process water is fed to tempering chamber through air atomized spray nozzles. Combustion gas is cooled as it passes through the spray of water. The water is completely vaporized, cooling the combustion gas. The combustion gas exits the tempering chamber and is distributed between two identical SDAs.

Lime slurry is fed to each SDA through air atomized spray nozzles. Combustion gases are directed downward through a duct in the SDA and then dispersed symmetrically into the cloud of atomized lime. This provides acid gas removal and cooling of the combustion gas. Dried spent chemicals and ash settle to the bottom of the SDA and are discharged to the ash removal system.

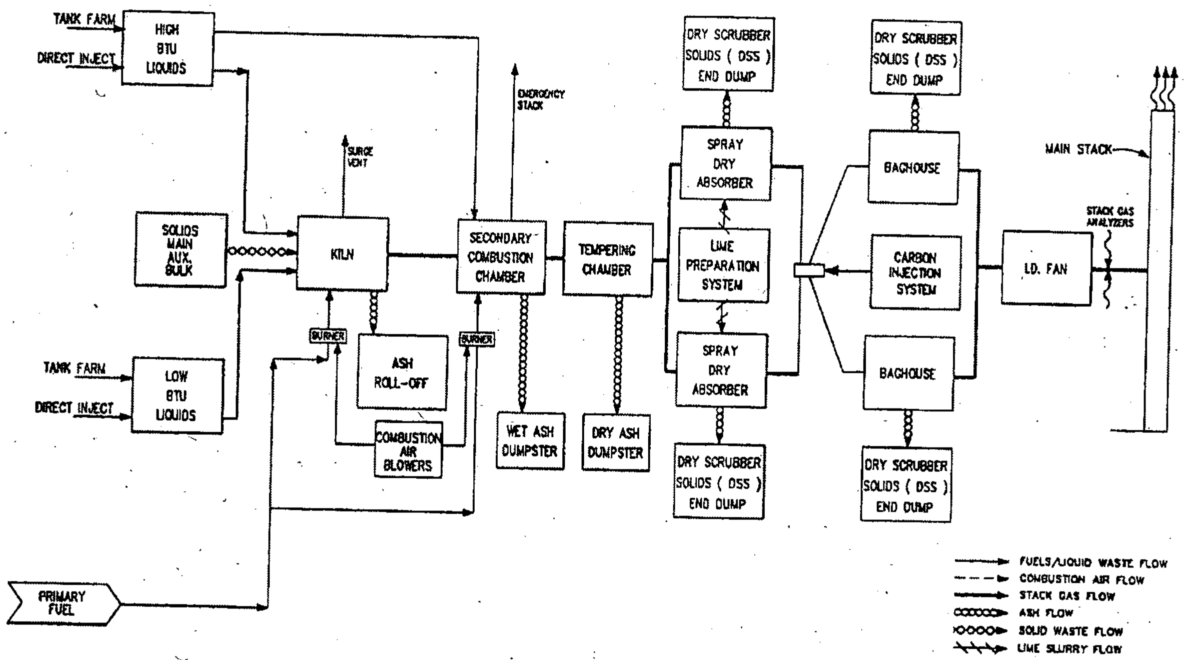

Figure 2-3 Rotary Kiln Incinerator, Unit 4, Block Flow Diagram

A carbon injection system is utilized for controlling dioxin/furan and mercury emissions. The activated carbon is air injected into the combustion gas immediately downstream of the convergence of combustion gases from the SDAs.

Combustion gases exit the SDAs and are distributed to two fabric filter modules. Each module has three compartments in parallel containing multiple fabric bags. Combustion gas passes through the fabric bags. Particles in the combustion gases are deposited on the outside of each bag. During the bag cleaning cycle, a burst of air in the direction opposite to the gas flow dislodges particulate matter from the bag.

The induced draft fan is located downstream of the fabric filter baghouse. The induced draft fan moves the combustion gas through the system and exhausts the gas through the main stack.

Hot, wet gas is extracted downstream of the ID fan through a continuous emissions monitoring system. This system features a multi-component infrared gas analyzer that detects hydrogen chloride, carbon monoxide, and water vapor concentrations. An integrated zirconium oxide-based analyzer detects oxygen concentrations.

3.0 STARTUP AND SHUTDOWN PROCEDURES

The purpose of this section is to prescribe procedures for the startup and shutdown of the incinerator system. This section also clarifies which actions are within the scope of the regulatory definition of startup and shutdown.

To satisfy the requirements of § 63.1206(c)(2)(v)(B), waste feed restriction and operating limits have been imposed to startups and shutdowns. During a startup, the feeding of hazardous waste to the incinerator will not be initiated until all operating parameters are within limits. Hazardous waste will not be fed during a shutdown event.

Consistent with the requirements of § 63.1206(c)(2)(iii), Veolia will utilize an oxygen correction factor of 1.6 (i.e., 12.3% O_2) during periods of startup and shutdown. This will eliminate wide variations in corrected CO concentration that can occur during startup and shutdown due to changes in the oxygen concentration. The oxygen correction factor of 1.6 is based on the average oxygen correction factor observed during normal operations of the incinerators. This "default" oxygen correction factor can only be utilized when the waste residence time in the primary combustion chamber has expired and when the incinerator is in startup or shutdown.

Veolia has developed standard division practices (SDPs) for the operation of each incinerator system and ancillary equipment and systems. The SDPs containing startup and shutdown procedures for the incinerators are:

- SDP 2201 *Startup, Operation, and Shutdown of No. 2/3 Incinerators*
- SDP 2417 *Startup, Operation, and Shutdown of No. 4 Incinerator*

3.1 Startup

All startups are preceded by a shutdown. Depending on the purpose of the preceding shutdown, portions of the air pollution control system may be in service upon commencing a startup. This will be reflected on the startup record (see Attachments 1). During a startup, waste will not be introduced until all operating parameters are within limits. A startup event is concluded once waste is introduced and all operating parameters are within limits.

Veolia's startup procedures are representative of safety and good air pollution control practices. The procedures are designed to minimize the potential for excess emissions by ensuring that all equipment is fully operational (within permit limits) prior to the introduction of hazardous waste to the system. Adherence to these startup procedures will employ the knowledge and skills demonstrated through the implementation of the Operator Training and Certification Program.

3.2 Normal Shutdown

Some shutdowns will allow the primary combustion chamber to cool. Prior to these shutdowns, the incinerator will be burning auxiliary fuel only and the hazardous waste residence time will have transpired. A shutdown will be initiated with the shutoff of auxiliary fuel to the incinerator or by shutoff of the ID fan. Other shutdowns will be initiated with the cessation of all waste feeds by the operator to stabilize system operating parameters. Portions or all of the air pollution control system may remain in operating mode at the conclusion of a shutdown through the subsequent startup.

Veolia's shutdown procedures are representative of safety and good air pollution control practice. The procedures are designed to minimize the potential for excess emissions by ensuring that all waste feeds are off and/or the hazardous waste residence time has transpired prior to the shutdown of the incinerator system. Adherence to these shutdown procedures will employ the knowledge and skills demonstrated through the implementation of the Operator Training and Certification Program. Procedures for emergency shutdown are described in the next section regarding malfunctions.

4.0 MALFUNCTIONS

The purpose of this section of the Startup, Shutdown and Malfunction Plan is to:

- Define potential malfunctions and their causes
- Describe measures to minimize the frequency and severity of malfunctions.
- Prescribe procedures for operating and maintaining the incinerator during malfunctions
- Prescribe actions to correct the cause of a malfunction

A summary of potential malfunctions and their causes is given in Table 4-1. This list of potential malfunctions is arranged according to unit operations. The occurrence of any event listed in Table 4-1 should be responded to as a malfunction and a malfunction recordkeeping form, included as Attachment 3, should be initiated. During the response to these events, it will be determined if the event meets the regulatory definition of a malfunction.

4.1 Measures to Minimize the Frequency of Malfunctions

The following measures contribute to prevent malfunctions:

- Incinerator system design consistent with safety and good engineering practices
- Hazards and operability studies of the incinerators
- Appropriate frequency of preventative maintenance and inspection
- Good operating practices
- Well trained and qualified personnel

Veolia's performance history, this document, and the following regulatory documents serve as evidence of Veolia's proactive measures to minimize the frequency of malfunctions.

- *Operation and Maintenance Plan*
- *Operating Training and Certification Program*
- *Continuous Emissions Monitoring System Quality Assurance Plan (CEMS QA Plan)*
- *Continuous Monitoring System Quality Control Plan* (CMS QC Plan)
- *Automatic Waste Feed Cutoff System Operability Test Procedures*

Table 4-1 Summary of Potential Malfunctions and Causes

Potential Malfunctions for Units 2, 3, and 4		Potential Causes for a Malfunction
GENERAL – Loss of Electrical Power Supply – Loss of Instrument/Plant Air Supply – Loss of Plant Nitrogen Supply – Loss of City Water Supply – Loss of Process Water Pressure/Flow (Unit 4) – Malfunction of Safety Interlock or Automatic Waste Feed Cutoff Interlock – Excessive Air In-leakage in Air Pollution Control System **PRIMARY COMBUSTION CHAMBER** – Loss of Natural Gas Pressure/Flow to PCC Main Burner – Loss of Combustion Air Pressure/Flow to PCC – PCC Main Burner Pilot Failure – Loss of Waste Flow to PCC Injector – Loss of Waste Feedrate Control to PCC Injector – Loss of Atomization Air Pressure to a PCC Injector – Loss of PCC Draft Control (Unit 4) – Loss of PCC Temperature Control – Flame Failure – Kiln Rotation Malfunction (Unit 4) – Bulk/Charge Feed Door Malfunction – Physical/Mechanical Internal Equipment Failure – PCC Seal Visual Emissions Monitoring and Recording System – Rapid Steam Generation from Ash Collection System Water **SECONDARY COMBUSTION CHAMBER** – Loss of Natural Gas Pressure/Flow to SCC Main Burner – Loss of Combustion Air Pressure/Flow to SCC – SCC Main Burner Ignition Failure – Loss of Waste Flow to SCC Injector – Loss of Waste Feedrate Control to SCC Injector – Loss of Atomization Air Pressure to a SCC Injector – Loss of SCC Temperature Control – Flame Failure – Emergency Safety Vent Opening – Physical/Mechanical Internal Equipment Failure	-- Low Water Level in Slag Collection System (Unit 4) -- Rapid Steam Generation from Ash Collection System Water **TEMPERING CHAMBER (UNIT 4)** – Loss of Tempering Chamber Exit Gas Temperature Control – Loss of Atomization Air Pressure to Nozzle **LIME SLURRY SYSTEM** – Loss of Lime Feed to Lime Slurry Feed Tank – Malfunction in Lime Slurry Concentration **UNITS 2 AND 3 SPRAY DRYER ABSORBER (SDA)** – Loss of Lime Slurry Flow to SDA – Loss of Lime Slurry Flow Control – Loss of City Water Flow to SDA – Loss of Cooling Air Flow to Atomizer – Loss of SDA Exit Gas Temperature Control – Atomizer Failure **UNITS 4 SPRAY DRYER ABSORBER (SDA)** – Loss of Lime Slurry Flow to SDA – Loss of Lime Slurry Flow Control/Exit Gas Temperature Control – Loss of Atomization Air Pressure to SDA Nozzle **CARBON INJECTION SYSTEM (UNIT 4)** – Loss of Carrier Gas Pressure – Loss/Restriction of Activated Carbon Flow – Loss of Plant Air Pressure/Flow to Carbon Bulk Sack **BAGHOUSE & INDUCED DRAFT (ID) FAN** – Torn/Leaking Bag – Bag Blinding/High-High Pressure Drop – Loss of Stack Gas Flowrate Control (Unit 2 and 3) – Baghouse Isolation Damper Malfunction (Unit 4) – ID Fan Failure **CONTROL SYSTEM/CONTINUOUS MONITORING SYSTEM** – Control System/Continuous Monitoring System Malfunction – Continuous Emissions Monitoring System Malfunction	Mechanical/electrical failure of rotating equipment. Plugging/physical failure of lines/nozzles Physical/electrical failure of instrumentation Mechanical/electrical failure of actuated valves/dampers Physical/electrical failure of control system Mechanical/electrical failure of utility supplies Electrical/actuation failure of safety interlocks Physical/mechanical internal equipment failure

VES 003980

Despite these efforts, equipment failures and other operating anomalies can occur. Within the scope of regulatory requirements, the operating record will contain the appropriate documentation to establish that poor maintenance or careless operations are not contributing factors to the cause of a malfunction.

4.2 Measures to Minimize the Severity of Malfunctions

The following measures contribute to minimize the severity of malfunctions:

- Alarms and interlocks
- AWFCO testing
- Failure positions for critical equipment
- Well trained and qualified personnel
- Design of the incinerator system

Typically, an event that meets the definition of a malfunction will trigger an alarm. An alarm informs the operator of the situation and may provide an opportunity to avoid an exceedance. If conditions become unsafe or exceed operating limits, interlocks are in place for an automated response that is specific to the triggering condition. Refer to Veolia's *Documentation of Compliance* or *Notification of Compliance*, whichever is currently applicable, for details on AWFCO conditions. Additional details on alarms and interlocks are maintained on piping and instrumentation diagrams (P&IDs)

The most critical key to minimizing the severity of malfunctions is the functionality of AWFCO interlocks. Accordingly, Veolia performs testing of the AWFCO system, as described in the *AWFCO Plan*. This testing confirms a state of readiness to respond to a malfunction in a manner that will minimize the release of hazardous air pollutants.

Through training and job experience, the operator will have the process knowledge that qualifies him to use discretion in responding to malfunctions. Due to the unusual and dynamic conditions that are present during a malfunction, operator discretion is essential to minimizing the severity of malfunctions. An operator can evaluate process conditions and alarms and choose the best response to avoid an exceedance, if possible. If the malfunction adversely affects the functionality of alarms, interlocks, or fail safe positions, the operator must recognize the situation and respond appropriately. In the event that the malfunction affects the ability to automatically cutoff waste, the operator will manually cutoff waste feeds as quickly as possible.

The design of the each incinerator system also ensures that the severity of malfunctions will be minimized. This includes alarms and interlocks, the fail safe position of actuated valves, and redundant instrumentation and process equipment. Also, the design of each incinerator's instrumentation and control systems provides the operator convenient access to process variable indication, including position indication of selected actuated valves. This is essential to providing the operator the information required to best evaluate system conditions and responses. Table 4-2 lists potential malfunctions and associated redundant equipment and systems that are available to prevent these malfunctions or to minimize the potential for a significant release of hazardous air pollutants.

4.3 Corrective Measures

The *Program of Corrective Actions for Malfunctions* is Attachment 4 of this document. This program addresses how the incinerator will be operated and maintained during malfunctions. In this program, potential malfunctions are listed for each portion of the incinerator system. The malfunctions are events that will be recognized by the operator, or indicated by an alarm, and threaten to cause an exceedance. In the response to the malfunction and/or alarms, the operator will apply discretion and attempt to maintain the incinerator system within regulatory limits. In the program of corrective actions, potential causes of each malfunction are listed. The operator will utilize process knowledge, job experience, and, if needed, assistance from other personnel to identify the cause of the malfunction. For each potential cause, actions to correct the failure are listed. The corrective actions prescribed may require the collaboration of multi-disciplined personnel who are qualified to return the incinerator system to proper working conditions (i.e., maintenance personnel, control system technicians, engineering).

Table 4-2
Redundant Equipment and Systems for
Minimizing the Frequency or Severity of Malfunctions

Redundant Equipment/Systems	Potential Malfunctions Prevented/Minimized
Emergency generator (Unit 4)	Loss of Electrical Power Supply
Universal Power Supply (UPS) system powers computers, monitors, and control systems	Loss of Electrical Power Supply
Two compressors are on hot standby (Unit 4) Three air compressors running and one compressor on hot standby (Unit 2 and 3).	Loss of Instrument/Plant Air Supply
Dual Process Water Pumps	Loss of Process Water Pressure/Flow
Dedicated PCC combustion air fan (Unit 4)	Loss of Combustion Air Pressure/Flow to PCC
Dedicated SCC combustion air fan (Unit 4) Spare SCC combustion air fan (Unit 4)	Loss of Combustion Air Pressure/Flow to SCC
Multiple Tempering Chamber Nozzles	Loss of Tempering Chamber Exit Gas Temperature Control Loss of Atomization Air Pressure to Nozzle
Dual Slurry Feed Pumps (Unit 4) Shared Back-up Pump (Unit 2 and 3)	Loss of Slurry Feed to SDA
Off-line Spare Lime Slurry Atomizer (Unit 2 & 3)	Atomizer Failure
Dual SDAs (Unit 4)	Loss of Lime Slurry Flow to SDA Loss of Lime Slurry Flow Control/Exit Gas Temperature Control Loss of Atomization Air Pressure to SDA Nozzle
Off-line Spare Baghouse Module (Unit 2)	Torn/Leaking Bag
Two baghouse modules with three compartments each. 5 compartments provide sufficient particulate removal so that one of the 6 compartments can be isolated as a spare. (Unit 4)	Torn/Leaking Bag

ATTACHMENT 1

STARTUP RECORDKEEPING FORM

VEOLIA ENVIRONMENTAL SERVICES, INC.
INCINERATOR STARTUP RECORD
(Page 1 of 3)

This report pertains to a startup of Unit 2 / 3 / 4 (circle one).

Startup event initiated on: ______________________
(Month/Day/Year, Hours : Minutes)

Startup event concluded on: ______________________
(Month/Day/Year, Hours : Minutes)

The total duration of this startup event was: ______________
(Hours : Minutes)

Attached to this form is a checklist that summarizes the approved startup procedures referenced in Veolia's *Startup, Shutdown, and Malfunction Plan* (SSMP). The operational steps that have been checked document that the detailed startup procedures were followed.

Were all actions associated with this startup event in conformance with the SSMP? Yes / No (circle one). If no, describe the inconsistent actions below.

Were there any exceedances of an operating parameter limit? Yes / No (circle one). If yes, please list/describe. If any actions were not consistent with the SSMP and an operating parameter limit was exceeded, an immediate SSM report is required.

Notes/Recommendations:

The following signature certifies the accuracy of this record:

(Name)	(Title)
(Signature)	(Date)

VEOLIA ENVIRONMENTAL SERVICES, INC.
INCINERATOR STARTUP RECORD

Unit 2 and 3 Incinerator Startup Checklist	Initials
Verify that pre-startup has been completed	
Check thermal relief vent (TRV)	
Start combustion air fan	
Start PCC main burner and temperature ramp-up	
Start SCC main burner and temperature ramp-up	
Check stack gas flow and SDA temperatures control settings	
Start ID fan. Monitor SDA temperature while ramping up stack gas flowrate	
Close TRV	
Start lime slurry	
Establish all operating parameters within limits	
Operator's Notes:	

Note: Certain air pollution control and ancillary equipment may be operational prior to startup

(Signature of Shift Leader or Designee) (Date)

VEOLIA ENVIRONMENTAL SERVICES, INC.
INCINERATOR STARTUP RECORD

Unit 4 Incinerator Startup Checklist	**Initials**
Verify that pre-startup has been completed	
Check thermal relief vent (TRV)	
Start ID fan and set kiln draft (start of purge cycle)	
Start SCC combustion air fan	
Start the kiln combustion air fan (purge cycle complete)	
Start SCC main burner and temperature ramp-up	
Start PCC main burner and temperature ramp-up	
Start kiln rotation before 500 °F	
Start the kiln seal air	
Start the SCC conveyor	
Set up the tempering chamber for operation	
Set up lime slurry injection system	
Set up the SDAs for operation	
Set up the ash collection system	
Set up the baghouses for operation	
Slowly ramp-up the tempering chamber exit temperature	
Continue PCC and SCC temperature ramp-up	
Set up the air cannon	
Start the kiln seal conveyor	
Establish all operating parameters within limits	

Operator's Notes:

Note: Certain air pollution control and ancillary equipment may be operational prior to startup.

(Signature of Shift Leader or Designee) (Date)

ATTACHMENT 2

SHUTDOWN RECORDKEEPING FORM

VEOLIA ENVIRONMENTAL SERVICES, INC.
INCINERATOR SHUTDOWN RECORD

(Page 1 of 3)

This report pertains to a shutdown of Unit 2 / 3 / 4 (circle one).

Shutdown event initiated on: ______________________
(Month/Day/Year, Hours : Minutes)

Shutdown event concluded on: ______________________
(Month/Day/Year, Hours : Minutes)

The total duration of this shutdown event was: ______________
(Hours : Minutes)

Attached to this form is a checklist that summarizes the approved shutdown procedures referenced in the *Veolia Startup, Shutdown, and Malfunction Plan* (SSMP). The operational steps that have been checked document that the detailed shutdown procedures were followed.

Were all actions associated with this shutdown event in conformance with the SSMP? Yes / No (circle one). If no, describe the inconsistent actions below.

____
____
____
____
____
____

Were there any exceedances of an operating parameter limit? Yes / No (circle one). If yes, please list/describe. If any actions were not consistent with the SSMP and an operating parameter limit was exceeded, an immediate SSM report is required.

____
____

Notes/Recommendations:

____
____
____

The following signature certifies the accuracy of this record:

______________________ (Name)

______________________ (Title)

______________________ (Signature)

______________________ (Date)

VEOLIA ENVIRONMENTAL SERVICES, INC.
INCINERATOR SHUTDOWN RECORD

Unit 2 and 3 Incinerator Shutdown Checklist	**Initials**
Verify that all waste feeds are off and/or that the hazardous waste residence time has transpired	
Monitor CEMS output to verify stable conditions	
Open the stack cap	
Stop the ID fan	
Shut off water and lime slurry flow to the atomizer	
Remove atomizer and position lid	

Operator's Notes:

Note: All or certain air pollution control and ancillary equipment may remain operational throughout shutdown. Once the hazardous waste residence time has transpired, operator's discretion can be applied.

(Signature of Shift Leader or Designee) (Date)

VEOLIA ENVIRONMENTAL SERVICES, INC.
INCINERATOR SHUTDOWN RECORD

Unit 4 Incinerator Shutdown Checklist	Initials
Verify that all waste feeds are off and/or that the hazardous waste residence time has transpired	
Vent the air cannons	
Shut off the kiln burner and SCC burner	
Shut off the kiln and SCC combustion air fans	
Reduce the tempering chamber outlet temperature to 500 °F	
Shutdown SDA (at appropriate temperatures)	
Shutdown tempering chamber (at appropriate temperatures)	
After PCC and SCC reach the appropriate temperature, shut off the ID fan	
Operator's Notes:	

Note: All or certain air pollution control and ancillary equipment may remain operational throughout shutdown. Once the hazardous waste residence time has transpired, operator's discretion can be applied.

(Signature of Shift Leader or Designee) (Date)

ATTACHMENT 3

MALFUNCTION RECORDKEEPING FORM

VEOLIA ENVIRONMENTAL SERVICES, INC.
MALFUNCTION RECORD
(Page 1 of 1)

This report pertains to a malfunction of Unit 2 / 3 / 4 (circle one).

The malfunction event occurred on: ______________________
(Month/Day/Year, Hours : Minutes)

The malfunction event concluded on: ______________________
(Month/Day/Year, Hours : Minutes)

The total duration of this malfunction event was: ______________
(Hours : Minutes)

The *Veolia Program of Corrective Actions for Malfunctions* must be adhered to for the operating and maintaining of the incinerator system and for correcting the cause of the malfunction. Describe the malfunction, the automated and/or operator response, the potential cause of the malfunction, and the corrective actions taken:

Waste Feeds off Time --

Incinerator "Clear of Waste" Time --

Were all actions associated with this malfunction event in conformance with the SSMP? Yes / No (circle one). If no, initiate an immediate startup, shutdown, and malfunction report.

List/describe the exceedances that occurred (or believed to have occurred) due to this malfunction:

Notes/Recommendations:

The following signature certifies the accuracy of this record:

(Name) (Title)

(Signature) (Date)

ATTACHMENT 4

PROGRAM OF CORRECTIVE ACTIONS FOR MALFUNCTIONS

PROGRAM OF CORRECTIVE ACTIONS FOR MALFUNCTIONS
TABLE OF CONTENTS

1.0 GENERAL
- 1.1 Operating and Maintaining the System during Malfunctions
- 1.2 Loss of Electrical Power Supply
- 1.3 Loss of Instrument/Plant Air Supply
- 1.4 Loss of Plant Nitrogen Supply
- 1.5 Loss of City Water Supply
- 1.6 Loss of Process Water Pressure/Flow (Unit 4)
- 1.7 Malfunction of Safety Interlock or Automatic Waste Feed Cutoff Interlock
- 1.8 Excessive Air In-leakage in Air Pollution Control System

2.0 PRIMARY COMBUSTION CHAMBER
- 2.1 Loss of Natural Gas Pressure/Flow to PCC Main Burner
- 2.2 Loss of Combustion Air Pressure/Flow to PCC
- 2.3 PCC Main Burner Pilot Failure
- 2.4 Loss of Waste Flow to PCC Injector
- 2.5 Loss of Waste Feedrate Control to PCC Injector
- 2.6 Loss of Atomization Air Pressure to a PCC Injector
- 2.7 Loss of PCC Draft Control (Unit 4)
- 2.8 Loss of PCC Temperature Control
- 2.9 Flame Failure
- 2.10 Kiln Rotation Malfunction (Unit 4)
- 2.11 Bulk/Charge Feed Door Malfunction
- 2.12 Physical/Mechanical Internal Equipment Failure
- 2.13 PCC Seal Visual Emissions Monitoring and Recording System
- 2.14 Rapid Steam Generation from Ash Collection System Water

3.0 SECONDARY COMBUSTION CHAMBER
- 3.1 Loss of Natural Gas Pressure/Flow to SCC Main Burner
- 3.2 Loss of Combustion Air Pressure/Flow to SCC
- 3.3 SCC Main Burner Ignition Failure
- 3.4 Loss of Waste Flow to SCC Injector (Unit 4)
- 3.5 Loss of Waste Feedrate Control to SCC Injector (Unit 4)
- 3.6 Loss of Atomization Air Pressure to a SCC Injector
- 3.7 Loss of SCC Temperature Control
- 3.8 Flame Failure
- 3.9 Physical/Mechanical Internal Equipment Failure
- 3.10 Low Water Level in Slag Collection System (Unit 4)
- 3.11 Emergency Safety Vent Opening
- 3.12 Rapid Steam Generation from Ash Collection System Water

4.0 TEMPERING CHAMBER (UNIT 4)
- 4.1 Loss of Tempering Chamber Exit Gas Temperature Control
- 4.2 Loss of Atomization Air Pressure to Nozzle

5.0 LIME SLURRY SYSTEM
- 5.1. Loss of Lime Feed to Lime Slurry Feed Tank
- 5.2. Malfunction in Lime Slurry Concentration

6.0 UNITS 2 AND 3 SPRAY DRYER ABSORBER (SDA)
- 6.1. Loss of Lime Slurry Flow to SDA

VES 003995

6.2. Loss of Lime Slurry Flow Control
6.3. Loss of City Water Flow to SDA (Unit 2 and 3)
6.4. Loss of Cooling Air Flow to Atomizer
6.5. Loss of SDA Exit Gas Temperature Control
6.6. Atomizer Failure

7.0 UNIT 4 SPRAY DRYER ABSORBER (SDA)
7.1. Loss of Lime Slurry Flow to SDA
7.2. Loss of Lime Slurry Flow Control/Exit Gas Temperature Control
7.3. Loss of Atomization Air Pressure to SDA Nozzle

8.0 CARBON INJECTION SYSTEM (UNIT 4)
8.1. Loss of Carrier Gas Pressure
8.2. Loss/Restriction of Activated Carbon Flow
8.3. Loss of Plant Air Pressure/Flow to Carbon Bulk Sack

9.0 BAGHOUSE & INDUCED DRAFT (ID) FAN
9.1. Torn/Leaking Bag
9.2. Bag Blinding/High-High Pressure Drop
9.3. Loss of Stack Gas Flowrate Control (Unit 2 and 3)
9.4. Baghouse Isolation Damper Malfunction (Unit 4)
9.5. ID Fan Failure

10.0 CONTROL SYSTEM/CONTINUOUS MONITORING SYSTEM
10.1. Control System/Continuous Monitoring System Malfunction
10.2. Continuous Emissions Monitoring System Malfunction

VEOLIA ENVIRONMENTAL SERVICES, INC.
PROGRAM OF CORRECTIVE ACTIONS FOR MALFUNCTIONS

1.0 GENERAL

1.1. Operating and Maintaining the System during Malfunctions

1.1.1. Due to the sudden, infrequent, and unusual conditions associated with malfunctions, continually evaluate the situation. Using discretion, respond in a manner consistent with safety and good air pollution control practices.

1.1.2. Take the following actions to minimize the release of hazardous air pollutants

1.1.2.1. Cutoff all waste feeds and/or confirm that the automatic waste feed cutoff system functioned properly.

1.1.2.2. Maintain operating parameters within limits, if possible.

1.1.2.3. If applicable, follow the procedures provided by the *Emergency Safety Vent Plan.*

1.1.3. Keep supervisor and/or maintenance supervisor informed, as appropriate.

1.1.4. Identify the malfunction and potential cause.

1.1.5. Implement corrective actions involving the troubleshooting of failures and the servicing and/or replacing of components, as needed. Refer to manufacture's troubleshooting and service recommendations, as needed.

1.1.6. Record the appropriate information using a malfunction record form.

1.2. Loss of Electrical Power Supply

1.2.1. Verify proper failure position of actuated valves.

1.2.2. Identify link in power supply path that is not operational.

1.2.3. Take the necessary actions to restore the supply of electrical power.

1.3. Loss of Instrument/Plant Air Supply

1.3.1. Verify proper failure position of actuated valves.

1.3.2. In case of plugging/physical failure of line or line components:

1.3.2.1. Identify the location/cause of the restriction of instrument air flow.

1.3.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

1.3.3. In case of mechanical/electrical failure of actuated valve:

1.3.3.1. Identify cause of actuation failure.

1.3.3.2. Service/replace electrical and/or pneumatic components, as needed.

1.3.3.3. Service/replace actuator and/or valve components, as needed.

1.3.4. In case of mechanical/electrical failure at air supply source:

1.3.4.1. Identify the cause of the failure.

1.3.4.2. Take the necessary actions to restore the supply of instrument/plant air.

1.4. Loss of Plant Nitrogen Supply

1.4.1. In case of plugging/physical failure of line or line components:

1.4.1.1. Identify the location/cause of the restriction of nitrogen flow.

1.4.1.2. Clear line plugging and/or service/replace faulty line components, as needed.

1.4.2. In case of mechanical/electrical failure of actuated valve:

1.4.2.1. Identify cause of actuation failure.

1.4.2.2. Service/replace electrical and/or pneumatic components, as needed.

1.4.2.3. Service/replace actuator and/or valve components, as needed.

1.4.3. In case of mechanical/electrical failure at nitrogen supply source:

1.4.3.1. Identify the cause of the failure.

1.4.3.2. Take the necessary actions to restore the supply of nitrogen.

1.5. Loss of City Water Supply

1.5.1. In case of plugging/physical failure of line or line components:

1.5.1.1. Identify the location of plugging or line failure.

1.5.1.2. Clear line plugging and/or service/replace faulty line components, as needed.

1.5.2. In case of mechanical/electrical failure of actuated valve:

1.5.2.1. Identify cause of actuation failure.

1.5.2.2. Service/replace electrical and/or pneumatic components, as needed.

1.5.2.3. Service/replace actuator and/or valve components, as needed.

1.5.3. In case of mechanical/electrical failure at city water supply source:

1.5.3.1. Identify the cause of the failure.

1.5.3.2. Take the necessary actions to restore the supply of city water.

1.6. Loss of Process Water Pressure/Flow (Unit 4)

1.6.1. For loss of city water supply to process water tank, see 1.5.

1.6.2. In case of mechanical/electrical failure of process water pump:

1.6.2.1. Diagnose pump/drive failure.

1.6.2.2. Service/replace the pump/drive, as needed.

1.6.2.3. Restore electrical power supply to the pump.

1.6.3. In case of plugging/physical failure of line or line components:

1.6.3.1. Identify the location of plugging or line failure.

1.6.3.2. Clear line plugging and/or service/replace faulty line components, as needed.

1.6.4. In case of mechanical/electrical failure of actuated valve:

1.6.4.1. Identify cause of actuation failure.

1.6.4.2. Service/replace electrical and/or pneumatic components, as needed.

1.6.4.3. Service/replace actuator and/or valve components, as needed.

1.6.5. In case of physical/electrical failure of control system component:

1.6.5.1. Identify faulty control system component.

1.6.5.2. Service/replace control system components, as needed.

1.7. Malfunction of Safety Interlock or Automatic Waste Feed Cutoff Interlock

1.7.1. If safety interlock or AWFCO interlock was erroneously triggered, proceed with corrective actions.

1.7.2. If safety or AWFCO condition exists but automated response failed, cutoff waste feed as quickly as possible, then proceed with corrective actions.

1.7.3. In case of physical/electrical failure of instrumentation:

1.7.3.1. Identify faulty instrumentation component.

1.7.3.2. Service/replace faulty instrumentation components, as needed.

1.7.4. In case of mechanical/electrical failure of actuated valve/damper:

1.7.4.1. Identify cause of actuation failure.

1.7.4.2. Service/replace electrical and/or pneumatic components, as needed.

1.7.4.3. Service/replace actuator and/or valve components, as needed.

1.7.5. In case of physical/electrical failure of control system component:

1.7.5.1. Identify faulty control system component.

1.7.5.2 Service/replace control system components, as needed.

1.8. Excessive Air In-leakage in Air Pollution Control System

1.8.1 In case of holes due to corrosion:

1.8.1.1. Identify location of hole.

1.8.1.2. Repair system as needed.

1.8.2 In case of open ports, manways, access ports, etc.

1.8.2.1. Identify location of open port, manway, etc.

1.8.2.2. Replace cover on open port, manway, etc.

2.0 PRIMARY COMBUSTION CHAMBER

2.1. Loss of Natural Gas Pressure/Flow to PCC Main Burner

- 2.1.1. In case of plugging/physical failure of line or line component:
  - 2.1.1.1. Identify the location of plugging or line failure.
  - 2.1.1.2. Clear line plugging and/or service/replace faulty line components, as needed.
- 2.1.2. In case of mechanical/electrical failure of actuated valve:
  - 2.1.2.1. Identify cause of actuation failure.
  - 2.1.2.2. Service/replace electrical and/or pneumatic components, as needed.
  - 2.1.2.3. Service/replace actuator and/or valve components, as needed.
- 2.1.3. In case of physical/electrical failure of control system component:
  - 2.1.3.1. Identify faulty control system component.
  - 2.1.3.2. Service/replace control system components, as needed.
- 2.1.4. In case of mechanical/electrical failure at natural gas supply source:
  - 2.1.4.1. Identify the cause of the failure.
  - 2.1.4.2. Take the necessary actions to restore the supply of natural gas.

2.2. Loss of Combustion Air Pressure/Flow to PCC

- 2.2.1. In case of mechanical/electrical failure of combustion air blower:
  - 2.2.1.1. Diagnose blower/drive failure.
  - 2.2.1.2. Service/replace the blower/drive, as needed.
  - 2.2.1.3. Restore electrical power supply to the blower.
- 2.2.2. In case of physical failure of combustion air duct:
  - 2.2.2.1. Identify the location of duct failure.
  - 2.2.2.2. Service/replace faulty duct, as needed.
- 2.2.3. In case of mechanical/electrical failure of actuated valve:
  - 2.2.3.1. Identify cause of actuation failure.
  - 2.2.3.2. Service/replace electrical and/or pneumatic components, as needed.
  - 2.2.3.3. Service/replace actuator and/or valve components, as needed.

- 2.2.4. In case of physical/electrical failure of control system component:
  - 2.2.4.1. Identify faulty control system component.
  - 2.2.4.2. Service/replace control system components, as needed.

2.3. PCC Main Burner Pilot Failure

- 2.3.1. For loss of natural gas pressure/flow, see 2.1.
- 2.3.2. For loss of combustion air pressure/flow, see 2.2.
- 2.3.3. In case of physical/electrical failure of igniter:
  - 2.3.3.1. Identify cause of igniter failure.
  - 2.3.3.2. Service/replace igniter and/or associated components, as needed.
- 2.3.4. In case of physical/electrical failure of control system component:
  - 2.3.4.1. Identify faulty control system component.
  - 2.3.4.2. Service/replace control system components, as needed.

2.4. Loss of Waste Flow to PCC Injector

- 2.4.1. In case of mechanical/electrical failure of waste feed pump:
  - 2.4.1.1. Diagnose pump/drive failure.
  - 2.4.1.2. Service/replace the pump/drive, as needed.
  - 2.4.1.3. Restore electrical power supply to the pump.
- 2.4.2. In case of low nitrogen pressure, see 1.4.
- 2.4.3. In case of plugging/physical failure of line or line component:
  - 2.4.3.1. Identify the location of plugging or line failure.
  - 2.4.3.2. Clear line plugging and/or service/replace faulty line components, as needed.
  - 2.4.3.3. Restore/confirm functional heat tracing, if applicable.
- 2.4.4. In case of mechanical/electrical failure of actuated valve:
  - 2.4.4.1. Identify cause of actuation failure.
  - 2.4.4.2. Service/replace electrical and/or pneumatic components, as needed.
  - 2.4.4.3. Service/replace actuator and/or valve components, as needed.
- 2.4.5. In case of physical/electrical failure of control system component:
  - 2.4.5.1. Identify faulty control system component.
  - 2.4.5.2. Service/replace control system components, as needed.

2.5. Loss of Waste Feedrate Control to PCC Injector

- 2.5.1. In case of loss of waste pressure/flow to PCC injector, see 2.4.

2.5.2. In case of physical/electrical failure of flow transmitter: Service/replace flow transmitter and/or associated instrumentation, as needed.

2.5.3. In case of actuated valve failure:

2.5.3.1. Identify cause of actuation failure.

2.5.3.2. Service/replace electrical and/or pneumatic components, as needed.

2.5.3.3. Service/replace actuator and/or valve components, as needed.

2.5.4. In case of physical/electrical failure of control system component:

2.5.4.1. Identify faulty control system component.

2.5.4.2. Service/replace control system components, as needed.

2.6. Loss of Atomization Air Pressure to a PCC Injector

2.6.1. For a total loss of plant/instrument air supply, see 1.3.

2.6.2. In case of plugging/physical failure of line or line component:

2.6.2.1. Identify the location of plugging or line failure.

2.6.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

2.6.3. In case of mechanical/physical failure of pressure control valve: Service/replace pressure control valve, as needed.

2.7. Loss of PCC Draft Control (Unit 4)

2.7.1. In case of ID fan failure, see 9.5

2.7.2. In case of physical/electrical failure of kiln pressure transmitter: Service/replace pressure transmitter and/or associated instrumentation, as needed.

2.7.3. In case of actuated damper failure:

2.7.3.1. Identify cause of actuation failure.

2.7.3.2. Service/replace electrical and/or pneumatic components, as needed.

2.7.3.3. Service/replace actuator and/or damper components, as needed.

2.7.4. In case of physical/electrical failure of control system component:

2.7.4.1. Identify faulty control system component.

2.7.4.2. Service/replace control system components, as needed.

2.8. Loss of PCC Temperature Control

2.8.1. In case of loss of natural gas pressure/flow to main burner, see 2.1.

2.8.2. In case of loss of waste pressure/flow to PCC injector, see 2.4.

2.8.3. In case of physical/electrical failure of temperature element:

2.8.3.1. Service/replace faulty temperature element and/or associated instrumentation, as needed.

2.8.4. In case of physical/electrical failure of control system component:

2.8.4.1. Identify faulty control system component.

2.8.4.2. Service/replace control system components, as needed.

2.9. Flame Failure

2.9.1. In case of physical/electrical failure of flame detector:

2.9.1.1. Identify faulty flame detector component.

2.9.1.2. Service/replace flame detector components, as needed.

2.9.2. In case of physical/electrical failure of control system component:

2.9.2.1. Identify faulty control system component.

2.9.2.2. Service/replace control system components, as needed.

2.10. Kiln Rotation Malfunction (Unit 4)

2.10.1. In case of mechanical/electrical kiln drive system:

2.10.1.1. Diagnose drive failure.

2.10.1.2. Service/replace the drive, as needed.

2.10.1.3. Restore electrical power supply to motor.

2.10.2. In case of physical/electrical failure of kiln rotational speed transmitter: Service/replace transmitter and/or associated instrumentation, as needed.

2.10.3. In case of physical/electrical failure of control system component:

2.10.3.1. Identify faulty control system component.

2.10.3.2. Service/replace control system components, as needed.

2.11. Bulk/Charge Feed Door Malfunction

2.11.1. In case of mechanical/electrical failure of actuated door:

2.11.1.1. Identify cause of actuation failure.

2.11.1.2. Service/replace electrical, hydraulic, and/or pneumatic components, as needed.

2.11.1.3. Service/replace actuator and/or valve components, as needed.

2.11.2. In case of physical/electrical failure of control system component:

2.11.2.1. Identify faulty control system component.

2.11.2.2. Service/replace control system components, as needed.

2.12. Physical/Mechanical Internal Equipment Failure

2.12.1. In case of refractory failure, repair/replace refractory

2.12.2. In case of ash collection failure

2.12.2.1. Diagnose ash collection system failure

2.12.2.2. Service/replace ash collection system components, as needed.

2.13. PCC Seal Visual Emissions Monitoring and Recording System

2.13.1. In case of physical/electrical failure of camera, service/replace camera.

2.13.2. In case of physical/electrical failure of monitor, service/replace monitor.

2.13.3. In case of physical/electrical failure of recording system, service/replace recording system.

2.14. Rapid Steam Generation from Ash Collection System Water

2.14.1. In case of refractory failure, repair/replace refractory.

2.14.2. In case of uncontrolled movement/dropping of residue into ash collection system water, inspect system to identify/remove other suspect material.

3.0 SECONDARY COMBUSTION CHAMBER

3.1. Loss of Natural Gas Pressure/Flow to SCC Main Burner

3.1.1. In case of plugging/physical failure of line or line component:

3.1.1.1. Identify the location of plugging or line failure.

3.1.1.2. Clear line plugging and/or service/replace faulty line components, as needed.

3.1.2. In case of mechanical/electrical failure of actuated valve:

3.1.2.1. Identify cause of actuation failure.

3.1.2.2. Service/replace electrical and/or pneumatic components, as needed.

3.1.2.3. Service/replace actuator and/or valve components, as needed.

3.1.3. In case of physical/electrical failure of control system component:

3.1.3.1. Identify faulty control system component.

3.1.3.2. Service/replace control system components, as needed.

3.1.4. In case of mechanical/electrical failure at natural gas supply source:

3.1.4.1. Identify the cause of the failure.

3.1.4.2. Take the necessary actions to restore the supply of natural gas.

3.2. Loss of Combustion Air Pressure/Flow to SCC

3.2.1. In case of mechanical/electrical failure of combustion air blower:

3.2.1.1. Diagnose blower/drive failure.

3.2.1.2. Service/replace the blower/drive, as needed.

3.2.1.3. Restore electrical power supply to the blower.

3.2.2. In case of physical failure combustion air duct:

3.2.2.1. Identify the location of duct failure.

3.2.2.2. Service/replace faulty duct, as needed.

3.2.3. In case of mechanical/electrical failure of actuated valve:

3.2.3.1. Identify cause of actuation failure.

3.2.3.2. Service/replace electrical and/or pneumatic components, as needed.

3.2.3.3. Service/replace actuator and/or valve components, as needed.

3.2.4. In case of physical/electrical failure of control system component:

3.2.4.1. Identify faulty control system component.

3.2.4.2. Service/replace control system components, as needed.

3.3. SCC Main Burner Ignition Failure

3.3.1. For loss of natural gas pressure/flow, see 3.1.

3.3.2. For loss of combustion air pressure/flow, see 3.2.

3.3.3. In case of physical/electrical failure of igniter:

3.3.3.1. Identify cause of igniter failure.

3.3.3.2. Service/replace igniter and/or associated components, as needed.

3.3.4. In case of physical/electrical failure of control system component:

3.3.4.1. Identify faulty control system component.

3.3.4.2. Service/replace control system components, as needed.

3.4. Loss of Waste Flow to SCC Injector (Unit 4)

3.4.1. In case of mechanical/electrical failure of waste feed pump:

3.4.1.1. Diagnose pump/drive failure.

3.4.1.2. Service/replace the pump/drive, as needed.

3.4.1.3. Restore electrical power supply to the pump.

3.4.2. In case of low nitrogen pressure, see 1.4.

3.4.3. In case of plugging/physical failure of line or line component:

3.4.3.1. Identify the location of plugging or line failure.

3.4.3.2. Clear line plugging and/or service/replace faulty line components, as needed.

3.4.3.3. Restore/confirm functional heat tracing, if applicable.

3.4.4. In case of mechanical/electrical failure of actuated valve:

3.4.4.1. Identify cause of actuation failure.

3.4.4.2. Service/replace electrical and/or pneumatic components, as needed.

3.4.4.3. Service/replace actuator and/or valve components, as needed.

3.4.5. In case of physical/electrical failure of control system component:

3.4.5.1. Identify faulty control system component.

3.4.5.2. Service/replace control system components, as needed.

3.5. Loss of Waste Feedrate Control to SCC Injector (Unit 4)

3.5.1. In case of loss of waste pressure/flow to SCC injector, see 3.4.

3.5.2. In case of physical/electrical failure of flow transmitter: Service/replace flow transmitter and/or associated instrumentation, as needed.

3.5.3. In case of actuated valve failure:

3.5.3.1. Identify cause of actuation failure.

3.5.3.2. Service/replace electrical and/or pneumatic components, as needed.

3.5.3.3. Service/replace actuator and/or valve components, as needed.

3.5.4. In case of physical/electrical failure of control system component:

3.5.4.1. Identify faulty control system component.

3.5.4.2. Service/replace control system components, as needed.

3.6. Loss of Atomization Air Pressure to a SCC Injector

3.6.1. For a total loss of plant/instrument air supply, see 1.3.

3.6.2. In case of plugging/physical failure of line or line component:

3.6.2.1. Identify the location of plugging or line failure.

3.6.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

3.6.3. In case of mechanical/physical failure of pressure control valve: Service/replace pressure control valve, as needed.

3.7. Loss of SCC Temperature Control

3.7.1. In case of loss of natural gas pressure/flow to main burner, see 3.1.

3.7.2. In case of loss of waste pressure/flow to SCC injector, see 3.4.

3.7.3. In case of physical/electrical failure of temperature element:

3.7.3.1. Service/replace faulty temperature element and/or associated instrumentation, as needed.

3.7.4. In case of physical/electrical failure of control system component:

3.7.4.1. Identify faulty control system component.

3.7.4.2. Service/replace control system components, as needed.

3.8. Flame Failure

3.8.1. In case of physical/electrical failure of flame detector:

3.8.1.1. Identify faulty flame detector component.

3.8.1.2. Service/replace flame detector components, as needed.

3.8.2. In case of physical/electrical failure of control system component:

3.8.2.1. Identify faulty control system component.

3.8.2.2. Service/replace control system components, as needed.

3.9. Physical/Mechanical Internal Equipment Failure

3.9.1. In case of refractory failure, repair/replace refractory.

3.10. Low Water Level in Slag Collection System (Unit 4)

3.10.1. For a loss of process water pressure/flow, see 1.6.

3.10.2. In case of physical/mechanical failure of level controller: Service/replace faulty level controller and/or associated components, as needed.

3.10.3. In case of physical/mechanical failure of actuated valve:

3.10.3.1. Identify cause of actuation failure.

3.10.3.2. Service/replace pneumatic components, as needed.

3.10.3.3. Service/replace actuator and/or valve components, as needed.

3.11. Emergency Safety Vent Opening

3.11.1. Respond to an emergency safety vent opening in a manner consistent with the *Emergency Safety Vent Plan*.

3.11.2. In case of mechanical failure of the actuator:

3.11.2.1. Identify cause of actuation failure.

3.11.2.2. Service/replace emergency safety vent components, as needed.

3.12. Rapid Steam Generation from Ash Collection System Water

2.14.1. In case of refractory failure, repair/replace refractory.

2.14.2. In case of uncontrolled movement/dropping of residue into ash collection system water, inspect system to identify/remove other suspect material.

4.0 TEMPERING CHAMBER (UNIT 4)

4.1. Loss of Tempering Chamber Exit Gas Temperature Control

4.1.1. For a loss of process water pressure/flow, see 1.6.

4.1.2. In case of physical/electrical failure of flow transmitter: Service/replace flow transmitter and/or associated instrumentation, as needed.

4.1.3. In case of actuated valve failure:

4.1.3.1. Identify cause of actuation failure.

4.1.3.2. Service/replace electrical and/or pneumatic components, as needed.

4.1.3.3. Service/replace actuator and/or valve components, as needed.

4.1.4. In case of physical/electrical failure of control system component:

4.1.4.1. Identify faulty control system component.

4.1.4.2. Service/replace control system components, as needed.

4.1.5. In case of nozzle failure, service/replace nozzle, as needed.

4.2. Loss of Atomization Air Pressure to Nozzle

4.2.1. For a total loss of plant/instrument air supply, see 1.3.

4.2.2. In case of plugging/physical failure of line or line component:

4.2.2.1. Identify the location of plugging or line failure.

4.2.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

5.0 LIME SLURRY SYSTEM

5.1. Loss of Lime Feed to Lime Slurry Feed Tank

5.1.1. In case of mechanical/electrical failure of lime slurry screw feeder:

- 5.1.1.1. Diagnose feeder/drive failure.
- 5.1.1.2. Service/replace the feeder/drive, as needed.
- 5.1.1.3. Restore electrical power supply to the lime slurry screw feeder.

5.1.2. In case of mechanical/electrical failure of lime bin activator/vibrator:

- 5.1.2.1. Diagnose lime bin activator/vibrator failure.
- 5.1.2.2. Service/replace the lime bin activator/vibrator, as needed.
- 5.1.2.3. Restore electrical power supply to the lime slurry screw feeder.

5.1.3. In case of plugging/physical failure of line or line component:

- 5.1.3.1. Identify the location of plugging or line failure.
- 5.1.3.2. Clear line plugging and/or service/replace faulty line components, as needed.

5.1.4. In case of physical/electrical failure of lime feed controls: Service/replace faulty instrumentation and/or control system components, as needed.

5.2. Malfunction in Lime Slurry Concentration

5.2.1. In case of loss of lime feed to lime slurry feed tank, see 5.1

5.2.2. In case of loss of water flow to lime slurry feed tank, see 1.5

5.2.3. In case of mechanical/electrical failure of lime slurry agitator:

- 5.2.3.1. Diagnose agitator/drive failure.
- 5.2.3.2. Service/replace the agitator/drive, as needed.
- 5.2.3.3. Restore electrical power supply to the lime slurry agitator.

5.2.4. In case of physical/electrical failure of instrumentation: Service/replace faulty instrumentation, as needed.

5.2.5. In case of physical/electrical failure of control system component:

- 5.2.5.1. Identify faulty control system component.
- 5.2.5.2. Service/replace control system components, as needed.

6.0 UNITS 2 AND 3 SPRAY DRYER ABSORBER (SDA)

6.1. Loss of Lime Slurry Flow to SDA

6.1.1. In case of mechanical/electrical failure of lime slurry feed pump:

6.1.1.1. Diagnose pump/drive failure.

6.1.1.2. Service/replace the pump/drive, as needed.

6.1.1.3. Restore electrical power supply to the pump.

6.1.2. In case of plugging/physical failure of line or line component:

6.1.2.1. Identify the location of plugging or line failure.

6.1.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

6.1.2.3. Restore/confirm functional heat tracing, if applicable.

6.1.3. In case of mechanical/electrical failure of actuated valve:

6.1.3.1. Identify cause of actuation failure.

6.1.3.2. Service/replace electrical and/or pneumatic components, as needed.

6.1.3.3. Service/replace actuator and/or valve components, as needed.

6.1.4. In case of physical/electrical failure of control system component:

6.1.4.1. Identify faulty control system component.

6.1.4.2. Service/replace control system components, as needed.

6.2. Loss of Lime Slurry Flow Control

6.2.1. In case of loss of slurry flow to SDA, see 6.1.

6.2.2. In case of physical/electrical failure of flow transmitter: Service/replace flow transmitter and/or associated instrumentation, as needed.

6.2.3. In case of actuated valve failure:

6.2.3.1. Identify cause of actuation failure.

6.2.3.2. Service/replace electrical and/or pneumatic components, as needed.

6.2.3.3. Service/replace actuator and/or valve components, as needed.

6.2.4. In case of physical/electrical failure of control system component:

6.2.4.1. Identify faulty control system component.

6.2.4.2. Service/replace control system components, as needed.

6.3. Loss of City Water Flow to SDA (Unit 2 and 3)

6.3.1. In case of total loss of city water supply, see 1.5.

6.3.2. In case of plugging/physical failure of line or line component:

6.3.2.1. Identify the location of plugging or line failure.

6.3.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

6.3.3. In case of mechanical/electrical failure of actuated valve:

6.3.3.1. Identify cause of actuation failure.

6.3.3.2. Service/replace electrical and/or pneumatic components, as needed.

6.3.3.3. Service/replace actuator and/or valve components, as needed.

6.4. Loss of Cooling Air Flow to Atomizer

6.4.1. In case of mechanical/electrical failure of atomizer cooling air blower:

6.4.1.1. Diagnose blower/drive failure.

6.4.1.2. Service/replace the blower/drive, as needed.

6.4.1.3. Restore electrical power supply to the blower.

6.4.2. In case of physical failure of atomizer cooling air duct:

6.4.2.1. Identify the location of duct failure.

6.4.2.2. Service/replace faulty duct, as needed.

6.4.3. In case of physical/electrical failure of control system component:

6.4.3.1. Identify faulty control system component.

6.4.3.2. Service/replace control system components, as needed.

6.5. Loss of SDA Exit Gas Temperature Control

6.5.1. In case of loss of city water flow to SDA, see 6.3.

6.5.2. In case of physical/electrical failure of temperature transmitter: Service/replace temperature transmitter and/or associated instrumentation, as needed.

6.5.3. In case of actuated valve failure:

6.5.3.1. Identify cause of actuation failure.

6.5.3.2. Service/replace electrical and/or pneumatic components, as needed.

6.5.3.3. Service/replace actuator and/or valve components, as needed.

6.5.4. In case of physical/electrical failure of control system component:

6.5.4.1. Identify faulty control system component.

6.5.4.2. Service/replace control system components, as needed.

6.6. Atomizer Failure

6.6.1. In case of low atomizer lubrication oil flow:

6.6.1.1. Diagnose the failure in the lubrication system

6.6.1.2. Service/replace components of the lubrication system, as needed.

6.6.2. In case of mechanical/electrical failure of atomizer:

6.6.2.1. Diagnose atomizer/drive failure.

6.6.2.2. Service/replace the atomizer/drive, as needed.

6.6.2.3. Restore electrical power supply to the atomizer.

6.6.2.4. components, as needed.

7.0 UNIT 4 SPRAY DRYER ABSORBER (SDA)

7.1. Loss of Lime Slurry Flow to SDA

7.1.1. In case of mechanical/electrical failure of lime slurry feed pump:

7.1.1.1. Diagnose pump/drive failure.

7.1.1.2. Service/replace the pump/drive, as needed.

7.1.1.3. Restore electrical power supply to the pump.

7.1.2. In case of plugging/physical failure of line or line component:

7.1.2.1. Identify the location of plugging or line failure.

7.1.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

7.1.2.3. Restore/confirm functional heat tracing, if applicable.

7.1.3. In case of mechanical/electrical failure of actuated valve:

7.1.3.1. Identify cause of actuation failure.

7.1.3.2. Service/replace electrical and/or pneumatic components, as needed.

7.1.3.3. Service/replace actuator and/or valve components, as needed.

7.1.4. In case of physical/electrical failure of control system component:

7.1.4.1. Identify faulty control system component.

7.1.4.2. Service/replace control system components, as needed.

7.2. Loss of Lime Slurry Flow Control/Exit Gas Temperature Control

7.2.1. In case of loss of slurry flow to SDA, see 7.1.

7.2.2. In case of physical/electrical failure of flow transmitter: Service/replace flow transmitter and/or associated instrumentation, as needed.

7.2.3. In case of actuated valve failure:

7.2.3.1. Identify cause of actuation failure.

7.2.3.2. Service/replace electrical and/or pneumatic components, as needed.

7.2.3.3. Service/replace actuator and/or valve components, as needed.

7.2.4. In case of physical/electrical failure of control system component:

7.2.4.1. Identify faulty control system component.

7.2.4.2. Service/replace control system components, as needed.

7.3. Loss of Atomization Air Pressure to SDA Nozzle

7.3.1. For a total loss of plant/instrument air supply, see 1.3.

7.3.2. In case of plugging/physical failure of line or line component:

7.3.2.1. Identify the location of plugging or line failure.

7.3.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

8.0 CARBON INJECTION SYSTEM (UNIT 4)

8.1. Loss of Carrier Gas Pressure

8.1.1. In case of mechanical/electrical failure of carbon injection air blower:

8.1.1.1. Diagnose blower/drive failure.

8.1.1.2. Service/replace the blower/drive, as needed.

8.1.1.3. Restore electrical power supply to the blower.

8.1.2. In case of physical failure air duct:

8.1.2.1. Identify the location of duct failure.

8.1.2.2. Service/replace faulty duct, as needed.

8.1.3. In case of physical/electrical failure of control system component:

8.1.3.1. Identify faulty control system component.

8.1.3.2. Service/replace control system components, as needed.

8.2. Loss/Restriction of Activated Carbon Flow

8.2.1. In case of loss of plant air to carbon bulk sack, see 8.3

8.2.2. In case of mechanical/electrical failure of carbon feeder:

8.2.2.1. Diagnose feeder/drive failure.

8.2.2.2. Service/replace the feeder/drive, as needed.

8.2.2.3. Restore electrical power supply to the carbon feeder.

8.2.3. In case of plugging/physical failure of line or line component:

8.2.3.1. Identify the location of plugging or line failure.

8.2.3.2. Clear line plugging and/or service/replace faulty line components, as needed.

8.2.3.3. Restore/confirm functional heat tracing, if applicable.

8.3. Loss of Plant Air Pressure/Flow to Carbon Bulk Sack

8.3.1. For a total loss of plant/instrument air supply, see 1.3.

8.3.2. In case of plugging/physical failure of line or line component:

8.3.2.1. Identify the location of plugging or line failure.

8.3.2.2. Clear line plugging and/or service/replace faulty line components, as needed.

8.3.3. In case of mechanical/electrical failure of actuated valve:

8.3.3.1. Identify cause of actuation failure.

8.3.3.2. Service/replace electrical and/or pneumatic components, as needed.

8.3.3.3. Service/replace actuator and/or valve components, as needed.

8.3.4. In case of physical/electrical failure of control system component:

8.3.4.1. Identify faulty control system component.

8.3.4.2. Service/replace control system components, as needed.

9.0 BAGHOUSE & INDUCED DRAFT (ID) FAN

9.1. Torn/Leaking Bag

9.1.1. In case of a baghouse leak detection alarm, follow the relevant corrective measures prescribed in the Operation and Maintenance Plan.

9.1.2. In case of a baghouse leak detection system failure:

9.1.2.1. Service/replace torn/leaking bag(s), as needed.

9.1.2.2. Diagnose the failure of the baghouse detection system.

9.1.2.3. Service/replace baghouse leak detection system, as needed.

9.2. Bag Blinding/High-High Pressure Drop

9.2.1. In case of low baghouse inlet gas temperature:

9.2.1.1. Follow the appropriate corrective actions prescribed by paragraph 6.5 (Unit 2 and 3)

9.2.1.2. Follow the appropriate corrective actions prescribed by paragraph 7.2 (Unit 4)

9.2.1.3. Perform baghouse inspection.

9.2.1.4. Service/replace bag(s), as needed.

9.3. Loss of Stack Gas Flowrate Control (Unit 2 and 3)

9.3.1. In case of ID fan failure, see 9.5

9.3.2. In case of physical/electrical failure of flow transmitter: Service/replace flow transmitter and/or associated instrumentation, as needed.

9.3.3. In case of actuated damper failure:

9.3.3.1. Identify cause of actuation failure.

9.3.3.2. Service/replace electrical and/or pneumatic components, as needed.

9.3.3.3. Service/replace actuator and/or damper components, as needed.

9.3.4. In case of physical/electrical failure of control system component:

9.3.4.1. Identify faulty control system component.

9.3.4.2. Service/replace control system components, as needed.

9.4. Baghouse Isolation Damper Malfunction (Unit 4)

9.4.1. In case of actuated damper failure:

9.4.1.1. Identify cause of actuation failure.

9.4.1.2. Service/replace electrical and/or pneumatic components, as needed.

9.4.1.3. Service/replace actuator and/or damper components, as needed.

9.4.2. In case of physical/electrical failure of control system component:

9.4.2.1. Identify faulty control system component.

9.4.2.2. Service/replace control system components, as needed.

9.5. ID Fan Failure

9.5.1. In case of mechanical/electrical failure of ID fan:

9.5.1.1. Diagnose fan/drive failure.

9.5.1.2. Service/replace the fan/drive, as needed.

9.5.1.3. Restore electrical power supply to the ID fan.

10.0 CONTROL SYSTEM/CONTINUOUS MONITORING SYSTEM

10.1. Control System/Continuous Monitoring System Malfunction

10.1.1. As needed, refer to the *CMS QA/QC Plan* for guidance and to ensure that proper calibrations are performed.

10.1.2. In case of physical/electrical failure of instrumentation:

10.1.2.1. Identify faulty instrumentation component.

10.1.2.2. Service/replace faulty instrumentation components, as needed.

10.1.3. In case of physical/electrical failure of control system component:

10.1.3.1. Identify faulty control system component.

10.1.3.2. Service/replace control system components, as needed.

10.1.4. In case of physical/electrical failure of data acquisition/availability:

10.1.4.1. Identify faulty data system components.

10.1.4.2. Service/replace data system components, as needed.

10.2. Continuous Emissions Monitoring System Malfunction

10.2.1. As needed, refer to the *CEMS QA/QC Plan* for guidance and to ensure that proper calibrations are performed and that the appropriate performance specifications are met.

10.2.2. In case of physical/electrical failure umbilical heat tracing:

10.2.2.1. Diagnose failure of heat tracing.

10.2.2.2. Replace/restore heat traced sample umbilical.

10.2.3. In case of mechanical/electrical failure of heated vacuum pump:

10.2.3.1. Diagnose pump/drive failure.

10.2.3.2. Service/replace the pump/drive, as needed.

10.2.3.3. Replace/restore pump head heat source.

10.2.3.4. Restore electrical power supply to heated vacuum pump.

10.2.4. In case of plugging/physical failure of sample probe/umbilical:

10.2.4.1. Identify the location of failure.

10.2.4.2. Clear plugging and/or service/replace faulty components, as needed.

10.2.5. In case of mechanical/electrical failure of actuated valve:

10.2.5.1. Identify cause of actuation failure.

10.2.5.2. Service/replace electrical and/or pneumatic components, as needed.

10.2.5.3. Service/replace actuator and/or valve components, as needed.

10.2.6. In case of mechanical/electrical failure of analyzer:

10.2.6.1. Refer to manufacturer's service manual for guidance on troubleshooting and servicing analyzer.

10.2.6.2. Service/replace analyzer, as needed.

10.2.7. In case of mechanical/electrical failure of associated instrumentation:

10.2.7.1. Identify faulty instrumentation component.

10.2.7.2. Service/replace faulty instrumentation components, as needed.

10.2.8. In case of physical/electrical failure of control system component:

10.2.8.1. Identify faulty control system component.

10.2.8.2. Service/replace control system components, as needed.

EMERGENCY SAFETY VENT PLAN

Prepared for:

Veolia ES Technical Solutions, LLC
Sauget, Illinois

Prepared by:

Franklin Engineering Group, Inc.
Franklin, Tennessee

October 2008

TABLE OF CONTENTS

1.0 INTRODUCTION AND BACKGROUND 1
1.1 SUMMARY OF FACILITY INFORMATION 1
1.1.1 Fixed Hearth Incinerators *1*
1.1.2 Rotary Kiln Incinerator *3*
1.2 DESCRIPTION OF THE ESV SYSTEM 4

2.0 ESV SYSTEM INVESTIGATION, DOCUMENTATION AND REPORTING 7
2.1 ESV INVESTIGATION 7
2.2 DOCUMENTATION OF ESV OPENING 7
2.3 REPORTING OF ESV OPENINGS 8

3.0 PROCEDURES DURING AN ESV 9
3.1 STOPPING WASTE FEED AND SHUTTING DOWN THE COMBUSTOR 9
3.2 MAINTAINING COMBUSTION CHAMBER TEMPERATURE 9
3.3 MAINTAINING NEGATIVE COMBUSTION CHAMBER PRESSURE 9
3.4 SHUTTING DOWN THE COMBUSTOR 9
3.5 DOCUMENTATION OF COMBUSTION CHAMBER PRESSURE AND TEMPERATURE MAINTENANCE 10

LIST OF TABLES

TABLE 1-1 REGULATORY REQUIREMENTS FOR AN EMERGENCY SAFETY VENT OPERATING PLAN AND CORRESPONDING SECTION THAT ADDRESSES THE REQUIREMENT 2
TABLE 1-2 THERMAL RELIEF VENT OPENINGS 5

1.0 INTRODUCTION AND BACKGROUND

Veolia ES Technical Solutions, LLC (Veolia) owns and operates two fixed hearth incinerators (Units 2 and 3) and a rotary kiln incinerator (Unit 4) at its facility located in Sauget, Illinois. These incinerators are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWCs), Code of Federal Regulations (CFR), Part 63, Subpart EEE (§§ 63.1200 to 63.1221). The NESHAP for HWCs specifies emissions standards which reflect emissions performance of maximum achievable control technologies (MACT), and is commonly referred to as the HWC MACT.

Hazardous Waste Combustors are required to have an Emergency Safety Vent Plan and to keep the plan in the operating record. The *Emergency Safety Vent Plan* must follow the requirements described in § 63.1206(c)(4). This *Emergency Safety Vent Plan* demonstrates Veolia's compliance with these requirements. This plan includes information about the facility as it relates to the Emergency Safety Vent (ESV) systems, and procedures that will be followed during an ESV event. Table 1-1 presents the regulatory references related to the required ESV program and the section of this plan that addresses each specific requirement.

Due to the general applicability of the ESV requirement and the similarity of the incinerator systems, general references to an ESV or incinerator system in this document will imply all three systems. Information that is only applicable to one or two of the three systems will be clearly identified.

1.1 Summary of Facility Information

Brief summaries which describe the fixed hearth incinerators and the rotary kiln incinerator are presented in this section.

1.1.1 Fixed Hearth Incinerators

Each of the fixed hearth incinerators includes the following components:

- Feed equipment
- Primary and secondary combustion chambers
- Lime injection system
- Spray dryer absorber (SDA)
- Fabric filter baghouse

Table 1-1
Regulatory Requirements for Emergency Safety Vent Operating Plan and Corresponding Section that Addresses the Requirement

Regulatory Citation	Description	Plan Section
63.1206(c)(4)(i)	Documentation in operating record of an ESV opening while hazardous waste remains in the combustion chamber: (1) Record if ESV by-passed APCS (2) Determine if operation remained in compliance considering the emissions during the ESV	Section 2.2
63.1206(c)(4)(ii)(B)	Information documenting effectiveness of plan's procedures to maintain combustion chamber temperature and pressure, as is reasonably feasible	Section 3.5
63.1206(c)(4)(ii)(B)	Detailed procedures for rapidly stopping waste feed	Section 3.1
63.1206(c)(4)(ii)(B)	Detailed procedures for shutting down the combustor	Section 3.4
63.1206(c)(4)(ii)(B)	Detailed procedures for maintaining temperature in combustion chamber	Section 3.2
63.1206(c)(4)(ii)(B)	Detailed procedures for maintaining negative pressure in the combustion chamber	Section 3.3
63.1206(c)(4)(iii)	Investigation of ESV openings	Section 2.1
63.1206(c)(4)(iii)	Recording of ESV openings	Section 2.2
63.1206(c)(4)(iv)	Reporting of ESV openings	Section 2.3

- Solids and ash removal systems
- Induced draft (ID) fan and stack
- Instrumentation, controls, and data acquisition systems

Various solid and liquid wastes and gaseous feedstreams are thermally treated in the fixed hearth incinerators. Solid waste is fed to the primary (lower) combustion chamber via a feed conveyor system and pneumatic ram. Liquid waste from tanks and tanker trucks are fed to the primary combustion chamber through two atomized liquid injectors. Liquid waste from containers are fed to the primary combustion chamber through a specialty feed injector. A gaseous feedstream is fed to the Unit 2 primary combustion chamber directly from gas cylinders. Off gases from a hooded feed emission control system and from a waste handling glove box are fed directly to the Unit 3 secondary combustion chamber. Combustion chamber temperatures are maintained using natural gas fired to a dedicated burner in both the primary and secondary chambers.

Combustion gas exits the secondary combustion chamber and enters the SDA, which provides acid gas removal and cooling of the combustion gas. Combustion gas exits the SDA and is distributed to the fabric filter baghouses, which provide particulate matter removal. The induced draft fan, located downstream of the baghouses, moves the combustion gas through the system and exhausts the gas through the main stack.

1.1.2 Rotary Kiln Incinerator

The rotary kiln incinerator includes the following components:

- Waste feed system
- Primary and secondary combustion chambers
- Tempering chamber
- Lime injection system
- Spray dryer absorber
- Carbon injection system
- Fabric filter baghouse
- Solids and ash removal systems
- ID fan and stack
- Instrumentation, controls, and data acquisition systems

Various solid and liquid wastes are thermally treated in the rotary kiln incinerator. Solid wastes are fed to a ram feeder via a clamshell, a drum feed conveyor, and an auxiliary feed conveyor. A hydraulic ram pushes the solid waste into the kiln. Liquid waste from tanks and tanker trucks is fed to the primary and secondary combustion chambers through atomized liquid injectors. Combustion chamber temperatures are maintained using natural gas fired to a dedicated burner in both the primary and secondary chambers.

Combustion gas exits the secondary combustion chamber and enters the tempering chamber, which provides cooling of the combustion gases. The combustion gas exits the tempering chamber and is distributed between two identical SDAs, which provide acid gas removal and additional gas cooling. A carbon injection system is utilized for controlling dioxin/furan and mercury emissions. The activated carbon is air injected into the combustion gas immediately downstream of the convergence of combustion gases from the SDAs. From the SDAs, combustion gas is distributed to fabric filter baghouses, which provide particulate matter removal. The ID fan, located downstream of the baghouses, moves the combustion gas through the system and exhausts the gas through the main stack.

1.2 Description of the ESV System

Each incinerator is equipped with an emergency safety vent (ESV) located at the top of the secondary combustion chamber. This ESV is a refractory-lined emergency thermal relief vent (TRV) which is held in the closed position by a pneumatic cylinder. The control valve in the line supplying air to the cylinder and the cylinder vent valve which opens the TRV are located in the control room for each unit. Valve locks (with keys attached) are utilized to deter indiscriminate operation of these valves. Opening of the TRV allows hot combustion gas to vent from the combustion system during emergency shutdown events. The purpose of the TRV is to protect the downstream APCS from excessive temperature situations.

Conditions which may warrant a TRV opening are summarized in Table 2-1. Typically, alarms and/or interlocks will be triggered prior to these conditions being present. Alarms provide the operator the opportunity to take measures in attempt to restore proper operating conditions. Otherwise, a controlled cutoff of the waste feeds, an AWFCO, or an emergency shutdown may occur prior to opening the TRV. If hazardous waste is being fed at the time the TRV is opened, the TRV position transmitter will detect the TRV opening and trigger an AWFCO.

Table 1-2
Thermal Relief Vent Openings

Parameter	Condition [1]
Electrical Supply	Loss of Power
Air Supply	Loss of Air Pressure (TRV will fail open)
ID Fan	Failure/Malfunction
SDA Exit Gas Temperature	> 500 °F
Emergency Shutdown	Operator's Discretion

[1] The operator is permitted to open the TRV if these conditions are present.

Unit 4 is equipped with a second ESV located at the kiln face. This ESV is referred to as the surge vent and is kept closed by a weighted louver. The surge vent will only open if there is a pressure excursion in the kiln sufficient enough to overcome the weighted louver. A deflector separates the escaping combustion gas from the feed, and the surge vent angles to a horizontal opening. This design minimizes the entrainment of solid through the surge vent.

An ESV opening may correspond with a malfunction event. Information regarding operation of the incinerator and the associated control equipment during times of start-up, shutdown and malfunction is provided in the facility *Start-up, Shutdown, Malfunction Plan* (SSMP).

2.0 ESV SYSTEM INVESTIGATION, DOCUMENTATION AND REPORTING

2.1 ESV Investigation

If an ESV opens for any reason during normal operations, the operator is instructed to:

1) Verify that all waste feeds to the incinerator are cutoff,
2) If possible, operate the ID fan, and
3) If possible, maintain normal combustion chamber temperatures on natural gas.

If hazardous waste is in the combustion chamber during a ESV opening, the incinerator supervisor should be notified as soon as possible. The incinerator supervisor will coordinate with technical staff to determine potential causes for the event and to estimate excessive emissions.

2.2 Documentation of ESV Opening

Each instance in which the emergency vent opens will be recorded in the facility operating record. This record will, at a minimum, include the date, time, and the operating mode at the time of the ESV opening. This data is automatically documented in the operating record by the CMS.

If the ESV opens when hazardous waste remains in the combustion chamber (*i.e.*, when the hazardous waste residence time has not expired) during an event other than a malfunction (as defined by the facility SSMP), Veolia personnel will document that an ESV event occurred, determine if the facility remained in compliance with facility emission standards, and record the findings of that determination in the facility operating record. Since the ESV is located upstream from the facility air pollution control devices (APCD), it is understood that combustion gas by-passes these emission control devices during an ESV event. This by-pass will be documented in the facility operating record.

If an ESV opening is attributed to a malfunction and occurs when hazardous waste remains in the combustion chamber, a malfunction recordkeeping form will be completed to document the event.

2.3 Reporting of ESV Openings

If an ESV opening results in a failure to meet the emission standards for the facility, Veolia will submit a written report within five days of the ESV event to Illinois Environmental Protection Agency (IEPA), documenting the results of the investigation and corrective measures taken. In most cases when an ESV event occurs, it is instantaneous. Therefore, it is practical to assume that diminimus emissions occur during these instantaneous events.

3.0 PROCEDURES DURING AN ESV

In the event of an ESV opening that occurs while burning waste, it is important that waste feed is stopped rapidly, and that combustion chamber temperature and negative pressure are maintained to the extent practical. Following the expiration of the hazardous waste retention time, shutting down the combustor (allowing key components to cool) is equally important. These items are addressed below.

3.1 Stopping Waste Feed and Shutting Down the Combustor

An ESV opening is likely to be preceded by a AWFCO or safety interlock that causes a waste feed cutoff prior to the ESV opening. The ESV position is also interlocked with the AWFCO system. These redundant measures ensure that waste feeds will be stopped during an ESV opening. If the AWFCO system fails to cutoff wastes to the incinerator, the waste will be manually cutoff in a quick and safe manner. Waste burning cannot resume until the ESV is closed, corrective actions taken, permission is granted from the incinerator supervisor, and all parameters are within limits.

3.2 Maintaining Combustion Chamber Temperature

Combustion chamber temperatures are maintained using natural gas fired a dedicated burner in both the primary and secondary combustion chambers. If possible, the burning of natural gas will be used to maintain adequate combustion chamber temperatures for the combustion of waste remaining in the incinerator.

3.3 Maintaining Negative Combustion Chamber Pressure

If possible, the ID fan will be operated during an TRV opening to minimize the quantity of combustion gas that by-pass the air pollution control equipment. Operation of the ID fan during an ESV opening will maintain negative combustion pressure to the full extent that is reasonably feasible. It is likely that the opening of the TRV will cause the system to lose negative pressure (*i.e.* the ID fan cannot induce a strong draft). For surge vent opening, the positive pressure excursion will be temporary, and the ID fan (if operable) will be used to restore negative pressure in the primary chamber, as quickly as possible.

3.4 Shutting Down the Combustor

An event which causes an ESV opening may require a cold shut down of the combustor in order to perform corrective actions. After sufficient effort is taken to minimize emissions by maintaining the temperature and pressure, the incinerator supervisor will decide if a shut down is warranted. If the ESV opening corresponds with a malfunction event then the corrective measures taken will be consistent with the procedures prescribed by the SSMP.

3.5 Documentation of Combustion Chamber Pressure and Temperature Maintenance

§ 63.1206(c)(4)(ii)(B) requires that the facility demonstrate that the procedures of this plan are adequate to maintain combustion chamber pressure and temperature while hazardous waste remains in the incinerator, if feasible. The occurrence of an emergency safety vent opening at the Veolia facility is possible only in a select set of circumstances, which are described in Section 1.2 of this plan. If natural gas cannot be burned, it is not feasible to maintain the combustion chamber temperature during an ESV event. Likewise, it is likely that the opening of the TRV will result in the loss of negative pressure. The duration of a surge vent opening will typically be brief and only momentarily prevent maintaining the combustion chamber pressure. The procedures presented in this plan will be followed to minimize the effects of such occurrences.

OPERATION AND MAINTENANCE PLAN

Prepared for:

Veolia ES Technical Solutions, LLC
Sauget, Illinois

Prepared by:

Franklin Engineering Group, Inc.
Franklin, Tennessee

October 2008

TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 REGULATORY REQUIREMENTS 2

1.2 RECORDKEEPING 2

2.0 NORMAL OPERATIONS OF THE INCINERATORS 2

3.0 BAG LEAK DETECTION SYSTEM 5

3.1 CORRECTIVE MEASURES FOR BAG LEAK DETECTION ALARMS 7

4.0 INSPECTION AND MAINTENANCE 9

5.0 ALTERNATIVE MODE OF OPERATION 12

5.1 WARM STAND-BY MODE OF OPERATION 12

5.2 APPLICABLE REQUIREMENTS 13

LIST OF TABLES

TABLE 1-1	OPERATION AND MAINTENANCE PLAN REGULATORY CHECKLIST	1
TABLE 2-1	LIST OF STANDARD DIVISIONAL PRACTICES	3
TABLE 3-1	BAGHOUSE LEAK DETECTION SYSTEM SPECIFICATIONS	6
TABLE 4-1	INSPECTION AND MAINTENANCE TO PREVENT MALFUNCTIONS	10

1.0 INTRODUCTION

Veolia ES Technical Solutions, LLC (Veolia) owns and operates three hazardous waste incinerators at its facility located in Sauget, Illinois. The incinerators are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWC), 40 CFR, Part 63, Subpart EEE (§ 63.1200 to § 63.1221). The NESHAP for HWC specifies emissions standards which reflect emissions performance of Maximum Achievable Control Technologies (MACT), and is commonly referred to as the HWC MACT.

The Interim HWC MACT Standard requires that Veolia operate and maintain the incinerators in a manner consistent with safety and good air pollution control practices for minimizing emissions based on parameter limits achieved during the comprehensive performance test. To meet this objective, Veolia has developed this operation and maintenance (O&M) plan. Veolia will utilize this O&M plan for periods of normal operation of the incinerators. During periods of startup, shutdown, and malfunction, Veolia will utilize the *Startup, Shutdown, and Malfunction Plan* (SSMP). During periods of startup, shutdown, and malfunction, conformance with the SSMP satisfies the duty to minimize emissions. Both the O&M plan and SSMP are maintained at the facility.

The purpose of this O&M plan is to:

- Describe procedures for operating the incinerator during normal operations.
- Describe procedures for inspection and maintenance of the incinerator.
- Describe procedures for corrective measures.
- Establish guidelines designed to ensure that emissions of pollutants, automatic waste feed cutoffs (AWFCOs), and malfunctions are minimized.
- Satisfy the requirements of § 63.1206(c)(7) and § 63.6(e), as shown in Table 1-1 of this plan.

Due to the similarity of the three incinerator systems, general references to an incinerator in this document will imply all three incinerator systems. Information that is only applicable to one or two of the three units will be clearly identified.

1.1 Regulatory Requirements

One of the objectives for this document is to establish a program that will ensure compliance with relevant sections of the Interim HWC MACT standard. Table 1-1 provides the regulatory requirements and location within this document where each requirement is addressed. This table is included to facilitate the expeditious assessment of this plan's coverage of the relevant regulatory requirements.

1.2 Recordkeeping

Veolia will maintain files to comply with the recordkeeping requirements of the Interim MACT Standards. These requirements are summarized in 40 CFR 63.1211(b). The files relevant to this plan that are maintained in the operating record include:

- This O&M Plan;
- Records of all required preventive and necessary maintenance performed on the air pollution control and monitoring equipment; and
- Records of all adjustments and maintenance performed on the continuous monitoring system (CMS).

Table 1-1
Operation and Maintenance Plan Regulatory Checklist

Regulatory Citation	Description	Location Addressed
63.6(e)(1)(i)	Implement safety and good air pollution control practices for minimizing emissions	1.0, 2.0
63.6(e)(1)(ii)	Comply with SSMP and minimize emissions during SSM	1.0
63.6(e)(1)(iii)	O&M requirements established pursuant to section 112 of the CAA	2.0
63.6(e)(3)	Startup, shutdown, and malfunction plan	1.0, SSMP [1]
63.10(b)(1)	Maintaining files	1.2
63.10(b)(2)(iii)	Records of all required maintenance of APC and monitoring equipment	1.2
63.10(b)(2)(xi)	Records of all adjustments and maintenance performed on CMS	1.2
63.1206(c)(7)(i)(A)	Prepare and operate under O&M plan	1.0
63.1206(c)(7)(i)(A)	Procedures for operating combustion system components that could affect emissions	2.0 Table 2-1
63.1206(c)(7)(i)(A)	Procedures for inspecting combustion system components that could affect emissions	4.0
63.1206(c)(7)(i)(A)	Procedures for maintenance combustion system components that could affect emissions	4.0
63.1206(c)(7)(i)(A)	Corrective measures for combustion system components that could affect emissions	2.0, 3.1, SSMP [1]
63.1206(c)(7)(i)(B)	Good air pollution control practices for minimizing emissions	1.0, 2.0
63.1206(c)(7)(i)(C)	O&M plan ensures compliance with O&M requirements of 63.6(e)	1.0
63.1206(c)(7)(i)(C)	O&M plan minimizes emissions of pollutants	1.0, 2.0
63.1206(c)(7)(i)(C)	O&M plan minimizes AWFCOs	1.0, 2.0
63.1206(c)(7)(i)(C)	O&M plan minimizes malfunctions	1.0, 4.0 Table 4-1
63.1206(c)(7)(i)(D)	O&M plan is recorded in operating record	1.2

[1] The Startup, Shutdown, and Malfunction Plan (SSMP) is a stand-alone document, incorporated by reference.

Table 1-1 (continued)
Operation and Maintenance Plan Regulatory Checklist

Regulatory Citation	Description	Location Addressed
63.1206(c)(7)(ii)	If system equipped with a baghouse, bag leak detection system required	3.0
63.1206(c)(7)(ii)(A)(1)	Detect and record PM emissions at adequate sensitivity	3.0
63.1206(c)(7)(ii)(A)(2)	Output relative particulate matter loadings	3.0
63.1206(c)(7)(ii)(A)(3)	Audible alarm if loading detected over limit	3.0
63.1206(c)(7)(ii)(A)(4)	Comply with US EPA guidance or manufacturer's information for installation and operation	3.0
63.1206(c)(7)(ii)(A)(5)	Initial adjustments of the system: baseline, averaging period, alarm set point and delay time	3.0
63.1206(c)(7)(ii)(A)(6)	O&M plan specifies allowable adjustments	3.0, 3.1
63.1206(c)(7)(ii)(A)(6)	Limits to sensitivity adjustments	3.0
63.1206(c)(7)(ii)(A)(7)	Installation location requirements	3.0
63.1206(c)(7)(ii)(B)	Procedures for responding to bag leak detection system alarm	3.1
63.1206(c)(7)(ii)(B)(1)	Initiation of procedures to determine alarm within 30 minutes	3.1
63.1206(c)(7)(ii)(B)(2)	Necessary corrective measure(s) to alleviate cause of alarm	3.1

2.0 NORMAL OPERATIONS OF THE INCINERATORS

Table 2-1 presents a list of titles for Veolia's Standard Divisional Practices (SDPs). These SPDs provide procedures for operating the incinerator in a manner consistent with safety and good air pollution control practices. Utilizing these SDPs, process knowledge, and discretion, operators will maintain the incinerator operating parameters within permissible limits, if possible. Operating the incinerator in this manner will minimize the occurrence of AWFCOs and minimize the emissions of hazardous air pollutants.

All applicable operating requirements for the incinerator, including operating parameter limits (OPLs), are specified in Veolia's *Documentation of Compliance* (DOC) or *Notification of Compliance*, whichever is currently applicable. Normal operations of the incinerator will be in compliance with these requirements.

Veolia has developed Piping and Instrumentation Diagrams (P&IDs), Process Flow Diagram (PFDs), and technical descriptions for each incinerator. These resources in conjunction with MS PowerPoint® presentations are integral parts of operating training. With this training, operators gain the understanding of alarms, interlocks, as well as the automated responses associated with each interlock. Knowledge of alarms and interlocks and access to process variable indication, prepares the operator to perform the appropriate corrective measures should conditions deviate from normal operations. The corrective measures taken will be the operator's efforts to ensure safety and to maintain operating parameters within limits, if possible. If deviations from normal operations are caused by a malfunction, corrective measures will be consistent with the SSMP and the *Program of Corrective Actions for Malfunctions,* Attachment 4.0 of Veolia's SSMP.

Table 2-1
List of Standard Divisional Practices

SDP NUMBER	TITLE
1011	TWI Remedial Action Work Order Program
2200	Specialty Feeder Operation for No. 2/3 Incinerators
2201	Startup, Operation and Shutdown of No. 2/3 Incinerators
2202	Operation of Compressed Gas Cylinder Feeding System
2203	Operation of Solids Feed Conveyor Systems for No. 2/3 Incinerators
2204	Ash Conveyor Operation for No. 2/3 Incinerators
2205	Operation of Liquid Feed Injectors for No. 2/3 Incinerators
2206	No. 2/3 Incinerators Legs Cleanout
2207	No. 2 Incinerator Upper Chamber Feed System
2208	No. 2/3 Incinerators Shutdown Permits, Tagouts and Lockouts
2209	Operation of Baghouse Filters for No. 2/3 Incinerators
2210	Operation of Compressed Air System for No. 2/3 Incinerators
2211	Lime Slurry System Operation for No. 2 and 3 Incinerators
2212	Spray Dryer Absorber Operation for No. 2/3 Incinerators
2213	Operation of Dry Scrubber Solids Conveyor Systems for No. 2/3 Incinerators
2214	Flushing the Lime Slurry System for No. 2/3 Incinerators
2215	Operation of Oxygen Gas Cylinder Processing System
2217	Operation of Specialty Feeder Fume Hood System for No. 3 Incinerator

Table 2-1 (continued)
List of Standard Divisional Practices

SDP NUMBER	TITLE
2219	Lime Storage Loading
2221	24-Hour Staging of Burnable Containers on No. 2/3 Incinerators Dock
2222	Ash Management for No. 2/3 Incinerators
2224	No. 2/3 Incinerators Direct Inject System
2401	No. 4 Incinerator Shutdown Permits, Tagouts and Lockouts
2402	Main Feed Conveyor System Operation for No. 4 Incinerator
2403	Clamshell Feed System Operation
2404	Tempering Chamber Operation
2405	Flushing the Lime Slurry System for No. 4 Incinerator
2406	Operation of Liquid Feed Injectors for No. 4 Incinerator
2407	Cleaning the Process Water System for No. 4 Incinerator
2408	Operation of Carbon Injection System for No. 4 Incinerator
2416	Lime Slurry System Operation for No. 4 Incinerator
2417	Startup, Operation and Shutdown of No. 4 Incinerator
2418	Spray Dryer Absorber Operation for No. 4 Incinerator
2419	Operation of Direct Inject System for No. 4 Incinerator
2421	Air Cannon Operation for No. 4 Incinerator
2422	Auxiliary Feed Conveyor System Operation for No. 4 Incinerator

3.0 BAG LEAK DETECTION SYSTEM

Veolia utilizes a triboelectric bag leak detector to comply with the bag leak detection requirements of 63.1206(c). The installation and on-going operation of the leak detection system is consistent with the US EPA *Fabric Filter Bag Leak Detection Guidance* (EPA-454/R-98-015). The bag leak detection system monitors the relative particulate matter loading of the gas in the duct downstream of the induced draft fan. The bag leak detection system has been certified from manufacturer that the system is capable of detecting and recording particulate emissions at concentrations of 1.0 milligram per actual cubic meter.

The sensitivity of the bag leak detector is set by selecting the relative output range. A response time (i.e., averaging period) is utilized to smooth fluctuations in the triboelectic signal. The bag leak detection system utilizes two alarm set points (high and high-high), which are set as a percentage of the full scale reading. The alarm set points are based on a multiple of the baseline reading considering cleaning cycle peaks, if apparent. The high-high alarm is interlocked with the AWFCO system. The delay times for the alarms are based on the normal bag cleaning pulse cycles. The bag leak detection system settings are presented in Table 3-1.

Following initial adjustments (including adjustments made during a 30-day trial period) to the bag leak detection system, there will be no adjustments to the sensitivity (range), averaging period, alarm set point, or alarm delay time except for the adjustments made consistent with recommendations in Section 5.3 of the US EPA *Fabric Filter Bag Leak Detection Guidance* (EPA-454/R-98-015). Periodic adjustments to the bag leak detection system may be warranted to prevent/minimize the occurrence of false alarms. If over a 365 day period, the sensitivity is increased by more than 100 percent or decreased by more than 50 percent, a complete baghouse inspection and necessary repairs will be performed to assure good operating condition.

Table 3-1
Baghouse Leak Detection System Specifications

Parameter	Unit 2	Unit 3	Unit 4
Range	0-1,000	0-1,000	0-1,000
Averaging Period	10 seconds	10 seconds	10 seconds
High Alarm	20%	20%	10%
High Alarm Delay Time	3 minutes	3 minutes	6 minutes
High-High Alarm (AWFCO)	30%	30%	15%
High-High Alarm Delay Time	6 minutes	6 minutes	12 minutes

3.1 Corrective Measures for Bag Leak Detection Alarms

Veolia has implemented the necessary proactive measures to prevent/minimize the occurrence of bag leak detection alarms. These proactive measures include inspections and preventive maintenance of the baghouse and the bag leak detection system. Additionally, the installation and operation of the bag leak detection system is consistent with EPA guidance. Despite these efforts, a false bag leak detection alarm or a bag leak/failure may occur and are considered potential malfunctions. Accordingly, this section is a component of the SSMP and is referenced by paragraph 9.1.1 of the *Program of Correction Actions for Malfunctions*, Attachment 4.0 of Veolia's SSMP.

The purpose of this section is to prescribe the procedures for responding to bag leak detection alarms. The procedures specified in this section will be initiated within 30 minutes of the time the alarm first sounds. The time and cause of each alarm will be recorded on a malfunction recordkeeping form. A blank malfunction recordkeeping form is Attachment 3.0 of Veolia's SSMP.

3.1.1 In case of an alarm for high relative particulate matter loading:

3.1.1.1 Review process data for variations in pressure drop across the baghouse, the baghouse cleaning cycle, baghouse inlet temperature, or gas flowrate that corresponds with the occurrence of the bag leak detection alarms. If review of this process data or other factors (e.g., high humidity, reconditioning) indicates a high probability that the excessive triboelectric signal is a false indication of a bag leak/failure, then record findings and proceed with normal operations

3.1.1.2 If relative particulate matter loading remains above the high alarm set point, take actions to reduce the relative particulate matter loading (e.g., controlled shutdown of high ash waste feeds).

3.1.1.3 If after 30 minutes of the occurrence of the high alarm, the relative particulate matter loading remains above the high alarm set point, follow the corrective measures of 3.1.2.

3.1.2 In case of reoccurring false bag leak detection alarms:

3.1.2.1 Clean the bag leak detection system probe, and/or adjust the sensitivity (range), averaging period, alarm set points, and/or alarm delay time, as needed.

3.1.2.2 If corrective measures of 3.1.2.1 were previously unsuccessful, follow corrective measures of 3.1.3.

3.1.3 In case of an alarm for high-high relative particulate matter loading:

3.1.3.1 Initiate a controlled shutdown of waste feeds.

3.1.3.2 Inspect baghouse for leaks, torn or broken filter elements, or other internal equipment failures; and repair as needed.

3.1.3.3 Following inspection/repair of baghouse, clean the bag leak detection system probe, and/or adjust the sensitivity (range), averaging period, alarm set points, and/or alarm delay time, as needed.

As stated in the US EPA *Fabric Filter Bag Leak Detection Guidance* (EPA-454/R-98-015), "...conditioning the [bag leak detection] system to the process environment is critical to reliable and repeatable operation." Therefore, allowance for reconditioning the system to the process environment should be made after cleaning the probe or after making adjustments to the system.

4.0 INSPECTION AND MAINTENANCE

As stated in Sections V.a.F. and V.b.F. of Veolia's Part B RCRA Permit, each incinerator system undergoes a "thorough visual inspection for leaks, spills, fugitive emissions, and sign of tampering at least daily and in accordance with the inspection schedule, contained in Appendix 6 of the approved permit application". Veolia utilizes these inspections and additional preventive maintenance activities as proactive measures for minimizing the potential for malfunctions. To facilitate proper maintenance, a cold shutdown will occur at least once per year for each incinerator system. Table 4-1 presents a general summary of the inspection and maintenance activities that are performed to prevent malfunctions.

Routine inspection and maintenance activities are scheduled, communicated, and recorded through the use of field checklists. Parts of the incinerator systems that are subject to wear (e.g., bearings, O-rings, air/oil filters) are replaced based on the schedules indicated on these checklists. These field checklists will also be used to document repairs or replacements of incinerator components that may be revealed during inspections. If as-needed repairs cannot be performed immediately (within 24-hours), SDP 1011—*TWI Remedial Action Work Order Program*—ensures that these non-routine maintenance activities are given the appropriate priority and are tracked through completion. Brief procedures/instructions for inspection and maintenance activities are provided on field checklists. Addition details and procedures for inspection and maintenance activities are communicated through the following:

- SDPs for specific process maintenance procedures (see Table 2-1);
- Inspection and maintenance procedures from equipment manufacturers;
- Training activities for maintenance personnel; and
- Shutdown and maintenance meetings.

Selected inspection and maintenance activities may be performed by qualified contractors or associates affiliated with an equipment manufacturer/vendor. Veolia will include documentation of these activities in the operating record.

Inspection and maintenance requirements are also addressed in other plans required by the Interim HWC MACT Standard. Inspection and testing of the AWFCO system are described in the *Automatic Waste Feed Cutoff Plan*. Inspection, calibration, and preventive maintenance for the continuous emissions monitoring system (CEMS) are discussed the *Continuous Emissions Monitoring System Quality Assurance Plan*. Discussion on calibration and maintenance for the continuous monitoring system (CMS) is presented in the *Continuous Monitoring System Quality Assurance Program*.

Table 4-1
Inspection and Maintenance to Prevent Malfunctions

Potential Cause for Malfunction	Inspections	Maintenance
Mechanical/electrical failure of rotating equipment.	• Daily inspections for leaks, corrosion, and vibration • Instrumentation and alarms for current, lubrication, and/or vibration on selected rotating equipment	• Cleaning • Tightening fasteners and supports • Lubrication • Alignment • Scheduled replacement of critical parts • As needed repairs/replacements
Plugging/Mechanical failure of lines/nozzles	• Daily inspection for leaks, and corrosion • Internal equipment inspections during shutdowns	• Cleaning • Tightening supports • As needed repairs/replacements
Mechanical/electrical failure of instrumentation	• Process variable indication • Comparison between redundant instruments • Calibration checks	• Scheduled replacement of instruments • As needed repairs/replacements
Mechanical/electrical failure of actuated valves/dampers	• Daily inspection for leaks, and corrosion • Visual inspection of instrument air and electrical connections • Confirmation of fail-safe positions during shutdowns • Confirmation of functionality through process variable control/indication • AWFCO Testing	• Cleaning • Lubrication • As needed repairs/replacements

Table 4-1 (continued)
Inspection and Maintenance to Prevent Malfunctions

Potential Cause for Malfunction	Inspections	Maintenance
Physical/electrical failure of control system	• Process variable control/indication • Visual inspection of connections • AWFCO Testing	• Cleaning • As needed repairs/replacements
Mechanical/electrical failure of utility supplies	• Inspections of the utility supply source	• As needed repairs/replacements
Electrical/actuation failure of safety interlocks	• Confirmation of valve fail-safe positions during shutdowns • Verification of alarms and interlocks during AWFCO Testing	• As needed repairs/replacements
Physical/mechanical internal equipment failure	• Daily exterior inspections for leaks, corrosion, and vibration • Interior inspections during shutdowns	• Internal cleaning • Tightening fasteners and supports • As needed repairs/replacements

5.0 ALTERNATIVE MODE OF OPERATION

Veolia routinely performs certain inspection and maintenance activities that cannot take place while operating the incinerator under the requirements of normal operation and must be performed more frequently than cold shutdowns. These activities are typically identified during the proactive inspections (see Table 4-1) or when noticeable changes in normal operating parameters are identified. These inspection and maintenance activities cannot take place while operating the incinerator under the requirements of normal operations; however, a cold shutdown is not required to complete these activities. For this reason, Veolia has defined an alternative mode of operation during which these activities can be performed. This mode of operation is referred to as the "warm stand-by mode".

The warm stand-by mode of operation is being implemented per the requirements in § 63.1206(b)(1)(ii). This mode of operation will only be implemented when hazardous waste is not in the combustion chamber (i.e., the hazardous waste residence time has transpired). The remainder of the section describes the warm stand-by mode and the applicable requirements for this alternative mode of operation.

5.1 Warm Stand-by Mode of Operation

The warm stand-by mode of operation is utilized to perform inspections and maintenance activities that do not warrant a complete cold shutdown. During this mode of operation the combustion chamber temperatures are maintained utilizing natural gas. This is desirable from a long term operating standpoint to minimize extreme temperature cycles for the refractory which can lead to excessive wear and premature failure. Further, this provides for shorter duration maintenance periods and a quicker return to normal operation (i.e., since the combustion chambers are not cooled to ambient conditions, then the "normal" operating temperatures can be attained in a shorter duration).

Operation in the warm stand-by mode can only begin when hazardous waste is not in the combustion chamber (i.e., the hazardous waste residence time has transpired). Only natural gas will be fed to the main burners to maintain stand-by temperatures of the combustion unit. Veolia will document in the operating record all times that the unit is in warm stand-by maintenance operating mode as well as descriptions of any inspection and maintenance activities performed during the warm stand-by mode.

During the warm stand-by mode of operation all combustion gases are ducted through the air pollution control system (APCS). The APCS, continuous monitoring systems (CMS), and continuous emission monitoring systems (CEMS) are operated per normal operating procedures, unless temporarily out-of-service for inspection and maintenance activities. The automatic waste feed cutoff (AWFCO) system is not operational since there is no hazardous waste feed to the unit.

Per § 63.1209(q)(2)(iii), Veolia will utilize a seamless transition between operating in warm stand-by mode and normal operations. This allows for calculating rolling averages using data from the previous operating mode. Prior to transitioning to normal operating mode, Veolia will ensure that valid data is available for calculating rolling averages and that all parameters are within limits. Normal operations will resume with the initiation of hazardous waste to the incinerator.

5.2 Applicable Requirements

When operating in the warm stand-by mode the following Interim HWC MACT standards do not apply:

- Emission standards in § 63.1203
- Monitoring and compliance standards of §§ 63.1206 through 63.1209, except the modes of operation requirements in § 63.1209(q)
- Notification, reporting, and recordkeeping requirements of §§ 63.1210 through 63.1212

Per the requirement of 63.1206(b)(ii), this section supplies documentation in the operating record that Veolia is complying with all "otherwise applicable requirements" during warm stand-by mode of operation. Requirements constitute "otherwise applicable requirements" to the extent that they do not arise from Subpart EEE and they are otherwise applicable to any of the emission units when it is operating during warm stand-by mode. Incinerator Unit 2, Unit 3, or Unit 4, when operated under warm stand-by mode, is not subject to any "otherwise applicable requirements".

FEEDSTREAM ANALYSIS PLAN

Veolia ES Technical Services, LLC
Sauget, Illinois

October 2008

TABLE OF CONTENTS

1.0 INTRODUCTION

2.0 FEEDSTREAM PARAMETERS

2.1 Chlorine
2.2 Metals
2.3 Ash

3.0 ANALYTICAL RATIONALE

3.1 Analysis Performed by Veolia
3.2 Analysis Performed by Others
3.3 Manufacturer Data or Other Published Information

4.0 APPLICATION OF ANALYSIS FOR FEEDRATE COMPLIANCE

4.1 Process Planning for Feedstreams
4.2 Process Control for Feedstreams
4.3 Documentation and Recordkeeping for Process Planning and Control

5.0 SAMPLING AND ANALYTICAL METHODS

5.1 Sampling Methodologies
5.2 Documentation and Recordkeeping Associated with Sampling
5.3 Analytical Methodologies
5.4 Documentation and Recordkeeping Associated with Sample Analysis

6.0 FREQUENCY OF ANALYSIS

7.0 COMPLIANCE WITH FEED RATES

1.0 INTRODUCTION

Pursuant to the regulatory requirements found in 40 CFR 63.1206 (c) of the HWC MACT Standard, Veolia ES Technical Solutions, LLC (Veolia) has developed a Feedstream Analysis Plan (FAP). Its purpose is to provide a system whereby Veolia can sample, analyze, and control the incineration of feedstreams that may contain constituents requiring feedrate limits as specified in the HWC MACT Standard. The FAP also addresses how these activities will be recorded in the facility's operating record.

This FAP is organized such that each of the subsequent sections specifically addresses the six paragraphs under 40 CFR 63.1206 (c) (2) and three paragraphs under 40 CFR 63.1206 (c) (4) in the order in which they are presented in the HWC MACT Standard. In many instances, this FAP will reference the facility's Waste Analysis Plan (WAP). The WAP is an integral part of the RCRA Part B Permit, the Permit Application, and any subsequent revisions or addenda to the Part B Permit or Permit Application.

As required by sections 63.6 (e)(v) and 63.6 (e)(vi) of the HWC MACT Standard, the FAP and other documents containing procedures or information referred to in the FAP will be made available for inspection when requested by the Administrator. The FAP, correspondence with the Administrator concerning the FAP, and any subsequent additions or modifications to the FAP will be kept in the facility's Operating Record. If Veolia is required to submit copies of the FAP or portions of it (or related documents), confidential business information entitled to protection from disclosure will be clearly designated.

2.0 FEEDSTREAM PARAMETERS

There are three feedstream constituents that are specified in the HWC MACT Standard for emission and/or feedrate limitations and that may be present in any given feedstream. These three are:

1) Chlorine
2) Metals (Mercury, Lead, Cadmium, Chromium, Beryllium, and Arsenic)
3) Ash

These three constituents will serve as the feedstream parameters of concern in the FAP as required by 40 CFR 63.1206 (c) (2) (I) of the HWC MACT Standard. Feedstream data applicable to each of these parameters will be obtained for all feedstreams in order to control the incineration of them and remain within the feedrate limits set for them.

2.1 Chlorine

Feedstream data will provide a weight-based percentage of chlorine for each waste feed to the incinerators. These results can be used to both estimate targeted feed rate values and control actual feed rates during incineration.

2.2 Metals

Feedstream data will provide a parts-per-million concentration for each of the listed metals in each of the waste feeds to the incinerators. For analytical results that show less than detection limit concentrations, ½ the detection limit value will be used for incinerator feed computations. These results can be used to both estimate targeted feed rate values and control actual feed rates during incineration.

2.3 Ash

Feedstream data will provide a weight-based percentage of ash for each of the waste feeds to the incinerators. These results can be used to both estimate targeted feed rate values and control actual feed rates during incineration.

3.0 ANALYTICAL RATIONALE

In 40 CFR 63.1206 (c) (2) (ii) of the HWC MACT Standard, a facility is required to identify how it will obtain the necessary analysis to comply with these regulations. There are three sources of analytical information that Veolia can use in evaluating the feedstream parameters as described in Section 2.0 of the FAP. They are:

1) Analysis performed by Veolia
2) Analysis performed by others
3) Manufacturer data or other published information

These sources are also referenced in the facility's WAP and the ways in which they can be applied to feedstreams are extensively addressed. Many of the analytical procedures performed as described in the FAP are also required as part of the waste acceptance and management process at Veolia. The information derived from these procedures can then be used in complying with the feedstream limitations for the parameters identified in the FAP.

The three analytical sources can be applied to generator wastes received at the Veolia facility, including those that undergo subsequent blending prior to incineration, and also to wastes that are generated at the facility.

3.1 Analysis Performed by Veolia

The predominate means applicable to this source of analytical information is the methodology described in Section 5.0 of the FAP. Specific analytical methods performed in the facility's laboratory are applied to applicable feedstreams to produce values for the required parameters.

Typically, the feedstream is a waste profile from a generator that has been accepted according to the facility's WAP guidelines. This waste will have had analytical work performed on a sample for an initial acceptance decision and supplemental analysis as required for subsequent shipments of the waste. This analytical work will include information on the parameters identified in the FAP and can be used to control the incineration of the feedstreams.

In other instances, the feedstreams are wastes blended together at the facility (e.g., bulk liquids and bulk solids) or wastes generated by the facility (e.g., laboratory wastes, incinerator ash). Feedstreams that are the result of blending or other on-site processing steps prior to incineration can have parameters determined from the same analytical methods described in the previous paragraph or by statistically arriving at an average value based on a body of previously analyzed samples. Wastes generated by the facility will have parameters determined from an average value based on a body of previously analyzed samples.

For many feedstreams, the best source of information for the parameters identified in the FAP will be obtained using the technical expertise of Veolia personnel. Examples of these types of feedstreams are labpacks, controlled substances and empty containers. The facility's WAP lists some of these reference sources in Appendix WAP-F.

3.2 Analysis Performed by Others

In situations where Veolia cannot perform the necessary analysis due to the nature of the feedstream (e.g., gases, some reactive materials) or when previous outside analysis of feedstreams that meets the standards of this FAP is available, Veolia will accept the analysis of others in determining parameter values. This analytical information will be evaluated and used to control the incineration of feedstreams in the same manner as analytical information produced at the facility.

3.3 Manufacturer Data or Other Published Information

Many feedstreams have pre-existing information applicable to them that can be used to determine the values of the parameters as identified in the FAP. This can take the form of manufacturer specifications and data, Material Safety Data Sheets, reference sources or other published information. The facility's WAP lists some of these reference sources in Appendix WAP-F. Examples of these types of feedstreams include commercial products, pharmaceuticals, chemical reagents, and gas cylinders. This information will be evaluated and used to control the incineration of these feedstreams in the same manner as analytical information produced at the facility.

4.0 APPLICATION OF ANALYSIS FOR FEEDRATE COMPLIANCE

Feedstream data will be used to maintain compliance for the feedrate limitations to the incinerators. This analysis will be completed prior to the feeding of any material to the incinerators. The documentation of these feedrate compliance methods is required by 40 CFR 63.1206 (c) (2) (iii) of the HWC MACT Standard and outlined in this section of the FAP.

Analytical results can be used to both estimate targeted feed rate values and control actual feed rates during incineration. Analysis from laboratory testing at the facility, analytical results from others, published information, and technical evaluations by Veolia personnel can all be used in complying with feedrate limitations for the parameters identified in the FAP. In addition, these analytical information sources can be used for wastes from generators, wastes blended at the facility, and wastes generated at the facility.

4.1 Process Planning for Feedstreams

When evaluating analytical results and any additional information applicable to a potential feedstream, a decision must be made whether parameters for that feedstream are acceptable for feeding to the incinerators or if some level of feed preparation is necessary. This step in the feedstream evaluation process is called process planning. It is applied to blending wastes, processing wastes into combustible charges, and determining if wastes can be fed directly to the incinerators as initially received at the facility. This planning is performed based on information from analytical results, incinerator performance capabilities, process operation history, and the technical expertise of the process planning personnel involved.

4.2 Process Control for Feedstreams

In order to ensure that feedrate limits for the parameters in the FAP are not exceeded during operation of the incinerators, automatic systems must be in place to control the incinerator process. These systems continuously track the feedstream parameters as they are introduced into the incinerators and make the necessary feed adjustments or cut-offs for compliance. Section 7.0 of the FAP addresses these systems and the rationale behind their operation in greater detail.

4.3 Documentation and Recordkeeping for Process Planning and Control

Documentation of process planning and control is demonstrated by the extensive body of information collected in the facility's data management system, and, if needed, distributed in hard copy form to appropriate personnel. This includes laboratory analysis used for feed preparation, bulk waste storage data, processing directions, and related information. Actual incinerator operations data is recorded in printed summaries, recorded onto digital data storage systems, and is also selectively available on-line. This information will be retained in the operating record for the life of the facility.

5.0 SAMPLING AND ANALYTICAL METHODS

The requirements in 40 CFR 63.1206 (c) (2) (iv) and (v) of the HWC MACT Standard state that a facility must identify the sampling and test methods used for analyzing the feedstreams. The sampling methodology and much of the analytical methodology that is described in Sections 2.0 and 3.0 of the facility's Waste Analysis Plan is applicable to the FAP. Additional sampling and testing information is included in the following paragraphs of this section.

5.1 Sampling Methodologies

Sampling is performed at the Veolia facility to identify waste shipments and also by the generator at their location when making an initial determination on the acceptability of the waste at Veolia. In some instances, an actual sample will not be required because technical personnel at Veolia will have determined that sufficient documentation already exists that identifies information regarding the parameters described in Section 2.0 of the FAP (see also Section 4.0, Paragraph 4.1.12 (2) of the WAP). In order to obtain a representative sample of the waste, specific sampling procedures that are dependent on both the nature of the waste sampled and the type of processes in which the waste will be stored or transferred must be performed. Section 2.0 of the facility's WAP and pertinent appendices in the WAP list these procedures and the ASTM method number (or other EPA approved method) on which they are based. This section in the WAP also addresses the sampling equipment used, the types of intended containment or processes that can impact the sampling, and guidelines on how to ensure that a valid and representative sample is obtained.

5.2 Documentation and Recordkeeping Associated with Sampling

All samples taken at the facility or sent to the facility for analysis are assigned a unique sample identification number. These identification numbers are recorded in a chain-of-custody log and used for tracking the sample through the facility's data collection system. Each sample also has a label affixed to it identifying its contents, the date the sample was taken, and the person who took the sample.

5.3 Analytical Methodologies

CHLORINE

The analytical procedures and EPA approved methods related to determining the amount of chlorine in a feedstream are found in Appendix WAP-A to the facility's WAP.

METALS

Feedstreams that require analysis for the metals specified in the HWC MACT Standard will either contain these metals in a non-water-soluble form or a water-soluble form. Samples of feedstreams in a non-water-soluble form will require additional preparation steps prior to analysis. The analytical procedures and EPA approved methods related to determining the amount of listed metals in a feedstream are listed below.

Digestion Procedure for Non-Water-Soluble Samples

Method 3051A – Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oils

Procedure for Determining Concentration of Mercury in Sample

Method 7473 – Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry

Procedure for Determining Concentration of Arsenic, Beryllium, Cadmium, Chromium and Lead in Sample

Method 6010C – Inductively Coupled Plasma-Atomic Emission Spectrometry

ASH

The analytical procedures and EPA approved methods related to determining the amount of ash in a feedstream are found in Appendix WAP-A to the facility's WAP.

5.4 Documentation and Recordkeeping Associated with Sample Analysis

Documentation of analytical work is accomplished by recording it in laboratory logbooks, entering it into the facility's data management system, and, if needed, distributed in hard copy form to appropriate personnel. All technical files for waste profiles will also include initial laboratory analysis and any applicable subsequent analysis. This information will be retained in the operating record for the life of the facility.

6.0 FREQUENCY OF ANALYSIS

In 40 CFR 63.1206 (c) (2) (vi) of the HWC MACT Standard, a facility is required to identify the frequency with which an initial analysis is repeated or reviewed to ensure that it is current. This FAP will require that the analytical information for the feedstreams be re-evaluated on a frequency consistent with that described for all wastes as described in Section 4.1.3 of the facility's WAP. The three events that may trigger a need to update or evaluate the analysis of a given feedstream are:

1) Generator notifies Veolia that a feedstream has changed
2) Subsequent analysis for a feedstream used by Veolia is inconsistent with the original analysis
3) Five years have passed since the last assessment of the feedstream

In order for a feedstream to be considered acceptable again for incineration after one of these events has occurred, the evaluation process as described in this FAP must be completed.

7.0 COMPLIANCE WITH FEED RATES

Veolia employs process control systems for the incinerators that monitor, adjust and record feedstreams and the key parameters identified in the FAP that are associated with them. These systems meet the requirements of 40 CFR 63.1206 (c) (4), paragraphs (i), (ii) and (iii). The systems and the rationale that supports these systems are described in the following paragraph.

7.1 Feed Rate Compliance Systems and Methodology

After the metals and ash concentrations for feedstreams are determined, they will be entered into the facility's data management systems. These feedstreams are identified in the system under a site tracking number, bulk pit number, or tank number. Once this information is in the waste tracking system, the incinerator control systems are able to import and store the data for use as the waste streams are processed at the incinerators. All waste introduced into the incinerators has an associated site identification designation (receiver number, etc.) so it can be referenced to the appropriate data from the waste tracking system. As weights are recorded at 15 second intervals for each specific waste stream entering the incinerator, computations are being performed to calculate the quantities of metals (as low volatile metals, semi volatile metals, and mercury) and ash that are being incinerated. These quantities are displayed, totalized, and recorded in a manner that will show compliance with the established operating parameter limits for the metals categories and ash. One hour and 12 hour rolling totals are displayed for the incinerator operators for monitoring of these feeds.

RCRA Test Results							
Unit 2							MACT
January, 1993	Units	Run 1	Run 2	Run 3	Run 4	Average	Standard
DRE							
Carbon Tetrachloride	%	>99.99984	>99.99970	>99.99989	>99.99983	>99.99982	>99.99
Monochlorobenzene	%	>99.99970	>99.99990	>99.99991	>99.99991	>99.99986	>99.99
1,2,3-Trichlorobenzene	%	99.999998	99.9999977	99.9999972	99.9999968	99.9999974	>99.99
HCl/Cl2	ppm	9.5	9.3	10	12.6	10.4	32
Particulate	gr/dscf	0.0026	0.0024	0.0025	0.0028	0.0026	0.013
Unit 3							
November, 1996							
DRE							
Carbon Tetrachloride	%	99.99991	99.99997	99.99997		99.99995	>99.99
Tetrachloroethane	%	99.9999	99.99997	99.99998		99.99996	>99.99
1,2,3-Trichlorobenzene	%	>99.99985	>99.99984	>99.99983		>99.99984	>99.99
HCl/Cl2	ppm	17.5	18.3	10		15.3	32
Particulate	gr/dscf	0.0017	0.0004	0.0009		0.001	0.013
Unit 4							
December, 1995							
DRE							
Monochlorobenzene	%	99.99988	99.99986	99.99983		99.999857	>99.99
Hexachloroethane	%	>99.99981	>99.99984	>99.99984		>99.999830	>99.99
Naphthalene	%	>99.99989	>99.99990	>99.99990		>99.999897	>99.99
HCl/Cl2	ppm	<27.7	<20.1	<20.8		<22.9	32
Particulate	gr/dscf	0.0057	0.0087	0.0078		0.0074	0.013

Table 3

CEMS Relative Accuracy - CO, ppm @ 7% O_2
Unit 2 Incinerator Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/17/2008	0943-1004	0.03	2.10	-2.07
2	6/17/2008	1023-1044	0.00	2.03	-2.03
3	6/17/2008	1101-1122	0.00	1.34	-1.34
4	6/17/2008	1139-1200	1.15	1.01	0.14
5	6/17/2008	1240-1301	0.00	1.50	-1.50
6	6/17/2008	1332-1353	0.00	0.94	-0.94
7	6/17/2008	1409-1430	0.00	2.27	-2.27
8	6/17/2008	1446-1507	0.41	1.33	-0.92
9	6/17/2008	1521-1542	0.00	1.76	-1.76
		Average:	0.18	1.59	1.41
				Relative Accuracy:	**2.0 ppm @ 7% O2**

* Not used in averages and RA calculation

Emission Standard (ES):	100
Standard Deviation (Sd):	0.753
Confidence Coefficient (CC):	0.579
Relative Accuracy (% of ES):	2.0
Relative Accuracy (% of RM):	1126.6
Bias Adjustment Factor (BAF):	NA

Table 4

CEMS Relative Accuracy - O_2, percent dry (Cosa)

Unit 2 Incinerator Exhaust

Veolia ES Technical Solutions

Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/17/2008	0943-1004	12.9	12.5	0.42
2	6/17/2008	1023-1044	13.2	12.8	0.33
3	6/17/2008	1101-1122	13.2	12.7	0.47
4	6/17/2008	1139-1200	13.4	12.8	0.59
5	6/17/2008	1240-1301	13.1	12.5	0.64
6	6/17/2008	1332-1353	12.6	11.9	0.63
7	6/17/2008	1409-1430	13.4	12.7	0.76
8	6/17/2008	1446-1507	13.4	12.5	0.87
9	6/17/2008	1521-1542	13.5	12.8	0.72
		Average:	13.18	12.58	0.60
				Relative Accuracy:	**5.6 % of RM**

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	0.172
Confidence Coefficient (CC):	0.132
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	5.6
Bias Adjustment Factor (BAF):	1.048

Table 5
CEMS Relative Accuracy - O_2, percent wet (Cosa)
Unit 2 Incinerator Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/17/2008	0943-1004	7.83	7.31	0.52
2	6/17/2008	1023-1044	8.22	7.50	0.72
3	6/17/2008	1101-1122	8.28	7.53	0.75
4	6/17/2008	1139-1200	9.07	7.63	1.44
5	6/17/2008	1240-1301	7.89	7.23	0.66
6	6/17/2008	1332-1353	7.16	6.66	0.50
7	6/17/2008	1409-1430	8.10	7.94	0.16
8	6/17/2008	1446-1507	8.15	7.85	0.30
9	6/17/2008	1521-1542	8.18	7.92	0.26
		Average:	8.10	7.51	0.59
				Relative Accuracy:	**10.9 % of RM**

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	0.381
Confidence Coefficient (CC):	0.293
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	10.9
Bias Adjustment Factor (BAF):	1.079

Table 6
CEMS Relative Accuracy - Moisture, percent
Unit 2 Incinerator Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/17/2008	0943-1004	39.3	41.5	-2.2
2	6/17/2008	1023-1044	37.5	41.5	-4.0
3	6/17/2008	1101-1122	37.0	40.7	-3.6
4	6/17/2008	1139-1200	32.2	40.4	-8.2
5	6/17/2008	1240-1301	39.8	42.0	-2.2
6	6/17/2008	1332-1353	43.0	44.2	-1.2
7	6/17/2008	1409-1430	39.6	37.3	2.4
8	6/17/2008	1446-1507	39.2	37.5	1.8
9	6/17/2008	1521-1542	39.5	38.1	1.4
		Average:	38.6	40.3	1.8
			Relative Accuracy:		11.2 % of RM

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	3.344
Confidence Coefficient (CC):	2.570
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	11.2
Bias Adjustment Factor (BAF):	NA

Table 7
CEMS Relative Accuracy - CO, ppm @ 7% O_2
Unit 3 Incinerator Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/17/2008	1716-1737	0.00	0.00	0.00
2	6/17/2008	1801-1822	0.00	0.00	0.00
3	6/17/2008	1836-1857	0.00	0.00	0.00
4	6/17/2008	1913-1934	0.00	0.00	0.00
5	6/17/2008	1948-2009	0.28	0.00	0.28
6	6/17/2008	2023-2044	0.29	0.00	0.29
7	6/18/2008	0752-0813	0.00	0.00	0.00
8	6/18/2008	0825-0846	0.11	0.00	0.11
9	6/18/2008	0857-0918	0.03	0.00	0.03
		Average:	0.08	0.00	0.08
				Relative Accuracy:	**0.2 ppm @ 7% O2**

* Not used in averages and RA calculation

Emission Standard (ES):	100
Standard Deviation (Sd):	0.122
Confidence Coefficient (CC):	0.094
Relative Accuracy (% of ES):	0.2
Relative Accuracy (% of RM):	219.5
Bias Adjustment Factor (BAF):	NA

Table 8
CEMS Relative Accuracy - O_2, percent dry (Cosa)
Unit 3 Incinerator Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/17/2008	1716-1737	12.79	11.8	0.98
2	6/17/2008	1801-1822	12.39	11.4	1.02
3	6/17/2008	1836-1857	12.23	11.9	0.30
4	6/17/2008	1913-1934	13.00	12.8	0.20
5	6/17/2008	1948-2009	12.90	12.7	0.20
6	6/17/2008	2023-2044	12.79	12.6	0.19
7	6/18/2008	0752-0813	10.72	10.5	0.26
8	6/18/2008	0825-0846	11.64	11.6	0.09
9	6/18/2008	0857-0918	12.05	12.0	0.01
		Average:	12.28	11.92	0.36
				Relative Accuracy:	**5.3 % of RM**

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	0.372
Confidence Coefficient (CC):	0.286
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	5.3
Bias Adjustment Factor (BAF):	1.030

Table 9

CEMS Relative Accuracy - O_2, percent wet (Cosa)

Unit 3 Incinerator Exhaust

Veolia ES Technical Solutions

Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/17/2008	1716-1737	6.73	7.46	-0.73
2	6/17/2008	1801-1822	6.63	6.79	-0.16
3	6/17/2008	1836-1857	6.49	6.63	-0.14
4	6/17/2008	1913-1934	7.87	7.41	0.46
5	6/17/2008	1948-2009	7.12	7.36	-0.24
6	6/17/2008	2023-2044	7.12	7.25	-0.13
7	6/18/2008	0752-0813	4.97	5.41	-0.44
8	6/18/2008	0825-0846	5.54	6.00	-0.46
9	6/18/2008	0857-0918	5.91	6.33	-0.42
		Average:	6.49	6.74	0.25
				Relative Accuracy:	**7.8 % of RM**

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	0.331
Confidence Coefficient (CC):	0.265
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	7.8
Bias Adjustment Factor (BAF):	NA

Table 10

CEMS Relative Accuracy - Moisture, percent
Unit 3 Incinerator Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/17/2008	1716-1737	47.4	36.8	10.5
2	6/17/2008	1801-1822	46.5	40.2	6.3
3	6/17/2008	1836-1857	46.9	44.4	2.5
4	6/17/2008	1913-1934	39.5	42.1	-2.6
5	6/17/2008	1948-2009	44.8	42.1	2.7
6	6/17/2008	2023-2044	44.3	42.5	1.9
7	6/18/2008	0752-0813	53.6	48.4	5.3
8	6/18/2008	0825-0846	52.4	48.3	4.1
9	6/18/2008	0857-0918	51.0	47.4	3.5
		Average:	47.4	43.6	3.8
				Relative Accuracy:	**13.8 % of RM**

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	3.566
Confidence Coefficient (CC):	2.740
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	13.8
Bias Adjustment Factor (BAF):	1.087

Table 11
CEMS Relative Accuracy - CO, ppm @ 7% O_2
Unit 4 Rotary Kiln Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/18/2008	1257-1318	2.59	1.74	0.85
2	6/18/2008	1334-1355	2.78	1.10	1.68
3	6/18/2008	1413-1434	2.70	1.13	1.57
4	6/18/2008	1456-1517	2.69	1.44	1.25
5	6/18/2008	1544-1605	2.77	2.26	0.51
6	6/18/2008	1623-1644	2.29	1.79	0.50
7	6/18/2008	1700-1721	2.25	1.73	0.52
8	6/18/2008	1732-1753	2.05	1.91	0.14
9	6/18/2008	1806-1827	1.75	2.35	-0.60
		Average:	2.43	1.72	0.71
				Relative Accuracy:	1.3 ppm @ 7% O2

* Not used in averages and RA calculation

Emission Standard (ES):	100
Standard Deviation (Sd):	0.719
Confidence Coefficient (CC):	0.553
Relative Accuracy (% of ES):	1.3
Relative Accuracy (% of RM):	52.1
Bias Adjustment Factor (BAF):	1.416

Table 13
CEMS Relative Accuracy - O_2, percent dry (Cosa)
Unit 4 Rotary Kiln Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/18/2008	1257-1318	13.86	13.9	-0.05
2	6/18/2008	1334-1355	13.45	13.5	-0.08
3	6/18/2008	1413-1434	13.28	13.3	-0.05
4	6/18/2008	1456-1517	13.46	13.6	-0.11
5	6/18/2008	1544-1605	13.72	13.9	-0.14
6	6/18/2008	1623-1644	13.45	13.5	-0.01
7	6/18/2008	1700-1721	13.49	13.4	0.06
8	6/18/2008	1732-1753	13.59	13.6	0.03
9	6/18/2008	1806-1827	13.61	13.6	0.06
		Average:	13.55	13.58	0.03
				Relative Accuracy:	0.6 % of RM

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	0.072
Confidence Coefficient (CC):	0.056
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	0.6
Bias Adjustment Factor (BAF):	NA

Table 13
CEMS Relative Accuracy - O_2, percent wet (Cosa)
Unit 4 Rotary Kiln Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/18/2008	1257-1318	8.56	8.36	0.20
2	6/18/2008	1334-1355	7.36	8.03	-0.67
3	6/18/2008	1413-1434	7.55	7.85	-0.30
4	6/18/2008	1456-1517	7.59	8.02	-0.43
5	6/18/2008	1544-1605	7.68	8.24	-0.56
6	6/18/2008	1623-1644	7.22	7.99	-0.77
7	6/18/2008	1700-1721	7.42	7.91	-0.49
8	6/18/2008	1732-1753	7.70	7.99	-0.29
9	6/18/2008	1806-1827	7.79	8.07	-0.28
		Average:	7.65	8.05	0.40
				Relative Accuracy:	**8.1 % of RM**

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	0.283
Confidence Coefficient (CC):	0.218
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	8.1
Bias Adjustment Factor (BAF):	NA

Table 14
CEMS Relative Accuracy - Moisture, percent
Unit 4 Rotary Kiln Exhaust
Veolia ES Technical Solutions
Sauget, Illinois

Run No.	Date	Time	Reference Method	Facility CEMS	Difference
1	6/18/2008	1257-1318	38.2	40.0	-1.7
2	6/18/2008	1334-1355	45.3	40.7	4.6
3	6/18/2008	1413-1434	43.1	41.1	2.0
4	6/18/2008	1456-1517	43.6	40.9	2.7
5	6/18/2008	1544-1605	44.0	40.5	3.5
6	6/18/2008	1623-1644	46.3	40.6	5.7
7	6/18/2008	1700-1721	45.0	41.1	3.9
8	6/18/2008	1732-1753	43.3	41.1	2.2
9	6/18/2008	1806-1827	42.8	40.5	2.3
		Average:	43.5	40.7	2.8
				Relative Accuracy:	10.1 % of RM

* Not used in averages and RA calculation

Emission Standard (ES):	NA
Standard Deviation (Sd):	2.087
Confidence Coefficient (CC):	1.604
Relative Accuracy (% of ES):	NA
Relative Accuracy (% of RM):	10.1
Bias Adjustment Factor (BAF):	1.069

Mississippi Lime Company

General Offices

Alton, Illinois 62002

P.O. Box 247
Phone: 618-465-7741

MISSISSIPPI ROTARY PLANT

Hydrated Lime

Code MR200

Meets AWWA and Water Chemicals Codex Specifications

Chemical Analysis

$Ca(OH)_2$	96.0%	to	97.2%
CaO Equivalent	72.6	to	73.6
CaO Total	73.6	to	74.3
$CaCO_3$	0.65	to	1.75
$CaSO_4$	0.05	to	0.10
S Equivalent	0.012	to	0.024
SiO_2	0.38	to	0.65
Al_2O_3	0.20	to	0.30
Fe_2O_3	0.07	to	0.10
MgO	0.40	to	0.55
Free H_2O	0.30	to	0.95
P_2O_5	0.008	to	0.012
MnO	0.0015	to	0.0025

Typical Physical Analysis

Minus 100 mesh	100.0%
Minus 200 mesh	98.5
Minus 325 mesh	92.0

Density - Pounds per ft^3 - 20 to 32
(Depending upon degree of compaction)

NORIT Americas Inc.

Most Choices + Precise Fit = Best Performance.

ISO 9002
REGISTERED
FM 36335

DATASHEET

Product No. FGL
Revised 11-97

DARCO® FGL

POWDERED ACTIVATED CARBON

DARCO FGL is a lignite coal based activated carbon manufactured specifically for the removal of heavy metals and other contaminants typically found in incinerator flue gas emission streams. Its open pore structure and fine particle size permits the rapid adsorption of gaseous mercury, dioxins (PCDD) and furans (PCDF), which is critical for good absorptive performance in flue gas streams where contact times are short.

DARCO FGL is a free flowing powdered carbon with minimal caking tendencies which makes it ideal for automatic dosing systems with dry or wet injection directly into the flue gas stream. It is manufactured with a very high ignition temperature to permit safe operation at the elevated temperatures inherent in incinerator flue gas streams.

Specifications

Molasses decolorizing efficiency, %	40 min.
Moisture, % as packed	8 max.
Mesh size:	
Less than 325 mesh (45 μm), %	90 min.

General Characteristics*

Surface area, m^2/g	550
Heat capacity	0.22
Total sulfur, %	0.6
Ignition temperature, °C	450

* For general information only, not to be used as purchase specifications.

Packaging

Standard package is 40 lb. bags, 50 bags per pallet for a net pallet weight of 2000 lbs. Alternate packages include bulk trailers, and woven polypropylene bulk bags, 900 lbs. net, with a glued plastic liner.

Safety

CAUTION: Wet activated carbon depletes oxygen from air and, therefore, dangerously low levels of oxygen may be encountered. Whenever workers enter a vessel containing activated carbon, the vessel's oxygen content should be determined and work procedures for potentially low oxygen areas should be followed. Appropriate protective equipment should be worn. Avoid inhalation of excessive carbon dust. No problems are known to be associated in handling this material. However, dust may contain greater than 1.0% silica (quartz). Longterm inhalation of high dust concentrations can lead to respiratory impairment. Use forced ventilation or a dust mask when necessary for protection against airborne dust exposure (see Code of Federal Regulations - Title 29, Subpart Z, par. 1910.1000, Table Z-3).

bulk density 0.53 g/mL
33 lb/ft³

5775 Peachtree Dunwoody Road NE • Building C • Suite 250 • Atlanta, GA 30342
Telephone (404) 256-6150 • 1-800-641-9245 • FAX (404) 256-6199 www.norit.com

NORIT

Solids Residence Time Calculations

Unit 4:

Based on the equation $\Theta=[(0.19L)/(NDS)]$, where:

Θ is the residence time in minutes,
L is the kiln length in feet,
N is the rotational speed in revolutions per minute,
S is the kiln slope in feet per feet, and
D is the internal diameter in feet,

and inserting the known values for L (35), N (2), S (0.0174), and D (6.5) result in a residence time for the rotary kiln of 30 minutes.

Units 2/3:

Since these incinerators are fixed hearth units, residence time is based on the travel length of the ash ram which functions to clear the primary combustion chamber of solid waste residue. A travel length of 110 inches has been determined to be the minimum ash ram stroke length required to remove solid waste residue from the primary combustion chamber of the fixed hearth units.

MACT TRAINING OUTLINE
VEOLIA ENVIRONMENTAL SERVICES – SAUGET, IL

1. Environmental and Safety Requirements for Incineration and Material Handling

   1.1 Environmental Regulations for Incineration and Material Handling

   1.2 Safety Regulations for Incineration and Material Handling

2. Science and Technology of Incineration and Air Pollution Control

   2.1 Combustion

   2.2 Heat Exchange

   2.3 Refractory

   2.4 Acid Gas Neutralization

   2.5 Carbon Absorption

   2.6 Ash and Particulate Removal

3. Incineration and Air Pollution Control Equipment at Facility

   3.1 Combustion Systems of No. 2 and 3 Incinerators

   3.2 Combustion System of No. 4 Incinerator

   3.3 Air Pollution Control Equipment of No. 2 and 3 Incinerators

   3.4 Air Pollution Control Equipment of No. 4 Incinerator

   3.5 Instrumentation and Stack Gas Monitoring

   3.6 Process Control and Data Recording Systems

MACT TRAINING OUTLINE (continued)

4. Incinerator Feed Systems

   4.1 Natural Gas Burners

   4.2 Bulk Liquids

   4.3 Bulk Solids

   4.4 Containerized Solids

   4.5 Specialty Liquids

   4.6 Gases and Liquefied Gases

5. Operation of Facility Incinerators

   5.1 Startup and Shutdown – No. 2 and 3 Incinerators

   5.2 Startup and Shutdown – No. 4 Incinerator

   5.3 Normal Operations

   5.4 Processing Scenarios

   5.5 Maintenance and Inspection

   5.6 Troubleshooting and Response to Process Upsets

Jdm/MACTtrainoutline04

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT OPERATOR TRAINING, PARTS 1 and 2

SUBJECT DESCRIPTION: Review of regulations, incineration science, primary combustion and APC equipment at TWI

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: JEFF MUELLER

(Trainer's name printed)

(Trainer's signature)

DATE TRAINED: 3-5-03, 3-6-03

LENGTH OF TNG: 16 hours

INPUT TO TRS 6/18/03

ATTENDEES:

PRINT NAME:	SIGNATURE
1. David L Klein	
2. Larry Kuilt	
3. Terry Ball	Terry Ball
4. Michael Dale	
5.	
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT TRAINING FOR INCINERATOR OPERATORS, PARTS 1 AND 2

SUBJECT DESCRIPTION: Review of EHS regulations, science of incineration, and primary combustion and APC components of No. 2, No. 3 and No. 4 Incinerators

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: JEFF MUELLER
(Trainer's name printed)

(Trainer's signature)

INPUT TO TRS 6/18/03

DATE TRAINED: MARCH 12-13, 2003

LENGTH OF TNG: 16 hours

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Clinton Dace	
2. Chuck Edwards	
3.	Timothy A
4. Larry AGNE	Larry Agne
5.	
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT Incinerator Operator Training - Parts 1 and 2

SUBJECT DESCRIPTION: Review of regulations applicable to incineration, science of incineration and primary components for combustion and air pollution control systems

TRAINING CODE: ______________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: Jeff Mueller
(Trainer's name printed)

(Trainer's signature)

DATE TRAINED: March 19-20, 2003

LENGTH OF TNG: 16 hours

INPUT TO TRS 6/18/03

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Rodney J. Maloney	R J Maloney
2. George Demetrulias	
3. Dave Klarich	
4. Bruce Chandler	Bruce Chandler
5. Ed. Lasich	Edward R. Lasich
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ____________

VES 004086

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT INCINERATOR OPERATOR TRAINING - PARTS 1 AND 2

SUBJECT DESCRIPTION: Review of EHS regulations, science of incineration and main components of combustion and APC systems on No. 2, No. 3 and No. 4 Incinerators

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: Jeff Mueller
(Trainer's name printed)

(Trainer's signature)

DATE TRAINED: March 26-27, 2003

LENGTH OF TNG: 16 hours

INPUT TO TRS 6/18/03

ATTENDEES:

PRINT NAME:	SIGNATURE:
1. Tad Schreckenberg	Tad Schreckenberg
2. Blake Peterson	Blake Peterson
3. Angelo Demetrulias	Angelo L. Demetrulias
4. ROBERT A VOELKER	Robert A Voelker
5.	
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT Incinerator Operator Training - Parts 1 and 2

SUBJECT DESCRIPTION: Review of regulations, science of incineration, and main components of combustion and APC systems at No. 2, No. 3 and No. 4 Incinerators

TRAINING CODE: ____________ *(if uncertain; leave blank)*

TRAINING PROVIDED BY: Jeff Mueller (Trainer's name printed) ____________ (Trainer's signature)

DATE TRAINED: April 2-3, 2003

INPUT TO TRS 6/18/03

LENGTH OF TNG: 16 hours

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Roy Underwood	
2. Dean Postell	
3. David Matdesian	
4. Louis A Garza	
5. Stan Lawrence	
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT OPERATOR TRAINING - PARTS 1 AND 2

SUBJECT DESCRIPTION: Review of regulations, science of incineration, and major components of combustion and air pollution control systems for No. 2, No. 3 and No. 4 Incinerators.

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: Jeff Mueller
(Trainer's name printed) (Trainer's signature)

DATE TRAINED: APRIL 9-10, 2003

LENGTH OF TNG: 16 hours

INPUT TO TRS 6/18/03

ATTENDEES:

PRINT NAME:	SIGNATURE
1. NORMAN J. BRIDER	N J Bride
2. Tim BARRETT	Tim Bart
3. MATT RIGNEY	Matt Rigney
4. CHRISTIE NAREZ	Christie Narez
5. Gregg RAINBOLT	
6. GEORGE SMITH	George Smith
7.	
8.	
9.	
10.	

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT OPERATOR TRAINING - PARTS 3 and 4

SUBJECT DESCRIPTION: Review of incinerator feeding systems and startup, shutdown, normal operations and troubleshooting of incinerators

TRAINING CODE: ________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: Jeff Mueller
(Trainer's name printed) (Trainer's signature)

DATE TRAINED: 4/16/03 to 4/17/03

LENGTH OF TNG: 16 hours

OUT TO

TRS 6/18/03

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Michael Vale	
2. David L Klein	
3. Larry Kult	Larry Kult
4. Terry Ball	Terry Ball
5. GEORGE SMITH	George Smith
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT Incinerator Operator Training - Parts 3 & 4

SUBJECT DESCRIPTION: Review of Incinerator burners and Feeding systems, startup, shutdown and normal operations of the incinerators, inspection, maintenance and troubleshooting

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: Jeff Mueller
(Trainer's name printed)

(Trainer's signature)

DATE TRAINED: April 23-24, 2003

LENGTH OF TNG: 16 hours

INPUT TO
TRS 6/18/03

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Tim Feame	
2. Chuck Edwards	
3. Larry Agne	
4. Clinton Dace	
5.	
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT INCINERATOR OPERATOR TRAINING - PARTS 3 AND 4

SUBJECT DESCRIPTION: Review of burners and waste feed systems; incinerator operations including startup, normal operations, shutdown; inspection, maintenance and troubleshooting process upsets.

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: JEFF Mueller (Trainer's name printed) [signature] (Trainer's signature)

DATE TRAINED: MAY 7-8, 2003

LENGTH OF TNG: 16 hours

INPUT TO TRS 6/18/03

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Tad Schreckenberg	Tad Schreckenberg
2. Blake Peterson	Blake Peterson
3. Robert Voelker	Robert A Voelker
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT INCINERATOR OPERATOR TRAINING - PARTS 3 AND 4

SUBJECT DESCRIPTION: Review of burners and waste feed systems; incinerator operations including, startup, normal operations, shutdown; inspection, maintenance and trouble-shooting process upsets.

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: Jeff Mueller
(Trainer's name printed)

(Trainer's signature)

DATE TRAINED: MAY 21-22, 2003

INPUT TO

LENGTH OF TNG: 16 hours

ATTENDEES:

TRS 6/18/03

	PRINT NAME:	SIGNATURE
1.	TIM BARRETT	Tim Barrett
2.	CHRISTIE NAREZ	Christie Narez
3.	MATT RIGNEY	Matt Rigney
4.	Angelo G. Demetrulias SR	Angelo G. Demetrulias
5.	NORMAN JACK BRIDER	Norman Jack Brider
6.	[illegible]	[illegible]
7.		
8.		
9.		
10.		

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT OPERATOR TRAINING - PARTS 3 AND 4

SUBJECT DESCRIPTION: Review of burners and waste feed systems, incinerator operations including startup, shutdown and environmental parameters, and troubleshooting process upsets.

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: Jeff Mueller
(Trainer's name printed)

(Trainer's signature)

DATE TRAINED: 4/30/03 - 5/1/03

LENGTH OF TNG: 16 hours

OUT TO TRS 6/18/03

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Bruce Chandler	
2. Ed LASICH	Edward R LASICH
3. George Desmatrous[illegible]	
4. Rod Malawy	R. [illegible]
5.	
6.	
7.	
8.	
9.	
10.	

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TRNG

TITLE: MACT NATIONAL EMISSION STANDARDS FOR

SUBJECT DESCRIPTION: HAZARDOUS AIR POLLUTANTS FROM HAZARDOUS WASTE COMBUSTORS – TRAINING

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: JEFF MUELLER
(Trainer's name printed) ____________ (Trainer's signature)

DATE TRAINED: 1/23/03

LENGTH OF TNG: 1 HR.

ATTENDEES:

PRINT NAME:	SIGNATURE
1. DAVID Pratt	
2. MARTHA LEAVELL	Martha Leavell
3. Violet Leslie	Violet Leslie
4. MARION SAYRE	Marion Sayre
5. Angie Franke	
6. Douglas Bushey	Douglas Bushey
7. David Klein	
8. Bruce Chandler	
9. STANLEY W. LAWRENCE	
10. Vincent Wisely	Vincent Wisely
Scofie Wright	
Tony Click	Tony Click
KEVIN BROCK	

Entered in TRS: ____________

VES 004095

PETE KAYFIELD STEVE LUTHY
LORENZO GREEN
George Demetriades
FRED ARNOLD
Greg Stein
DEAN PORTELL
JIM BEAR
Brian Bunfill
PAT STAEBEL
Sean Welch
Michael Viles
David Dillard
Keith Barton
Durant Blacker
MIKE VARGAS
Eddie Robinson
Sandra Hurley
Cynthia Williams
SARAH L. Littlejohn
FED WELBORN
Denise Volner
Gregg Rainbolt
Jarolyn Kucharski
Eddie Graves
John Sorbie
Steve Watson
Becky Dever
Jim Smallwood
Michael Zotz
David Sandman

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT

SUBJECT DESCRIPTION: Haz Waste Combustor MACT Trng

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: JEFF MUELLER
(Trainer's name printed) (Trainer's signature)

DATE TRAINED: 2/3/03

LENGTH OF TNG: 1 ½ hr

ATTENDEES:

PRINT NAME:	SIGNATURE
1. TIM BARRETT	Tim B[illegible]
2. Tony Sackett	Anthony Sackett
3. JACK FICKER	Jack Ficker
4. Randy Portell	Randy Portell
5. DON JOHNSTON	Don Johnston
6. JOHN S[illegible]	[illegible]
7. [illegible]	[illegible]
8. Steve Becker	[illegible]
9. Rob Brown	Rob Brown
10. Rod E. DENT	Rod E. Dent
STEVE L[illegible]	[illegible]

Entered in TRS: ____________

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: MACT

SUBJECT DESCRIPTION: HAZ WASTE COMBUSTOR MACT TRNG

TRAINING CODE: ______ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: JEFF MUELLER
(Trainer's name printed)

(Trainer's signature)

DATE TRAINED: 2/3/03

LENGTH OF TNG: 1½ hr

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Michael L. McClenahan	[signature]
2. Todd Hale	[signature]
3. MITCHELL A. BLUM	[signature]
4. Dave Cripps	[signature]
5. Kenny Setz	[signature]
6. Scott Emily	[signature]
7. Bill Adams	[signature]
8. John Spaymore	[signature]
9. [illegible]	[signature]
10. Tad Schreckenberg	[signature]

Entered in TRS: ______

Onyx Environmental Services, L.L.C.
#7 Mobile Avenue
Sauget, IL 62201
(618) 271-2804
(618) 271-2128 FAX

ONYX

TRAINING DOCUMENTATION FORM

TITLE: HAZARDOUS WASTE COMBUSTOR MACT TRAINING.

SUBJECT DESCRIPTION: INITIAL TRAINING

TRAINING CODE: ____________ *(if uncertain, leave blank)*

TRAINING PROVIDED BY: JEFF MUELLER (Trainer's name printed) [signature] (Trainer's signature)

DATE TRAINED: 8/8/03

LENGTH OF TNG: 1 ½ hr.

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Gary Burke	[signature]
2. Arnold Henry	[signature]
3. Angelo G. Demetrulias Sr	[signature]
4. BOB KAIN	[signature]
5. ROB SANDRETTO	[signature]
6. BRUCE McGLASSON	[signature]
7. Doug HALL	[signature]
8. RICK PRATT	[signature]
9. John Anderson	[signature]
10. WAYNE DEMETRULIAS	[signature]

Entered in TRS: ____________

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, LINE BREAKING, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation, Mat'l Handling

TRAINING PROVIDED BY: DENNIS WARENOL (Trainer's Name Printed) [signature] (Trainer's Signature)

DATE TRAINED: 4/29/08

LENGTH OF TRAINING: 5 HRS OFFICE PERSONNEL
9 HRS OPERATIONS PERSONNEL

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
✓1.	SANDY Hurley	[illegible]	Sandy Hurley
2.	Blake Peterson	32862-5698	Blake Peterson
3.	TIM BARRETT	—	Tim Barrett
✓4.	Tony Click		Tony Click
✓5.	Dwayne Hicks		Dwayne Hicks
✓6.	Roy Underwood		Roy Underwood
✓7.	Cory Miller		Cory Miller
✓8.	Zach Drupes		[signature]
✓9.	M. Livingston		Michael [illegible]
✓10.	Eddie Graves		Eddie Graves
✓11.	Eric J. Mason		Eric J. Mason
✓12.	Bob Lewis		Bob Lewis
✓13.	Lloyd Kimbrough		[signature]
✓14.	Kenneth Brown		[signature]
✓15.	Chad Stein		[signature]
✓16.	Josh Kelley		[signature]
✓17.	SHORTER JONES		[signature]
✓18.	Ray Hasty (PPE, Resp. Fit)		Ray Hasty
✓19.	BRANDON LANTON		Brandon Lanton
20.	Cynthia William		Cynthia William
✓21.	JOHN VOGLER		J. Vogler
✓	Paul Stalzel		Paul Stalzel

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation, Mat'l Handling

TRAINING PROVIDED BY: Dennis Warmdol (Trainer's Name Printed) (Trainer's Signature)

DATE TRAINED: 4/29/08 LENGTH OF TRAINING: 5 HOURS OFFICE PERSONNEL
9 HOURS OPERATIONS PERSONNEL

ATTENDEES:

PRINT NAME	SOCIAL SECURITY #	SIGNATURE
✓1. Bruce Chandler		
✓2. STAN LAWRENCE		
✓3. Mike McClenahan		
✓4. JAVIER ALVAREZ		
✓5. Dan Pyle		
✓6. Roger Ivy		
✓7. LaMar Lee		
✓8. Charles Ames	342-70-8952	
✓9. Jose Jarillo		
✓10. Jacob Weber		
✓11. Joe Ragsdale		
✓12. Steve Watson		
✓13. TONY PLUDE		
✓14. MIKE VARGAS		
15.		
16.		
17.		
18.		
19.		
20.		
21.		

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: ANNUAL REFRESHER TRAINING REQUIRED BY 40 CFR 63.1206(c)(6)(vi)

TRAINING PROVIDED BY: BLAKE PETERSON (Trainer's Name Printed) Blake Peterson (Trainer's Signature)

DATE TRAINED: 12/24/07

LENGTH OF TRAINING:

LOCATION OF TRAINING: 2/3 Control Room

ATTENDEES:

PRINT NAME:	SIGNATURE
1. DWAYNE HICKS	Dwayne Hicks
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	

INPUT TO TRS 1/23/08

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: ANNUAL REFRESHER TRAINING REQUIRED BY 40CFR 63.1206(c)(6)(vi)

TRAINING PROVIDED BY: Dave Klarich / Jeff Mueller (Trainer's Name Printed) — D Klarich / J M (Trainer's Signature)

DATE TRAINED: 12/20/07

LENGTH OF TRAINING:

LOCATION OF TRAINING: #4 Control Room

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	TIM BARRETT	Tim Barrett
2.	BRUCE CHANDLER	Bruce Chandler
3.	STAN LAWRENCE	Stan Lawrence
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		

INPUT TO TRS 1/23/08

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: ANNUAL REFRESHER TRAINING REQUIRED BY 40 CFR 63.1206(c)(6)(vi)

TRAINING PROVIDED BY: DAVE KLAUCH (Trainer's Name Printed) DKlauch (Trainer's Signature)

DATE TRAINED: 12/19/07

LENGTH OF TRAINING:

LOCATION OF TRAINING: #4 Control Room

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	Louis A Gurro	Louis A Gurro
2.	RODNEY J. MALAWY	Rodney J. Malawy
3.	Ronnie L. Knight	Ronnie L. Knight
4.	Larry Kult	Larry Kult
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		

INPUT TO TRS 1/23/08

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: ANNUAL REFRESHER TRAINING REQUIRED BY 40 CFR 63.1206(c)(6)(vi)

TRAINING PROVIDED BY: Dave Kraemer / Jeff Mueller (Trainer's Name Printed) — Kraemer / Jeff Mueller (Trainer's Signature)

DATE TRAINED: 12/17/07

LENGTH OF TRAINING:

LOCATION OF TRAINING: #4 Control Room

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	Clinton Dace	Clint Dace
2.	Ed Lasich	Ed Lasich
3.	Bob Voelker	Bob Voelker
4.	Eddie Mitchell	Edward Mitchell
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		

INPUT TO TRS 1/23/08

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: MACT ANNUAL REFRESHER TRAINING REQUIRED BY 40 CFR 63.1206 (c)(6)(vi)

TRAINING PROVIDED BY: DAVE KLARICH (Trainer's Name Printed) DKlarich (Trainer's Signature)

DATE TRAINED: 12/12/07

LENGTH OF TRAINING:

LOCATION OF TRAINING: #4 Control Room

ATTENDEES:

PRINT NAME:	SIGNATURE
1. Tad Schreckenberg	Tad Schreckenberg
2. Tim Frame	[signature]
3. MATT RIGNEY	Matt Rigney
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	

INPUT TO TRS 1/23/08

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT Refresher Training

SUBJECT DESCRIPTION: Annual Refresher Training Required By 40 CFR 63.1206(c)(6)(vi)

TRAINING PROVIDED BY: Dave Krauch / Jeff Mueller (Trainer's Name Printed) (Trainer's Signature)

DATE TRAINED: 12/11/07

LENGTH OF TRAINING:

LOCATION OF TRAINING: 2/3 Control Room

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	Roy Underwood	
2.	Dean Powell	
3.	Blake Peterson	Blake Peterson
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		

INPUT TO TRS 1/23/08

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VES 004107

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: ANNUAL REFRESHER TRAINING REQUIRED BY 40 CFR 63.1206(c)(6)(vi)

TRAINING PROVIDED BY: DAVE KLAHCH / JEFF Mueller (Trainer's Name Printed) (Trainer's Signature)

DATE TRAINED: 12/6/07

LENGTH OF TRAINING:

LOCATION OF TRAINING: 2/3 CONTROL Room

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	George DemetruliAS	
2.	Paul DeMond	
3.	Terry Ball	Terry Ball
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		

INPUT TO
TRS 1/23/08

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: REQUIRED ANNUAL REFRESHER TRAINING
40 CFR 63.1206 (c)(6)(vi)

TRAINING PROVIDED BY: Dave Kearch / Jeff Mueller (Trainer's Name Printed) — DKearch / JMueller (Trainer's Signature)

DATE TRAINED: 12/4/07

LENGTH OF TRAINING:

LOCATION OF TRAINING: 2/3 CONTROL ROOM

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	WALTER L Hood	[signature]
2.	DOUG HALL	[signature]
3.	Todd Hale	T. Hale
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		

INPUT TO
INPUT TO TRS 1/23/08

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT INCINERATOR OPERATOR TRAINING - PART FOUR

SUBJECT DESCRIPTION: Startup, Shutdown, Emergency Shutdown procedures for incinerators. Environmental parameters and operating conditions for normal operations. Troubleshooting and response to process upsets on incinerators

TRAINING PROVIDED BY: Jeff Mueller (Trainer's Name Printed) [signature] (Trainer's Signature)

DATE TRAINED: February 27, 2007

LENGTH OF TRAINING: 8 hours

LOCATION OF TRAINING: TWI - Sauget, IL

INPUT TO TRS JJG

ATTENDEES:

	PRINT NAME:	SIGNATURE:
1.	Ronnie Knight	Ronnie Knight
2.	Dwayne Hicks	Dwayne Hicks
3.	Walter Chad Jr	[signature]
4.	Todd Hale	T. Hale
5.	Paul DeMond	[signature]
6.	Eddie Mitchell	Edward Mitchell
7.	David Hall	[signature]
8.	Brad Swanson	Bradley T. Swanson
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT TRAINING FOR INCINERATOR OPERATORS - PART 3

SUBJECT DESCRIPTION: Burner operation and waste Feed systems: including startup, normal operations, shutdown, troubleshooting, response to process upsets

TRAINING PROVIDED BY: Jeff Mueller
(Trainer's Name Printed) (Trainer's Signature)

DATE TRAINED: February 26, 2007

LENGTH OF TRAINING: 8 hours

LOCATION OF TRAINING: TWI - Sauget, IL

INPUT TO TRS

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	Ronnie Knight	Ronnie Knight
2.	Dwayne Hicks	
3.	Walter L. Hood Jr	
4.	Todd Hale	T. Hale
5.	Paul DeMond	
6.	Eddie Mitchell	Edward M Mitchell
7.	Doug Hall	
8.	Brad Swanson	Bradley T. Swanson
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT INCINERATOR OPERATOR TRAINING - PART TWO

SUBJECT DESCRIPTION: Combustion and APC systems for incinerators
Process instrumentation and data recorder systems

TRAINING PROVIDED BY: Jeff Mueller (Trainer's Name Printed) — (Trainer's Signature)

DATE TRAINED: February 20, 2007

LENGTH OF TRAINING: 8 hours

LOCATION OF TRAINING: TWI - Sauget, IL

INPUT TO TRS

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	Ronnie Knight	Ronnie Knight
2.	Dwayne Hicks	Dwayne Hicks
3.	Walter L. Hood JR	[illegible]
4.	Todd Hale	T. Hale
5.	Paul Demond	[illegible]
6.	Eddie Mitchell	Edward Mitchell
7.	Doug Hall	[illegible]
8.	Brad Swanson	Bradley T. Swanson
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

VEOLIA
ENVIRONMENTAL SERVICES

TRAINING DOCUMENTATION FORM

TITLE: MACT Incinerator Operator Training - Part 1

SUBJECT DESCRIPTION: Environmental, Health and Safety requirements for incineration. Science of combustion and air pollution control.

TRAINING PROVIDED BY: Jeff Mueller (Trainer's Name Printed) — (Trainer's Signature)

DATE TRAINED: February 19, 2007

LENGTH OF TRAINING: 8 hours

LOCATION OF TRAINING: TWI - Sauget, IL

INPUT TO TRS

ATTENDEES:

	PRINT NAME:	SIGNATURE
1.	Dwayne Hicks	Dwayne Hicks
2.	Ronnie Knight	Ronnie Knight
3.	Walter L Hood JR	
4.	Todd Hale	T. Hale
5.	Paul Demond	
6.	Eddie Mitchell	Edward Mitchell
7.	Doug Hall	
8.	Brad Swanson	Bradley T. Swanson
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		

#7 Mobile Avenue, Sauget, IL 62201
(618) 271-2804
www.veoliaes.com

Trade Waste Incineration
#7 Mobile Ave.
Sauget, IL 62201

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: REQUIRED ANNUAL REVIEW OF RULE AND UPDATES

TRAINING CODE: ________ (if uncertain, leave blank)

TRAINING PROVIDED BY: DAVE KUHLICH / JEFF Mueller (Trainer's name printed) DKuhlich (Trainer's signature)

DATE TRAINED: 1/12/07

LENGTH OF TNG: 2 HR

INPUT TO TRS

ATTENDEES:

PRINT NAME:	SOC. SEC. #	SIGNATURE
1. Dwayne Hicks		Dwayne Hicks
2. Tim BARRETT		Tim Barrett
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		

Entered in TRS:_______

Trade Waste Incineration
#7 Mobile Ave.
Sauget, IL 62201

TRAINING DOCUMENTATION FORM

TITLE: MACT REFRESHER TRAINING

SUBJECT DESCRIPTION: REQUIRED ANNUAL REVIEW OF RULE AND UPDATES

TRAINING CODE: ______ (if uncertain, leave blank)

TRAINING PROVIDED BY: Dave Kurich / Jeff Mueller (Trainer's name printed) D Kurich (Trainer's signature)

DATE TRAINED: 1/10/07

LENGTH OF TNG: 2 HR

INPUT TO TRS ___ gjg

ATTENDEES:

PRINT NAME:	SOC. SEC. #	SIGNATURE
1. Tad Schreckenberg		Tad Schreckenberg
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		

Entered in TRS:______

1/95

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation. Mat'l Handling

TRAINING PROVIDED BY: Dennis Warchol (Trainer's Name Printed) [signature] (Trainer's Signature)

DATE TRAINED: 5/6/08 LENGTH OF TRAINING: 8 Hrs.

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
1.	Vincent Wisely		Vincent Wisely
2.	Rick Hogan		[signature]
3.	George Demetrulias		[signature]
4.	Eddie Mitchell		Edward Mitchell
5.	Dean Porter		[signature]
6.	Wayne Demetrulias		Wayne Demetrulias
7.	Sean Stallings		Sean Stallings
8.	Greg Marion		Greg M
9.	Ronnell Hudson		[signature]
10.	Lorenzo Coleon		[signature]
11.	Michele Phillips		Michele Phillips
12.	Elmer Stanley		Elmer Stanley
13.	Ed Lasich		Edward R Lasich
14.	Scott Raynes		Scott Raynes
15.	Clinton Dace		[signature]
16.	Robert Voelker		Robert Voelker
17.	Brian Bunfill		[signature]
18.	David O'Brian		David O'B
19.	Randy Ratcliff		Randy Ratcliff
20.	Don Johnston		Don Johnston
21.	Durant Blackm		Durant V. Blac

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation. Mat'l.Handling

TRAINING PROVIDED BY: Dennis Warehol (Trainer's Name Printed) [signature] (Trainer's Signature)

DATE TRAINED: 5/6/08 LENGTH OF TRAINING: 8 HRS.

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
1.	Jittikorn Fujinski	[redacted]	[signature]
2.	Nancy Paddock	[redacted]	[signature]
3.	Denise Calle	[redacted]	[signature]
4.	CHERYL Millen		[signature]
5.	Ed Pashia		Ed Pashia
6.	Don Jones		[signature]
7.	Kevin Stewart		[signature]
8.	MIKE JEFFRIES		[signature]
9.	Sarah L. Littlejohn		Sarah L. Littlejohn
10.	Kate Dickey		[signature]
11.	SARAH LINHART		Sarah Linhart
12.	Jim Smallwood		[signature]
13.	Dustin Bobcik		Dustin Bobcik
14.	Bart Kenner		Bart Kenner
15.	Andrew Sinshauser		Andrew Sinshauser
16.	[illegible] Tillman		[signature]
17.	Craig Ragland		[signature]
18.	TREY Formby		[signature]
19.	~~[illegible]~~		[signature]
	Brian Blunk[illegible]		[signature]
21.	Don Johnston		Don Johnston
	Randy Postell		Randy Postell

VES 004117

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING

DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation. Mat'l Handling

TRAINING PROVIDED BY: Dennis Warnol (Trainer's Name Printed) Den J Warnol (Trainer's Signature)

DATE TRAINED: 5/13/08 LENGTH OF TRAINING: 8 HRS

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
1.	Stephanie Matsantonis		SMatsantonis
2.	Douglas Bishop	386-66-6518	Doug Bishop
3.	Julie Finley		Julie Finley
4.	Kelli Zike	~~538-~~	
5.	~~[illegible]~~		Kelli Zike
6.	Shannon Hinz		[illegible]
7.	Scott Ernst		[illegible]
8.	JOE BEARDEN		Joe Barden
9.	Doug Harris		Doug Harris
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			

VES 004118

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation. Mat'l.Handling

TRAINING PROVIDED BY: Dennis Warehol (Trainer's Name Printed) Dennis J Warehol (Trainer's Signature)

DATE TRAINED: 5/13/08 LENGTH OF TRAINING: 8 HRS.

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
1.	Louis A Garza		[illegible]
2.	John Sizemore		John Sizemore
3.	Diane Bolbach		Diane Bolbach
4.	Kim Kruc		Kim Kruc
5.	Kevin Thebeau		[illegible]
6.	Mickey Kenner		Mickey Kenner
7.	Rob Sandretto		[illegible]
8.	[illegible]		[illegible]
9.	Nick Williams		Nick Williams
10.	Dennis Schemmer		[illegible]
11.	[illegible]		[illegible]
12.	Rick Rrax		[illegible]
13.	Terry Ball		Terry Ball
14.	Paul DeMond		[illegible]
15.	Ronnie Knight		Ronnie Knight
16.	Ronnie Talbert		[illegible]
17.	Mike Ames		Michael [illegible]
18.	Larry Knott		Larry Knott
19.	Tom Johnson		[illegible]
20.	Grace Paddock		Grace Paddock
21.	Marty Earl		[illegible]

8

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave..
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention; Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation. Mat'l.Handling

TRAINING PROVIDED BY: Dennis Wardell (Trainer's Name Printed) Dennis J. Wardell (Trainer's Signature)

DATE TRAINED: 5/13/08 LENGTH OF TRAINING: 8 HRS.

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
1.	Mickey Kenner		Mickey Kenner
2.	Scofield Wright		Scofield Wright
3.	ROB SANDRETTO		Rob Sandretto
4.	Frank Tinoco		F. Tinoco
5.	Vick Williams		Vick Williams
6.	Dennis Schlemmer		D. Schlemmer
7.	John Kenner		John Kenner
8.	RICH PRATT		R. Pratt
9.	NEAL LETURNO		Neal Leturno
10.	Chuck Edwards		Chuck Edwards
11.	SUZIE McCreary		Suzie McCreary
12.	John McCreary		John McCreary
13.	RD Malowy		RD Malowy
14.	Keith Barton		Keith Barton
15.	FRED ARNOLD		Fred Arnold
16.	Tom Hall		Tom Hall
17.	Deborah McPherson		Deborah McPherson
18.	Teresa Carey		Teresa Carey
19.	Kathy Dewitt		Kathy Dewitt
20.	MARION SAYRE		Marion Sayre
21.	GEORGE SMITH		George Smith

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation. Mat'l.Handling

TRAINING PROVIDED BY: ____________ (Trainer's Name Printed) Dennis J. Wauka (Trainer's Signature)

DATE TRAINED: 5/20/08 LENGTH OF TRAINING: 8 HRS.

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
1.	Tracy E Covey	344-5C-5424	
2.	Tad Schreckenberg		Tad Schreckenberg
3.	MATT RIGNEY		M. Rigney
4.	Bill Carner		
5.	DAVID HALAVONICK		David Halavonick
6.	Tim Flame		
7.	Chris Spaw		
8.	MICHAEL THOMPSON		Michael W. Thompson
9.	Jeff Mueller		
10.	KEITH GROSS		Keith Gross
11.	Matt Howard		Matt Howard
12.	Anthony Demetralias		
13.	David Klein		
14.	Rick Lancy		Rick Lancy
15.	JAN GALLE		
16.	Kelly Meredith		
17.	Kathleen Smith		
18.			
19.			
20.			
21.			

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation, Mat'l.Handling

TRAINING PROVIDED BY: ____________ (Trainer's Name Printed) Dennis J. Vaichel (Trainer's Signature)

DATE TRAINED: 5/20/08 LENGTH OF TRAINING: 8 HRS.

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
1.	Albert B. Wright III		Albert B. Wright III
2.	Leroy Eiskant		Leroy Eiskant
3.	Walter L. Hood JR		[illegible]
4.	Dan Hall		[illegible]
5.	Gaylen Hale		Gaylen J. Hale
6.	Terry Dorn		[illegible]
7.	Steve Becker		Steve Becker
8.	Paul Wall		Paul Wall
9.	Bob Maurer		Bob Maurer
10.	PAT PRADER		Pat Prader
11.	DAVE KLARICH		D Klarich
12.	Mitch Burger		Mitch Burger
13.	Dave Schaefer		[illegible]
14.	Matt Brinker		[illegible]
15.	Mike Coleman		Michael Coleman
16.	Haelan Kim		[illegible]
17.	CHRISTIE NARCZ		Christie Narcz
18.	Gayle Oldham		Gayle Oldham
19.			
20.			
21.			

VEOLIA
ENVIRONMENTAL SERVICES
#7 Mobile Ave.
Sauget, IL 62201

TRAINING
DOCUMENTATION FORM

TITLE: 2009 ANNUAL REFRESHER TRAINING

SUBJECT

DESCRIPTION: Statement & Code of Ethics, Alcohol & Substance Abuse, Drug & Alcohol Policy, Sexual Harassment, Site Safety Policy & Procedures/Plant Rules, Contingency Plan/Emer. Evac, Lock out/Tag out, Hot Work, Hazard Communication, Confined Space, Bloodborne Pathogens, Carcinogens, PPE Selection, Respirator Training Respirator Fit Test, Temperature Stress, EH & S Update & MACT Overview, Stormwater Mgmt., Fire Hazards & Prevention, Medical Program/IH, Process Safety Mgmt/Risk Mgmt., Hearing Conservation, Bonding & Grounding Forklift Refresher Training, Forklift Driving Test, Contamination Control, Incident/Accident Spill Reporting & Investigation, Mat'l Handling

TRAINING PROVIDED BY: ______ (Trainer's Name Printed) ______ (Trainer's Signature)

DATE TRAINED: 5/20/08 LENGTH OF TRAINING: 8 HRS

ATTENDEES:

	PRINT NAME	SOCIAL SECURITY #	SIGNATURE
1.	DAVID MATOESIAN		
2.	WILLIAM ADAMS		
3.	Dennis Dillon		
4.	BOB KAN		
5.	Adrian Tillman		
6.	Rob Brown		
7.	Justin Rooks		
8.	Alex Foro		
9.	GLORIA GARCIA		
10.	JAMES JOSEPH		
11.	BRAD SWANSON		
12.	KEVIN BRAUK		
13.	Pete Rayfield		
14.	Bill Matthes		
15.	DENNIS WARCHOL		
16.			
17.			
18.			
19.			
20.			
21.			

L

URS

13 February 2009

Joseph M. Kellmeyer
Thompson Coburn LLP
One US Bank Plaza
St. Louis, Missouri 63101

RE: Request to Provide Information Pursuant to the Clean Air Act from United States Environmental Protection Agency Region 5

Subject: Installation and Operation of Mercury Continuous Emission Monitor at Veolia Environmental Services, Sauget, Illinois

Dear Mr. Kellmeyer:

As we discussed yesterday, United States Environmental Protection Agency (USEPA) Region 5 has requested that Veolia Environmental Services located at #7 Mobile Avenue, Sauget, Illinois install and operate Mercury Continuous Emission Monitors (CEMS) on multiple incinerators at this facility, and that those CEMS be installed and operating within 30 days of receipt of the Request for Information from USEPA Region 5. I believe it is not practical, certainly not for compliance purposes as inferred in the Request for Information, to continuously monitor mercury emissions from a hazardous waste incinerator using a CEMS, and it is certainly not practical to install three (3) Mercury CEMS within 30 days and have those CEMS be operational.

Through projects I have performed at URS over the past several years, I have become familiar with Mercury CEMS in general, and specifically with mercury monitoring. In my initial project dealing with mercury monitoring, we were contracted to first evaluate and then implement Mercury CEMS for use on a hazardous waste incinerator. In the early stages of that program (in 2005), it was quickly recognized that Mercury CEMS were not reliable nor were they able to meet the demands of varying concentration of mercury in the stack gases. The use of Mercury CEMS was therefore abandoned.

Recently, URS (with my significant involvement) proposed monitoring of mercury emissions from a hazardous waste incinerator in Oregon. While we were not selected to conduct that program, URS gained significant relevant knowledge through that bidding process. The scope of work for that program changed considerably throughout the bidding process, and ultimately included monitoring emissions of mercury using a CEMS. Our contact at the plant to which we were bidding was told by State regulators that a power plant near that facility operated a Mercury CEMS. Upon contact by our point of contact, the person involved with the Mercury CEMS at the power plant allegedly said (sic), "This thing is a piece of (poop)." As told to me, a more graphic word was used to describe the Mercury CEMS. Their words, not mine. In the bidding process, URS was asked to guarantee 95% data availability from the Mercury CEMS. Although redundant Mercury CEMS were proposed to improve reliability and data availability, URS would not guarantee 95% data availability. Due to unreliability of the CEMS technology, we

URS Corporation
P.O. Box 201088
Austin, TX 78720-1088
9400 Amberglen Boulevard
Austin, TX 78729

were concerned about data availability in general (even with redundant CEMS), and even more so for 95% data availability.

The second issue concerns the availability of the Mercury CEMS, and the timing for installation of the CEMS. For the project cited above, the initial Request for Proposal was received in October 2008, and monitoring was to begin (at the time) in April 2009. URS was concerned that we could meet that schedule requirement. Notification that we were not selected as the contractor was received in January. Through the bidding process, URS received quotes for Mercury CEMS. The delivery of the Mercury CEMS was quoted as 4 – 6 weeks. URS understood that the time quoted was unusually short because of the vacature of the Clean Air Mercury Rule (CAMR) and the resulting availability of Mercury CEMS. Following receipt of the Mercury CEMS, initial, appropriate operation of the Mercury CEMS had to be verified; the Mercury CEMS had to be installed; operators had to be trained; and the installed operation of the Mercury CEMS verified. I and URS believe this process takes 3 – 4 months following receipt of the analyzers. URS' proposal for the project cited above was for one (1) unit. The Request for Information from USEPA Region 5 cites the installation of three (3) Mercury CEMS, on Incinerators 2, 3, and 4 at the Sauget facility. This number of locations will only exacerbate the installation issue.

Mercury concentration in the stack gas from most units is significantly affected by the concentration of mercury in the feed to the unit. Since the feed (i.e., the fuel, the coal) to a coal-fired power-plant has a fairly consistent concentration of mercury, and the firing rate is fairly consistent, the concentration of mercury in stack gases from a coal-fired power plant is typically fairly consistent. The level of the mercury concentration in the stack gases from a coal-fired power plant is typically lower than from a hazardous waste incinerator whose waste feeds may contain mercury, and much lower than the prevailing standard for mercury concentrations in the stack gas for hazardous waste incinerators. Because the concentration of mercury in the waste feed to a hazardous waste incinerator typically varies considerably, the concentration of mercury in the stack gas may vary considerably, and there may be higher concentrations of mercury in the stack gases from a hazardous waste incinerator than from a coal-fired power plant. The variability of the concentration of mercury makes the measurement of that concentration more difficult. Unfortunately, Mercury CEMS have not been shown to be accurate - or reliable – over a broad range of mercury concentrations.

In the final analysis, do Mercury CEMS work? Much of the answer to this question depends on the definition of the word "work". In responding to that question, I would consider in-service (operating) time, data availability, and accuracy. I would be highly skeptical of a Mercury CEMS. As stated above, I would not use a Mercury CEMS for compliance purposes, certainly in this type of application (i.e., for a hazardous waste incinerator), and I certainly believe that having a Mercury CEMS operating and producing valid data within 30 days is highly improbable.

URS

If you have any questions or comments, don't hesitate to give me a call at 512/419-5317, or you can E:Mail me at mike_fuchs@urscorp.com.

Sincerely,

Michael Fuchs
Project Manager

Attachments: Request to Provide Information Pursuant to the Clean Air Act from United States Environmental Protection Agency Region 5

Resume for Michael Fuchs

Michael Fuchs
URS Project Manager

Expertise

- ✓ Project Management
- ✓ Air Regulatory Compliance (Federal and State, RCRA, TSCA, and HWC MACT)
- ✓ Source Emissions Testing: U.S. EPA 40 CFR Part 60 and [illegible] SW-846, and [illegible] Sampling [illegible] Including [illegible] Method 29, [illegible] 26A, Method [illegible] Method 0040, [illegible] 0010, Method [illegible] and 25A
- ✓ Trial Burn Plans and [illegible] Plans
- ✓ [illegible]
- ✓ HWC MACT [illegible]

[illegible]

Qualifications

Mr. Michael Fuchs is a Project Manager in the Measurements Group in URS' Austin office. Mr. Fuchs began his career performing source testing and has now managed projects while continuing to provide hands-on participation. Mr. Fuchs primarily manages projects related to the treatment of hazardous waste (primarily combustion); emissions measurements including source testing; and regulatory compliance (RCRA, TSCA, and HWC MACT) for hazardous waste combustion facilities. He actively participates in those projects preparing test plans and QAPPs; supervising trial burns and related projects; and preparing reports and regulatory filings. Mr. Fuchs manages the trial burns and related projects at TOCDF. He also manages similar projects for industrial clients.

Similar Work Experience

- **Project Manager, TOCDF Alternative Monitoring Request (AMR) Mercury Monitoring of the MPF, 2006, Tooele, UT.** An AMR was developed and prepared to provide HWC MACT compliance data for the mercury standard. The AMR is based on Appendix K. URS developed the sampling and analytical procedures, procured all systems for sampling and analysis, transferred the sampling and analysis procedures to TOCDF, and trained personnel at TOCDF. SOPs were prepared for integral procedures..
- **Project Manager, TOCDF RATA of the AMR Mercury Monitoring System, 4th Quarter 2006, 2007, and Scheduled 2008, Tooele, UT.** A RATA (Relative Accuracy Test Audit) of the AMR mercury compliance monitoring system of the MPF is performed annually in accordance with EPA Performance Specification (PS) 12A. Of significant note, PS 12A states that the accuracy requirement is 20%. At URS' recommendation, the accuracy requirement was modified to add "10% of the applicable standard". The RATA has been successful in 2006 and 2007. In those years, the reference method was EPA Method 29. Method 30B has now been promulgated by EPA, and will be used (with Ohio Lumex on site analysis) during the 2008 RATA.
- **Project Manager, TOCDF Mercury Process Monitoring for Mercury from the MPF, 2006, Tooele, UT.** Mercury Process Monitoring (MPM) of the MPF was performed using an adaptation of Appendix K with on site analysis using an Ohio Lumex analyzer. URS developed the sampling and analytical procedures, transferred the sampling and analysis procedures to TOCDF, and trained personnel at TOCDF.
- **Project Manager, TOCDF Preparation of AMR and MPM Sorbent Traps, 2006, 2007, 2008, 2009 Tooele, UT.** URS prepares the AMR (3-bed, spiked) and MPM (2-bed, unspiked) sorbent traps for TOCDF. The AMR and MPM sorbent traps are shipped to TOCDF weekly using FedEx.
- **Project Manager, TOCDF Quarterly Calibration of Appendix K Meter Boxes, 2006, 2007, 2008, 2009 Tooele, UT.** URS performs the quarterly calibrations of the Appendix K meter boxes as required by Appendix K

- **Project Manager, Veolia HWC MACT CPT, 2006, Port Arthur, TX.** URS performed and reported the HWC MACT CPT of Veolia's incinerator in Port Arthur, TX. Veolia uses a proprietary process to control mercury emissions. The mercury standard was not demonstrated in the initial performance of the CPT. The proprietary process was optimized, including testing. Testing for mercury during the optimization phase was performed using Appendix K with on site analysis using an Ohio Lumex mercury analyzer. The mercury standard was successfully demonstrated during the optimization tests (using Appendix K) and the subsequent CPT (using EPA Method 29).

- **Project Manager, EG&G, TOCDF MPF and LIC2 Mustard ATBs, January 2007, Tooele, UT.** The TOCDF Metal Parts Furnace (MPF) exhaust gas was simultaneously sampled by U.S. EPA Method 5/SW-846 Method 0050; U.S. EPA Method 29; SW-846 Method 0023A; SW-846 Method 0010 for Semivolatiles; SW-846 Method 0010 for Total Organic Emissions (GRAV/TCO); SW-846 Method 0040; SW-846 Method 0031; and CEMS for CO2, NOx, SO2, and THC. The same testing was performed on the Liquid Incinerator (LIC2) exhaust gas following the completion of the MPF ATB. Mr. Fuchs served as the Project Manager for these trial burns and provided on-site supervision of the performance of the trial burns. Mr. Fuchs was responsible for providing daily sampling data and updates for the performance of the trial burns. He also managed and participated in the preparation of the Sampling and Analytical Reports and QA/QC Reports for the MPF and LIC2 Mustard ATBs.

- **Project Manager, EG&G, TOCDF MPF Secondary Waste Demonstration Test (SWDT), March 2006, Tooele, UT.** The TOCDF MPF exhaust was simultaneously sampled by U.S. EPA Method 5/SW-846 Method 0050; U.S. EPA Method 29; SW-846 Method 0023A; SW-846 Method 0010 for semivolatiles; SW-846 Method 0010 for Total Organic Emissions; SW-846 Method 0040; SW-846 Method 0031; and CEMS for CO2, NOx, SO2, and THC. Mr. Fuchs served as the Project Manager for the SWDT and provided on-site supervision of the performance of the test. Mr. Fuchs was responsible for providing daily sampling data and updates for the performance of the test. He also managed and participated in the preparation of the Sampling and Analytical Reports and QA/QC Reports for the SWDT.

- **Project Manager, Veolia Environmental Services, CPT, RCRA Periodic Testing, and TSCA Risk Burn, April-July 2006, Port Arthur, TX.** Mr. Fuchs served as the Project Manager for the tests – an initial test, mini-burns, and a final test. During the April 2006 CPT, RCRA Periodic Testing, and TSCA risk burn, the incinerator exhaust was simultaneously sampled by U.S. EPA Method 5/26A, U.S. EPA Method 29, SW-846 Method 0010 for semivolatile POHC and organics, SW-846 Method 0023A for dioxins/furans, SW-846 Method 0010 for PCBs, SW-846 Method 0030 for volatile organics, SW-846 Method 0061 for Cr(VI), and CEMS for NOx and THC. Mr. Fuchs worked closely with Veolia, and was the primary author of the test plan and QAPP. Mr. Fuchs provided on-site supervision of the performance of the tests. He managed and participated in the preparation of the final reports and preparation of the Notification of Compliance.

- **Project Manager, EnerSol Technologies, Plasma Energy Pyrolysis System (PEPS) Testing, August 2006, Springfield, VA.** Managed the project involving testing the PEPS to determine its suitability for processing secondary waste from chemical demilitarization sites. The PEPS exhaust was simultaneously sampled by U.S. EPA Method 5/SW-846 Method 0050, U.S. EPA Method 29, SW-846 Method 0010, and SW-846 Method 0031.

- **On-site Project Manager/Test Supervisor, BASF, Aniline Incinerator CPT, June 2005, Geismar, LA.** The BASF Aniline Incinerator exhaust was simultaneously sampled by U.S. EPA Method 0023A, SW-846 Method 0030, U.S. EPA Method 29, U.S. EPA Method 5, and U.S. EPA Method 25A. Mr. Fuchs worked closely with BASF for the review and revision of the test plan and QAPP. Mr. Fuchs served as the Project Manager for the project, and provided on-site supervision of the performance of the tests. Mr. Fuchs managed and participated in the preparation of the final report and preparation of the Notification of Compliance.

- **On-site Project Manager/Test Supervisor, Waste Control Specialists, October 2004, Andrews, TX.** Served as On-Site Project Manager and Test Supervisor for evaluation of the Geomelt process operated by Waste Control Specialists was performed by simultaneously sampling the exhaust by U.S. EPA Method 5/26A; U.S. EPA Method 29; CARB Method 428 for dioxins/furans and PCBs; SW-846 Method 0010 for semivolatile organics; SW-846 Method 0030 for volatile organics; and CEMS for O_2, CO_2, CO, NOx, SO_2, and THC. Mr. Fuchs also managed and participated in the preparation of the report.

- **Project Manager, EG&G, TOCDF LIC2 VX ATB, February 2004, Tooele, UT.** The TOCDF LIC2 exhaust was simultaneously sampled by U.S. EPA Method 5/SW-846 Method 0050; U.S. EPA Method 29; SW-846 Method 0023A; SW-846 Method 0010 for semivolatile organics; SW-846 Method 0010 for Total Organic Emissions; SW-846 Method 0040; SW-846 Method 0031 for volatile organics; and CEMS for CO_2, NOx, SO_2, and THC. Mr. Fuchs served as the Project Manager for this trial burn and provided on-site supervision of the performance of the trial burn. Mr. Fuchs was responsible for providing daily sampling data and updates for the performance of the trial burns. He managed and participated in the preparation of the Sampling and Analytical Report for the LIC2 VX ATB.
- **Project Manager, EG&G, TOCDF MPF VX ATB, March 2004, Tooele, UT.** The TOCDF MPF exhaust was simultaneously sampled by U.S. EPA Method 5/SW-846 Method 0050; U.S. EPA Method 29; SW-846 Method 0023A; SW-846 Method 0010 for semivolatile organics; SW-846 Method 0010 for Total Organic Emissions; SW-846 Method 0040; SW-846 Method 0031 for volatile organics; and CEMS for CO_2, NOx, SO_2, and THC. Mr. Fuchs served as the Project Manager for this trial burn and provided on-site supervision of the performance of the trial burn. Mr. Fuchs was responsible for providing daily sampling data and updates for the performance of the trial burn. He managed and participated in the preparation of the Sampling and Analytical Report for the MPF VX ATB.

M

EcoChem Analytics

Headquarters: 202 Reynolds, League City, TX 77573 Tel: 281-338-9888 Fax: 332-6152
Eastern USA: 8 Paret Lane, Hartsdale, NY 10530 Tel: 914-683-5920 Fax: 683-1029
Germany: Magnolienweg 1, D-88662 Uberlingen Tel:+49(7551)915838 Fax: 915-839
Email: sales@ecochem.biz Website: www.ecochem.biz

Thursday, February 12, 2009
Veolia Environmental Services
7 Mobile Ave.
Sauget, IL

Re: Mercury Monitoring

Dave,

Thank you for your business with Ecochem Analytics. I wanted to write to follow-up with our discussion and inquiry on mercury monitoring. Ecochem is not offering a mercury CEMs at this time for several reasons including the US courts striking down the mercury regulations and the immaturity of the technology.

In our business, the quality of your product is based upon repeatable results across a broad spectrum of applications. We have non-mercury CEMS in electrical, chemical, waste incinerator , cement, pharmaceutical and industrial plants all that are required to meet EPA accuracy standards and test methods. The criteria pollutants that are monitored successfully do this regardless of the pollution control equipment, the process conditions, the environment, etc... Mercury is not at that level. Our experience found that we could monitor successfully in certain applications and fail miserably in others. We had units at several locations, including EPA and had varying degrees of success; however, the knowledge and availability of mercury techniques is still lacking.

EPA had passed regulation of Mercury emissions for power plants, only to have the rulings thrown out in court. The ruling pushes back the laws by about 3-5 years in our estimation which may or may not be sufficient time to improve the technology in transporting and converting mercury emissions.

Installing mercury CEMS to meet these rules that were thrown out would be very costly with marginal results at best. While we would love to sell you additional equipment, I would rather see both of us successful and getting equipment to you when the technology and regulations are more mature.

Thank you again for your consideration.

Bob Peters
Project Manager

EcoChem Analytics

Headquarters: 202 Reynolds, League City, TX 77573 Tel: 281-338-9888 Fax: 332-6152
Eastern USA: 8 Paret Lane, Hartsdale, NY 10530 Tel: 914-683-5920 Fax: 683-1029
Germany: Magnolienweg 1, D-88662 Uberlingen Tel:+49(7551)915838 Fax: 915-839
Email: sales@ecochem.biz Website: www.ecochem.biz

Thursday, February 12, 2009
Veolia Environmental Services
7 Mobile Ave.
Sauget, IL

Re: Mercury Monitoring

Dave,

Thank you for your business with Ecochem Analytics. I wanted to write to follow-up with our discussion and inquiry on mercury monitoring. Ecochem is not offering a mercury CEMs at this time for several reasons including the US courts striking down the mercury regulations and the immaturity of the technology.

In our business, the quality of your product is based upon repeatable results across a broad spectrum of applications. We have non-mercury CEMS in electrical, chemical, waste incinerator , cement, pharmaceutical and industrial plants all that are required to meet EPA accuracy standards and test methods. The criteria pollutants that are monitored successfully do this regardless of the pollution control equipment, the process conditions, the environment, etc... Mercury is not at that level. Our experience found that we could monitor successfully in certain applications and fail miserably in others. We had units at several locations, including EPA and had varying degrees of success; however, the knowledge and availability of mercury techniques is still lacking.

EPA had passed regulation of Mercury emissions for power plants, only to have the rulings thrown out in court. The ruling pushes back the laws by about 3-5 years in our estimation which may or may not be sufficient time to improve the technology in transporting and converting mercury emissions.

Installing mercury CEMS to meet these rules that were thrown out would be very costly with marginal results at best. While we would love to sell you additional equipment, I would rather see both of us successful and getting equipment to you when the technology and regulations are more mature.

Thank you again for your consideration.

Bob Peters
Project Manager

N

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 West Jackson Boulevard
CHICAGO, IL 60604

DATE: APR 1 6 2008

SUBJECT: Operating Parameter Limits for Veolia ES Technical Solutions, LLC, Sauget, IL

FROM: Charles Hall, Environmental Engineer
MN/OH Air Enforcement and Compliance Assurance Section

TO: File, Veolia ES Technical Solutions, LLC, Sauget, IL

THROUGH: William MacDowell, Chief
MN/OH Air Enforcement and Compliance Assurance Section

This memorandum evaluates whether the operating parameter limits ("OPLs") that Veolia ES Technical Solutions, LLC ("Veolia") has submitted in its application for a Clean Air Act Part 71 operating permit demonstrate compliance with the emission standards for dioxins/furans, mercury, semivolatile metals ("SVM"; cadmium and lead), low volatile metals ("LVM"; arsenic, beryllium, and chromium), hydrogen chloride/chlorine gas ("HCl/Cl_2"), and particulate matter ("PM") and the destruction and removal efficiency ("DRE") standard.

Regulatory Background

The National Emission Standard for Hazardous Air Pollutants from Hazardous Waste Combustors, 40 C.F.R. 63, Subpart EEE (hereinafter, "the HWC MACT") sets forth emission standards for dioxins/furans, mercury, SVM, LVM, carbon monoxide, total hydrocarbon, HCl/Cl_2, PM and DRE. The standards set forth in 40 C.F.R. § 63.1203(a) and (c) are applicable between September 30, 2003, and October 13, 2008. On and after October 14, 2008, Veolia will be subject to the standards set forth in 40 C.F.R. § 63.1219(a) and (c).

The HWC MACT requires the owner to conduct a comprehensive performance test ("CPT") to demonstrate compliance with the standards and to establish OPLs for DRE, dioxins/furans, mercury, PM, SVM, LVM, and HCl/Cl_2. Pursuant to 40 C.F.R. §§ 63.7(e) and 63.1207(g)(1), Veolia must conduct the CPT under operating conditions representative of the extreme range of normal conditions. This allows the Agency to reasonably assume that compliance with the OPLs corresponds with compliance with the standards under normal operating conditions.

Pursuant to 40 C.F.R. §§ 63.1207(f)(1)(x), 63.1209(1)(1), and 63.1209(n)(2), an owner may request EPA's approval to extrapolate mercury feed rates and associated emission rates during the comprehensive performance test to higher allowable feed rate limits and emission rates. In its review, EPA must consider: 1, whether metal feed rates during the performance test are appropriate (i.e., whether feed rates are at least at normal levels; depending on the heterogeneity of the waste, whether some level of spiking would be appropriate; and whether the physical form and species of spiked material is appropriate); and 2, whether the extrapolated feed rates the source requests are warranted considering historical metal feed rate data.

Pursuant to 40 C.F.R. § 63.1207(c)(2), Veolia may request that previous emissions test data serve as documentation of conformance with the emission standards of this subpart provided that the previous testing resulted in data that meet quality assurance objectives (determined on a site-specific basis) such that the results demonstrate compliance with the applicable standards; conformed with the requirements of 40 C.F.R. § 63.1207(g)(1); and was sufficient to establish the applicable OPLs under § 63.1209. 40 C.F.R. § 63.1207(g)(1)(A) requires Veolia to feed chlorine at its normal or higher feed rate during the dioxin/furan performance test. 40 C.F.R. § 63.1207(g)(1)(B) requires Veolia to feed ash at normal or higher feed rate during the SVM and LVM performance tests and the dioxin/furan and mercury performance tests if activated carbon injection or a carbon bed is used. 40 C.F.R. § 63.1207(g)(1)(C) requires Veolia to conduct the following tests when the PM control device undergoes its normal or more frequent cleaning cycle: The PM, SVM, and LVM performance tests; and the dioxin/furan and mercury performance tests if activated carbon injection or a carbon bed is used.

Facility Background

Veolia owns and operates three hazardous waste incinerators (Incinerators #2, #3, and #4) at its Sauget, Illinois, facility. The major components of each incinerator include waste feed systems, a primary combustion chamber, a secondary combustion chamber, a spray dry adsorber, a baghouse, an induced draft fan, and a stack. Incinerator #4 also has a tempering chamber, an activated carbon injection system, and a second baghouse.

Discussion

On December 29, 2003, Veolia submitted to EPA and Illinois EPA a CPT plan. Illinois EPA is delegated to implement the HWC MACT except for answering alternative monitoring requests. EPA assumed that Illinois EPA would formally respond to the CPT Plan. Although EPA does not know the exact date(s), Illinois EPA and Veolia representatives met to discuss the CPT Plan. Illinois EPA provided comment on the CPT Plan verbally, but did not provide written comments. In response to discussions between Illinois EPA and Veolia, on July 24, 2006, Veolia revised the requests for alternative monitoring requirements. On November 13, 2006, EPA answered the alternative monitoring requests.

Missing OPLs

On May 2, 2007, Veolia submitted to EPA an application for a Clean Air Act Part 71 operating permit. Appendix C of the Application includes a list the proposed OPLs for Incinerators #2 and #3 and a list of the proposed OPLs for Incinerator #4. Veolia did not propose a value for the following applicable OPLs:

Table 1. OPLs Missing From Part 71 Application

HAP	Incinerator	OPL	Comment
D/F, Mercury	#4	Carbon specification	40 C.F.R. §§ 63.1209(k)(6)(iii) and 63.1209(l)(3)
PM, SVM/LVM	#2, #3, and #4	Baghouse leak detection system parameters	40 C.F.R. §§ 63.1209(m)(1)(iv) and 63.1209(n)(3)
LVM	#2, #3, and #4	Maximum Pumpable LVM Feed Rate	40 C.F.R. § 63.1209(n)(2)(vi)
HCl/Cl_2	#2, #3, and #4	Spray Dry Adsorber: Minimum Sorbent Feed Rate	40 C.F.R. § 63.1209(o)(4)(i)
HCl/Cl_2	#2, #3, and #4	Spray Dry Adsorber: Minimum Carrier Fluid Flow Rate or	40 C.F.R. § 63.1209(o)(4)(ii)

HAP	Incinerator	OPL	Comment
		Nozzle Pressure Drop	
HCl/Cl_2	#2, #3, and #4	Spray Dry Adsorber: Specify and use the Brand and Type of Sorbent used during the CPT	40 C.F.R. § 63.1209(o)(4)(ii)

Without establishing each of these OPLs, Veolia cannot assure compliance with the dioxin/furan, mercury, PM, SVM, LVM, and HCl/Cl_2 emission standards.

Pursuant to 40 C.F.R. § 63.1209(g)(1)(ii), EPA may waive an OPL specified in this section based on documentation that neither that OPL nor an alternative OPL is needed to ensure compliance with the emission standards of this subpart. However, Veolia has not requested that EPA waive the OPLs listed in Table 1. Consequently, these monitoring requirements remain in effect.

Problems with the CPT Plan Content

Without a valid and complete CPT, EPA cannot determine whether the resulting OPLs assure compliance. Because Veolia's CPT Plan is incomplete, EPA cannot determine whether the CPT was a valid and complete test sufficient to demonstrate compliance and to establish all applicable OPLs. The December 2003 CPT Plan does not include the following required information:

a. Pursuant to 40 C.F.R. § 63.1207(f)(1)(i)(A), an analysis of each feed stream, including hazardous waste, other fuels, and industrial furnace feed stocks, as fired, that includes the heating value, concentrations of ash, low volatile metals (LVM; arsenic, beryllium, and chromium), semivolatile metals (SVM; cadmium and lead), mercury, and total (organic and inorganic) chlorine;

b. Pursuant to 40 C.F.R. § 63.1207(f)(1)(ii)(A), the identity of each organic HAP established by 42 U.S.C. § 7412(b)(1), excluding caprolactam (CAS number 105602) as provided by § 63.60, that is present in each hazardous waste feed stream.

c. Pursuant to 40 C.F.R. § 63.1207(f)(1)(ii)(B), within the precision produced by analytical procedures of 40 C.F.R.

§ 63.1208(b)(8), the approximate quantification of the identified organic HAPs in the hazardous waste feedstreams.

d. Pursuant to 40 C.F.R. § 63.1207(f)(1)(iii)(G), a detailed engineering description of the design, operation, and maintenance practices for any air pollution control system for each hazardous waste incinerator.

e. Pursuant to 40 C.F.R. § 63.1207(f)(1)(iv), 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.

f. Pursuant to 40 C.F.R. § 63.1207(f)(1)(v), a detailed test schedule for each hazardous waste for which the performance test is planned, including date(s), duration, quantity of hazardous waste to be burned.

g. Pursuant to 40 C.F.R. § 63.1207(f)(1)(vi), a detailed test protocol, including, for each hazardous waste identified, the ranges of hazardous waste feedrate for each feed system, and, as appropriate, the feedrates of other fuels and feedstocks, and any other relevant parameters that may affect the ability of the HWC to meet the emission standards.

h. Pursuant to 40 C.F.R. § 63.1207(f)(1)(vii), a description of, and planned operating conditions for, any emission control equipment that will be used.

i. Pursuant to 40 C.F.R. § 63.1207(f)(1)(xi), documentation of the expected levels of regulated constituents in natural gas, process air feedstreams, and feedstreams from vapor recovery systems feedstreams if the owner does not continuously monitor regulated constituents in those feedstreams;

j. Pursuant to 40 C.F.R. § 63.1207(f)(1)(xix), documentation of the temperature measurement location.

k. For Incinerator 4 only, pursuant to 40 C.F.R. § 63.1207(f)(1)(xx)(A), documentation of the manufacturer specifications for minimum carrier fluid flowrate or pressure drop.

l. For Incinerator 4 only, pursuant to 40 C.F.R. § 63.1207(f)(1)(xx)(B), documentation of the key parameters that affect carbon adsorption, and the operating limits Veolia establishes for those parameters based on the carbon used during the performance test, if you elect not to specify and use the brand and type of carbon used during the CPT.

m. Pursuant to 40 C.F.R. § 63.1207(f)(1)(xxv), documentation of the key parameters that affect adsorption of HCl/Cl_2 and the limits that the owner will establish for those parameters based on the sorbent used during the CPT.

n. Pursuant to 40 C.F.R. § 63.1207(f)(1)(xxvi), for purposes of calculating SVM, LVM, mercury, total (organic and inorganic) chlorine, and ash feed rate limits, a description of how the company will handle performance test feed stream analytical results that determines these constituents are not present at detectable levels.

o. Pursuant to 40 C.F.R. §§ 63.1207(f)(1)(xxvii) and 63.1219(c)(3)(ii), the identity of one or more principal organic hazardous constituent(s) that represent the most difficult to destroy organic compounds in its hazardous waste feedstreams. Veolia must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

Data In Lieu Request

Pursuant to 40 C.F.R. § 63.1207(c)(2)(i), the owner of a hazardous waste incinerator may request that previous emissions test data serve as documentation of conformance with the emission standards of this subpart provided that the previous testing:[1]

a. Results in data that meet quality assurance objectives (determined on a site-specific basis) such that the results demonstrate compliance with the applicable standards;

b. Was in conformance with the requirements of 40 C.F.R. § 63.1207(g)(1); and

---

1 40 C.F.R. § 63.1207(c)(2)(iii) negates a fourth condition (pertaining to age of the data) in 40 C.F.R. § 63.1207(c)(2)(i).

c. Was sufficient to establish the applicable OPLs under 40 C.F.R. § 63.1209.

Veolia wanted to use test data from Incinerator #2 to demonstrate compliance and establish OPLs for Incinerator #3. The Boiler and Industrial Furnace ("BIF") Rule (40 C.F.R. Part 266, Subpart H, promulgated under the authority of the Resource Conservation and Recovery Act), explicitly allowed an owner to use data from one affected source to demonstrate compliance for another nominally identical source. See 40 C.F.R. § 266.103(c)(3)(i). EPA copied many requirements from the BIF Rule directly into the HWC MACT. However, EPA did not copy 40 C.F.R. § 266.103(c)(3)(i) into the HWC MACT. Consequently, EPA has not allowed an owner of a HWC to use data from one combustor to demonstrate compliance for another combustor. Further, Veolia has not yet demonstrated to EPA's satisfaction that Incinerators #2 and #3 are identical: Incinerator #2's baghouse has four modules, and Incinerator #3's baghouse has three modules. This difference may affect the emissions of dioxin/furan, mercury, PM, SVM, LVM, and HCl/Cl_2.

Even if EPA accepts Veolia's claim that Incinerators #2 and #3 are identical or that the difference between them is insignificant, under the Clean Air Act, EPA has generally been reluctant to waive the requirement to conduct a performance test. EPA regards Veolia's data in lieu request as a request to waive the requirement to conduct a CPT on Incinerator #3. Although 40 C.F.R. § 63.1207(c)(2)(i) does not explicitly prohibit using data from one incinerator to demonstrate compliance for another incinerator, EPA has waived the requirement to conduct a performance test in very limited circumstances. EPA has approved performance test waivers for numerous natural gas-fired steam generating units and stationary gas turbines. Natural gas has a consistent composition. Consequently, the owner or operator of a natural gas-fired steam generating unit can reliably predict that the emission concentrations of sulfur dioxide and oxides of nitrogen will comply with their emission standards. Further, EPA can reasonably assume that two natural gas-fired steam generating units with an identical design will have similar, if not identical, emissions. EPA has waived the requirement to conduct a DRE performance test for one hazardous waste burning cement kiln. EPA has a large data set of performance test results for hazardous waste-burning cement kilns that demonstrate compliance with the DRE by substantial margins.

By contrast, hazardous waste incinerators burn wastes that can vary widely in their heat content and elemental composition. Waste streams can vary from one hour to the next. Liquid wastes can separate into two or more phases. Consequently, EPA cannot reasonably assume that a hazardous waste incinerator - especially one such as Veolia that accepts hazardous waste from numerous generators - burns a homogenous waste stream.

On September 30, 2005, EPA issued the Clean Air Act National Stack Testing Guidance. This guidance compiled stack testing determinations that EPA had issued since the early 1970s. The guidance sets forth four criteria under which a waiver may be appropriate:

(1) the units are located at the same facility;

(2) the units are produced by the same manufacturer, have the same model number or other manufacturer's designation in common, and have the same rated capacity and operating specifications;

(3) the units are operated and maintained in a similar manner; and

(4) the delegated agency, based on documentation submitted by the facility,

  (a) determines that the margin of compliance for the identical units tested is significant and can be maintained on an on-going basis; or

  (b) determines based on a review of sufficient emissions data that, though the margin of compliance is not substantial, other factors allow for the determination that the variability of emissions for identical tested units is low enough that the agency can be confident that the untested unit will be in compliance. These factors may include, but are not limited to, the following:

    (i) historical records at the tested unit showing consistent/invariant load;

    (ii) fuel characteristics yielding low variability (e.g., oil) and therefore assurance that emissions will be constant and below allowable levels;

(iii) statistical analysis of a robust emissions data set demonstrate sufficiently low variability to convey assurance that the margin of compliance, though small, is reliable.

EPA acknowledges that Incinerators #2 and #3 are located at the same facility and assumes that Veolia operates and maintains them in a similar manner. However, Veolia has not demonstrated that the margin of compliance for Incinerators #2 and #3 is significant and can be maintained on an on-going basis. Further, Veolia has not demonstrated that, though the margin of compliance is not substantial, other factors allow for the determination that the variability of emissions for identical tested units is low enough that the agency can be confident that the untested incinerator will be in compliance. In particular, we do not have historical records at either incinerator showing consistent/invariant load. In all three incinerators, Veolia uses natural gas or #2 fuel oil as an auxiliary fuel to start-up and obtain the desired temperature. The consistency of the auxiliary fuels is not at issue here. It is the inconsistency of the wastes that Veolia burns. Veolia operates three commercial hazardous waste incinerators in which it burns hazardous waste from numerous generators. Further, Veolia may not know the exact composition of the hazardous waste that it burns. Finally, EPA does not have a large set of test results for either Incinerator #2 or #3. Consequently, EPA cannot determine whether previous tests demonstrate sufficiently low variability to assure that the margin of compliance, though small, is reliable. For these reasons, EPA cannot waive the requirement to conduct a CPT on Incinerator #3.

General Problems with Usability of Data from Previous Tests

EPA has reports for three tests on Incinerator #2 (November 2002, September 2003 and May 2004); four on Incinerator #3 (January 1997, August 2002 (two conditions), November 2002, and May/June 2006; and five on Incinerator #4 (February 1996, August 2002, November 2002, September 2003 (two conditions), and May 2004. Tables 2 and 3 summarize the test results and feed rate data that EPA has for these tests. Veolia may have fed chlorine at its normal or higher feed rate during the previous dioxin/furan tests, but Veolia did not document the feed rate in the test report. Even if the test report included chlorine feed rate documentation, EPA would not know how that rate compares to Veolia's normal chlorine feed rate. Similarly, Veolia may have fed ash at its normal or higher feed rate during the previous

SVM and LVM tests. Even though Veolia documented the SVM and LVM feed rates for some tests, EPA does not know how that feed rate compares to Veolia's past operating rates. During the PM, SVM, LVM and, for Incinerator #4, dioxin/furan and mercury, performance tests, Veolia may have operated each baghouse with its normal or more frequent cleaning cycle. However, Veolia did not document the normal cleaning frequency in any of the test reports.

Problems with Veolia's Intent to Extrapolate

In Section 1.2 of the CPT Plan, Veolia indicated that it intended to utilize an extrapolation procedure, as appropriate, to establish metals feed rate limits. However, Veolia did not include the following information that 40 C.F.R. §§ 63.1207(f)(1)(x), 63.1209(l)(1), and 63.1209(n)(2) require:

a. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the emission standards;

b. Documentation of the historical range of normal and maximum (i.e., other than during compliance testing) metals feed rates for each feedstream;

c. Documentation that the level of spiking recommended during the performance test will mask sampling and analysis imprecision and inaccuracy to the extent that the extrapolated feed rate limits adequately assure compliance with the emission standards;

d. Documentation of whether some level of spiking would be appropriate and whether the physical form and species of spiked material is appropriate; and

e. An estimate of the extrapolated LVM, SVM, and mercury feed rates.

Veolia has not submitted this information in any other separate written communication to either EPA or Illinois EPA. Consequently, Veolia may not extrapolate its metal feed rates based upon the performance tests that it has conducted.

Operating Parameter Problems

Pursuant to 40 C.F.R. § 63.1209(j) through (p), Veolia must establish OPLs to assure continuous compliance with the DRE, dioxin/furan, mercury, PM, SVM/LVM, and HCl/Cl_2 standards. Veolia must determine most of the OPL values from data collected during a CPT. The HWC MACT allows Veolia to base some OPL values upon the manufacturer's specifications. Veolia has not proposed a value for some applicable values, and has not conducted the performance tests to establish other OPLs. Tables 4, 5, and 6 summarize the OPLs for Incinerators #2, #3, and #4, respectively, that EPA believes do not assure compliance with the pertinent emission standard.

The HWC MACT does not explicitly require Veolia to establish all OPLs based upon a single CPT. However, EPA can reasonably expect Veolia to establish closely related OPLs (e.g., the minimum PCC temperature and the minimum SCC temperature) and all OPLs for each HAP from one test's operating data. For OPLs where Veolia has not conducted the CPT, EPA does not know whether the proposed OPL value assures compliance with that HAP's emission standard.

Conclusion

None of these flaws by itself is fatal to a credible assurance of compliance with the HWC MACT's standards. However, all of the flaws together create significant doubt about whether the OPLs assure compliance. The HWC MACT does not require Veolia to establish all of its OPLs from one CPT, but the other two commercial hazardous waste incinerators (Ross Incineration Services, Grafton, Ohio, and Von Roll America, East Liverpool, Ohio) in Region 5 did so. EPA approved 3M's 2003 data in lieu request for its Cottage Grove, Minnesota, incinerator in part because 3M did not ask to establish the OPLs for one standard from three different tests and did not ask to establish two closely related OPLs from different tests. (For example, the minimum PCC and SCC temperature OPLs came from the same test.)

Although continuous emission monitors (CEM) for dioxin/furan, mercury, PM, SVM/LVM, and HCl/Cl_2 do exist, the HWC MACT does not require them.[2] EPA has not promulgated a performance specification for HCl/Cl_2 CEMS. A DRE CEM is technically possible, but the case engineer does not know of any facility that uses one. Until EPA requires a CEM for each standard, we will have to rely upon OPLs as surrogates for them. In order for OPLs to assure compliance reliably, the owner or operator must establish OPLs from CPT operating data on the same incinerator, under known test operating conditions. In the

2 EPA has promulgated a performance specification for PM CEMS. However, EPA has not promulgated the applicable operational requirements.

absence of complete information regarding the OPLs, EPA does not know whether the OPLs proposed in Veolia's Part 71 permit application assure compliance with the HWC MACT. Until Veolia completely documents the process by which it establishes its OPLs, the case engineer recommends that EPA not assume that the proposed OPLs assure compliance with the HWC MACT's standards.

Table 2. Dioxin/furan, Mercury, SVM, and LVM Performance Test Results

Pollutant	D/F	Hg Feed Rate	Hg	SVM feed rate	SVM	LVM feed rate	LVM
63.1219(a) Emission Standard @ 7% O_2	0.2		130		230		92
Units	ng/dscm	lb/hr	µg/dscm	lbs/hr	µg/dscm	lbs/hr	µg/dscm
Test Date							
Incinerator #2							
11/20/02[3]	0.065		[redacted]		8.44		34.21
09/18/03	[redacted]	0.00035	58.3	67.43	3.7	44.28	2.7
05/05/04	0.054	0.00095	13.5			45.28	
Incinerator #3							
01/27/97	0.088						
08/22/02 cond. 1[3]	[redacted]		[redacted]		4.10		8.36
08/22/02 cond. 2[3]	[redacted]		[redacted]		8.26		11.77
11/19/02	0.04		101.35		4.71		12.23
05/10/06		0.00139	61.5	64.32	16.6	45.1	[redacted]
06/19/06	0.024	0.00176		74.76		45.27	7.61
Incinerator #4							
02/22/96[4]	[redacted]						
08/20/02	0.118		[redacted]		106.01		89.48
11/21/02	0.06		[redacted]		8.80		10.26
09/16/03 cond. 1	0.05	0.05472	[redacted]	116.79	198.7	48.74	31.0
09/16/03 cond. 2	0.04	0.18610	[redacted]	120.76	219.8	47.60	36.0
05/04/04		0.01162	17.9				

3 Only two runs for D/F, metals, and PM.
4 D/F results table does not include O2% or state whether result was corrected to 7% O2. PM results table results corrected to 7% O2.

Table 3. HCl/Cl_2, PM, and DRE Performance Test Results

Pollutant	Chlorine feed rate	HCl/Cl_2	Ash feed rate	PM	DRE		
63.1219(a) Emission Standard @ 7% O_2	rate	32		0.013			
Units	lbs/hr	ppmV	lbs/hr	gr/dscf	99.99%	99.99%	99.99%
Test Date							
Incinerator #2							
11/20/02[5]		10.8		0.0023			
09/18/03							
05/05/04							
Incinerator #3							
					CCl_4	C_2Cl_4	123TCB
01/27/97		Note[6]		0.0010	99.99%+	99.99%+	99.99%+
08/22/02 cond. 1[5]	200-250	24.6		0.0017			
08/22/02 cond. 2[5]	200-250	12.4		0.0023			
11/19/02		8.45		0.0013			
05/10/06	206.85		846.45	0.0028			
06/19/06	247.04		913.40	0.0012			
Incinerator #4							
					MCB	HCE	NAP
02/22/96		Note[6]		0.0074	99.99%+	99.99%+	99.99%+
08/20/02				[redacted]			
11/21/02		11.46		0.0019			
09/16/03 cond. 1	274.13		7559.56				
09/16/03 cond. 2	280.55		8501.90				
05/04/04	158.17		10210.37				

5 Only two runs for HCl/Cl_2.
6 Consistent with 40 CFR 264, Subpart O, Veolia reported the emission rate in pounds per hour.

Abbreviations for Tables 2 and 3.

CCl_4 = carbon tetrachloride
C_2Cl_4 = tetrachloroethene
gr/dscf = grain per dry standard cubic foot
D/F = dioxin/furan
HCE = hexachloroethane
lb(s)/hr = pound(s) per hour
µg/dscm = micrograms per dry standard cubic meter
MCB = monochlorobenzene
ng/dscm = nanogram per dry standard cubic meter
NAP = naphthalene
ppmV = parts per million by volume
123TCB = 1,2,3-trichlorobenzene

Table 4. Incinerator #2 OPLs.

HAP	OPL for Unit #2	OPL Value	Comment
DRE, D/F	Minimum PCC Temperature	1,712°F	EPA does not have the results of a DRE test on Incinerator #2. Veolia proposed to use this value from a May 2004 D/F test. Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(A), Veolia must feed chlorine at a normal or higher feed rate during a D/F test. EPA does not know whether Veolia did so.
DRE, D/F	Minimum SCC Temperature	1,845°F	Veolia proposed to use this value from a January 1997 test on Incinerator #3. EPA does not know whether this OPL value corresponds with D/F compliance for Incinerator #2. Veolia has not conducted a DRE test on Incinerator #2.
DRE, D/F, PM, SVM/LVM,	Maximum Flue Gas Flow Rate	15,534 acfm	Veolia proposed to use this value from a September 2003 test. Veolia did not comply with the D/F standard during the September 2003 test and did not conduct a test for DRE, PM, SVM/LVM,

VES 004149

HAP	OPL for Unit #2	OPL Value	Comment
HCl/Cl_2			or HCl/Cl_2.
DRE, D/F	Maximum PCC Pumpable Waste Feed Rate	3,123 lbs/hr	Veolia proposed to use this value from a May 2004 test. Veolia has not conducted a DRE test on Incinerator #2. Veolia has not conducted a DRE test on Incinerator #2.
DRE, D/F	Maximum PCC Total Waste Feed Rate	4,301 lbs/hr	Veolia proposed to use this value from a May 2004 test. Veolia has not conducted a DRE test on Incinerator #2. EPA does not know whether this value corresponds with DRE compliance.
D/F, SVM/LVM	Maximum Dry PM APCD Inlet Temperature	420°F	Veolia proposed to use this value from a May 2004 test. Veolia did not conduct a SVM/LVM test in May 2004. EPA does not know whether this value corresponds with SVM/LVM compliance.
Hg	Maximum Hg Feed Rate	0.0073 lb/hr	Veolia extrapolated the feed rate and emission concentration from a May 2004 test. Veolia complied with the HWC MACT's mercury emission standard. EPA could approve 0.00095 lb/hr as mercury feed rate OPL, the feed rate during the May 2004 test.
PM, SVM/LVM	Baghouse leak detection system parameters	None proposed	Veolia must propose baghouse leak detection system parameters or other reliable and representative baghouse OPLs.
PM	Maximum Ash Feed Rate	673 lbs/hr	Veolia proposed to use this value from a January 1997 test on Incinerator #3. EPA does not know whether this OPL value corresponds with PM compliance for Incinerator #2. Ash is all incombustible material in a waste sample. Arsenic, beryllium, cadmium, chromium, lead, and mercury are not combustible. Consequently, the maximum ash feed rate must be higher than the combined maximum LVM and SVM feed rates.
SVM	Maximum SVM Feed Rate	3,477 lbs/hr	Veolia extrapolated the feed rate and emission concentration from a September 2003 test. Veolia complied with the HWC MACT's SVM emission standard. EPA could approve 67 lbs/hr as the SVM

HAP	OPL for Unit #2	OPL Value	Comment
			feed rate OPL. Veolia's normal SVM feed rate for Incinerator #2 is unknown. Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(B), Veolia must conduct the SVM and LVM performance tests while feeding normal (or higher) levels of ash. Veolia did not document that it was complying with this requirement.
LVM	Maximum Total LVM Feed Rate	1,264 lbs/hr	Veolia extrapolated the feed rate and emission concentration from a September 2003 test. Veolia complied with the HWC MACT's SVM emission standard. EPA could approve 44 lbs/hr as the LVM feed rate OPL. Veolia's normal LVM feed rate for Incinerator #2 is unknown. Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(B), Veolia must conduct the SVM and LVM performance tests while feeding normal (or higher) levels of ash. Veolia did not document that it was complying with this requirement.
LVM	Maximum Pumpable LVM Feed Rate	None proposed	Pursuant to 40 C.F.R. § 63.1209(n)(2)(vi), Veolia must establish separate feed rate limits for LVMs in pumpable feedstreams using the procedures prescribed above for total LVMs.
SVM/LVM, HCl/Cl_2	Maximum HCl/Cl_2 Feed Rate	237 lbs/hr	Veolia proposed to use this value from a January 1997 test on Incinerator #3. EPA does not know whether this OPL value corresponds with HCl/Cl_2 compliance for Incinerator #2. During an August 2002 test on Incinerator #3, the chlorine feed rate was between 200 and 250 lbs/hr. Thus, Veolia's actual chlorine feed rate may be higher than 237 lbs/hr.
HCl/Cl_2	Spray Dry Adsorber: Minimum Sorbent Feed Rate	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(i), Veolia must establish a minimum sorbent feed rate OPL.
HCl/Cl_2	Spray Dry Adsorber: Minimum Carrier	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(ii), Veolia must establish a minimum carrier fluid flow rate

HAP	OPL for Unit #2	OPL Value	Comment
	Fluid Flow Rate or Nozzle Pressure Drop		or nozzle pressure drop OPL.
HCl/Cl_2	Spray Dry Adsorber: Specify and use the Brand and Type of Sorbent used during the CPT	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(ii), Veolia must specify and use the brand (i.e., manufacturer) and type of sorbent used during the CPT until a subsequent CPT is conducted.

Table 5. Incinerator #3 OPLs.

HAP	OPL for Unit #3	OPL Value	Comment
DRE, D/F	Minimum PCC Temperature	1,712°F	Veolia proposed to use this value from a May 2004 test on Incinerator #2. EPA does not know whether this OPL value corresponds with D/F compliance for Incinerator #3. Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(A), Veolia must feed chlorine at a normal or higher feed rate during a D/F test. EPA does not know whether Veolia did so. Veolia did not conduct a HCl/Cl_2 test on Incinerator #2 in May 2004.
DRE, D/F	Minimum SCC Temperature	1,845°F	Veolia proposed to use this value from a January 1997 test on Incinerator #3. The case engineer believes that Veolia should establish the minimum PCC and SCC temperature OPLs during the same test.
DRE, D/F, PM, SVM/LVM, HCl/Cl_2	Maximum Flue Gas Flow Rate	15,534 acfm	Veolia proposed to use this value from a September 2003 test on Incinerator #2. EPA does not know whether this OPL value corresponds with DRE, D/F, PM, SVM/LVM, HCl/Cl_2 compliance for Incinerator #3.

HAP	OPL for Unit #3	OPL Value	Comment
DRE, D/F	Maximum PCC Pumpable Waste Feed Rate	3,123 lbs/hr	Veolia proposed to use this value from a May 2004 test on Incinerator #2. EPA does not know whether this OPL value corresponds with DRE and D/F compliance for Incinerator #3.
DRE, D/F	Maximum PCC Total Waste Feed Rate	4,301 lbs/hr	Veolia proposed to use this value from a May 2004 test on Incinerator #2. EPA does not know whether this OPL value corresponds with DRE and D/F compliance for Incinerator #3.
D/F, SVM/LVM	Maximum Dry PM APCD Inlet Temperature	420°F	Veolia proposed to use this value from a May 2004 test on Incinerator #2. EPA does not know whether this OPL value corresponds with D/F and SVM/LVM compliance for Incinerator #3.
Hg	Maximum Hg Feed Rate	0.0073 lb/hr	Veolia proposed to use this value from a May 2004 test on Incinerator #2. EPA does not know whether this OPL value corresponds with mercury compliance for Incinerator #3. Veolia extrapolated the feed rate and emission concentration from a May 2004 test. Veolia complied with the HWC MACT's mercury emission standard. EPA could approve 0.00139 lb/hr as mercury feed rate OPL, the feed rate during a June 2006 test.
PM, SVM/LVM	Baghouse leak detection system parameters	None proposed	Veolia must propose baghouse leak detection system parameters or other reliable and representative baghouse OPLs.
PM	Maximum Ash Feed Rate	673 lbs/hr	Ash is all incombustible material in a waste sample. Arsenic, beryllium cadmium, chromium, lead, and mercury are not combustible. Consequently, the maximum ash feed rate must be higher than the combined maximum LVM and SVM feed rates. Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(B), Veolia must conduct the SVM and LVM performance

HAP	OPL for Unit #3	OPL Value	Comment
			tests while feeding normal (or higher) levels of ash. Veolia did not document that it was complying with this requirement.
SVM	Maximum SVM Feed Rate	3,477 lbs/hr	Veolia proposed to use this value from a September 2003 test on Incinerator #2. EPA does not know whether this OPL value corresponds with SVM compliance for Incinerator #3. Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(B), Veolia must conduct the SVM and LVM performance tests while feeding normal (or higher) levels of ash. Veolia did not document that it was complying with this requirement.
LVM	Maximum Total LVM Feed Rate	1,264 lbs/hr	Veolia proposed to use this value from a September 2003 test on Incinerator #2. EPA does not know whether this OPL value corresponds with LVM compliance for Incinerator #3. Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(B), Veolia must conduct the SVM and LVM performance tests while feeding normal (or higher) levels of ash. Veolia did not document that it was complying with this requirement.
LVM	Maximum Pumpable LVM Feed Rate	None proposed	Pursuant to 40 C.F.R. § 63.1209(n)(2)(vi), Veolia must establish separate feed rate limits for LVMs in pumpable feedstreams using the procedures prescribed above for total LVMs.
SVM/LVM, HCl/Cl_2	Maximum HCl/Cl_2 Feed Rate	237 lbs/hr	During an August 2002 test, the chlorine feed rate was between 200 and 250 lbs/hr. Veolia conducted only two runs of the HCl/Cl_2 test. The HWC MACT requires Veolia to conduct three runs of the HCl/Cl_2 test to demonstrate compliance with the HCl/Cl_2 emission standard. Consequently, Veolia cannot use the data from the August 2002 test to demonstrate compliance or to establish OPLs. Veolia's actual chlorine feed rate may be higher than 237 lbs/hr.

HAP	OPL for Unit #3	OPL Value	Comment
HCl/Cl_2	Spray Dry Adsorber: Minimum Sorbent Feed Rate	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(i), Veolia must establish a minimum sorbent feed rate OPL.
HCl/Cl_2	Spray Dry Adsorber: Minimum Carrier Fluid Flow Rate or Nozzle Pressure Drop	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(ii), Veolia must establish a minimum carrier fluid flow rate or nozzle pressure drop OPL.
HCl/Cl_2	Spray Dry Adsorber: Specify and use the Brand and Type of Sorbent used during the CPT	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(ii), Veolia must specify and use the brand (i.e., manufacturer) and type of sorbent used during the CPT until a subsequent CPT is conducted.

Table 6. Incinerator #4 OPLs.

HAP	OPL for Unit #4	OPL Value	Comment
DRE, D/F	Minimum PCC Temperature	1,507°F	Veolia proposed to use this value from a September 2003 test. Veolia did not measure DRE in September 2003. EPA does not know whether this OPL value corresponds with DRE compliance.
DRE, D/F	Minimum SCC Temperature	1,886°F	Veolia proposed to use this value from a September 2003 test. Veolia did not measure DRE in September 2003. EPA does not know whether this OPL value corresponds with DRE compliance.
DRE, D/F, PM, SVM/LVM, HCl/Cl_2	Maximum Flue Gas Flow Rate	43,900 acfm	Veolia proposed to use this value from a September 2003 test. Veolia did not measure DRE in September 2003. EPA does not know whether this OPL value corresponds with DRE compliance.
DRE, D/F	Maximum PCC Pumpable Waste Feed Rate	4,262 lbs/hr	Veolia proposed to use this value from a September 2003 test. Veolia did not measure DRE in September 2003. EPA does not know whether this OPL value corresponds with DRE compliance.

HAP	OPL for Unit #4	OPL Value	Comment
DRE, D/F	Maximum PCC Total Waste Feed Rate	14,802 lbs/hr	Veolia proposed to use this value from a September 2003 test. Veolia did not measure DRE in September 2003. EPA does not know whether this OPL value corresponds with DRE compliance.
D/F, Mercury	Carbon specification	None proposed	Pursuant to 40 C.F.R. § 63.1209(k)(6)(iii), Veolia must specify and use the brand (i.e., manufacturer) and type of carbon used during the CPT until a subsequent CPT is conducted, unless Veolia documents in the site-specific performance test plan key parameters that affect adsorption and establish limits on those parameters based on the carbon used in the performance test.
D/F, SVM/LVM	Maximum Dry PM APCD Inlet Temperature	435°F	Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(B), Veolia must conduct the SVM and LVM performance tests while feeding normal (or higher) levels of ash. Veolia did not document that it was complying with this requirement.
Hg	Maximum Hg Feed Rate	0.067 lb/hr	Veolia extrapolated the feed rate and emission concentration from a May 2004 test. Veolia complied with the HWC MACT's mercury emission standard. EPA could approve 0.0116 lb/hr as mercury feed rate OPL, the feed rate during the May 2004 test. Veolia's normal mercury feed rate for Incinerator #2 is approximately 0.0037 lb/hr.
PM, SVM/LVM	Baghouse leak detection system parameters	None proposed	Veolia must propose baghouse leak detection system parameters or other reliable and representative baghouse OPLs.
PM	Maximum Ash Feed Rate	8,777 lbs/hr	
SVM	Maximum SVM Feed Rate	117 lbs/hr	Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(B), Veolia must conduct the SVM and LVM performance tests while feeding normal (or higher) levels of ash. Veolia did not document that it was complying with this requirement.

HAP	OPL for Unit #4	OPL Value	Comment
LVM	Maximum Total LVM Feed Rate	120 lbs/hr	Veolia extrapolated the feed rate and emission concentration from a September 2003 test. Veolia complied with the HWC MACT's LVM emission standard. EPA could approve 48.7 lbs/hr as LVM feed rate OPL, the feed rate during the September 2003 test. Pursuant to 40 C.F.R. § 63.1207(g)(1)(i)(B), Veolia must conduct the SVM and LVM performance tests while feeding normal (or higher) levels of ash. Veolia did not document that it was complying with this requirement.
LVM	Maximum Pumpable LVM Feed Rate	None proposed	Pursuant to 40 C.F.R. § 63.1209(n)(2)(vi), Veolia must establish separate feed rate limits for LVMs in pumpable feedstreams using the procedures prescribed above for total LVMs.
SVM/LVM, HCl/Cl_2	Maximum HCl/Cl_2 Feed Rate	274 lbs/hr	
HCl/Cl_2	Spray Dry Adsorber: Minimum Sorbent Feed Rate	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(i), Veolia must establish a minimum sorbent feed rate OPL.
HCl/Cl_2	Spray Dry Adsorber: Minimum Carrier Fluid Flow Rate or Nozzle Pressure Drop	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(ii), Veolia must establish a minimum carrier fluid flow rate or nozzle pressure drop OPL.
HCl/Cl_2	Spray Dry Adsorber: Specify and use the Brand and Type of Sorbent used during the CPT	None proposed	Pursuant to 40 C.F.R. § 63.1209(o)(4)(ii), Veolia must specify and use the brand (i.e., manufacturer) and type of sorbent used during the CPT until a subsequent CPT is conducted.

standard bcc's: Official File Copy w/enclosure(s)
Section Reading File w/o enclosure(s)
Branch Reading File w/o enclosure(s)

other bcc's: G. Damico, AR-18J
J. Woolums, C-14J

Creation Date:	March 19, 2008
Filename:	C:\EPAWORK\WasteCombustion\hazwaste\Sources\Veolia\T5 Permit\OPLmemo.doc
Legend:	ARD:AECAB:AECAS(MN/OH):c.hall