EPA-Approved Nebraska Regulatory Requirements Applicable to the Underground Storage Tank Program

September 16, 2024

40 CFR 282.77

U.S. Environmental Protection Agency, Region 7
11201 Renner Boulevard
Lenexa, KS 66219

Nebraska Administrative Code

Title 159 Underground Storage Tanks

CHAPTER 1 SCOPE AND DEFINITIONS

001. APPLICABILITY

The requirements of 40 CFR 280.10 as it existed on July 15, 2015 are adopted and incorporated by reference. These regulations are issued pursuant to the Nebraska Petroleum Products and Hazardous Substances Storage and Handling Act (Rev. Neb. Stat. S 81-15, 117127), and are subject to enforcement, penalties and fines as set forth therein.

Copies of the federal regulations are on file at the office of the Nebraska State Fire Marshal, 246 South 14th Street, Lincoln, NE or at the office of the Secretary of Stater Division of Rules and Regulations in the Nebraska State Capitol also the following link: **https://www.ecfr.gov**

002. EXCLUSIONS

The requirements of 40 CFR 280.11 as it existed on July 15, 2015 are adopted and incorporated by reference.

003. DEFINITIONS

The requirements of 40 CFR 280.12 as it existed on July 15, 2015 are adopted and incorporated by reference.

CHAPTER 2 NOTIFICATION REQUIREMENTS

The requirements of 40 CFR 280.22 as it existed on July 15, 2015 are adopted and incorporated by reference.

CHAPTER 3 CONTRACTOR LICENSING AND CERTIFICATION

The requirements of 40 CFR 280.20(e)(2) as it existed on July 15, 2015 are adopted and incorporated by reference.

~~001. INSTALLER/CLOSER LICENSE~~

~~No person, association, partnership or corporation will contract for the installation or permanent closure of an UST system without first obtaining a license from the State Fire Marshal.~~

~~**001.01** Every underground storage tank installation/closure contractor will employ at least one person certified by the State Fire Marshal as a tank installer/closer. A certified person will personally supervise all tank installations and closures.~~

001.02 Every underground storage tank installation/closure contractor will maintain a minimum of $500,000 of general liability insurance which includes coverage relating to the closure and/or installation of underground storage tanks.

002. INSTALLER/CLOSER CERTIFICATION

No person will install or close or supervise the installation or closure of an underground storage tank without prior certification by the State Fire Marshal as to the qualifications of such persons to install or close tanks.

002.01 Qualification for certification will be proved by successful completion of a written examination which measures the applicant's technical knowledge and familiarity with state regulations.

002.02 Certification will be renewed, and the certification examination will be successfully completed every 3 years from date of certification.

002.03 The tank installer and tank closer certification tests will be given monthly at different locations throughout the State. An applicant who has properly applied for an examination may take the examination unsuccessfully a maximum of 2 times. After two unsuccessful attempts, a person must wait a minimum of 6 months before re-applying for certification.

003. CATHODIC PROTECTION TESTER CERTIFICATION AND NOTIFICATION

003.01 All persons who conduct cathodic protection testing on underground storage tank systems will be certified in a manner acceptable to the State Fire Marshal and will be able to provide proof that the minimum requirements in the definition of a cathodic protection tester of Chapter 1 003. have been met.

003.01A. Qualification for certification will be proven by successful completion of an examination which measures the applicant's technical knowledge.

003.01B. In addition to the examination required in 003.01K of this Chapter the applicant will successfully complete a written examination administered by the State Fire Marshal which measures the applicant's knowledge of state underground storage tank (UST) requirements.

003.01C. Proof of successful completion of the education requirement of 003.01 of this Chapter will be submitted to the State Fire Marshal prior to taking the examination required by 003.01B of this Chapter and prior to conducting any required cathodic protection testing on underground storage tanks and/or associated piping,

003.01D. Certification will be renewed, and the certification examination will be successfully completed at least every 3 years from date of last certification.

003.01E. All certified testers will notify the State Fire Marshal Agency of all failed tests within 24 hours or the next business day.

003.02 The Cathodic protection test will be given monthly at different locations throughout the State. An applicant who has properly applied for an examination may take the examination unsuccessfully a maximum of 2 times. After two unsuccessful attempts, a person must wait a minimum of 6 months before re-applying for certification.

004. DENIALS AND REVOCATIONS

004.01 The State Fire Marshal may refuse to renew or may revoke or suspend a license or certificate for any of the following reasons:

004.01A. Gross incompetence or gross negligence in the installation or closure of an underground storage tank.

004.01B. Use of false evidence or misrepresentation in an application for a license or certificate.

004.01C. Knowingly violating the rule or regulations adopted and promulgated under Title 159, Nebraska Administrative Code.

004.02 Before the State Fire Marshal denies an application for a license or certificate, the affected person will be given notice and opportunity for a hearing under procedures established by the State Fire Marshal. Upon receipt of the notification, any person aggrieved by the denial or revocation of a license or certificate may request a hearing. Any person aggrieved by a final decision of the State Fire Marshal may appeal such action pursuant to State Statutes Sections 84-917 to 84-919.

CHAPTER 4 DESIGN AND INSTALLATION STANDARDS FOR NEW UST SYSTEMS

001. DESIGN STANDARDS AND NEW TANK INSTALLATION

The requirements of 40 CFR 280.20(a)-(d) and (f) as they existed on July 15, 2015 are adopted and incorporated by reference.

001.01 All underground storage tanks, or piping connected to any such tanks that are installed or replaced after September 19, 2007 will be secondarily contained and the interstice will be monitored for leaks. This provision will include the installation of tank sumps and under-dispenser containment sumps.

001.01A. Tank and piping secondary containment will be compatible with the substance stored in the tank system.

001.01B. Interstitial monitoring will be provided for all new tanks and piping installed after September 19, 2007.

001.01C. Secondary containment systems must be designed, constructed and installed to:

001.01C1. Contain regulated substances released from the tank system until they are detected and removed;

001.01C2. Prevent the release of regulated substances to the environment at any time during the operational life of the UST system; and

001.01C3. Be checked for evidence of a release at least every 30 days.

001.01D. Double-walled tanks must be designed, constructed, and installed to:

001.01D1. Contain a release from any portion of the inner tank within the outer wall; and

001.01D2. Detect the failure of the inner wall.

001.01E. External liners (including vaults) must be designed, constructed, and installed to:

001.01E1. Contain 100 percent of the capacity of the largest tank within its boundary;

001.01E2. Prevent the interference of precipitation or ground-water intrusion with the ability to contain or detect a release of regulated substances; and 001.01 Surround the tank completely (i.e., it is capable of preventing lateral as well as vertical migration of regulated substances).

001.01E3. Surround the tank completely (i.e., it is capable of preventing lateral as well as vertical migration of regulated substances).

001.01F. Underground piping, including "safe suction" piping, must be equipped with secondary containment that satisfies the requirements of 001.01C above (e.g., trench liners). In addition, underground piping that conveys regulated substances under pressure must be equipped with an automatic line leak detector in accordance with 004 of Chapter 7.

001.02 All new tanks, their welds, seams, and connecting fittings, must be tested prior to installation for tightness using standard engineering practices.

001.02A. Pre-installation tank testing will be in accordance with Petroleum Equipment Institute/RP 100 or the tank manufacturers installation instructions.

001.02B. All new single-wall tanks installed in excavation liners will be tested with 3 to 5 psig of air pressure. Gauges must have a scale that will permit detection of small changes in pressure. A gauge with a maximum limit of 10 to 15 psig is required. The test will include the application of a soap solution over the entire surface of the tank and its fittings, followed by careful inspection for bubbles. The soap solution should be applied uniformly with a mop or spray.

001.02C. All new double walled tanks will be tested with 3 to 5 psig of air pressure, unless prohibited by manufacturer's instructions. Gauges must have a scale that will permit a detection of small changes in pressure. A gauge with a maximum limit of 10 to 15 psig is required. The test will include pressurizing the inner tank from 3 to 5 psig then sealing the inner tank disconnecting the external air supply and monitoring the

pressure for one hour. The interstice will be tested using the air from the inner tank. A second gauge, as described above, must be used in monitoring the interstice, The entire surface of the tank will be soaped followed by a careful inspection for bubbles. The soap solution should be applied uniformly with a mop or spray,

001.02D. All defects or scratches in the tanks coating will be repaired in a manner approved by the manufacturer.

001.03 Precaution will be taken to prevent tank floating during the installation process. Fuel will not be used as a ballast.

001.04 Backfill material will be pea gravel, crushed rock, or clean sand free of cinders, stones, and any other foreign material. Tank installation instructions may require specific aggregate sized crushed rock or gravel. Instructions may also specify mechanical compaction or layered placement of bedding and backfill. The installation instructions provided by the manufacturer must always be consulted prior to installation.

001.04A. All product lines will slope a minimum of 1/8 of inch per foot towards the tank and be installed in a single trench between the tank area and pump island. All vent lines will slope a minimum of 1/8 inch per foot towards the tank and be installed in a single trench.

001.04B. All unions and fittings will be a minimum of 250 pounds. All joints damaged pipe coating or unprotected threads will be wrapped or coated with a material approved by the manufacturer.

001.04C. All new product lines will be pneumatically tested for tightness with air pressure. All joints, seams and connections will be soaped to detect leakage. For non-metallic piping, the joints and connections will be soaped. The test will be maintained for a minimum of 1 hour, and all soaped areas will be visually inspected for bubbles or any other indication of a leak. Piping will be tested at not less than 50 psig at the highest point of the system. Any loss of pressure or appearance of bubbles will constitute failure of the test.

001.04D. Vent and fill lines must be coated but need not be cathodically protected. Metallic product lines must be cathodically protected.

001.05 Underground storage tank systems storing hazardous substances will meet the requirements of this Chapter 4.

001.06 All used steel and fiberglass reinforced plastic tanks will require the manufacturer's certification for re-installation. Installations will follow all procedures of this chapter.

001.07 Owners and Operators must have the following records submitted to the State Fire Marshal's Office pertaining to all new tanks and piping installations prior to placing UST system into operation.

001.07A. Four Page Notification Form (Provided by Fire Marshal Office);

001.07B. As Built Drawings;

001.07C. Post Installation tank and piping tests; and

001.07D. Manufacturers install checklist.

CHAPTER 5 REQUIREMENTS FOR EXISTING UST SYSTEMS

The requirements of 40 CFR 280.21 as it existed on July 15, 2015 are adopted and incorporated by reference.

CHAPTER 6 GENERAL OPERATING REQUIREMENTS FOR EXISTING UST SYSTEMS

001. SPILL AND OVERFILL CONTROL

The requirements of 40 CFR 280.30 as they existed on July 15, 2015 are adopted and incorporated by reference.

002. OPERATION AND MAINTENANCE OF CATHODIC PROTECTION

The requirements of 40 CFR 280.31 as they existed on July 15, 2015 are adopted and incorporated by reference.

002.01A. Frequency. All cathodic protection systems must be tested within 6 months of installation; and

002.01A1. Impressed current cathodic protection systems will be tested annually thereafter; and

002.01 A2. Galvanic or sacrificial anode cathodic protection systems will be tested at least every 3 years thereafter.

003. COMPATIBILITY

The requirements of 40 CFR 280.32 as they existed on July 15, 2015 are adopted and incorporated by reference.

004. REPAIRS ALLOWED

The requirements of 40 CFR 280.33(a) — (e) and (g) as they existed on July 15, 2015 are adopted and incorporated by reference.

004.01 Repaired tanks, piping, overfill, and spill prevention equipment must be tested prior to placing system back into service, or 30 days following the date of completion of repair, whichever occurs first.

005. REPORTING AND RECORDKEEPING

The requirements of 40 CFR 280.34 as they existed on July 15, 2015 are adopted and incorporated by reference.

005.01 Record-keeping. Owners and operators must maintain the following information;

005.01A Inventory control or tank gauging records will be kept for 3 years;

005.01B Documentation of UST system repairs will be kept for the operating life of the UST system;

005.01C Results of compliance with release detection requirements will be kept for 3 years;

005.01D Results of the site investigation conducted at permanent closure will be kept as a permanent record;

005.01E Results of compliance with release prevention requirements in 40 CFR 280.35 and 40 CFR 280.36 will be kept for 3 years; and

005.01F For spill prevention equipment and containment sumps used for interstitial monitoring of piping not tested every three years, documentation showing that the prevention equipment is double walled and the integrity of both walls is periodically monitored will be maintained for as long as the equipment is periodically monitored.

005.01G Results of compliance with release prevention requirements in 280.35 and 280.36 will be kept for 3 years.

005.02 Reporting All Owners and operators must report within 24 hours or the next business day any failed test results for required testing for release prevention and release detection including but not limited to the following:

005.02A Tank leak test;

005.02B Line leak detector test;

005.02C Line leak pressure tests;

005.02D Spill bucket test;

005.02E Sump testing; and

005.02F Overfill equipment tests.

006. PERIODIC TESTING OF SPILL PREVENTION EQUIPMENT AND CONTAINMENT SUMPS USED FOR INTERSTITIAL MONITORING OF PIPING AND PERIODIC INSPECTION OF OVERFILL PREVENTION EQUIPMENT

The requirements of 40 CFR 280.35 as it existed on July 15, 2015 are adopted and incorporated by reference.

006.01 If a ball float is to be abandoned in place, a drop tube shut off or audible alarm will be set at 85 percent tank capacity to prevent overfill.

007. PERIODIC OPERATION AND MAINTENANCE WALKTHROUGH INSPECTIONS.

The requirements of 40 CFR 280.36 as it existed on July 15, 2015 are adopted and incorporated by reference.

CHAPTER 7 RELEASE DETECTION REQUIREMENTS

001. GENERAL REQUIREMENTS FOR ALL UST SYSTEMS

The requirements of 40 CFR 280.40 as it existed on July 15, 2015 are adopted and incorporated by reference.

001.01 UST systems larger than 1,100 gallons used to store heating oil are excluded for purposes of all release detection on tanks required in this chapter except that they must perform the manual tank gauging procedures in 40 CFR 280.43(b) on a monthly basis from April 1 to November 1.

002. REQUIREMENTS FOR PETROLEUM UST SYSTEMS

The requirements of 40 CFR 280.41 as it existed on July 15, 2015 are adopted and incorporated by reference.

003. REQUIREMENTS FOR HAZARDOUS SUBSTANCE UST SYSTEMS

The requirements of 40 CFR 280.42 as it existed on July 15, 2015, are adopted and incorporated by reference.

004. METHODS OF RELEASE DETECTIONS FOR TANKS

The requirements of 40 CFR 280.43 as it existed on July 15, 2015 are adopted and incorporated by reference.

Owners and operators will conduct and record the daily product inventory control requirements as described in 40 CFR 280.43 for all new and existing UST systems.

[Exception: UST systems eligible for and utilizing manual tank gauging in accordance with 40 CFR 280.43(b), do not need to meet the daily inventory requirement.]

005. METHODS OF RELEASE DETECTION FOR PIPING

The requirements of 40 CFR 280.44 as it existed on July 15, 2015 are adopted and incorporated by reference.

006. RELEASE DETECTION RECORD KEEPING

The requirements of 40 CFR 280.45 as it existed on July 15, 2015 are adopted and incorporated by reference.

CHAPTER 8 REPORTING OF RELEASES AND SUSPECTED RELEASES

001. REPORTING OF RELEASES AND SUSPECTED RELEASES

The requirements of 40 CFR 280.50 as it existed on July 15, 2015 are adopted and incorporated by reference.

002. INVESTIGATION DUE TO OFF-SITE IMPACTS

The requirements of 40 CFR 280.51 as it existed on July 15, 2015 are adopted and incorporated by reference.

003. RELEASE INVESTIGATION AND CONFIRMATION STEPS

The requirements of 40 CFR 280.52 as it existed on July 15, 2015 are adopted and incorporated by reference.

004. REPORTING AND CLEANUP OF SPILLS AND OVERFILLS

The requirements of 40 CFR 280.53 as it existed on July 15, 2015 are adopted and incorporated by reference.

005. INITIAL RESPONSE

The requirements of 40 CFR 280.61 as it existed and July 15, 2015 are adopted and incorporated by reference.

Confirmed or suspected releases of regulated substances from any tank must be reported to the State Fire Marshal and the Department of Environment and Energy (NDEE) within 24 hours by the owner and operator of the tank. The State Fire Marshal and the Department of Environment and Energy (NDEE) can be contacted at their offices during normal working hours and at (402) 479-4921 after hours.

Other Nebraska State Regulations apply to release response and corrective action for UST systems containing petroleum or hazardous substances. These regulations include, but are not limited to the following:

Free product investigation, delineation, and recovery will be addressed through the requirements of NDEE's Title 118, Appendix B.

The site will be fully characterized through the requirements of NDEE's Title 118, Appendix B, and NDEE's Title 126.

CHAPTER 9 FINANCIAL RESPONSIBILITY

The requirements of 40 CFR 280.90 through 280.115 as it existed on July 15, 2015 are adopted and incorporated by reference.

~~**001.** All owners and operators whose financial responsibility requirements are not met by the Petroleum Release Remedial Action Cash Fund, (Rev. Neb. Stat. SS 66-1501 et seq. and 8115, 124) will comply with the federal regulations adopted herein.~~

002. LENDER LIABILITY

The requirement of 40 CFR 280.200 through 230 as it existed on July 15, 2015 are adopted and incorporated by reference.

CHAPTER 10 OUT OF SERVICE UST SYSTEMS AND CLOSURE REQUIREMENTS

001. OUT-OF-SERVICE TANKS

The requirement of 40 CFR 280.70 as it existed on July 15, 2015 are adopted and incorporated by reference.

002. PERMANENT CLOSURE AND CHANGES-IN-SERVICE

The requirement of 40 CFR 280.71 as it existed on July 15, 2015 are adopted and incorporated by reference.

003. ASSESSING THE SITE AT CLOSURE OR CHANGE-IN-SERVICE

The requirement of 40 CFR 280.72 as it existed on July 15, 2015 are adopted and incorporated by reference.; and

003.01 If free product is present on the ground water at the time a tank is removed, sampling of the soil and ground water does not need to be conducted for the assessment report, provided the Department of Environment and Energy is notified and the owner and/or operator begins remedial action in accordance with Neb. Rev. Stat. § 81-15, 123.

003.02 Analysis of samples. Soil and ground water samples taken at time of closure will be analyzed by laboratory methods to detect and quantify the presence of the regulated substances that have been stored in the tank system.

003.02A. Samples will be collected, transported and analyzed using sample collection procedures, instrumentation, and test methodologies approved by the Department of Environment and Energy. At a minimum the following additional requirements must be met:

003.02A1. Test methodology procedures regarding proper handling and preservation of samples will be followed.

003.02A2. Proper chain of custody will be maintained for each sample.

003.02A3. Samples will be immediately sealed in their appropriate containers after collection.

003.03 IN-PLACE CLOSURE ASSESSMENT

003.03A. Soil borings must provide the necessary data to document site conditions. The soil borings will be a minimum of two inches in diameter and be completed using a hollow stem auger. Drilling to and sampling of ground water will be performed in accordance with the Department of Health and Human Services' Title 178. Evidence of petroleum contamination in the soils or ground water and the corresponding depth of contamination will be documented in the State Fire Marshal closure assessment report. Notification of any contamination will be made in accordance with 004.02 of this Chapter.

003.03B. TANK ASSESSMENT

003.03B1. One boring will be drilled through the backfill at each end of each tank. If the distance between any of the borings exceeds 25 feet, as measured along the excavation perimeter, a boring midway between the two is necessary.

003.03B2. All borings will continue until evidence of soil contamination is no longer present, at which point a soil sample is collected for laboratory analysis. If evidence of soil contamination continues to ground water, then a sample of ground water for laboratory analysis is also required.

003.03B3. One soil sample will be collected for every 10 feet of boring advancement. If ground water is encountered, one sample of ground water will be collected at the base of each boring. Each ground water and/or soil sample will be analyzed in accordance with 003.02 of this Chapter.

003.03B4. Soil samples will be collected in a manner to minimize disturbance of the soil structure. The predominant soil type of each sample (e.g., clay, sand, gravel) will be recorded separately and submitted on a boring log as an addendum to the closure assessment report.

003.03C. LINE ASSESSMENT

003.03C1. One boring will be drilled at the point where the product lines leave the tank excavation.

003.03C2. One boring will be drilled within 3 feet of each dispenser island. The borings will be placed in the best estimated down gradient direction of ground water flow.

003.03C3. If the running length of the product line between the borings required in 003.03C(C1) and 003.03C(C2) of this Chapter exceeds 25 feet, additional borings will be placed so borings are equally spaced and there is never more than 25 feet between any borings.

003.03C4. All product line borings will conform to 003.03B2 of this Chapter.

003.03C5. Samples will be collected and analyzed as required in 003.03B3 and 003.0384 of this Chapter.

003.04 Removal Closure Assessment. All underground storage tanks and all product piping will be inspected for corrosion holes and/or other points of leakage. A description of the inspection methods, and if leakage is verified, a description of the cause and location must be submitted to the State Fire Marshal in the closure assessment report. Notification of any contamination will be made in accordance with 004.02 of this Chapter.

003.04A. Each tank, its associated piping, and dispenser will be visually inspected for holes, cracks, corrosion or any signs of leakage. All welds and seams must be thoroughly scraped and inspected. The capacity and dimensions of each tank will be recorded. Results of these inspections will be documented in the State Fire Marshal closure assessment report.

003.04B. All piping must be exposed and inspected in place.

003.05 TANK EXCAVATION

003.05A. Backfill material will be removed to expose undisturbed native soils at the base of the excavation.

003.05B. The base of the excavation will be inspected for contamination and if present, the owner/operator has the option to over excavate all areas of contamination until clean soils are encountered. Over excavation done in this manner is subject to Neb. Rev. Stat § 81-15, 123. To verify that soils are free of contamination, soil samples will be collected from the floor of the over excavated basin and analyzed in accordance with 003.02 of this Chapter.

003.05C. The final disposal location of contaminated soil and each tank will be reported on the State Fire Marshal closure assessment report. Soil disposal procedures are subject to Department of Environment and Energy oversight.

003.05D. One sample will be collected at each end of the tank from native soil at the base of the excavation for laboratory analysis. If signs of leakage/contamination are observed, additional native soil samples will be collected at the points of leakage for analysis. If groundwater is encountered and covers the entire excavation basin one groundwater sample will be collected and analyzed. If groundwater does not cover the entire excavation basin, samples will be collected from the exposed soil as previously stated in this section and analyzed in addition to the groundwater sample. The groundwater and/or soil samples are to be prepared and analyzed in accordance with 003.02 of this Chapter.

003.06 LINE EXCAVATION ASSESSMENT

003.06A. All product piping will be removed by trenching and exposing the entire length of the lines.

003.06B. The procedures described in 003.04A and 003.04B of this Chapter will be followed.

003.06C. One soil sample will be collected for laboratory analysis every ten (10) feet from the native soil at the base of the piping excavation, beginning at the tank excavation perimeter and extending to the dispensers. If signs of leakage/contamination are observed, additional soil samples will be collected for analysis at the points of leakage. The soil samples are to be prepared and analyzed in accordance with 003.02 of this Chapter.

003.06D. The base of the excavation will be inspected for contamination and, if present, the owner/operator may over excavate according to the procedures in 003.05B and 003.05C of this Chapter.

004. REPORTING REQUIREMENTS

004.01 CERTIFICATION OF COMPLIANCE

004.01A. A certification of compliance with Title 159 regulations will be required for every closure or change in service.

004.02 NOTIFICATION OF RELEASE

004.02A. Notification will be made within 24 hours whenever contamination is discovered. The owner/operator will report to the Nebraska Department of

Environment and Energy and the State Fire Marshal in accordance with Chapter 8 of this title.

004.02B. When public safety threats are identified during a closure assessment, the State Fire Marshal will be notified immediately.

004.03 CLOSURE ASSESSMENT REPORT

004.03A. The owner/operator is responsible for ensuring the closure assessment report is properly completed and submitted on the appropriate State Fire Marshal reporting forms. The report will be submitted to the State Fire Marshal within 45 days of the date of removal or closure in place. This report will contain at a minimum:

004.03A1. The sample custody record, the name of the laboratory that was used and the original laboratory data sheets.

004.03A2. A site drawing of the tank system (tanks and product lines) placement and/or excavation and dispenser(s) location. The site drawing will be to scale, including distances and directions as measured. The relationship of the tank system to permanent objects, such as curbs or buildings, must be depicted in order to facilitate location at a later date. The location of the facility will be placed on a separate map (e.g., 7.5 minute quadrangle, city, county, highway, aerial photo, or hand drawn) or described in a narrative. The map or narrative will provide the exact location of the facility in relation to cross streets or other map benchmarks. If over excavation is performed, a description of the locations, amounts of soil, and areal extent will be included.

004.03A3. The location at which samples were collected.

004.03A4. The type of regulated substance last stored in the tank.

004.03A5. A description of the contaminated soil disposal method and final disposal location.

004.03A6. The completed Certification of Compliance.

004.03A7. The completed tank closure checklist.

004.03A8. The actual tank dimensions and capacities.

004.03B. The report will be submitted to.

State Fire Marshal
Fuels Division
246 South 14th Street
Lincoln, NE 68508-1804

005 APPLICABILITY TO PREVIOUSLY CLOSED UST SYSTEMS

The requirements of 40 CFR 280.73 as it existed on July 15, 2015 are adopted and incorporated by reference.

006 CLOSURE RECORDS

The requirements of 40 CFR 280.74 as it existed on July 15, 2015 are adopted and incorporated by reference.

CHAPTER 11 DELIVERY PROHIBITION AND DUTY OF PRODUCT DELIVERERS

001. UST SYSTEMS SUBJECT TO DELIVERY PROHIBITION

001.01 Any UST system may be subject to delivery prohibition procedures when a facility is determined to be out of compliance with any of following provisions of Title159:

001.01A. Tank registration requirements of Chapter 2;

001.01 B. Leak detection requirements of Chapter 7;

001.01 C. Spill prevention requirements of Chapter 5;

001.01 D. Overfill requirements of Chapter 5;

001.01 E. Recordkeeping requirements of Chapters 5, 6, 7;

001.01F. Corrosion protection requirements of Chapter 4; or

001.01G. Failure to designate a Class A, Class B and Class C operators pursuant to Chapter 13; and

001.01 H. Failure to maintain financial responsibility requirements of Chapter 9.

001.02 The State Fire Marshal may defer enforcement of delivery prohibition procedures against UST systems in which this process would jeopardize the availability of, or access to, fuel in any rural and remote area unless an urgent threat to public health or the environment exists. Such deferrals will not exceed 180 days.

001.03 When an UST system is determined to be subject to delivery prohibition procedures, the State Fire Marshal will notify the owner or operator by delivering notice in person, or by clearly posting a notice at the facility and sending a copy of such notice by certified mail to the last known address of the owner or operator. Once service of notice IS complete, the State Fire Marshal will affix a red tag to the fill pipe of any noncompliant UST.

001.04 The State Fire Marshal will also maintain a list of all USTs that are determined to be ineligible for delivery of regulated substances. The list will be made available to the public by posting on the State Fire Marshal website at https://sfm.nebraska.qov/

002. NO DEPOSIT INTO INELIGIBLE UST SYSTEMS

002.01 No owner or operator may deposit or accept the deposit of any regulated substance into an UST system that has been designated as ineligible for fuel deliveries by the application of a red tag.

002.02 No product deliverer or other person may deliver or deposit any regulated substance into an UST system that has been designated as ineligible for fuel deliveries by the application of a red tag.

003. REMOVAL OF RED TAGS

003.01 No person other than the State Fire Marshal will remove a red tag from an UST system without prior approval.

003.02 The State Fire Marshal will verify compliance within 2 business days of receiving a communication from the owner or operator that the corrections have been made. If the UST system is found to be eligible for delivery, the State Fire Marshal will remove the red tag. As soon as practicable, but no more than 3 business days after removal of the red tag the facility will be removed from the State Fire Marshal website list of sites ineligible for delivery.

~~004. DUTY OF PRODUCT DELIVERERS~~

~~**004.01** Any person who deposits regulated substances in an UST system will reasonably notify the owner or operator of such tank registration requirements pursuant to the Petroleum Products and Hazardous Substances Storage and Handling Act.~~

CHAPTER 12 INSPECTIONS

001. SAFETY INSPECTIONS

Periodic safety Inspections will be conducted by State Fire Marshal personnel. All tanks will be subject to at least one inspection annually.

001.01 Inspections will include, but not be limited to, inspection of release detection records, release detection equipment, vent pipes and dispenser systems, corrosion protection records, and applicable fire safety codes.

001.02 Findings of irregularities or insufficient record or monitoring procedures may result in an order by the State Fire Marshal to correct all such problems. State Fire Marshal personnel will perform a follow-up inspection to ensure compliance with the order. At that time, all tanks found not in compliance may have their operating permits suspended or revoked until such time as the order is followed.

002. SPOT CHECKS

Periodic spot checks of tank monitoring systems will be conducted by State Fire Marshal personnel.

002.01 Inspections will cover monitoring systems and inventory control procedures.

CHAPTER 13 OPERATOR TRAINING

The requirements of 40 CFR 280.240-245 as it existed on July 15, 2015 are adopted and incorporated by reference; and

001. REQUIREMENT OF DESIGNATION AND TRAINING UST OPERATORS

001.01 An owner or operator will designate Class A, Class B, and Class C operators for each underground storage tank system or facility that has underground storage tanks regulated by the State Fire Marshal, except for unstaffed facilities for which only Class A and B operators will be designated. A person may be designated for more than one Class of operator.

002. UST OPERATOR RESPONSIBILITIES

002.01 Class A Operator. Class A operators have the primary responsibility to operate and maintain the underground storage tank system and facility. The Class A operator's responsibilities include managing resources and personnel to achieve and maintain compliance with regulatory requirements

002.02 Class B Operator. A Class B operator will implement applicable underground storage tank regulatory requirements and standards in the field or at the tank facility in accordance with this code. A Class B operator will oversee and implement the day-to-day aspects of operation, maintenance, and recordkeeping for the underground storage tank facility. Each facility's Class B operator will visit each facility at least once every week during normal business hours. The Class B operator will be immediately available for telephone consultation with the Class C operator when a facility is in operation. The Class B operator must be geographically located such that the person can be on site within 2 hours of being contacted by the public, the owner or operator of the facility, or the State Fire Marshal.

002.03 Class C Operator. The Class C operator is an on-site employee who will be responsible for controlling and monitoring the dispensing or sale of regulated substances and is the first to respond to events indicating emergency conditions.

002.03A. The Class C operator will always be present at the facility during normal operating hours.

002.03B. The Class C operator will monitor product transfer operations to ensure that spills and overfills do not occur.

002.03C. The Class C operator will know how to properly respond to spills, overfills and alarms when they do occur.

002.03D. The Class C operator will have access to and provide records and documentation to the State Fire Marshal when a Class B operator is not at the facility.

02.03E. Within 6 months after the effective date of these rules, written basic operating instructions, emergency contact names and phone numbers and basic procedures

specific to the facility will be provided to all Class C operators and be readily available on site. There may be more than one Class C operator at a facility, but not all employees of a facility need be Class C operators.

003. UST OPERATOR TRAINING REQUIREMENTS

003.01 Approval Standards. Class A and Class B operators will attend a State Fire Marshal approved training course covering material designated for each operator class* In determining whether to approve any trainer or training, the State Fire Marshal will consider the following:

003.01A. Whether the trainer is a third-party, in-house, educational institution or other;

003.01B. Whether the trainer will offer training in multiple locations throughout the state, regionally or locally; and

003.01C. How often the trainer will offer training and whether the trainer will offer classes only to employee or in-house operators, or to the general public. Training options may include live training sessions in a classroom setting or at a storage tank system; internet or computer training program; or another training method approved by the State Fire Marshal.

003.02 Application for Approval Trainers will apply to the State Fire Marshal for approval of trainers and training classes. An application for approval of trainer and training Class will include at a minimum:

003.02A. Name, address and contact information of the proposed trainer;

003.02B. Detailed description of the proposed trainer's experience, education and qualifications to conduct training;

003.02C. Agenda and materials to be used for the proposed class;

003.02D. Final tests or other proposed methods of evaluating attendee success;

003.02E. Copies of proposed documentation to indicate successful completion of training as required in this Chapter; and

003.02F. The proposed calendar for the proposed training classes that includes location and frequency.

The State Fire Marshal will evaluate applications for approval of trainers and training classes within 30 days of receipt of the application, and provide a written approval, denial or request for additional information.

The State Fire Marshal may periodically audit or review any training class, and the trainer will allow a maximum of 2 State Fire Marshal employees to attend any training Class on request without charge.

~~**003.03 Documentation and Recordkeeping by Trainers: Approved trainers will provide written verification of successful completion of training that will include:**~~

~~**003.03A.** The operator's name;~~

~~**00303B.** The date and location where training was completed;~~

~~**003.03C.** The facility name, address and State Fire Marshal facility identification number for each facility for which the operator is designated;~~

~~**003.030.** The name, address and phone number of the approved trainer that conducted the training; and~~

~~**003.03E.** The date the certificate of training expires.~~

~~Approved trainers will maintain records of successful completion of training for each operator, including each operator's individual examination results, for at least 5 and will make the records available to the State Fire Marshal upon request.~~

~~If a trainer ceases to conduct training in Nebraska, all training records for operators pursuant to this Chapter, will be submitted to the State Fire Marshal prior to the discontinuation of training.~~

003.04 TRAINING REQUIREMENT

003.04A. Class A Operators. At a minimum, the Class A operator will successfully complete a State Fire Marshal approved training course that covers underground storage tank system requirements pursuant to Title 159. Training must also provide a general overview of the State Fire Marshal's UST program and purpose, public safety and administrative requirements, and the Department of Environment and Energy groundwater protection goals.

003.04A1. Federal regulations adopted by reference 40 CFR 280.242(a)(1) and (a)(2).

003.04B. Class B Operators. At a minimum, the Class B operator will successfully complete a State Fire Marshal approved training course that provides in-depth understanding of UST system regulations. Training will also provide a general overview of the State Fire Marshal's UST program and purpose, public safety and administrative requirements, and the Department of Environment and Energy's groundwater protection goals. Training will also cover the operation and maintenance requirements of Title 159, including, but not limited to, the following: Federal regulations adopted by reference 40 CFR 280.42 (b)(l) and (b)(2) at it exists on July 15, 2015 and the following.

003.04B1. Provisions for safe fuel handling and equipment maintenance procedures; such as…

Petroleum Equipment Institute PEI/RP900, Recommended Practices for the Inspection and Maintenance of UST Systems; and

Petroleum Equipment Institute PEI/RP500, Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment.

003.04B2. Components and materials of construction for UST systems;

003.04B3. Ensuring product delivery by proper labeling or identifying the contents stored in the UST systems;

003.04B4. Corrosion protection and related testing;

003.04B5. Requirement and content of State Fire Marshal compliance inspections;

003.04B6. Product and equipment compatibility, including the State Fire Marshal's ethanol compatibility guidance;

003.04B7. Notification of installation and storage tank registration requirements; and

003.04B8. Requirements to use State Fire Marshal-licensed companies for UST installation, corrosion testing, and closure.

003.05 Class C Operators. At a minimum, the Class C operators must receive training that includes a general overview of the State Fire Marshal's UST program and purpose; Nebraska Environment and Energy groundwater protection goals; public safety requirements; and action to be taken in response to an emergency condition or alarms caused by spills or releases from an UST system and requirements of 002.03 of this Chapter

003.05A. Training will include written procedures for the Class C operator, including reporting instructions necessary in the event of emergency conditions. The written instructions and procedures will be readily available on site. A Class A or Class B operator may provide Class C training.

004. EXAMINATION AND REVIEW REQUIREMENT

004.01 Class A and B operators will complete a State Fire Marshal approved training course and take an exam to verify their understanding and knowledge. The examination may include both written and practical (hands-on) testing activities.

004.01A. The trainer will follow-up the exam with a review of missed test questions with the Class or individual to ensure understanding of problem areas in a manner approved by the State Fire Marshal.

004.02 Upon successful completion of the training course and review session, applicants will be issued a certificate verifying training as a Class A, Class B or Class C operator which will include the date of issuance and the date of expiration.

005. RECIPROCITY

005.01 No reciprocity will be granted and no training from any other state or territory will qualify an operator to meet the requirements of this chapter, unless written documentation is provided to the State Fire Marshal showing the training requirements of this Chapter were met.

006. TIMING OF UST OPERATOR TRAINING

The requirements of 40 CFR 280.243 as it existed on July 15, 2015 are adopted and incorporated by reference.

007. RETRAINING

007.01 Class A and Class B operators will be retrained every 5 years. Class C operators will be retrained every 3 years. All will be retrained in the same manner as the original training required in this Chapter.

007.02 In addition to the retraining requirement, if an UST system is found to be out of compliance, the State Fire Marshal may require retraining of the designated Class A, Class B or Class C operator under a plan approved by the State Fire Marshal. The retraining must occur within 30 days from the State Fire Marshal notice for Class A or Class B operators and within 15 days for Class C operators.

007.03 Retraining may be required whenever a facility is determined to be out of compliance with any of following provisions of Title 159:

007.03 Tank registration requirements of Chapter 2;

007.03B Leak detection requirements of Chapter 7;

007.03C Spill prevention requirements of Chapter 6;

007.03D Overfill requirements of Chapter 6;

007.03E Recordkeeping requirements of Chapters 5, 6, or 7;

007.0F Corrosion protection requirements of Chapter 4.

008. DOCUMENTATION OF OPERATOR TRAINING BY OWNERS

The owner of an underground storage tank facility will maintain a list of designated operators. The list will be made available to the State Fire Marshal upon request. The list will represent the current Class A, Class B and Class C operators for each underground storage tank facility

008.01 A copy of the certificates of training for Class A operators will be on file and readily available for inspection at each facility under their responsibility.

008.02 Class A and Class B operator contact information, including telephone numbers and any other emergency contact information, will be readily accessible to all staff and inspectors.

CHAPTER 14 UST SYSTEMS WITH FIELD-CONSTRUCTED TANKS AND AIRPORT HYDRANT FUEL DISTRIBUTION SYSTEMS.

The requirements of 40CFR 280.11 and 280.250 through 252 as it existed on July 15, 2015 are adopted and incorporated by reference.

Nebraska Administrative Code

Title 115 Rules of Practice and Procedure

CHAPTER 3 PUBLIC HEARINGS

001 Unless more specific requirements in other agency Titles apply, this chapter contains minimum requirements for public hearings for:

~~**001.01** Permit decisions which by statute or other agency regulations provide for public notice, public review and comment, and an opportunity to request a public hearing before making a final permit decision.~~

001.02 Fact-finding hearings afforded by statute or regulation.

~~**002** To the extent provided by statute or other agency regulations authorizing public hearings for proposed permit decisions, any person may submit written comments on the proposed permit decision and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing is to be submitted in writing and state the nature of the issues proposed to be raised in the hearing.~~

~~**003** If the director or his or her designee tentatively decides to issue or modify a permit, a draft permit shall be prepared. The draft permit will be:~~

~~**003.01** Accompanied by a statement of basis described in 005;~~

~~**003.02** Based on the administrative record described in 006;~~

~~**003.03** Publicly noticed as described in 007; and~~

~~**003.04** Made available for public review and comment.~~

~~**004** If the director or his or her designee tentatively decides to deny or revoke a permit, the tentative decision will be:~~

~~**004.01** Accompanied by a statement of the basis and reasons for the revocation described in **005;**~~

~~**004.02** Based on the administrative record described in 006;~~

~~**004.03** Publicly noticed as described in 007; and~~

~~**004.04** Made available for public review and comment.~~

~~**005** A statement of basis will be prepared for every draft permit decision. A statement of basis will briefly describe the authority and reasons for the conditions of the draft permit, or in the case of permit denial or revocation, reasons supporting the tentative decision.~~

~~**006** The administrative record for a tentative permit decision will consist of:~~

006.01 The application, if required, and any supporting data furnished by the applicant;

006.02 The draft permit or notice of intent to deny the application or to revoke the permit;

006.03 The statement of basis;

006.04 Other documents contained in the supporting file for the draft permit.

007 Unless more specific requirements in other agency Titles apply, the agency will provide public notice of tentative permit decisions by placing the notice on the agency webpage for a minimum of thirty days or by publication in a daily or weekly newspaper having general circulation in the area affected by the permit.

007.01 The public notice shall contain the following minimum information:

007.01A Name and address of the agency;

007.01B Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit;

007.01C A brief description of the business conducted at the facility or activity described in the permit application or the draft permit;

007.01D Name, address and telephone number of a person from whom interested persons may obtain further information or copies of documents; and

007.01E A brief description of the comment procedures and the time and place of any hearing that will be held, including a statement of procedures to request a hearing unless a hearing has already been scheduled.

008 The agency will hold a public hearing whenever the director or his or her designee finds, on the basis of requests, a significant degree of public interest in the tentative permit decision exists. The director or his or her designee may also hold a public hearing at his or her discretion, whenever such a hearing might clarify one or more issues involved in the permit decision. The director may appoint a hearing officer to conduct the hearing.

008.01 The agency will provide public notice of the hearing as specified in 007.

008.02 In addition to the general public notice described in 007, the public notice of a hearing will contain the following information:

008.02A Date, time, and place of the hearing, which will be held in the area affected unless another location is specifically required; and

008.02B A brief description of the nature and purpose of the hearing, including the applicable rules and procedures.

009 All persons, including applicants, who believe any proposed condition of a draft permit is inappropriate or that the director’s tentative decision to deny an application or revoke a permit is inappropriate, must raise all reasonably ascertainable issues and submit all reasonably available

~~arguments supporting their position by the close of the public comment period, including any public hearing. Any supporting materials which are submitted are to be included in full unless they are part of the administrative record in the same proceeding or consist of State or Federal statutes and regulations or other generally available reference materials.~~

~~**010** Upon conclusion of the public hearing the hearing officer, if one was appointed, shall forward the transcript or recording of the hearing and any other evidence to the director for a final decision. Any final decision made by the director shall be governed by the standards set forth in the Nebraska Administrative Procedure Act, Neb. Rev. Stat. §84-901 et seq. and applicable statutory and regulatory authority of the agency.~~

~~**011** The director or his or her designee will base the final permit decision on the administrative record described in this section which shall consist of:~~

~~**011.01** The administrative record for the tentative permit decision described in 006;~~

~~**011.02** All comments received during the public comment period;~~

~~**011.03** The tape or transcript of any hearings held;~~

~~**011.04** Any written materials submitted at such a hearing;~~

~~**011.05** Any response to comments prepared by the agency; and~~

~~**011.06** The final permit or permit decision.~~

~~**012** The final decision to issue a permit may be reviewed by the district court in a proceeding instituted by filing a petition in error pursuant to Neb. Rev. Stat. §25-1901 and Neb. Rev. Stat. §84-917.~~

~~**013** In accordance with Neb. Rev. Stat. §81-1507(3), any person who is denied a permit or had a permit revoked or modified may request a contested case under this title by filing a petition with the director within thirty days after receipt of notice of the permit decision.~~

014 Unless more specific requirements in other agency Titles apply, the agency will conduct fact-finding hearings in accordance with the statute or regulation authorizing the hearing. At a minimum, the agency shall:

014.01 Publish notice of the hearing, including:

014.01A Date, time, and place of the hearing, which will be held in the area affected unless another location is specifically required, and

014.01B A brief description of the nature and purpose of the hearing, including the applicable rules and procedures.

~~**015** Rulemaking hearings before the Environmental Quality Council will be conducted in accordance with Neb. Rev. Stat. §81-1505(17) and the Administrative Procedure Act.~~

016 Strict rules of evidence and procedure will not apply in fact-finding hearings. The director or a hearing officer appointed by the director may admit and consider all relevant testimony and evidence having probative value in connection with the subject of the hearing.

017 No person will be required to be sworn or take an oath prior to presenting any evidence, which may be oral or written.

018 The hearing officer will among other things, open the proceedings, enter into the record the public notice given for the hearing, receive testimony, accept and properly mark exhibits, make a record of the hearing, and conduct such other related duties as necessary. Unless the final decision maker is presiding at the hearing, the hearing officer will have no power, acting alone, to take any action involving a final determination from the hearing.

~~Enabling Legislation: Neb. Rev. Stat. §81-1504(1)(9)(11)(13); §81-1505; §81-1505(17); §81-1507(3); §84-901 et seq.~~

Nebraska Administrative Code

Title 118 Groundwater Quality Standards and Use Classification

CHAPTER 1 DEFINITIONS

In addition to the definitions in Neb. Rev. Stat. § 81-1502, the following definitions apply:

001 "Aquifer" means a geologic formation, group of formations, or part of a formation that is capable of yielding usable amounts of water to a well, spring, or other point of discharge.

002 "Background" means the levels of chemical, physical, biological, and radiological constituents or parameters prior to an activity or pollution event, as determined by methods acceptable to the Department.

003 "Beneficial use" means any existing or potential ground water quality dependent use as identified in this title.

004 "Cleanup" means the removal or attenuation of pollutants from the environment through physical, chemical, or biological processes.

005 "Degradation" means a worsening (i.e., of ground water quality) caused directly or indirectly by man.

006 "Department" means the Department of Environment and Energy.

007 "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

008 "Ground water" is defined in Neb. Rev. Stat. § 46-706.

009 "Impairment of Use" means an adverse impact on a beneficial use of ground water due to water quality degradation (as indicated by the narrative and numerical standards of Chapter 3) such that any previously existing beneficial use cannot be fully attained.

010 "Maximum contaminant level" means the maximum permissible level of a substance or matter in ground water.

011 "Milligrams per liter (mg/l)" means the concentration of a substance expressed as the weight in milligrams contained in one liter of solution. For most practical purposes, this term is equivalent to parts per million (ppm).

012 “Petroleum” is defined in Neb. Rev. Stat. § 66-1510.

013 "pH" means the negative logarithm of the hydrogen ion concentration (pH = -log [H]+). pH is a measure of the acidity and alkalinity of a solution on a scale from 0 to 14, with 7 representing neutrality. Numbers from 7 up to 14 denote increasing alkalinity, and numbers from 7 down to 0 denote increasing acidity.

014 "Picocurie (pCi)" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

015 "Pollutant" means any gas, liquid, or solid introduced into ground water that causes pollution.

016 "Private drinking water supply" means that ground water used as drinking water which is not included under public drinking water supply.

017 "Public drinking water supply" means that ground water used in a public water supply system.

018 "Public water supply system" is defined in Neb. Rev. Stat. § 71-5301(10).

019 “Rem” means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A “millirem” (mrem) is 1/1000 of a rem.

020 "Remedial action" means any immediate or long term response to a pollution event including cleanup, restoration, mitigative actions, and any other action approved or required by the Department.

021 "Responsible party" means any person causing pollution or creating a condition from which pollution is likely to occur, any owner or operator of a source where pollution has occurred or where a condition has been created from which pollution is likely to occur, or any responsible person as defined by Title 126 - Rules and Regulations Pertaining to the Management of Wastes.

022 "Restoration" means the cleanup of polluted ground water to background quality.

023 "Toxic substances" means those pollutants or combinations of pollutants, or disease causing agents which, after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Department, cause either death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), inhibition of growth or physical deformation on any organism or its offspring.

024 "Water supply system" is defined in Neb. Rev. Stat. § 71-5301(9).025

025 "Water well" means any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for ground water, monitoring ground water, utilizing the geothermal properties of the ground, obtaining hydrogeologic information, or extracting water from or injecting water into the underground water reservoir. Water well will not include any excavation made for obtaining or prospecting for oil or natural gas or for inserting media to repressure oil or natural gas bearing formations regulated by the Nebraska Oil and Gas Conservation Commission.

026 "Wellfield" means a group of two or more public drinking water supply wells in close proximity to each other.

027 "Wellhead area" means the water-saturated subterranean strata from which ground water is withdrawn for a public water supply system, along with the overlying unsaturated subterranean strata, land surface, surface waters, and air space providing ground water recharge to such strata.

028 "Wellhead protection area" is defined in Neb. Rev. Stat. § 46-1502(4).

CHAPTER 2 INTENT AND APPLICABILITY OF STANDARDS AND CLASSIFICIATION

001 The Ground Water Quality Standards and Use Classification are the foundation for other ground water regulatory programs. These standards will be implemented in conjunction with other regulatory programs. If other regulatory programs do not exist, these standards alone may constitute the basis for remedial action of ground water contamination.

002 In determining regulatory requirements which may be placed on potential point sources, the Department will consider the ground water classification, vulnerability of the ground water to pollution, beneficial uses of ground water, characteristics of the potential point source, technical and socioeconomic factors, and other site-specific factors, as necessary. This determination will apply to all potential point sources for which the Department has regulatory authority. These regulatory requirements will not preempt more stringent restrictions required of sources and facilities covered by state or federal statutes and regulations.

003 The ground water standards and ground water classifications apply to all ground waters of the State with the following exceptions:

003.01 Within an aquifer or a part of an aquifer that has been exempted through the Rules and Regulations of the Nebraska Oil and Gas Conservation Commission or through NAC Title 122 - Rules and Regulations for Underground Injection and Mineral Production Wells. This exception will apply only for ground water contaminants directly related to aquifer exemption. If the exemption designation is removed, this exception will no longer apply.

004 The numerical standards of Chapter 3 are intended to be applied in regulatory programs administered by the Department. This does not imply that all ground waters in the State will be expected to meet these levels. When point source ground water pollution has occurred, the numerical standards are to be applied according to Chapter 6.

005 The numerical standards of Chapter 3 apply to all ground water classes except as provided below:

005.01 The numerical standards of Chapter 3 will not apply to ground waters classified as GC unless any of the following situations occur:

005.01A If a condition exists which has impaired or will impair, in the Department's judgment, beneficial uses other than drinking water.

005.01B If public health or welfare are threatened.

005.01C If considered necessary by the Department to protect hydrologically connected ground waters, surface water beneficial uses (as assigned in Title 117 - Nebraska Surface Water Quality Standards), or surface waters defined by the Department through the Nebraska Wellhead Protection Program as contiguous with a wellhead protection area.

005.02 The numerical standards of Chapter 3 will not apply within a discrete boundary for the pollutants under consideration, as may be determined under the remedial action provisions of Chapter 6 in the event of pollution.

~~**CHAPTER 3 ANTIDEGREDATION; BENEFICIAL USES; NARRATIVE AND NUMERICAL STANDARDS; SAMPLE COLLECTION**~~

~~**CHAPTER 4 – NARRATIVE AND NUMERICAL STANDARDS GROUNDWATER CLASSFICIATION**~~

~~**CHAPTER 5 PROCEDURES FOR CHANGING A GROUNDWATER CLASSIFICATION**~~

CHAPTER 6 REMEDIAL ACTION PROVISIONS FOR POINT SOURCE GROUND WATER POLLUTION EVENTS

~~**001** When a point source pollution event (except for petroleum releases which are covered under 002 below) has caused or will cause, in the Department's judgment, ground water pollution, the Ground Water Remedial Action Protocol found in Appendix A will apply to the responsible party. Such events which result from activities subject to the ground water standards and classifications of this title, and which are regulated by a permit issued under Title 122, may be governed by the remedial action plan approved in the Title 122 permit instead of Appendix A, but only if the Title 122 permit contains such an approved plan.~~

002 When a point source pollution event has been caused by a release of petroleum, the procedures of Appendix B will apply to the responsible party.

CHAPTER 7 PUBLIC NOTICE AND COMMENT PERIOD

001 The Department will give public notice of the following:

001.01 A proposed final remedial action or during implementation, a proposed modification to a final remedial action, in accordance with Appendix A or Appendix B.

001.02 A scheduled hearing.

001.03 A Department decision to allow degradation of ground water quality.

002 No public notice is required when a request or petition for an action or a hearing is denied by the Department. Written notice of the denial will be given to the person who submitted the request or petition. Such denial will be considered a final order by the Director and subject to appeal pursuant to Neb. Rev. Stat. § 81-1509.

003 The requirements for public notices include:

003.0.001 Notices may describe more than one proposed action or event.

003.02 Notices will give the public a comment period of at least 30 days.

003.03 Notices will be provided to the following persons:

003.03A Person requesting action by the Department or the responsible party in a remedial action situation.

003.03B Person in charge of the public water supply system.

003.03C Overlying and adjacent ground water users and land owners which would be affected if Class GB or GC areas are involved. A notice published pursuant to 003.04 below may be substituted for individual mailings if the affected area is a densely populated, municipal area.

003.03D Any other person either upon request or on a Department list to receive notices for a particular geographic area or on a specific subject.

003.04 Public notice will be issued by publication on the Department's website or circulating the notice in the geographical area of the affected ground water through publication in a daily or weekly newspaper with general circulation.

003.05 Notices may be announced in press releases or by other methods designed to give actual notice to persons potentially affected by the proposed action or event.

003.06 Notices will contain the following information:

003.06A A summary of the proposed action or event including location and description of the ground water involved.

003.06B An address to which all comments should be sent.

003.06C The name, address, and telephone number of a person from whom additional information may be obtained.

003.06D A brief description of the comment procedures and the procedures by which a public hearing may be requested.

003.06E Any additional information considered necessary or proper by the Department.

003.07 If the notice is for a hearing, the notice will also include the following:

003.07A A reference to the date of any previous public notices relating to the proposed action or event.

003.07B The date, time, and location of the hearing.

003.07C A brief description of the nature and purpose of the hearing, including the applicable rules and procedures and a concise statement of the issues.

004 During the public comment period, any interested person may submit to the Director written comments on the proposed action or event and may request or petition for a hearing, in writing, stating the nature of the issues to be raised in the hearing.

005 Public hearings are governed by Title 115 – Rules of Practice and Procedure for permits and licenses.

~~Appendix A - Ground Water Remedial Action Protocol~~

Appendix B - REMEDIAL ACTION PROTOCOL FOR PETROLEUM RELEASES

Procedures for Determining Needed Action for Point Source Pollution Occurrences From Petroleum Releases Using Risk-Based Corrective Action (RBCA)

If not already known, the Department will identify, if possible, the source(s) of contamination

and the responsible party (or parties). The Department will notify the responsible party after the determination has been made. A responsible party is to complete the following protocol in accordance with Chapter 6, 002.

Part I. IMMEDIATE ACTION

Step 1. Initial Review

1) Perform an initial review to determine whether immediate action is needed to eliminate the existence or likelihood of an imminent and substantial threat to the public health and welfare or the environment or to mitigate the significantly increasing difficulty of cleanup if action is delayed, and if so, what actions are required. Base the review on as many of the items addressed in Step 6 as possible.

a) imminent - a short time span (i.e., less than 90 days)
b) substantial - a significant impact on the public or environment (e.g., human illness or death, serious financial loss, severe ecological damage)
c) significant - if action delayed, cleanup costs increase by one or two orders of magnitude
d) Immediate actions - may include cleanup to at least an initial level, stabilization or containment, monitoring, shutdown/termination of facility/activity, or any combination of measures. These actions are carried out by the responsible party.

2) If the need for immediate action is apparent or if the need cannot be readily determined, proceed to Step 2 and work in conjunction with Department.

3) If no immediate action is necessary (e.g., due to the nature of the pollution event developing over many years or moving slowly), proceed to Step 4.

Step 2. Implementation of Immediate Actions

1) Implement the immediate actions identified as required by Step 1 or as determined necessary in consultation with the Department.

Proceed to Step 3 when the immediate actions have been completed.

Step 3. Evaluation of Immediate Actions

1) Determine if immediate action has been successfully eliminated the imminent and substantial threat to the public health and welfare and the environment or successfully mitigated any significant increase in difficulty of cleanup associated with delayed action.

2) If the immediate action was unsuccessful, return to Steps 1 and 2.

3) If requirements were met, proceed to Step 4.

Step 4. No Immediate Threat Present

Immediate action is not now needed, but additional measures for complete and permanent resolution of the problem may be required. Further assessment is necessary to determine the need for any final remedial action.

Proceed to Part II, Step 5.

Part II. FINAL REMEDIAL ACTION

If at any time during the Part II assessment an immediate threat is identified, return to Step 1 (Part I).

Step 5. Preliminary Assessment

1) Complete a preliminary assessment to evaluate the possible threat of contamination to soils and ground water and threat to public health and welfare. This assessment involves a review of existing information and require the collection of minimal or no field data. If it can be determined by the Department from this preliminary assessment that there is limited soil contamination and no threat of ground water contamination or threat to human health and welfare, proceed to Step 12. If soil contamination is extensive or its extent is unknown or ground water contamination is possible or likely, proceed to Step 6.

Step 6. RBCA Tier 1 Site Assessment

1) Before this or any subsequent assessments are started, contact the Department to establish what information must be collected. The Department will specify sampling and analysis requirements.

2) Collect all information, including any site assessment data, as directed by the Department. The required site assessment data will include, but not be limited to, the following types of information:

1. historical information;
2. site information;
3. contamination characteristics;
4. aquifer characteristics.

3) Investigate the following potential exposure pathways for chemicals of concern designated by the Department:

1. Dermal contact with and ingestion of chemicals of concern from contaminated surface soils;
2. Enclosed space inhalation of chemicals of concern from contaminated subsurface soils;
3. Leaching of chemicals of concern from contaminated surface and subsurface soils to ground water;
4. Enclosed space inhalation of chemicals of concern from contaminated, shallow ground water; and,
5. Ingestion of chemicals of concern from contaminated ground water.

Individual chemicals of concern are designated based on the petroleum product(s) released at the site and include, but are not limited to, the following:

Light Distillates (e.g., gasoline, JP-4)	
Benzene	Total Xylenes
Toluene	n-Hexane
Ethylbenzene	Methyl tertiary-Butyl Ether (MTBE)

Middle Distillates (e.g., diesel fuel, kerosene)	
Benzene	Naphthalene
Toluene	Pyrene
Ethylbenzene	Benzo(a)pyrene (BaP)
Total Xylenes	

Waste Oil		
Benzene	Naphthalene	Chlorinated solvents*
Toluene	Pyrene	Metals*
Ethylbenzene	BaP	Ethylene glycol*
Total Xylenes		

*To be determined on a case-by-case basis as directed by the Department. The Department will provide investigative and sampling requirements for these chemicals as needed.

4) Report the required information to the Department in the format specified by the Department.

Step 7. Evaluation of RBCA Tier 1 Investigation Results

In evaluating the RBCA Tier 1 investigation results, the contamination levels found during the site investigation will be compared to risk-based screening levels (RBSLs) which will be established by the Department using the following criteria:

1. Remedial Action Classifications.
A remedial action class (RAC) is defined for pollution events in three types of ground water (or overlying soils) depending on the degree (or potential) of use of the ground water as drinking water. The extent of remedial action recommended will differ depending on the RAC of the contaminated (or likely to be contaminated) ground water. The RAC assigned will be determined from the condition of the ground water prior to the pollution event. The Department will assign the RAC based on information submitted by the responsible party in the RBCA Tier 1 site assessment and other available information.

RAC-1. This category includes ground waters of Class GA and the portion of Class GB in a 500-foot radius (or greater, if determined necessary by the Department) around all private drinking water supply wells. RAC-1 is automatically assigned anytime a public or private drinking water supply well has been polluted.

RAC-2. This category includes ground waters of Class GB (except for the portion of Class GB placed in RAC-1) and Class GC(R).

RAC-3. This category includes, but is not limited to, ground waters of Class GC (except for Class GC(R) which was placed in RAC-2).
The RAC categories are not intended to represent a ground water classification system but rather a pollution event ranking scheme. It gives the Department a method to determine the importance of remedial action based on the use of the ground water. For instance RAC-1 is the category of highest rank; it represents that ground water actually being used for drinking water and that ground water intended to be used in a public drinking water supply. Therefore, RAC-1 events will normally receive the most extensive remedial action measures.

RAC-2 events involve ground water not now directly used as drinking water but having a reasonable potential to be used in the future. The potential for use exists if the ground water is located in a highly populated area or is part of a regional, high-yielding aquifer or if otherwise justified. The RAC-2 category also includes ground water with prior contamination that may be easily or cost-effectively treated to drinking water quality.

Pollution events will be of lowest importance, RAC-3, if the ground water involved is not used, or likely to be used, as drinking water. Generally remedial action measures will be least extensive for this category since the future use of ground water for drinking is improbable. Justification for assigning events to RAC-3 will be based on a combination of several different reasons. One reason for unusability is poor natural quality which makes the ground water unfit for human consumption. Insufficient yield is another reason the ground water may not be used for drinking. A third reason is historical contamination that occurred prior to the pollution event currently being investigated (see NRS § 81-1505(2)(d)). This past contamination may have rendered ground water unsuitable for drinking and uneconomical to treat. Past and present intensive land use is also a reason why ground water could be unusable as drinking water. This includes areas of concentrated industrial development or densely populated areas where ground water is likely to be contaminated or will not be used as drinking water.

The ranking of some events as RAC-3 does not mean there will be places in the State where wholesale contamination of ground water will be allowed. Departmental authority through its various programs to control practices or discharges that may contaminate ground water will still be in effect. RAC-3 occurrences, in general, will be given a lower priority and less staff effort by the Department than RAC-1 or RAC-2 occurrences; however, cleanup of a RAC-3 event may be required due to concerns about enclosed space inhalation exposure pathways and vapors threatening public health and welfare.

RACs were developed primarily for use with the principal aquifer--the ground water commonly used for drinking. They will also be adapted for use with both deeper and perched ground water. When doing so, interconnections with overlying or underlying ground water of different quality will be considered.

Some contamination threats may occur in which the use potential of the ground water would be RAC-1 or RAC-2, but the soil, geology, and other site-specific characteristics are such that

ground water contamination is virtually impossible. After an appropriate assessment, the event may be downgraded to RAC-3.

In every ground water contamination occurrence, certain minimum requirements will be imposed upon the responsible party, depending on the RAC. Cleanup of readily removable contaminants (e.g., free product) will be required. Additional cleanup and/or mitigation may also be required. If additional cleanup is not required, the remaining contaminated ground water will be managed and monitored to prevent any further damage.

In RAC-3, cleanup of readily removable contaminants (e.g., free product) will be required. Additional cleanup of a RAC-3 event may be required due to concerns about enclosed space inhalation exposure pathways and public health and welfare. Monitoring may also be necessary. Because RAC-3 ground water is generally not used for drinking water, the ground water ingestion and soil leaching to ground water pathways are considered to be incomplete in RAC-3 and not subject to this RBCA assessment.

2. Carcinogenic and non-carcinogenic health effects.
A. Carcinogenic effects

Chemical-specific Maximum Contaminant Levels (MCLs) (see Chapter 3) will be used to calculate the appropriate RBSL for a carcinogen for the groundwater ingestion and soil-leaching to groundwater exposure pathways of concern for a RAC-1 release.

An Excess Lifetime Cancer Risk (ELCR) of $1x10^{-6}$ will be used in the calculation of the RBSLs for a carcinogen for the dermal contact/soil ingestion exposure pathway and for inhalation pathways in the presence of subsurface structures for all releases.

An ELCR of $1x10^{-5}$will be used in the calculation of the RBSLs for a carcinogen for the groundwater ingestion and soil-leaching to groundwater exposure pathways of concern for a RAC-2 release and for the inhalation exposure pathways when no subsurface structures are present for all releases.

B. Non-carcinogenic effects

Chemical-specific MCLs (or a health-based standard where an MCL has not been promulgated for a particular chemical) will be used to calculate the RBSL for a non-carcinogen for the groundwater ingestion and soil-leaching to groundwater exposure pathways of concern for a RAC-1 release.

RBSLs for non-carcinogens for the groundwater ingestion and soil-leaching to groundwater exposure pathways of concern for a RAC-2 release, for the dermal contact/soil ingestion exposure pathway for all releases, and for the enclosed space inhalation pathways for all releases will be established by the Department using the following criteria:

1. exposure pathway;
2. RAC designation;
3. level of exposure based on the ratio of the observed concentration of a chemical of concern to a chemical-specific reference concentration.

For purposes of the RBCA Tier 1 assessment, toluene, ethylbenzene and total xylenes are considered to have additive health effects.

3. Fate and transport models. The Department will select various models and model default values to calculate RBSLs for use in evaluating the RBCA Tier 1 data.

4. Land use.

5. Location of water supply wells.

6. Other criteria as determined by the Department.

Upon comparing the RBSLs to the actual contamination levels found during the site investigation and consideration of other pertinent factors, the Department will determine if additional remedial actions will be required. If additional remedial actions are not required, proceed to Step 11. Otherwise, proceed to Step 8.

Step 8. RBCA Tier 2 Site Assessment

1) Perform a RBCA Tier 2 site assessment for those exposure pathways where actual site contamination levels were greater than the Tier 1 RBSLs under Step 7. This investigation will define the extent of contamination from the release and collect site-specific parameters to use in the Tier 2 evaluation performed under Step 9. The Department will specify what data needs to be collected for the Tier 2 site assessment. Work will be approved by the Department prior to beginning the investigation.

2) Report the results of the Tier 2 site assessment in the format specified by the Department. The Department may, at any time, request additional information.

Step 9. Evaluation of RBCA Tier 2 Investigation Results, Determination of Site-Specific Target Limits, and Review of Proposed Remedial Actions

The site-specific physical and chemical assessment found during the Tier 2 site assessment will be used to establish site-specific target limits (SSTLs) using the same fate and transport models previously used to establish the RBCA Tier 1 RBSLs. The contamination levels found during the investigation will be compared to the SSTLs in a manner similar to that performed for the RBCA Tier 1 evaluation.

1) The Department will determine if additional remedial actions will be required. If additional remedial actions are not required, proceed to Step 11.

2) The Department will set a preliminary cleanup level for any additional cleanup required. The level will normally be set at the appropriate SSTL(s). After receiving notification of the preliminary cleanup level, either agree or propose an alternate level. If a different cleanup level

is proposed, it must be based on a technological, risk, or economic analysis. The Department may also propose an alternate level.

a) A technological analysis will determine if technologies exist to clean up the soil and/or ground water to the preliminary cleanup level. If cleanup to the preliminary level is not technologically possible, report what level of cleanup is attainable. As part of this analysis, the technological feasibility of various mitigative actions (e.g., supplying new sources of water and point-of-use treatment) should be investigated.

b) A risk analysis may include other factors, information, or evaluations not previously considered. Other ELCR target levels may be considered if appropriate.

c) For an economic analysis, examine the economics of cleaning up to the preliminary level. If it is impossible to reach the preliminary cleanup level, report what level of cleanup is economically possible. The economic feasibility of mitigation instead of cleanup should also be analyzed.

If cleanup to the preliminary level is not attainable based on one or more of the foregoing analyses, report what portion of the soil and/or ground water will remain contaminated following a lesser degree of cleanup. Given the technological considerations of cleanup, the appropriate calculations should be used in an attempt to define the three-dimensional boundary of the contamination plume under different remedial action scenarios (including no cleanup). The contamination plume, in this case, is defined as soil and/or ground water where the concentrations of identified contaminants exceed their preliminary cleanup levels. For every cleanup scenario assessed, the economic impacts are to be defined. The relationship of the contaminated media (i.e., ground water, soils, soil gas) boundaries to existing users and potential points of exposure must be described.

If submitting an alternative cleanup level, include any supporting justification for an alternate cleanup level, a contamination maintenance program, a mitigation plan, or combination. The Department will consider the information contained in the justification on a case-by-case basis and establish a proposed final cleanup level or action. The level may be the same as the Department's preliminary cleanup level, the same as the proposed alternate cleanup level, or some other level.

The Department's decision on the remedial action necessary, including the proposed final cleanup level, will be placed on public notice. Any person may submit written comments on the proposed action or may request a hearing.

Following the comment period and any hearing the Department will notify the responsible party of Department's final decision (including changes made as a result of a hearing).

3) Develop a workplan and schedule for performance of the final remedial action. The time frame for required action (including cleanup) will be the period of potential exposure to the contamination in the absence of any remedial action or 20 years, whichever is less. On a case-by-

case basis, a longer period of time may be allowed if adequately justified by the responsible party. The workplan is subject to the Department's approval.

Step 10. Implementation and Review of Remedial Actions

1) Obtain any other permits from the Department that may be required to implement the workplan (e.g., UIC, NPDES).

2) Implement the remedial actions approved in the workplan.

3) Keep the Department apprised of cleanup efforts, and the Department will periodically review the effectiveness of the remedial actions. If the Department determines the long-term needs of protecting the public health and welfare and the environment have not been, or are not being, satisfied or if additional remedial action is necessary, the Department may require a return to Steps 8 and 9.

4) A request may be made to modify the required final remedial action during the implementation process. Any request must be accompanied by additional justification as described in Step 9. The Department may propose modifications to the required final remedial action. If a change is appropriate, a public notice will be issued.

Step 11. Final Review

A final review will be performed by the Department to determine the need for any ongoing actions. These may include long-term monitoring to ensure cleanup levels are stabilized and maintained, periodic sampling of nearby supply wells, maintenance of installed structures, and annual case review. If established cleanup levels were never reached, ongoing monitoring or maintenance may be necessary to ensure other soil and/or ground water does not become contaminated and/or public health and welfare threats do not exist.

1) Continue any ongoing actions determined to be necessary by the Department until ground water and soil contamination is no longer a concern.

Step 12. Closure

The situation does not pose a threat to ground water quality or public health and welfare.

Nebraska Administrative Code

Title 126 Rules and Regulations Pertaining to Management of Waste

CHAPTER 1 – Definitions

Unless the context otherwise requires:

001 "Affected Environment" means any portion of the waters of the State or land which has been altered either physically, chemically or biologically due to the release of an oil or hazardous substance.

~~**002** "Application rate" means the concentration of the paunch manure administered to the soil.~~

~~**003** "Best Management Plan" means a plan which describes Best Management Practices intended to prevent or minimize the potential for pollution of waters, air or land of the state and to prevent or minimize health problems resulting from the operation.~~

~~**004** "Best Management Practices (BMP's)" means treatment requirements, operating and maintenance procedures, schedules of activities, prohibitions of activities, and other management practices to control site runoff, spillage, leaks, sludge or waste disposal or drainage from raw material or waste storage.~~

005 "Cleanup" means the physical removal or on-site treatment of an oil or hazardous substance release. This may include, but not be limited to, controlling public access and monitoring activities to determine the effectiveness of removal or treatment activities.

~~**006** "Commence New Source Construction" means the owner or operator has~~

~~**006.01** Begun, or caused to begin as part of a continuous onsite construction program~~

~~**006.01A** Any placement, assembly, or installation of facilities or equipment;~~

~~**006.01B** Significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or~~

~~**006.02** Entered into a binding contractual obligation for the purchase of facilities or equipment which is intended to be used in its operation within a reasonable time and which cannot be terminated or modified without substantial loss.~~

~~**007** "Container" means any device, excluding a lagoon, in which a material is stored, transported, treated, disposed of, or otherwise handled.~~

~~**008** "Council" means the Nebraska Environmental Quality Council.~~

~~**009** "Crop" means a plant or plant product grown for harvest including grazing by domesticated livestock.~~

010 "Dedicated paunch manure application site" means land where materials are applied at a high rate (more than ten (10) dry tons per acre cropping season) primarily as a solution to a waste problem. It would include both land treatment and on-site storage.

011 "Department" means the Nebraska Department of Environmental Quality.

012 "Dewatering" means the process of removing water from paunch manure.

013 "Director" means the director of the Nebraska Department of Environmental Quality.

014 "Discharge", when used without qualification, means a discharge of a pollutant, and a discharge of pollutants.

015 "Discharge of a pollutant" and "discharge of pollutants" each means any addition of any pollutant or combination of pollutants to waters of the state from any point or nonpoint source. This includes discharge into waters of the state from surface runoff which is collected or channelled by man; discharges through pipes, sewers, or other conveyances, owned by a state, municipality or other party which do not lead to treatment systems.

016 "Dry ton" means a theoretical weight of 2000 pounds of material at 0% moisture used in calculating an actual amount of material for land application or other purposes. For sample calculations and actual amounts of material at various moisture contents see Appendix II.

017 "Existing Source" means any source which is not a new source or a new discharger.

018 "Free Product" means an oil or hazardous substance that is present as a non-aqueous phase liquid (e.g., liquid not dissolved in water).

019 "Generator" means any person, by site, whose act or process produces sludges or paunch manure.

020 "Ground water" means water occurring beneath the surface of the ground that fills available openings in rock or soil materials such that they may be considered saturated.

021 "Hazardous Substance" means any substance or mixture of substances other than oil and petroleum related products or radioactive substances which, when released into the environment, presents an imminent and substantial hazard to the public health or welfare, including but not limited to, fish, shellfish or other wildlife, and:

021.01 Any substance designated pursuant to Chapter 4, 002 through 005 of the Rules and Regulations Governing Hazardous Waste Management in Nebraska;

021.02 Any substance designated by the United States Environmental Protection Agency pursuant to Sections 101(14) of the Comprehensive Environmental Response,

Compensation and Liability Act of 1980 or Section 329(3) of the Emergency Planning and Community Right-to-Know Act of 1986.

022 "Hazardous Waste" shall be consistent with the definitions found in Title 128 - Rules and Regulations Governing Hazardous Waste Management in Nebraska.

~~**023** "Incorporated" means to work a material into the surface of the soil by plowing, discing or other means.~~

024 "Land" means any natural or man-made surfaces of the earth, excluding water.

~~**025** "Land treatment" means the application onto or incorporation of a waste into the soil surface for the purpose of biologically or chemically changing it to a more useable form.~~

~~**026** "Metropolitan city" means any municipality in the state of Nebraska having a population greater than 300,000.~~

~~**027** "Municipality" means a city, town, borough, county, parish, district, association, or other public body created by or pursuant to state law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the Clean Water Act, 33 U.S.C. 1251 et seq.~~

~~**028** "New source" means any source that has not commenced new source construction prior to the effective date of these regulations.~~

~~**029** "Non-dedicated paunch manure application site" means land where paunch manure is applied at a low rate (less than ten (10) dry tons per acre per cropping season) with the primary purpose of enhancing crop growth and on-site storage is not practiced. Such sites need not be permitted.~~

030 "Oil" means oil of any kind or in any form, including, but not limited to:

030.01 Petroleum, fuel oil, oil refuse, and oil mixed with wastes other than dredged spoil (Section 311(a)(1) of the Federal Clean Water Act) and;

~~**030.02** Fats and oils from animals and vegetable sources.~~

031 "Owner" means the person who owns a facility or land or part of a facility or land.

~~**032** "Paunch manure" means partially digested material taken from an animal at the time of slaughter.~~

033 "Permit" means any permit issued by the Director under Neb. Rev. Stat. §§ 81-1501 through 81-1533 (Reissue 1981).

034 "Person" means any federal agency, individual, partnership, association, public or private corporation, trustee, receiver, assignee, agent, municipality, or governmental subdivision, public agency, officer or governing or managing body of any municipality, governmental subdivision or public agency, or any other legal entity except the Department.

~~**035** "Recycling" means the process by which waste materials are transformed into new products in such a manner that the original products may lose their identity.~~

036 "Release" means, but is not limited to, any discharging, spilling, leaking, pumping, emitting, emptying or dumping of oil or hazardous substances upon land, beneath the surface of the land, or into waters of the State, either by accident or otherwise.

037 "Remedial action" means any immediate or long-term response to a release or suspected release of an oil or hazardous substance, including precision testing of tanks and lines, site investigation, drilling, cleanup, restoration, mitigation, and any other action which the Department determines is reasonable and necessary.

038 "Responsible Person" means any person producing, handling, storing, transporting, refining, or disposing of an oil or hazardous substance when a release occurs, either by accident or otherwise. This includes carriers and any other person in control of an oil or hazardous substance when a release occurs, whether they own the oil or hazardous substances or are operating under a lease, contract, or other agreement with the legal owner thereof.

~~**039** "Reuse" means the reintroduction of a commodity into the economic stream without change.~~

040 "Schedule of Compliance" means a schedule of remedial measures contained within the permit including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition, or standard, or other permit requirement.

~~**041** "Sludge" means any solid, semisolid or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effects.~~

~~**042** "Storage" means the leaving or placing of a material in a location or position other than where it will ultimately reside or be used.~~

~~**043** "Water table" means the surface of underground gravity-controlled water and shall include that water found in the saturated zone beneath the surface of the land.~~

044 "Watercourse" means a natural or man-made channel through which water flows; a stream of water (as a river, brook or underground stream).

045 "Waters of the state" means all waters within the jurisdiction of this state, including all streams, lakes, ponds, impounding reservoirs, marshes, wetlands, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, situated wholly or partly within or bordering upon the state.

046 "Wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances to support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

047 "Windrow" means a row of sludge or paunch manure placed to dry before being processed.

CHAPTER 2 – WASTE MANAGEMENT PERMITS AND LICENSES

CHAPTER 3 – RESERVED

CHAPTER 4 – RESERVED

CHAPTER 5- RESERVED

CHAPTER 6 – RESERVED

CHAPTER 7 – RESERVED

CHAPTER 8 – RESERVED

CHAPTER 9 – RESERVED

CHAPTER 10 – LAND APPLICATION OF PAUNCH

CHAPTER 11 – RESERVED

CHAPTER 12 – FERTILIZER AND PESTICIDE WASHWATER

CHAPTER 13 – RESERVED

CHAPTER 14 – RESERVED

CHAPTER 15 – RESERVED

CHAPTER 16 – RESERVED

CHAPTER 17 – RESERVED

CHAPTER 18 – RELEASES OF OILS OR HAZARDOUS SUBSTANCES

001 Antidegradation.

001.01 No person shall release, cause to be released or allow the release of an oil or hazardous substance or residuary products thereof, into, or upon the waters or land of the state, except in quantities, and at times and locations, or under circumstances and conditions as the Department approves.

002 Release Notification Requirements.

002.01 It shall be the duty of any responsible person to notify the Department of any release or suspected release of an oil or hazardous substance, in the following manner:

002.01A Immediate notification is required regardless of the quantity of an oil or hazardous substance release which occurs beneath the surface of the land or impacts or threatens waters of the state or threatens the public health and welfare.

002.01B Immediate notification is required of a release upon the surface of the land of an oil in a quantity that exceeds 25 gallons, or of a hazardous substance which equals or exceeds 100 pounds or its reportable quantity under Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 as amended (40 CFR Part 302) and Section 329(3) of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR Part 355), whichever is less.

002.01B1 Notification is not required for a release under this subsection if either of the following conditions are met:

002.01B1a The release is confined and expected to stay confined within a building or otherwise wholly enclosed structure, owned by the responsible party, in which the floors and walls are of non-earthen materials which are adequately impervious to the released substance(s) and is cleaned up within 24 hours of its discovery, or

002.01B1b The release is in compliance with conditions established in State statutes, regulations or permits.

002.01C Notification is not required for any release upon the surface of the land of oil or hazardous substance that does not exceed the reportable quantities in 002.01B above and which will not constitute a threat to public health and welfare, the environment, or a threat of entering the waters of the state and provided that the release is cleaned up.

002.01D The Department retains full authority to require further actions of the responsible party although the release or suspected release is not reportable under the above subsections.

002.02 Notification shall be made by telephone to the Department during office hours, from 8:00 a.m. to 5:00 p.m. Monday through Friday. After hours and holidays, reports shall be made to the Nebraska State Patrol. All information known about the release at the time of

discovery is to be included, such as time of occurrence, quantity and type of material, location and any corrective or cleanup actions presently being taken.

002.03 After notification of the release has been made to the Department, the Department may require interim reports until any required remedial action has been completed.

002.04 The Department may require a written final report for all releases of an oil or hazardous substance within 15 days after remedial action has been completed, or, if no remedial action occurs, within 15 days of the release, or in such other reasonable time period as the Department shall determine. These reports shall contain, at a minimum, the following information:

002.04A Date, time and duration of the release;

002.04B Location of release;

002.04C Person or persons causing and responsible for the release;

002.04D Type and amount of oil or hazardous substance released;

002.04E Cause of the release;

002.04F Environmental damage caused by the release;

002.04G Actions taken to respond, contain and clean up the release;

002.04H Location and method of ultimate disposal of the oil or hazardous substance and **o**ther contaminated materials;

002.04I Actions being taken to prevent a reoccurrence of the release;

002.04J Any known or anticipated acute or chronic health risks associated with the release; and

002.04K When appropriate, advice regarding medical attention necessary for exposed individuals.

002.05 Compliance with the reporting requirements of the Department does not relieve the responsible person from reporting requirements of other government agencies, either State or Federal.

003 Containment.

003.01 Whenever an oil or hazardous substance is released, it shall be the duty of the responsible person to take or cause to be taken, within 24 hours, all necessary steps to stop the release and contain all released material.

003.02 As soon as the release has been stopped and contained, the responsible person shall take action to preclude continued or future releases.

004 Investigation.

004.01 When a release occurs, it shall be the duty of the responsible person to determine all of the affected environment and to provide other pertinent information deemed necessary by the Department to fully assess the impacts of the release, including but not limited to the names and addresses of adjacent landowners and existing water users. The release investigation shall be conducted in a timely and diligent manner and in accordance with a schedule established by the Department.

004.02 The Department may request written responses to questions regarding releases and suspected releases from the responsible person or other persons whom the Department has reason to believe have pertinent information necessary to verify the release or determine its extent or impact or verify the identity of the responsible person.

005 Remedial Action

005.01 At any time after notification of a release, the Department may require the responsible person to develop and submit a written remedial action plan in accordance to a schedule and format established by the Department.

005.02 The remedial action plan is subject to the Department's review and approval.

005.03 Upon approval of the remedial action plan or as directed by the Department, the responsible person shall implement the plan and any modifications pursuant to a schedule and in a format established by the Department.

005.04 Remedial action of an oil or hazardous substance release shall proceed in a timely and diligent manner and in accordance with a schedule established by the Department. Actions such as, but not limited to, environmental monitoring and limiting public access may be included as remedial action responsibilities.

005.05 Cleanup shall be to the extent which will prevent a hazard to human health, safety, and the land and waters of the state. Remedial action for ground water shall be performed pursuant to the requirements in Title 118 - Ground Water Quality Standards and Use Classification.

006 Disposal.

006.01 Wastes generated from the cleanup of an oil or hazardous substance release, if determined to be hazardous wastes, shall be disposed of in accordance with Title 128 - Rules and Regulations Governing Hazardous Waste Management in Nebraska.

006.01A Wastes generated from a cleanup action, that are not specifically covered by Title 128 - Rules and Regulations Governing Hazardous Waste Management in

Nebraska, shall be disposed of as determined by the Department in accordance with the Departmental Rules and Regulations.

006.01B All disposal actions shall require prior approval by the Department.

007 Responsible Person Unwilling or Unknown.

007.01 In the event of an oil or hazardous substance release or suspected release in which the responsible person is unwilling to carry out Sections 004 or 005 of this Chapter, or the responsible person is unknown, the Director may initiate, by what resources may be available, remedial actions.

007.02 The Department may require investigations by potentially responsible persons. This may include testing of the potential sources and affected environment by methods approved by the Department.

008 Liabilities.

008.01 Compliance with the above sections does not relieve the responsible person from liabilities, damages or penalties resulting from the release, cleanup and disposal of an oil or hazardous substance. This may include the reimbursement for any losses of fish or wildlife pursuant to Neb. Rev. Stat. §81-1508(2).

~~**CHAPTER 19 – Reserved**~~

~~**Appendix 1 – Appendix**~~

Nebraska Administrative Code

Title 178-Department of Health and Human Services

~~**CHAPTER 1 – RULES AND REGULATIONS RELATING TO RECREATION CAMPS**~~

~~**CHAPTER 2 – DESIGN CONSTRUCTION, OPERATION, AND MAINTENANCE OF PUBLIC SWIMMING POOLS**~~

~~**CHAPTER 3 – RESERVED**~~

~~**CHAPTER 4 – RESERVED**~~

~~**CHAPTER 5 – RULES, REGULATIONS AND STANDARDS GOVERNING MOBILE HOME PARKS**~~

~~**CHAPTER 6 – RESERVED**~~

~~**CHAPTER 7 – CLEAN INDOOR AIR**~~

~~**CHAPTER 8 FEE FOR INSPECTION OF PRIVATE WATER SUPPLY OR PRIVATE SEWAGE DISPOSAL FACILITIES**~~

~~**CHAPTER 9 RULES AND REGULATIONS GOVERNING A PRIVATE WELL**~~

~~**CHAPTER 10 LICENSURE UNDER THE WATER WELL STANDARDS AND CONTRACTORS' PRACTICE ACT**~~

~~**CHAPTER 11 FEES UNDER THE WATER WELL STANDARDS AND CONTRACTORS' PRACTICE ACT**~~

CHAPTER 12 WATER WELL CONSTRUCTION, PUMP INSTALLATION, AND WATER WELL DECOMMISSIONING STANDARDS

12-001 SCOPE AND AUTHORITY: These regulations apply to the construction, location, and decommissioning of water wells, the installation of pumps and pumping equipment, the collection of water samples from water wells, and the inspection of installed water well equipment and chemigation regulation devices. The statutory authority is found in Neb. Rev. Stat. §§ 46-1201 to 46-1241, and 46-602. **These are minimum requirements.** Local requirements may be more stringent.

12-001.01 Related Regulations: Persons doing the work referenced above must be aware that other statutes and regulations may apply, including but not limited to:

1. Nebraska Department of Health and Human Services Title 179, Regulations Governing Public Water Systems;
2. Nebraska Department of Natural Resources (NDNR) Chapter 46, Article 6;
3. Nebraska Department of Environmental Quality (NDEQ) Title 122 Rules and Regulations for Underground Injection and Mineral Production Wells;
4. NDEQ Title 135 Rules and Regulations for Mineral Exploration Holes;
5. NDEQ Title 128 Rules and Regulations Governing Hazardous Waste Management in Nebraska;
6. NDEQ Title 130 Rules and Regulations for Livestock Waste Control;
7. Nebraska Natural Resources Districts (NRD) regulations; and
8. State Electrical Code.

12-002 DEFINITIONS

~~Abandoned Water Well means any water well (1) the use of which has been accomplished or permanently discontinued, (2) which has been decommissioned as described in the rules and regulations of the Department of Health and Human Services, and (3) for which the notice of abandonment required by Neb Rev. Stat. §46-602(2) has been filed with the Department of Natural Resources by the licensed water well contractor or pump installation contractor who decommissioned the water well or by the water well owner if the owner decommissioned the water well.~~

Annular Fill means materials placed in the annular space between the surface seal required in NAC 12-003.08C and the primary aquifer seal required in NAC 12-003.08A.

Annular Space means the space between the well casing and the well borehole wall and/or the space between two or more strings of well casing.

Aquifer means a geological formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Aquifer Seal

Primary Aquifer Seal means a non-slurry bentonite or high solids bentonite grout interval placed in the annular space on top of the gravel pack just above the screened openings, and/or beginning at the base of the first layer of silt/clay above the production zone, and/or at or immediately below the static water level, whichever provides the most aquifer protection.

Surface Seal means a grout interval placed in the annular space within the first 15 feet below surface.

Backflow Preventer means an assembly, a device, or a construction practice that prohibits the backflow of water from the distribution piping into the water well. This includes but is not limited to check valves, curb stops, or air gaps.

Bentonite means a highly plastic, colloidal sodium clay composed largely of montmorrillonite.

Bentonite Seal means a viscous bentonite based material used as a seal or plug.

Bored or Dug Well means a well consisting of a large diameter borehole, usually two feet or more, lined with concrete, clay tile, brick, or stone.

Casing means a structural retainer which is installed in the borehole to support loose formation, provide a conduit for movement of fluids, and/or house pumping equipment.

Cesspool means an underground catch and discharge basin for household sewage or other liquid waste.

Clay means a fine grained inorganic material (grains less than 0.0005 mm in diameter) which has very low permeability.

Community Water System means a public water system that (a) serves at least 15 service connections used by year-round residents of the area served by the system or (b) regularly serves at least 25 year-round residents. (Neb. Rev. Stat. §71-5301)

Confining Layer means a geologic layer of either unconsolidated or consolidated material having permeability distinctly lower than the adjacent aquifer(s).

Construction of Water Wells means and includes all acts necessary to make a water well usable for the purpose for which it is intended including, without limitation, the siting of and excavation for the water well and its construction, alteration, or repair, but excluding the installation of pumps and pumping equipment.

Contamination means the addition of unwholesome or undesirable parts that render the larger whole physically unclean or impure.

Decommissioned when used in relation to a water well, means the act of filling, sealing, and plugging a water well in accordance with the rules and regulations of the Department.

Department means the Department of Health and Human Services.

Dewatering Well means a water well constructed for the purpose of lowering the ground water surface elevation, either temporarily or permanently.

Discharge Pipe means any and all piping beginning at the discharge head, or pitless unit tapping, extending to the first backflow prevention device.

Distribution Piping means all piping extending beyond the discharge pipe.

~~Driven Sandpoint Well means a well that is driven, washed or jetted into an aquifer with the sandpoint attached directly to the pump suction line.~~

Good Cause means a substantial reason consistent with the purposes of the Water Well Standards and Contractors' Practice Act.

Gravel Pack means filter material placed in the annular space around the well screen.

Ground Water means water below the surface of the ground.

~~Ground Water Heat Pump Well means a well constructed for the purpose of utilizing the geothermal properties of the ground.~~

~~1. Open Loop Heat Pump Well means a well that transfers heat via pumped ground water which is discharged above and/or below ground. For below ground discharge refer to NDEQ Title 122.~~
~~2. Closed Loop Heat Pump Well means a well constructed for the purpose of installing the underground piping necessary to recirculate heat transfer fluid.~~

~~a. Horizontal Closed Loop System means a boring, trench, or pit essentially parallel to the horizon and into which a closed loop pipe is placed for the purpose of utilizing the geothermal properties of the ground.~~

b. Vertical Closed Loop System means a borehole essentially perpendicular to the horizon into which a closed loop pipe is placed and includes the horizontal closed loop header piping for the purpose of utilizing the geothermal properties of the ground.

Grout means materials composed of bentonite clays and/or portland cements, and if needed, other additives that when combined form a low permeability seal not greater than 1x10-7 cm/sec. Grout material is designed to seal the annular space when used for well construction and the well cavity when used for decommissioning.

Illegal Water Well means any water well which has not been properly decommissioned and which meets any of the following conditions:

1. The water well is in such a condition that it cannot be placed in active or inactive status;

2. Any necessary operating equipment has been removed and the well has not been placed in inactive status;

3. The water well is in such a state of disrepair that continued use for the purpose for which it was constructed is impractical;

4. The water well was constructed after October 1, 1986, but not constructed by a licensed water well contractor or by an individual on land owned by him/her and used by him/her for farming, ranching, or agricultural purposes or as his/her place of abode;

5. The water well poses a health or safety hazard;

6. The water well is an illegal water well in accordance with Neb. Rev. Stat. § 46-706; or

7. The water well has been constructed after October 1, 1986, and such well is not in compliance with the standards developed under the Water Well Standards and Contractors' Practice Act.

Inactive Status Water Well means a water well that is in a good state of repair and for which the owner has provided evidence of intent for future use by maintaining the water well in a manner which meets the following requirements:

1. The water well does not allow impairment of the water quality in the water well or of the ground water encountered by the water well;

2. The top of the water well or water well casing has a watertight welded or threaded cover or some other watertight means to prevent its removal without the use of equipment or tools to prevent unauthorized access, to prevent a safety hazard to humans and animals, and to prevent illegal disposal of wastes or contaminants into the water well;

~~3. All entrances and discharge piping to the water well are effectively sealed to prevent the entrance of contaminants; and~~

~~4. The water well is marked so as to be easily visible and located and is labeled or otherwise marked so as to be easily identified as a water well and the area surrounding the water well is kept clear of brush, debris, and waste material.~~

~~Injection Well means a well into which fluids are injected (regulated under NDEQ Title 122).~~

Installation of Pumps and Pumping Equipment means the procedure employed in the placement and preparation for operation of pumps and pumping equipment at the water well location, including connecting all wiring to the first control and all construction or repair involved in making entrance to the water well, which involves the breaking of the well seal.

Monitoring Well means a well constructed for purposes of monitoring water quality and/or quantity.

Non-potable Well means a water well constructed to produce water not intended for human consumption.

Observation Well means a non-potable water well constructed for the purpose of measuring water levels and/or collecting water quality samples that is not located in a zone of contamination.

~~Open Hole Well means a water well that results from the drilling of a hole into certain rock formations and often finished with no casing or screen adjacent to the water-yielding portion of the rock.~~

Person means any: Individual; partnership; limited liability company; association, public or private corporation; trustee; receiver; assignee; agent; municipality or other governmental subdivision, public agency; other legal entity; or any officer or governing or managing body of any public or private corporation, municipality, governmental subdivision, public agency, or other legal entity.

Pitless Unit means an underground discharge assembly for a water well which attaches directly to the casing and provides watertight subsurface connections for suction lines or pump discharge without the use of a well pit and includes the underground distributor and the steel extension to the ground surface.

Pollution means an impairment of water quality to a degree that restricts the intended use of ground water.

Potable Well means a water well constructed to produce water for human consumption.

Primary Aquifer Seal means a non-slurry bentonite or high solids bentonite slurry grout interval placed in the annular space on top of the gravel pack just above the screened openings, and/or beginning at the base of the first layer of silt/clay above the production zone, and/or at or immediately below the static water level, whichever provides the most aquifer protection.

Public Water System means a system for providing the public with water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year. Public water system includes (a) any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system and (b) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Public water system does not include a special irrigation district. A public water system is either a community water system or a non-community water system.

~~Service connection does not include a connection to a system that delivers water by a constructed conveyance other than a pipe if (i) the water is used exclusively for purposes other than residential uses, consisting of drinking, bathing, cooking, or other similar uses, (ii) the Department determines that alternative water to achieve the equivalent level of public health protection provided by the Nebraska Safe Drinking Water Act and rules and regulations under the act is provided for residential or similar uses for drinking and cooking, or (iii) the Department determines that the water provided for residential or similar uses for drinking, cooking, and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the Nebraska Safe Drinking Water Act and the rules and regulations under the act.~~

~~Special Irrigation District means an irrigation district in existence prior to May 18, 1994, that provides primarily agricultural service through a piped water system with only incidental residential or similar use if the system or the residential or similar users of the system comply with exclusion provisions of subdivision (ii) or (iii) of this subdivision. (Neb. Rev. Stat. §71-5301.)~~

(Licensed) Pump Installation Contractor means an individual who has obtained a license from the Department and who is the principal officer, director, manager, or owner/operator of any business engaged in the installation of pumps and pumping equipment or the decommissioning of water wells.

(Licensed) Pump Installation Supervisor means an individual who has obtained a license from the Department and who is engaged in the installation of pumps and pumping equipment or the decommissioning of water wells. Such supervisor may have discretionary and supervisory authority over other employees of a pump installation contractor.

Pumps and Pumping Equipment means any equipment or materials utilized or intended for use in withdrawing or obtaining ground water including, but not limited to seals, tanks, fittings, and controls.

Recovery Well means a water well constructed for the purpose of, or in conjunction with, the removal of contamination from an aquifer or aquifers.

Sanitary Well Seal means a device used to cap a water well or to establish and maintain a junction between the casing or curbing of a water well and the piping or equipment installed therein, the purpose or function of which is to prevent pollutants from entering the water well.

Screen Apertures means a series of openings in a water well casing, made either before or after installation of the casing, to permit the entrance of water into the well.

Screened Vent means an inverted, U-shaped tube, or the equivalent, the open end of which is covered with a wire mesh, that is inserted into the top of a well to equalize the air pressure inside the well with that of the atmosphere.

Secure Cover or Cap means an object placed over a borehole or water well, the purpose of which is to prevent the degradation of ground water quality and/or personal injury.

Seepage Pit means a cavity into which sewage discharges and from which the discharge seeps into the surrounding soil.

Septic Tank means a covered, watertight receptacle for receiving sewage and liquid waste, for separating solids and liquids, for disintegrating organic material by bacterial action, and for discharging clarified liquid for final disposal.

Soil Absorption System (Septic Lateral Field) means a drain field, leaching area, or seepage bed including the effluent application/distribution system intended for the treatment of wastewater or disposal of effluent. The absorption system includes the infiltrative surface in the absorption trench and the soil between and around the trenches.

Static Water Level means the distance from the ground surface to the water level in a well when the well is not being pumped.

Substantially Equivalent means any procedure or material to be used for water well construction, pump installation, or water well decommissioning which provides equal protection to ground water resources from potential pollution and protects public health equivalent to the procedures or materials prescribed in 178 NAC 12.

Subsurface Disposal System means any system that utilizes the soil for subsequent absorption of treated sewage; such as a lateral field, absorption trench, seepage bed, or seepage pit.

Supervision or its derivatives means the ready availability of an individual licensed as a contractor or supervisor under the Water Well Standards and Contractors' Practice Act for consultation and direction of the activities of any individual not licensed who assists in the construction of a water well, the installation of pumps and pumping equipment, or

decommissioning of a water well. Contact with the licensed contractor or supervisor by telecommunication is sufficient to show ready availability.

Surface Seal means a grout interval placed in the annular space within the first 15 feet below surface.

Test Hole means a hole or excavation designed to obtain information on hydrogeologic conditions.

Tremie Pipe means a pipe or hose that carries grout or gravel pack to the placement depth.

Watertight Casing means a watertight pipe that is of sufficient wall thickness to permit threading, gluing, or welding; is capable of withstanding the pressures exerted during installation and forces imposed by the surrounding materials; and will resist corrosion by soil and water environments.

Watertight Secure Cover means a welded, solvent welded, threaded, or bolted watertight cover for a water well that is secured in such a way so as to prevent its removal without the use of tools.

Water Well means any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for ground water, monitoring ground water, utilizing the geothermal properties of the ground, obtaining hydrogeologic information, or extracting water from or injecting fluid as defined in Neb. Rev. Stat. §81-1502 into the underground water reservoir. Water well does not include any excavation described in Neb. Rev. Stat. §46-601.01 (1) (b) and (1) (c).

(Licensed) Water Well Contractor means any individual who has obtained a license from the Department and who is the principal officer, director, manager, or owner-operator of any business engaged in the construction or decommissioning of water wells.

(Licensed) Water Well Drilling Supervisor means any individual who has obtained a license from the Department and who is engaged in the construction or decommissioning of water wells. Such supervisor may have discretionary and supervisory authority over other employees of a water well contractor.

Well Development means the act of repairing alterations to the formation during construction of the well and enhancing the porosity and permeability of materials surrounding the intake portion of the well. The development process is the application of mechanical devices and/or the use of chemicals to remove drilling fluids and debris left in the filter pack and formation as a result of the drilling process.

Well Pit means a structure that is set at or below grade and houses a pump and/or pumping equipment and is large enough to allow an individual to fully enter the structure to work on such equipment and is not water tight.

Well Screen means the section of the well that allows water to pass from an aquifer into the well or from the well into an aquifer.

12-03 GENERAL REQUIREMENTS: These requirements apply to all water wells constructed under Title 178 NAC 12, except as modified in 178 NAC 12-004 through 12-014.

12-003.01 Protection and Location:

12-003.01A A well must not be located in a well pit.

12-003.01B Protection: All water wells must be protected from surface drainage, flooding and seepage from sources of contamination and pollution by:

1. Locating the well site to promote drainage away from the well, and
2. Terminating the top of the well and vent above the 100 year flood plain, or
3. Locating on a berm and/or within a dike to protect the well from a 100 year flood, or
4. Plugging the vent and seal at the top of the well if yield is less than 50 GPM.

12-003.01C Separation distances must at a minimum comply with the distances listed in Chart 1 (or Chart 2 if the requirements in 178 NAC 12-003.01C item 2 are met). Be aware that other state, NRD, and local statutes and regulations may have more restrictive requirements. If locations are found to not comply with more stringent standards of other state or local regulations that apply, the Department may notify the appropriate authority.

1. All water wells except those covered in 178 NAC 12-007 must meet the minimum separation distances in accordance with Chart 1 below.

Chart 1

Minimum Distance in Feet	From
1,000	Any Title 179 community water supply wells under different ownership
1,000	Any industrial wells under different ownership
600	Any irrigation wells under different ownership
100	Any waste water lagoon
100	Any privy, cesspool, subsurface disposal system
100	Any septic lateral field (soil absorption system)
100	Any animal waste containment structure
100	Any holding pens of animals
100	Any other known sources of contamination or pollution
50	Any sewer line
50	Any septic tank
10	Any depression that could retain stagnant water
10	Any storm water way

10	Any frost proof hydrant
10	Any well pit

2. A well driller may locate a well as indicated in Chart 2 below only if:
   a. Compliance with the separation distances established in Chart 1 cannot be met; and
   b. The well driller notifies the Department in writing of his/her intent and receives Department written approval prior to construction; and
   c. The water well is grouted the full length of the annular space from immediately above the gravel pack above the screened openings to the surface with chip bentonite; and
   d. The subsurface geology includes sufficient silts and/or clays that will provide a protective seal to the groundwater when combined with chip bentonite.

Chart 2

These Separation Distances Require Prior Written Approval from the Department	
Distance in Feet	**From**
50-100	Any waste water lagoon
50-100	Any privy, cesspool and subsurface disposal system
50-100	Any septic lateral field (soil absorption system)
50-100	Any animal waste containment structure
50-100	Any holding pens of animals
50-100	Any other known sources of contamination or pollution
25-50	Any sewer line
25-50	Any septic tank
5-10	Any depression that could retain stagnant water
5-10	Any storm water way
5-10	Any frost proof hydrant

If a person wants to locate a well closer than the listed separation distances in Chart 2, a declaratory order request may be submitted to the Department so the Department can determine if the proposal is substantially equivalent to the regulations.

12-003.02 Sanitation: All water wells must be constructed to prevent the introduction of biological, chemical or radiological substances which may degrade the ground water.

12-003.02A Drilling Equipment: The water well contractor must use precautions to

ensure that all down hole equipment used in the construction of water wells is free of contaminated or polluted materials.

12-003.02B Secure Cover: All water wells must be protected with a secure cover or cap. All inactive water wells must be capped with a watertight secure cover. When the pump is in place, it must be made secure and watertight in accordance with 12-011.03D.

12-003.03 Well Screens

12-003.03A Materials: Well screens must be constructed of durable non-toxic materials of sufficient strength to withstand the pressure to which they may be subjected. They must also be resistant to any corrosion which may result from the characteristics of the water and aquifer materials in which they are placed.

12-003.03B Screen Apertures: Screen apertures must be formed by the continuous slot method, louver, punched casing, molded or mill slotted. Torch slotted casing must not be used. The method of construction must allow for control of aperture width. In general, the aperture width should retain a minimum of 85% of the gravel pack, if used, or a minimum of 50% of the aquifer material if gravel pack is not used.

12-003.04 Well Casing: All wells other than test holes and closed loop heat pump wells must be cased. Well casing must be composed of nontoxic durable material compatible with the water quality encountered.

12-003.04A Casing Wall Thickness: The wall thickness of water well casing must be sufficient to withstand the pressures exerted by the surrounding materials, forces imposed on it during installation, and corrosion by soil and water environments.

12-003.04B Casing Placement: The casing must be centered in the borehole in areas of grout so there is a minimum 2-inch uniform annular space.

12-003.04C Watertight Casing must be constructed of steel, PVC, fiberglass, or teflon and must be manufactured expressly for water well casing.

12-003.05 Gravel Pack

12-003.05A Gravel Pack must consist of clean sand or gravel of selected grain size and gradation.

12-003.05B Gravel Pack, Screen Size, and Gradation must be determined based upon the grain size and gradation of the portion or portions of the aquifer to be screened. Gravel pack must be designed to stabilize the aquifer material and to permit the fine fraction to move into the water well during development. Gravel pack, when used, must extend to a length equal to at least 2.5 times the casing diameter above the screen apertures.

12-003.06 Grout: Cement based grouts must not contain fly ash. The Department has approved the following grout materials:

1. Neat Cement Grout Slurry which must consist of a mixture of portland cement and no more than 5.2 gallons of clean water per bag (1 cubic foot or 94 pounds) of cement. Non-toxic additives may be used to minimize shrinkage and cracking.

2. Sand Cement Grout Slurry which must consist of a mixture of portland cement, sand and water in the proportion of no more than 2 parts by weight of sand to 1 part of cement with no more than 6 gallons of clean water per bag of cement (1 cubic foot or 94 pounds).

3. Non-slurry Bentonite Grout which must consist of chip, chunk or pelletized bentonite varieties that are hydrated to manufacturer's specifications.

4. Cement/Bentonite Grout Slurry which must consist of a mixture of portland cement and bentonite in the following proportion: no more than 6.5 gallons of water and 3 to 5 pounds of bentonite per 94-pound sack of portland cement.

5. High Solids Bentonite Grout Slurry which must consist of an inorganic mixture of:

a. Soda ash for pre-treatment of makeup water, and

b. Minimum of 20% by weight active solids bentonite-to-water ratio, and

c. Fine to medium grade sand added at a minimum ratio of 4:1 sand to bentonite by weight, and if needed

d. Additives designed for yield/rate control for bentonite products that form a low permeability seal not greater than $1x10^{-7}$ cm/sec which resists flow of fluid through the seal, is pumpable, and is mixed to the manufacturer's specifications.

4. Bentonite Grout Slurry which must consist of an inorganic mixture of:

a. Soda ash for pretreatment of makeup water, and

b. Minimum of 20% solids by weight bentonite that forms a low permeability seal not greater than $1x10^{-7}$ cm/sec which resists flow of fluid through the seal, is pumpable, and is mixed to the manufacturer's specifications, and if needed

c. Additives designed for yield/rate control for bentonite products that form a low permeability seal not greater than $1x10^{-7}$ cm/sec which resists flow of fluid through the seal, is pumpable, and is mixed to the manufacturer's specifications.

12-003.07 Placement of Grout

12-003.07A Slurry Grout: All grout slurries must be placed by tremie or by pumping. Cement based grout must not be allowed to free-fall more than 10 feet. Cement based grout must be separated from bentonite grouts by a 2-4 foot interval of fine sand.

12-003.07B Non-slurry Grout: Pellet, chip, chunk bentonite or any combination of those materials must be placed, measured frequently, and hydrated, before installing another interval to confirm the grout is placed without bridging and provides a tight homogeneous seal.

12-003.08 Aquifer Protection: All water wells must be filled and sealed in a manner that protects the water bearing formations from contamination from surface runoff and from subsurface contaminants.

12-003.08A Primary Aquifer Seal: All water wells, except (a) bored wells (178 NAC 12-004.04 and 12-005.03), (b) temporary dewatering wells (178 NAC 12-006.02), and (c) wells that require surface casing and additional gravel pack throughout the life of the well (178 NAC 12-005.05) must have a 5 foot primary aquifer seal of non- slurry bentonite or high solids bentonite slurry as defined in 178 NAC 12-003.06 items 3 and 5, respectively. The primary aquifer seal must be placed in the borehole at one or more of the following locations to provide optimal aquifer protection.

1. On top of the gravel pack just above the screened openings (See Figure 1A), and/or

2. Beginning at the base of the first layer of silt/clay above the production zone (See Figure 1B), and/or

3. At/or immediately below the static water level. (See Figure 1C)

12-003.08B Filling the Annular Space: The annular space of all wells except closed loop heat pump wells that are part of a closed loop heat pump system in 178 NAC 12-010.03C must be filled from the top of the primary aquifer seal to the bottom of the surface seal (12-003.08C) with:

1. Non-slurry bentonite grout, or

2. Non-slurry bentonite grout mixed with gravel pack in a 1:1 ratio by weight, or

3. Sand and granular bentonite mixed in a 2:1 sand-to-bentonite ratio by weight, or

4. High solids bentonite slurry as defined in 12-003.06 item 6, or

5. A mixture of bentonite/clay, drilling fluid, and gravel pack, or

6. Cement based grouts.

12-003.08C Surface Seal: The annular space of all wells, except bored wells and temporary dewatering wells, must have at least 5 feet of non-slurry bentonite, high solids bentonite slurry, or sand cement grout placed between 5 and 15 feet below grade or at the static water level, whichever is less (See Figure 2A). If a pitless unit is used to terminate the top of the well, the surface seal must extend 5 feet down the borehole below the bottom of the pitless adapter (See Figure 2B).

12-003.08D Above Ground Protection: Cased water wells that terminate in a pump house must be protected with a concrete floor measuring a minimum of 4 inches thick by 12 inches beyond the borehole wall and sloping away from the water well. Watertight casing must extend 12 inches above the floor of the pump house.

12-003.08E Surface Completion: The earth surrounding the casing must slope away from the water well and must be firmly tamped to prevent water from seeping down around the casing.

12-003.09 Well Development: All cased water wells must be developed to repair the alterations to the formation during the construction of the well and to enhance the porosity and permeability of materials surrounding the intake portion of the well. The development process is the application of mechanical devices and/or the use of chemicals to remove drilling fluids and debris left in the filter pack and formation as a result of the drilling process.

12-003.10 Test Pumping a Well: Test pumping must be utilized to determine the most efficient production rate for the well. The pumping water level must be recorded during the period of test pumping.

12-003.11 Repairing a Well: Only the portion(s) of a well being repaired must meet the same minimum standards as it would if it were within a new well with regard to design, construction, and material. Bored and dug wells must be repaired so that they meet the standards of a bored well. (See Figure 3.)

12-003.12 Well Logs: Any owner of a water well or any licensed water well contractor who engages in the act of or business of constructing a water well must keep and maintain an accurate well log of the construction of each water well and test hole. A licensed water well contractor must forward a copy of the well log to the owner.

12-003.12A Required Information: The well log must include the following information:

1. Legal description and the GPS coordinates of the location of the water well or test hole;
2. Description and depth of geologic materials encountered;
3. Depth and diameter or dimension of constructed water well and test hole;
4. Diameter and depth or dimension of excavated hole if applicable;
5. Depth and volume of formation stabilizer or gravel pack and size of particles, if used;
6. Depth and thickness (intervals and volume) of grout or other sealing material if applicable;
7. Casing and/or loop pipe information, including length, inside and outside diameter (ID and OD), wall thickness, and type of material if applicable;

8. Screen information, including length, trade name, inside and outside diameter, slot size and type of material if applicable;

9. Static water level;

10. Water level when pumped at the designed rate giving the rate of pumping and amount of time pumped, if applicable;

11. Yield of water well in gallons per minute or gallons per hour if applicable;

12. Signature of water well contractor;

13. Dates drilling commenced and construction completed;

14. Intended use of the water well;

15. Name and address of the landowner;

16. Identification number of any permit for the water well issued pursuant to Neb. Rev. Stat. § 46-601 et seq. or Neb. Rev. Stat. § 66-1101 et seq., and

17. Name, address, and license number of any license issued pursuant to the Water Well Standards and Contractors' Practice Act of any individual, other than the owner of the water well, who constructed the water well.

12-003.12B Availability for Inspection: The well log must be available to the Department for inspection and copying during reasonable hours or the regular business hours of the contractor.

12-003.13 Registration: A licensed water well contractor must register all wells with the Nebraska Department of Natural Resources on forms provided by that Department, except as otherwise provided by Neb. Rev. Stat. § 46-602.

~~**12-04 POTABLE WELL CONSTRUCTION**: A water well contractor must verify the purpose of a new well with the owner or the system's engineer. If the well is to serve water to the public, see 178 NAC 12-008.~~

~~**12-004.01** Construction of Potable Well:~~

~~1. A potable water well to be used for human consumption must not be constructed as a driven sandpoint well.~~

~~2. It must meet the requirements specified in 178 NAC 12-003.~~

~~**12-004.02** Casing a Potable Well: A potable water well must be cased with unused watertight casing in the following manner:~~

~~**12-004.02A** The top of the well must extend at least 12 inches above the grade of the land surface. The earth surrounding the well must slope away from the well and must be firmly tamped to prevent water from seeping down the casing.~~

12-004.02B Non-steel cased wells must be fitted with a watertight connection to .237 inch wall minimum steel casing through the frost zone, unless terminating in a pump house.

12-004.02C Non-steel watertight casing must be manufactured expressly for well casing, and must meet the following specific requirements:

1. Casing strength must be not less than 160 pounds per square inch or Standard Dimension Ratio (SDR) 26.

2. Plastic or other non-steel casing must bear the National Sanitation Foundation (NSF) 61 stamp of approval.

12-004.02D Special Engineered (SE) plastic piping systems must meet the requirements of 178 NAC 12-004.02C item 2.

12-004.02E Packaging of thread compounds, sealants and lubricants must bear the NSF Standard 61 stamp of approval.

12-004.03 Potable Well Shock Decontamination

12-004.03A When a well which will produce water for human consumption is constructed or altered, it must be decontaminated.

12-004.03B The water well contractor/pump installation contractor must supply the landowner with an informational brochure that tells the owner why s/he should test his/her water and what the results mean.

12-004.03C Shock decontamination must be accomplished by:

1. Using a solution equivalent to 200 parts per million chlorine (See Table 1);

2. Pouring the solution directly into the well; splashing the well pump, piping, casing, and other well equipment as much as possible; agitating the water in the well by surging the pump or by other means to mix the solution with the water or recirculating the water into the well, always washing down the casing or drop pipe;

3. Letting the mixture stand in the well for a minimum of 4 hours;

4. Opening all water taps and pumping the well until evidence of the solution is detected at all taps. The system must be allowed to stand idle for a minimum of 2 additional hours and then the entire system must be flushed to waste.

12-004.04 Bored (Seep or Cistern) Wells must be constructed to the same minimum standards for potable wells with the following exceptions: (See Figure 3)

12-004.04A Casing materials may be concrete, tile, or other material approved in 178 NAC 12-003.04C.

12-004.04B The annular space below the surface seal must be filled with gravel.

12-004.04C Watertight casing and grout must be placed from 10 feet below the surface or the static water level, whichever is less, to the surface or the bottom of the pitless unit. (See Figure 3)

12-004.05 Open Hole Wells must be constructed to the same minimum standards for potable wells and in the following manner. (See Figure 4)

12-004.05A The casing must extend at least 2 feet into the open borehole. A seal must be created between the casing and the lower borehole to ensure that the annular fill material remains in the upper borehole. This can be accomplished by using a collar attached to the casing, a drive shoe, or other sealing device.

12-004.05B A minimum 5 foot primary aquifer seal must be placed in the annular space directly above the collar, drive shoe, or other sealing device.

12-004.05C Open Hole Wells in Multiple Aquifers must be constructed to the same minimum standards for potable wells and must comply with 178 NAC 12-004.05A and 12-004.05B. The screened section must be gravel packed. The gravel pack must extend both above and below the screen for a length equal to 2.5 times the diameter of the well. A 5 foot minimum primary aquifer seal must be placed directly above the gravel pack. (See Figure 5)

12-05 NON-POTABLE WELLS

12-005.01 Construction of a Non-Potable Well

12-005.01A Driven sandpoint wells are permitted only for temporary use and must be decommissioned within 90 days of installation. They must meet the requirements specified in 178 NAC 12-003.

12-005.01B Observation wells must be located as required in 178 NAC 12-003.01C item 1.

12-005.02 Casing a Non-Potable Well: A non-potable water well must be cased with unused watertight casing in the following manner:

12-005.02A Cased wells with an outside diameter (OD) of 6-5/8 inches or less

12-005.02A1 The top of the well must extend at least 12 inches above the grade of the land surface. The earth surrounding the well must slope away from the well and must be firmly tamped to prevent settling around the casing.

12-005.02A2 Non-steel cased wells must be fitted with a watertight connection to 0.237 inch wall minimum steel casing or fitted inside a metal sleeve secured and cemented in the borehole through the frost zone. The annular space between the metal sleeve and the casing must be a minimum of 2 inches and must be filled with an approved grout (178 NAC 12-003.06) or annular fill (12-003.08B). (See Figures 6 and 7)

12-005.02A3 Above Ground Protection for Observation Wells: Non-steel cased wells completed above ground must be enclosed with a 5-5/8 inch minimum metal casing/sleeve, buried a minimum of 2-1/2 feet below the ground surface, and covered with an overlapping, vandal-resistant secured metal cap.

12-005.02B Cased Wells with an OD Larger than 6-5/8 Inches

12-005.02B1 The casing must extend a minimum of 6 inches above the grade of the land surface. (See Figure 8)

12-005.02B2 The well must have a concrete pad a minimum of 40 inches by 40 inches by 8 inches thick. Prefabricated slabs are acceptable. The concrete must contact the entire circumference of the casing. (See Figure 8)

12-005.02C The earth surrounding the well must slope away from the well and must be firmly tamped to prevent settling around the casing. (See Figure 8)

12-005.02D Watertight steel casing must be a minimum of 0.188 inch wall thickness.

12-005.02E Watertight non-steel casing must be manufactured expressly for well casing and must meet the following specific requirements:

1. Casing strength must not be less than 160 pounds per square inch or Standard Dimension Ratio (SDR) 26 for 8-5/8 inch or less OD casing. Casing strength must not be less than schedule 40 for casing larger than 8-5/8 inches OD; and

2. Non-steel casing must bear the National Sanitation Foundation (NSF) 61 stamp of approval.

12-005.02F Special Engineered (SE) plastic piping systems must meet the requirements of 178 NAC 12-005.02E item 2.

12-005.02G Packaging of thread compounds, sealants, and lubricants must bear the NSF 61 stamp of approval.

12-005.03 Bored (Seep or Cistern) Wells must be constructed to the same minimum standards for non-potable wells with the following exceptions: (See Figure 3.)

12-005.03A Casing may be concrete, tile, or other material approved in 178 NAC 12-003.04C;

12-005.03B The annular space must be filled with gravel;

12-005.03C Watertight casing is required and grout must be placed from 10 feet below the surface or the static water level, whichever is less, to the surface or the bottom of the pitless unit.

12-005.04 Open Hole Wells must be constructed to the same minimum standards for non-potable wells and in the following manner. (See Figure 4.)

12-005.04A The casing must extend at least 2 feet into the open borehole. A seal must be created between the casing and the lower borehole to ensure that the annular fill material remains in the upper borehole. This can be accomplished by using a collar attached to the casing, a drive shoe, or other sealing device.

12-005.04B A minimum 5 foot primary aquifer seal must be placed in the annular space directly above the collar, drive shoe, or other sealing device.

12-005.04C Open Hole Wells in Multiple Aquifers must be constructed to the same minimum standards for non-potable wells and must comply with 178 NAC 12-005.04A and 12-005.04B. The screened section must be gravel packed. The area of gravel pack must extend both above and below the screen for a length equal to 2.5 times the diameter of the well. A minimum 5 foot primary aquifer seal must be placed directly above the gravel pack. (See Figure 5.)

12-005.05 Wells Located in the Arikaree Formation Subject to Subsidence must be constructed to the same minimum standards as non-potable wells with the following exceptions. (See Figure 9)

12-005.05A The borehole for the surface casing must allow for a uniform annular space of 4 inches or larger than the surface casing;

12-005.05B A minimum 6 inch annular space must exist between the surface casing and the well casing to provide for gravel placement.

12-005.05C The metal surface casing must be a minimum of 20 feet in length.

12-005.05D A minimum of 5 feet of concrete must be placed between the borehole wall and the surface casing and allowed to set, encasing the bottom 5 feet of surface casing.

12-005.05E A minimum layer of 5 feet of non-slurry bentonite must be placed between the borehole wall and the surface casing above the concrete, with an additional 5 feet of concrete placed on top of the non-slurry bentonite. The concrete must be set prior to drilling inside the surface casing.

12-005.05F The metal gravel chute must be straight and a minimum of 6-5/8 inches OD. The top of the chute must extend a minimum of 6 inches above the concrete pad and be equipped with a vandal resistant, secure cover or cap. The bottom of the gravel chute must extend from the surface casing a minimum of 2 feet below grade. The gravel chute and the upper 5 feet of surface casing must be encased in concrete.

12-005.05G The concrete pad must extend a minimum of 12 inches beyond the surface casing borehole and be a minimum of 5 feet by 5 feet which surrounds the gravel chute. The thickness must be a minimum of 12 inches above grade and an additional minimum of 12 inches below grade within the boreholes.

12-06 DEWATERING WELLS

12-006.01 Permanent Installation: Permanently constructed dewatering wells must be constructed to the same standards as non-potable wells.

12-006.02 Temporary Installations: Temporary installations must be constructed in a manner that prevents the introduction of contaminants into the ground water. They must be decommissioned within 90 days of installation.

12-006.02A Location: Dewatering wells must be located or the site graded so that surface drainage is away from the well.

12-006.02B Sanitation: Temporary dewatering wells must be constructed to prevent the introduction of microbiological, chemical, or radiological substances which may be toxic into the aquifer or aquifers penetrated.

12-006.02C Well Screens must be composed of nontoxic, durable material.

12-006.02D Temporary Casing: Casing and screen may be re-used.

12-006.02E Casing Wall Thickness: The wall thickness of temporary dewatering well casing must be sufficient to withstand the forces imposed on it during installation and pressures exerted on it by the surrounding materials.

12-006.02F Secure Cover: Any temporary dewatering well which is under construction must be protected with a secure cover or cap when it is unattended.

12-006.02G Repair of a Dewatering Well: All temporary dewatering well repairs must be done in accordance with current standards.

12-07 GROUND WATER MONITORING AND RECOVERY WELLS must be constructed in the following manner.

12-007.01 Well Screens: The top of the screen aperture may extend to within 2 feet of the land surface. The gravel pack thickness may be reduced so as to not compromise the surface seal.

12-007.02 Watertight Well Casing

12-007.02A Casing must be composed of nontoxic durable material compatible with water quality encountered.

12-007.02B Wells must be cased with watertight casing through required areas of grout. The watertight casing must extend at least 12 inches above ground level except for construction in sidewalks, roadways, driveways, parking lots, other heavily trafficked areas, or wherever else the situation requires flush mounted installation with watertight caps.

12.007.02C Casing must be chemically resistant to all contaminants which are expected to be encountered.

12.007.02D Casing must be equipped with a watertight cap or plug in conjunction with both flush mount and above-ground protectors.

12-007.03 Grouting the Annular Space: A non-slurry bentonite seal with a minimum thickness of 5 feet must be placed on top of the gravel pack immediately above the screen. All wells must be grouted from immediately above the non-slurry bentonite seal/fine sand to the surface in accordance with 178 NAC 12-003.07.

12-007.04 Above Ground Protection: Non-steel cased wells completed above ground must be enclosed with a steel casing embedded in the concrete pad and covered with an overlapping, vandal-resistant secured metal cap.

12-007.05 Pad: Ground water monitoring and recovery wells must have a concrete pad extending a minimum of 1 foot past the walls of the original borehole and must be a minimum of 8 inches thick. The concrete must contact the entire circumference of the casing.

12-007.06 Well Logs: The location of each well must be shown on a site diagram in addition to the driller's log, to be provided in accordance with 178 NAC 12-003.12A.

12-007.07 Nested Well Design: Wells constructed for ground water investigations may use a nested design. (See Figure 10)

12-007.07A Individual casings must be separated vertically by a minimum of 2 feet of non-slurry bentonite grout between casings of different lengths within the borehole. A 1-foot minimum non-slurry bentonite grout must be placed on top of each gravel pack interval. The annular space must be grouted as per 178 NAC 12.003.06 and 12-003.07 between non-slurry bentonite grout and the next gravel pack interval.

12-007.07B Individual casings must be separated horizontally by a 2 inch annular space, including 2 inches between the outermost casing and the borehole wall.

12-007.08 Temporary Well Installation: A pre-notification document must be submitted to the Department 30 days before constructing a temporary well to be in use longer than 10 days (does not apply to temporary dewatering wells). The notification must indicate what type of surface seal will be provided. Temporary wells must be decommissioned within 90 days of installation and cannot be used as a monitoring, recovery, or test well on a permanent basis unless the construction complies with the provisions of Title 178 NAC 12-003.04B, or the well is granted a Declaratory Order in accordance with 178 NAC 12- 013 before it is constructed.

~~**12-08 PUBLIC WATER SUPPLY SYSTEMS**: If a well is to serve water to the public, the contractor must verify if the well is to serve a community or a non-community system.~~

~~**12-008.01** Community public water wells must be sited, constructed, and/or relined in accordance with Title 179 NAC 7 requirements, including Department-approved plans and specifications. Examples of community public water systems include, but are not limited to mobile home parks, subdivisions, and nursing homes or assisted living residences.~~

~~**12-008.02** Non-community public water systems include, but are not limited to restaurants, gas stations, factories, schools, rest areas, and recreation camps. When a well is intended to be a non-community public water supply well, the contractor may drill the well in accordance with the requirements of 178 NAC 12 only when:~~

~~1. The capacity of the well is less than 100 gallons per minute (gpm), and the total system capacity of any associated bladder tank and piping does not exceed 200 gallons, and~~

~~2. The top of its well screen is greater than 50 feet from the original ground surface, and~~

~~3. The well is located more than 200 feet from surface water, and~~

~~4. The owner supplies the contractor with written confirmation from the Department that states the well may be drilled according to Title 178 NAC 12 standards.~~

~~**12-008.03** Any public water system wells not meeting the criteria in 179 NAC 12-008.02 must be constructed in accordance with Title 179 NAC 7 plans and specifications prepared by a registered Nebraska engineer and approved by the Department.~~

12-09 TEST HOLES: Test holes, constructed in conjunction with ground water investigations must not be retained for more than 10 days, must be covered when not in use, and must be properly decommissioned within 10 days of drilling.

12-009.01 Location: A test hole must be located so that it is protected from surface waters and seepage from sources of contamination and pollution.

12-009.02 Surface Casing: When onsite conditions dictate, surface casing is permitted but must be protected with a secure cover or cap when left unattended, and decommissioned within 10 days of drilling completion.

~~**12-10 GROUND WATER HEAT PUMP WELLS**~~

~~**12-010.01** Open Loop Heat Pump Wells:~~

~~1. Water wells intended only to withdraw water must comply with 178 NAC 12- 004, Potable Water Wells.~~

~~2. Water wells intended only to inject ground water must comply with Nebraska Department of Environmental Quality's Title 122 – Rules and Regulations for Underground Injection and Mineral Production Wells.~~

~~**12-010.02** Closed Loop Heat Pump Wells: Water wells for closed loop heat pump systems must be constructed in accordance with the following standards.~~

~~**12-010.02A** For a closed loop heat pump system that has 10 or more boreholes, the following information must be submitted to the Department a minimum of 14 working days prior to initial construction.~~

~~1. Location of project;~~

2. Name and address of licensed water well contractor supervising the installation of the heat pump system; and

3. A completed copy of the information referenced in 178 NAC 12- 003.12A, showing proposed construction and installation of the closed loop heat pump system.

12-010.02B Location: All water wells constructed for closed loop heat pump systems must be located in accordance with 178 NAC 12-003.01.

12-010.02B1 Location from a Public Water System Well

12-010.02B1a The location of closed loop heat pump wells must comply with 178 NAC 12-003.01C item 1. Be aware that other state and local statutes and regulations may have more restrictive requirements. If locations do not comply with more stringent standards of other applicable state or local regulations, the Department may notify the appropriate authority, which could require the well to be decommissioned.

12-010.02B1b Water wells constructed for a closed loop heat pump system must be located more than 100 feet from a non-community public water system well.

12-010.02B1c A closed loop heat pump system must be located more than 1,000 feet from a community public water system well.

The Department will consider approval for location of closed loop heat pump wells at closer proximity than 1,000 feet horizontal separation distance, when the licensed professional engineer or licensed professional geologist representing the owner(s) of the closed loop heat pump wells, demonstrates to the Director or Director's designee that such location will not constitute a pollution hazard to the safety of the water supply, and that the owner(s) of the community water system has no objection to the location of the closed loop heat pump wells.

The engineer or geologist must submit the supporting data as appropriate to make a case for approval of the proposed location of heat pump wells to the Department 30 working days prior to the date on which action by the Director or Director's designee is desired. The contractor must not begin construction until the Department has approved the location.

12-010.02C Borehole Diameter: The borehole diameter of a closed loop heat pump well must be of sufficient size to allow placement of the pipe and placement of a tremie to emplace the grout. The borehole diameter must be a minimum of 4 inches larger than the total OD of the loop pipes.

12-010.02D Pipe: Pipe material must be composed of polyethylene, grade p34, minimum cell classifications PE 355434C or PE 345434C, when tested under ASTM Standard 3350, incorporated herein by reference. (ASTM standards are copyrighted and available from the American Society for Testing and Materials International, 1916 Race St., Philadelphia, PA 19103; Phone 215-299-5585, Fax 215-977-9679, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 USA; Phone: 610-832-9500; http://www.astm.org. Standards may be viewed during normal business hours at

the Nebraska Department of Health and Human Services, Division of Public Health, 301 Centennial Mall South, 3rd Floor, Lincoln, NE 68509.)

12-010.02E Pipe Joining Method: Heat fusion methods for pipe joining must be the socket or butt heat fusion technique as referenced in ASTM Standards D3261 or D2683, both of which are incorporated herein by reference. (ASTM standards are copyrighted and available from the American Society for Testing and Materials International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 USA; phone: 610-832-9500; http://www.astm.org; OR standards may be viewed during normal business hours at the Nebraska Department of Health and Human Services, Division of Public Health, 301 Centennial Mall South, 3rd floor, Lincoln, NE 68509.)

12-010.02F Pressure Testing: The installed system must be pressure tested to a minimum of 100 pounds per square inch (psi). After 6 hours it is permissible for the pressure to drop a maximum of 15% of the initial psi due to expansion of the HDPE piping. A pressure loss greater than 15% in 6 hours is an indication of a leak in the circulating system. If a pressure loss is detected, the cause must be properly repaired, the material replaced, or the well must be properly decommissioned.

12-010.02G Purging a Loop System: After a loop system is installed and pressure tested, and prior to introducing additives to the circulating fluid, the entire loop, header and associated plumbing must be purged at a minimum rate of 5 feet per second to remove any debris that has entered the loop during construction.

12-010.02H Circulating Fluids: When food grade propylene glycol is added to water for antifreeze protection, it must be non-toxic in nature when combined with the circulating fluid additives in a closed loop heat pump system. If needed, the addition of corrosion inhibitors and biocides may be used in circulating fluid if such additives are also:

1. Non-toxic; and

2. Compatible with food grade propylene glycol; and

3. Non-hazardous materials upon disposal or a change of circulating fluid.

12-010.03 Completion of a Vertical Closed Loop System: Completion of a borehole for a closed loop heat pump well must be finished within 6 hours from the time the borehole is drilled. Drilling muds or cuttings cannot be used as completion materials. The tremie pipe must not be left in the borehole.

12-010.03A Systems that have 10 or more boreholes must be grouted full-length with high solids bentonite slurry in accordance with 178 NAC 12-003.06 item 5. (See Figure 11A)

12-010.03B Systems that have fewer than 10 boreholes must be grouted full-length with high solids bentonite slurry in accordance with 12-003.06 item 5 when they are

~~located less than 1000 feet of a community public water well (which requires prior written permission from the community). (See Figure 11B)~~

~~**12-010.03C** Systems that have fewer than 10 boreholes and are located 1000 feet or more from a community public water well must use one of the following methods to complete construction of the boreholes: (See Figure 11C)~~

~~1. High solids bentonite slurry that meets the requirements of 178 NAC 12.003.06 item 5 must be used to grout the full length of the borehole, or~~

~~2. Sand or gravel must be placed through the sodium bentonite fluid with a viscosity that allows the sand to settle through the fluid from the bottom of the borehole to the static water level by tremie or free fall method. A 5 foot interval of bentonite chips must be placed at the static water level, and the remainder of the borehole must be sand/gravel packed through the fluid to within 30 feet of the surface minus excavation for the header piping. The remaining annular space must be filled with non-slurry bentonite chips.~~

~~**12-010.04** Horizontal Closed Loop System~~

~~**12-010.04A** A horizontal closed loop heat pump system that is constructed by trenching or digging is exempt from the grouting requirements of closed loop systems provided that no part of the horizontal loop is constructed at or below the ground water level.~~

~~**12-010.04B** A horizontal closed loop heat pump system constructed by boring or drilling must be grouted with high solids bentonite slurry grout that meets the requirements of NAC 12-003.06 item 5.~~

~~**12-010.04C** All other construction standards for closed loop heat pump wells in 178 NAC 12-010 apply.~~

12-11 INSTALLATION OF PUMPS AND PUMPING EQUIPMENT

12-011.01 General Requirements: The following are general requirements and apply to the installation of all pumps and pumping equipment not already regulated, such as public water systems under Title 179.

12-011.01A Contamination: Pumps and pumping equipment must be installed in a manner that prevents contaminants from entering the well.

12-011.01B Disinfection

12-011.01B1 Care must be taken so that all tools used in the removal of pumps and pumping equipment are disinfected periodically, or as needed. Disinfection solution must be equivalent to 50 parts per million chlorine solution (See Table 2). It is not permissible to lay the drop pipe, pump, pumping equipment, or wire on the ground.

~~**12-011.01B2** When a pump for a potable well is installed or repaired the well must be disinfected with a disinfectant solution equivalent to 50 ppm chlorine solution (See Table 2), unless specifically waived in writing by the landowner. The waiver must be worded in accordance with Attachment 1, "Waiver of Disinfection." The water well contractor/pump installation contractor must supply the landowner with an informational brochure that tells the owner why s/he should test his/her water and what the results mean.~~

12-011.01C Secure Cover: Any water well which is being serviced or repaired must be protected with a secure cover or cap during periods when the water well is left unattended.

12-011.01D Packaging of thread compounds, sealants, and lubricants must bear the NSF Standard 61 stamp of approval.

12-011.01E New Electrical Installations: When designing and installing a new water supply system, the electrical components must comply with the state electrical code. Electrical work that does not appear to meet standards may be reported to the State Electrical Board.

12-011.01F Repair or Modifications to Pumps and Pumping Equipment: Upon the removal of, or the repair and/or modification to the pump or pumping equipment in which replacement of original equipment is required, current pump and pumping equipment installation standards must be followed. This includes replacement of, or modification to the electrical wiring and/or controls located in the electrical layout serving the pump and pumping equipment including connection to the load side of the service disconnect or breaker. Any upgrade of this electrical system must be in compliance with all current applicable state or national electrical codes, and be installed according to the manufacturer's specifications.

12-011.01G Casing Vent: If a vent is used, it must terminate in a down-turned position, at or above the top of the casing or pitless unit and be covered with a 24 mesh corrosion-resistant screen.

12-011.02 Installation of Pumps: All pump installation must comply with 178 NAC 12-011.01 and 12-011.03.

12-011.02A Line Shaft Pumps must be equipped with a pump base and be designed so the weight of the pump and column pipe is supported by the casing or is resting on a concrete platform which rests upon natural ground and they must be secured to prevent movement.

12-011.02B Submersible Pumps: The drop pipe must be steel pipe, NSF 61 approved plastic material, or fiberglass. There must be at least 1 check valve within the casing which may be furnished with the pump.

12-011.02C Centrifugal and Jet Pumps do not require a relief valve. They must be equipped in the following manner:

1. Offset Location: The suction pipe must be encased in a sleeve from the basement or well pit wall to the well. In the instance of a packer jet system, the pressured pipeline can serve as a sleeve for the suction line.

2. Priming Port must be located higher than the discharge of the pump. Discharge of the priming port may be controlled with a shut off valve. Potable water must be used for priming the pump. Priming valve must be sealed when not in use to prevent contamination from accumulating above the valve.

12-011.02D Reciprocating Pumps must be equipped with a pump base. The pump base must be designed so the weight of the pump pipe and cylinder is supported by steel casing or a metal sleeve embedded in concrete. It must be secured to prevent movement.

12-011.03 Installation of Pumping Equipment

12-011.03A Pitless Units must:

1. Bear the Pitless Adapter Standard (PAS) stamp of approval of the Water Systems Council.

2. Be factory assembled and ready for installation from a point of connection with the well casing to the unit cap or cover.

3. Be a threaded, welded, screwed, or flanged gasket compression connection to the well casing.

4. Be of watertight construction throughout, except for any required vent.

5. Be made of steel through the frost zone and be compatible with the casing.

6. Have a field connection to the lateral discharge from the pitless unit of threaded, flanged, or mechanical joint connection.

7. Terminate at least 12 inches above final ground elevation. Where a water well needs to be located in an area of high traffic and physical damage to the pitless unit is probable, the contractor must finish off the water well even with the grade of the surrounding land surface and protect it by terminating it in a pitless unit covered by a watertight flush mount cover capable of withstanding high vehicle traffic conditions. In all cases where the top of the pitless unit is enclosed in a watertight flush mount vault, the vent opening must be sealed and all electrical conduit fittings must be watertight. If the entrance of the electrical conduit is below ground level, the opening around the wire must be sealed. (See Figure 12)

8. Provide:

a. Access to the well for disinfecting or other purposes;

b. A properly constructed vent for wells with a pumping rate greater than 50 gpm;

c. A watertight secure cover at the upper terminal of the well that will prevent the entrance of contamination;

d. A contamination-proof entrance connection for electrical cable; and

e. An inside diameter sufficient for the insertion and removal of the pump and pumping equipment.

12-011.03B Pressure Relief Valve must be installed on any pump capable of developing a pressure higher than 115 psi, or exceeding the safe working pressure rating of the water supply system. Relief valve must be of adequate size and the plumbing where the relief valve is located must have sufficient capacity to accommodate 50% of the rated pump volume.

12-011.03C Backflow Protection: The discharge piping from any pump and pumping equipment must be equipped with a backflow preventer. A backflow preventer must be placed before any other device or branches in the distribution piping. Check valves must not be buried at the well for backflow prevention. The device must be located within 1 foot of the discharge head and prior to any other devices.

12-011.03D Discharge Piping includes any and all piping beginning at the discharge head or pitless unit tapping, extending to the first shut off valve or backflow preventer.

12-011.03D1 Above ground discharge piping must:

1. Be protected against the entrance of contamination;

2. For potable water use, be constructed of materials appropriate to each specific service;

3. Be equipped with a backflow preventer, chemigation valve, or air gap;

4. For air gap protection, daylight above the high water line of any tank, pond, stream, or reservoir;

5. Be properly anchored to prevent movement; and

6. Be protected against water hammer.

12-011.03D2 Underground Discharge Piping must be equipped with a curb stop valve and schedule 80 plastic or metal riser within one foot of the discharge, and be in compliance with 178 NAC 12-011.01.

12-011.03E Sample Point: Distribution piping must include a sample point. Location of the sample point must be as follows:

1. Sample point must terminate no less than 12 inches above the floor of the basement, well pit, or pump house floor.

2. A primary sample point must not be located down flow from any filter, trap, or conditioning equipment. A secondary sample point may be located down flow from a filter, trap, or conditioning equipment to verify the proper operation of such equipment.

12-011.03F Storage Tanks

1. Pressurized, if used (hydro-pneumatic or captive-air design)

a. Tank construction must be of materials approved for use in potable water systems; and

b. Tanks must be equipped with identification as to size, maximum working pressure, and name of manufacturer; and

c. Tanks and combinations of tanks and mechanical or electronic short cycle prevention devices must be of adequate size and design to prevent short cycling of the pump motor as per the pump motor manufacturer's specifications.

2. Non Pressurized, if used (reservoirs, cisterns, and standpipes)

a. Underground storage tanks must be constructed of material that is structurally adequate to withstand being buried below ground surface without collapsing when emptied;

b. Vent must be turned downward and be covered with a #24 mesh screen;

c. Vent piping must be of adequate size to prevent either a positive or negative pressurization of the buried tank, and

d. Vent piping must be constructed of materials approved for use in potable water systems. Inspection hatch and vent must extend 12 inches above grade. Inspection hatch must have a watertight seal to prevent contaminants from entering the tank.

12-011.03G Above Ground Connections: A pump house may be utilized to prevent the freezing of pipes. If used, the pump house must be mounted on a concrete platform which slopes away from the well in all directions. The casing must extend a minimum of 12 inches above the concrete platform and the space between the casing and the pump pipe must be closed with a sanitary well seal. The well seal must be watertight and if vented, must be provided with a screened vent.

12-011.03H Well Pit: The installation of pumping and storage equipment in a pit directly over a well is not allowed. A pit for housing the equipment must be located at least 10 feet away from a well.

12-12 WATER WELL DECOMMISSIONING

12-012.01 General Requirements: The well cavity of all water wells to be decommissioned must be filled and sealed in accordance with the appropriate procedure described below. Any licensed water well contractor constructing a water well for any customer must as a part of the agreement include the proper decommissioning of each water well and test hole

constructed to explore for ground water pursuant to the agreement. A landowner may only decommission a driven sandpoint water well on land owned by him/her and used by him/her for farming, ranching, or agricultural purposes or as his/her place of abode. A well constructed after October 1, 1988, but not constructed according to Title 178 NAC 12 must have a Declaratory Order prior to decommissioning.

12-012.02 Preliminary Work: Prior to decommissioning a water well, the depth of the well and the static water level must be measured and an investigation must be made to determine the details of the well construction. Potential sources of well construction details include:

1. The personal records of the owner,

2. The contractor that drilled the well,

3. The registration forms on file with the Nebraska Department of Natural Resources, available on its website,

4. Water well contractors familiar with the area, and

5. Water well records on file with the University of Nebraska-Lincoln Conservation and Survey Division, School of Natural Resources.

12-012.03 Obstructions: Every effort must be made to remove obstructions. If they cannot be removed, the well cavity must be filled with approved fill material in accordance with 178 NAC 12-003.08B from the bottom of the well to a point above the obstruction. If this is not possible, a 5-foot non-slurry bentonite grout plug must be placed above the obstruction, or the entire length of the water well from the obstruction to the surface must be grouted.

12-012.04 Material Volume: The volume of material required to decommission a water well can be determined using Table 3. Volumes for each interval that is to be either filled or sealed must be calculated prior to beginning. Materials used and calculated volumes must be consistent. If they are not, (1) additional material must be added to replace lost volumes until the interval is filled or sealed or (2) if material bridges in the well (evidenced by calculated amount of filler/sealer being too much), operations must stop until the bridge is removed by high pressure jetting, drilling, or other methods.

12-012.05 Well Decommissioning Materials: Approved fill material (178 NAC 12-003.08B, 12-012.05B) or grout material (178 NAC 12-012.05A) must be used to decommission water wells. Grout seals must be used to prevent water movement into or between water-bearing zones; approved fill material may be used where grout seals are not necessary.

> **12-012.05A** Grout Material: Grout material found in 178 NAC 12-003.06 can be used as a seal in decommissioning water wells.
>
> **12-012.05B** Approved Fill Material for Decommissioning to be used in water wells in intervals where grout seals are not used or are not required must be disinfected sand, gravel, or crushed stone except that native earth material may be used in large diameter

bored or dug wells because of the volume required. All fill material must be free of potentially toxic chemical residue and trash such as leaves and foreign materials. All fill material must be sized and introduced into the well at a rate to avoid bridging.

12-012.06 Decontaminating: Disinfectant equivalent to at least 200 parts per million chlorine must be introduced into the well before any material is placed into the well. The disinfectant can be in a liquid, granular, or pellet form. This will also decontaminate the fill material placed adjacent to the water-bearing zones. (See Table 1 for the amount of disinfectant to use.)

12-012.07 Upper Plug: All cased water wells to be decommissioned must have an upper plug to prevent surface and near-surface contaminants from entering the well casing. Only non-slurry bentonite and sand cement grouts are allowed in the upper plug. If the water well records indicate that a surface seal was installed during construction, then any option below can be used. If a surface seal was not installed or it is not known if a surface seal was installed, then Option 1 or Option 3 must be used.

12-012.07A Option 1: Remove the top 3 feet of the well casing and grout the upper 5 feet of the remaining casing. Install a 6-inch thick grout seal above the top of the casing that extends a minimum of 1 foot past the walls of the original borehole and extends at least 1 foot below the top of the cut-off casing. Backfill the remainder of the hole with native soil mounded for settlement and proper drainage. (See Figure 13)

12-012.07B Option 2: For all other wells not located in a structure and if the water well was constructed with an annular surface seal, the water well casing may be left in place. A 5-foot long grout plug must be placed in the casing within the top 10 feet. If the casing is going to remain above the concrete surface, a watertight secure cover or cap must be installed on top of the casing. (See Figure 14)

12-012.07C Option 3: If the water well is surrounded by concrete/asphalt that extends 1 foot beyond the original borehole, and the casing is to be cut off flush with the top of the concrete, then a 5 foot minimum grout plug must be placed 10 feet below the concrete pad, and a minimum of 5 feet of concrete must be installed above the grout plug and struck off level with the top of the concrete. (See Figure 15)

12-012.08 Procedures for Specific Well Types are set forth below and must be followed.

12-012.08A Test Holes must be sealed with a 5-foot grout plug placed at static water level and/or confining layer. Approved fill material must be placed from the 5 foot grout plug to the surface seal within the top 10 feet.

12-012.08B Drilled, Bored, or Dug Water Wells

1. Measure the static water level and the total depth of the well.

2. If there is no water in the casing, place a minimum 5 foot grout plug in the bottom as described in the Placement of Grout section (178 NAC 12-003.07).

3. Use these measurements and the information in Tables 3 and 4 to determine the volume of material to be used.

4. Fill the well cavity or casing with clean disinfected sand, gravel, or grout up to 1 foot below the static water level.

a. If the static water level is less than 6 feet, refer to upper plug procedures for near-surface decommissioning.

b. If the static water level is greater than 6 feet, place a seal at least 5 feet thick on top of the sand/gravel fill. (See Figure 16.)

5. Native earth is an acceptable decommissioning fill material only for dug or bored wells that are two feet or more in diameter because of the volume required. Place native earth material in the excavated hole and mound over the well to accommodate future settling and to divert surface water away from the well. (See Figure 17)

6. Fill the remainder of the well with clean sand or gravel or grout up to 8 feet below the ground surface. At this point, place a 5-foot non-slurry bentonite grout seal in the casing. (See Figure 17)

7. The remainder of the water well must be decommissioned as described in the Plug Section. (See Figure 13)

~~**12-012.08C** Driven Sandpoint Wells~~

~~1. Fill the entire casing with grout to the top and cut off the casing 3 feet below the ground surface or water level. Place a 6-inch grout seal 1 foot beyond the casing and backfill the remainder of the hole with native soil mounded for settlement. (See Figure 18) or~~

~~2. If the casing is pulled, decommission like a test hole as described in 178 NAC 12-012.08A.~~

12-012.08D Full Length Grouted Wells must be decommissioned by pressure grouting the inside of the screen and casing. (See Figure 19) The rest of the well must be decommissioned as described in the Upper Plug Section, Option 1 or Option 3 only, as described in 178 NAC 12-012.07A and 12-012.07C.

12-012.08E Multiple Aquifer Wells: Water wells that obtained water from more than 1 water bearing zone must have a seal between each zone if each water bearing zone is separated by a confining layer. (See Figure 20) A grout seal not less than 5 feet in length must be placed adjacent to each confining layer and 5 feet of grout must be placed at the static water level.

12-012.08F Flowing Water Wells: Decommissioning these wells requires the placement of neat cement through a tremie line to stop the flow; otherwise, expandable plugs may be installed in the casing (or bedrock if not cased) to stop the water flow.

12-012.08F1 If it is known where a confining layer exists, the following procedure to install an intermediate seal (see Figure 21) is required.

12-012.08F1a If, during construction, the annular space was not grouted at the confining unit, a plug must be set at the bottom of the confining layer and the casing must be perforated a minimum of 3 feet, to allow pressure grouting of the annular space with neat cement.

12-012.08F1b Bentonite grout can be used above the confining layer if the flow has been stopped. The rest of the well must be decommissioned as described in the Upper Plug section, 178 NAC 12- 012.07.

12-012.08F2 The exact location of these wells must be flagged for at least 1 year after decommissioning.

~~**12-012.08G** Closed Loop Heat Pump Wells must be decommissioned as follows:~~

~~1. Remove all heat transfer fluid from the closed loop, and~~

~~2. Dig down to the top of the borehole and cut off the loop pipe at least 6 feet below the surface. Pump the remaining loop full of bentonite or cement slurry. The remainder of the borehole is to be decommissioned as described in the Upper Plug section 178 NAC 12-012.07.~~

12-012.09 Documentation: A record that includes the materials used, the quantity of those materials, location of placement thereof, and mix specifications, including the type and viscosity of bentonite grouts must be maintained on every decommissioned water well, including test holes.

12-012.10 Reporting Decommissioning: A notice of decommissioning for all water wells except test holes must be submitted to the Director of the Department of Natural Resources on the Notice of Decommissioning form supplied by the Department of Natural Resources within 60 days of the decommissioning of the water well as required in Neb. Rev. Stat. § 46-602 as follows:

1. The pump installation contractor or water well contractor must submit written notice of the decommissioning of a water well to the Department of Natural Resources.

2. If both a water well contractor and a pump installation contractor are involved in the decommissioning of a water well, the pump installation contractor must submit the notice of decommissioning to the Department of Natural Resources.

3. If a landowner decommissions a driven sandpoint water well on land owned by him/her and used by him/her for farming, ranching, or agricultural purposes or as his/her place of abode, the landowner must report the decommissioning to the Department of Natural Resources.

12-13 DECLARATORY ORDER ABOUT SUBSTANTIALLY EQUIVALENT PROCEDURE OR MATERIAL

12-013.01 Any water well contractor, pump installation contractor or any other individual carrying out activities subject to 178 NAC 12 who desires to carry out such work by a procedure inconsistent herewith or using materials other than herein prescribed but which the contractor or other individual believes to be substantially equivalent to the standards prescribed in 178 NAC 12 may request a declaratory order by the Department on whether the proposed procedure or material is substantially equivalent to the prescribed standards and may be used to comply with 178 NAC 12.

12-013.02 Such a request must be submitted in writing at least 10 days prior to the initiation of construction or alteration of the well(s) involved, unless good cause is shown for a shorter review period.

12-013.03 The request must include a description of the material(s) and/or construction procedure(s) proposed, identify the procedure or material required by the prescribed standards and include proof of the alleged equivalency and such written arguments as are deemed appropriate by the requesting party.

12-013.04 Such request must be made generally in accordance with 184 NAC 2, Rules of Practice and Procedure of the Department for Declaratory Orders, but unless the requesting party at the time of the request demands a hearing thereon, the matter will be deemed submitted on the written request, attachments thereto, and facts of which the Department takes judicial notice.

12-013.05 Any order issued by the Department hereunder will be binding between the Department and the requesting party on the facts alleged unless it is altered or set aside by a court. The Department may in situations when the submission of a request 10 days in advance would result in an immediate environmental threat, significant economic hardship on or pose a health threat to the owner or other individuals, waive the 10 day review period.

12-14 VARIANCES: The Department may grant a variance from any rule, regulation, or standard adopted and promulgated by the Department relating to the construction of a water well upon proof by a licensed water well contractor or well owner that the enforcement of the rule, regulation, or standard would create an unreasonable hardship or be unreasonable, impractical, or not feasible under the circumstances. A variance is limited to the construction of a water well to replace an existing water well. A variance may only be requested after a declaratory order about substantially equivalent procedure or material has been requested and denied.

12-014.01 Procedures for Requesting a Variance: The party requesting the variance or renewing a variance must submit the variance request to the Department along with any applicable fee. The request for a variance must be submitted in writing at least 10 days prior to the planned initiation of construction of the well involved. Variances may only be granted in writing by the Department. All variance requests must contain the following:

1. The name, address, telephone number, and signature of the individual(s) requesting the variance;

2. The specific rule(s) for which the variance is requested (if more than 1 rule is affected then each must be listed):

3. The reason the rule(s) cannot be met, with supporting evidence;

4. The length of time for which the variance is requested;

5. The alternative or protective measure that will be taken to assure a comparable degree of protection to health or environment;

6. Construction plans and specifications of the proposed water well with all the relevant and required information listed in 178 NAC 12-003.12A; and

7. A scaled map showing the location of the well in relation to property lines, structures, utilities, and contamination sources.

12-014.02 Variance Conditions: A variance may be under such terms and conditions and for such time as the Department may prescribe. The Department must notify the requesting party in writing of the decision to grant or deny the variance. If a variance is granted, the notification must specify conditions or alternative measures imposed upon the variance, if any. If the variance is denied, the Department will specify the reasons for the denial.

12-014.03 Alternative Measures or Conditions: Alternative measures or conditions attached to a variance have the force and effect of the applicable regulation. If the alternative measure or condition attached to the variance is violated, the party may be enjoined from continuing such activities. The injunction may include an order to properly decommission the water well.

12-014.04 Renewal of a Variance: A request for a renewal of a variance must be submitted in writing to the Department within 30 days of the expiration date. A renewal request must contain the information in 178 NAC 12-014.01 (Procedures for Requesting a Variance). A variance may be renewed if the party continues to satisfy the criteria for granting the variance and demonstrates compliance with the alternative measures or conditions imposed at the time the original variance was approved.

TABLE 1
Decontamination Chart Calculator for Total System Volumes

Casing ID Inches	Gal/ft	Ft of H_20	Standing Well Volume[1] Feet	Total Treat. Volume[2]	Total Decontam. Volume[3]	200 ppm 5% chlorine gallons[4]	200 ppm 65% HCL oz.[4]
4	.065	100	65	130	260	0.26	15.6
5	1.02	100	102	204	408	0.408	24.48
6	1.47	100	147	294	588	0.588	35.28

Casing ID Inches	Gal/ft	Ft of H_20	Standing Well Volume[1] Feet.	Total Treat. Volume[2]	Total Decontam. Volume[3]	200 ppm 5% chlorine gallons[4]	200 ppm 65% HCL oz.[4]
8	2.61	100	261	391.5	1044	1.044	62.64
10	4.08	100	408	612	1632	1.632	97.92
12	5.87	100	587	880.5	2348	2.348	140.88
16	10.45	100	1045	1567.5	4180	4.18	250.8
24	23.51	100	2351	3526 .5	9404	9.404	564.24

[1]Standing Well Volume equals the total amount of water in the casing.
[2]Total Treatment Volume equals the amount of water in the casing plus the annular space of the borehole.

1. **For 4" to 6" wells, the standing well volume times 2 equals the total treatment volume.**
2. **For 8" wells and larger the standing well volume times 1.5 equals the total treatment volume.**

[3]Total Decontamination Volume equals the standing volume times 4 to approximate the water in the system.
[4]The decontamination amounts are based on a calculation or percent of the available chlorine and dosage strength per given volume of water.

TABLE 2
Disinfection Chart Calculator for Total System Volumes

Casing ID Inches	Gal/ft	Ft of H_20	Standing Well Volume[1] Feet	Total Treat. Volume[2]	Total Disinf. Volume[3]	50 ppm 5% chlorine gallons[4]	50 ppm 65% HCL oz.[4]
4	.065	100	65	130	260	0.065	3.9
5	1.02	100	102	204	408	0.102	6.12
6	1.47	100	147	294	588	0.147	8.82

Casing ID Inches	Gal/ft	Ft of H_20	Standing Well Volume[1] Feet.	Total Treat. Volume[2]	Total Disinf. Volume[3]	50 ppm 5% chlorine gallons[4]	50 ppm 65% HCL oz.[4]
8	2.61	100	261	391.5	1044	0.261	15.66
10	4.08	100	408	612	1632	0.408	24.48
12	5.87	100	587	880.5	2348	0.587	35.22
16	10.45	100	1045	1567.5	4180	1.045	62.7
24	23.51	100	2351	3526.5	9404	2.351	141.06

[1]Standing Well Volume equals the total amount of water in the casing.
[2]Total Treatment Volume equals the amount of water in the casing plus the annular space of the borehole.

1. **For 4" to 6" wells, the standing well volume times 2 equals the total treatment volume.**
2. **For 8" wells and larger the standing well volume times 1.5 equals the total treatment volume.**

[3]Total Disinfection Volume equals the standing volume times 4 to approximate the water in the system.
[4]The disinfection amounts are based on a calculation or percent of the available chlorine and dosage strength per given volume of water.

Table 3

Well casing volume and bentonite needed to fill a well casing

Diameter of opening	Volume		Approximate pounds graded bentonite per foot*	Approximate linear feet filled per 50 pound bag of graded bentonite
	Gallons per foot of depth	Cubic feet per foot		
2 inches	0.16	0.02	1.4	35.70
3 inches	0.37	0.05	3.5	14.30
4 inches	0.65	0.09	6.3	7.90
5 inches	1.02	0.14	9.8	5.10
6 inches	1.47	0.20	14.0	3.60
8 inches	2.61	0.35	24.5	2.00
10 inches	4.08	.055	38.5	1.30
12 inches	5.88	0.79	55.3	0.90
14 inches	8.00	1.07	74.9	0.67
16 inches	10.44	1.40	98.0	0.51
18 inches	13.22	1.77	123.9	0.40
2 feet	23.50	3.14	220.0	0.23
2.5 feet	36.72	4.91	344.0	0.16
3 feet	52.88	7.07	495.0	0.10
4 feet	94.00	12.57	880.0	0.06
5 feet	146.90	19.64	1375.0	0.04
6 feet	211.50	28.27	1979.0	0.03
7 feet	287.90	38.48	2694.0	0.02
8 feet	376.00	50.27	3519.0	0.01
9 feet	475.90	63.62	4453.0	0.01
10 feet	587.50	78.54	5498.0	0.01

*Based on a granular bentonite bulk density of 70 pounds per cubic foot. (The typical range of reported bulk density is 68 to 72 pounds per cubic foot)

Table 4

Useful Equivalents	
1 cup	8 fluid ounces
2 cups	1 pint
1 pint	16 fluid ounces
1 quart	32 fluid ounces
½ gallon	64 fluid ounces
1 gallon	128 fluid ounces
1 cubic foot (ft^3)	7.48 gallons
1 cubic yard (yd^3)	27 cubic feet
Gallons per foot of depth	0.0408 (opening diameter, square inches)
Cubic feet per foot of depth	0.0055 (opening diameter, square inches)
1^o Latitude	69.2 miles
1 minute of 1^o	6,089.6 feet
1 second of 1 minute of 1^o	101.49333 feet
1/10 of 1 second of 1 minute of 1^o	10.149333 feet
1^o Longitude	69.172 miles
1 minute of 1^o	6,087.136 feet
1 second of 1 minute of 1^o	101.45226 feet
1/10 of 1 second of 1 minute of 1^o	10.145226 feet

WAIVER OF DISINFECTION

This is to certify that I have been informed by : _____

of the advantages of the disinfection of the water well producing water for human consumption located at : _____.

I do not desire to have the well disinfected and hereby waive the disinfection requirement.

_____

Landowner or Owner's Agent

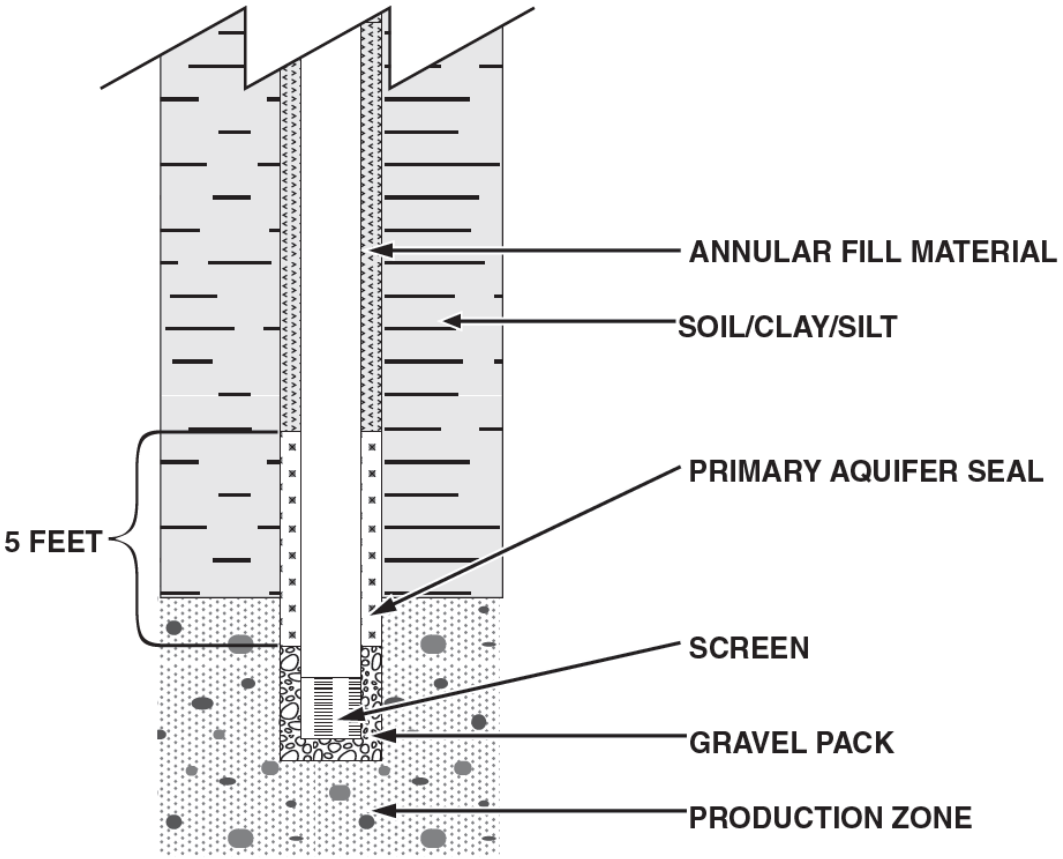
_____

Date

FIGURE 1A. PRIMARY AQUIFER SEAL ON TOP OF GRAVEL PACK ABOVE THE WELL SCREEN

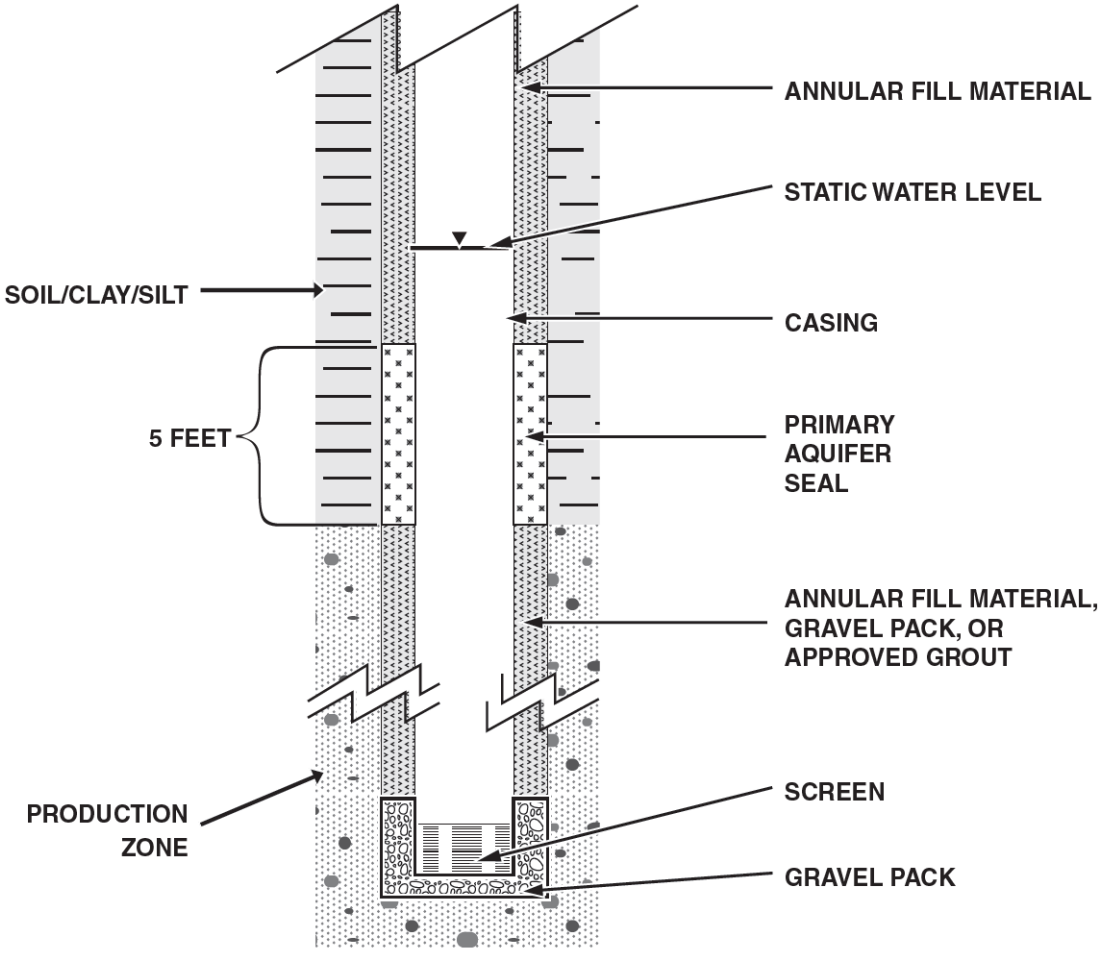
FIGURE 1A.
PRIMARY AQUIFER SEAL ON TOP OF GRAVEL PACK ABOVE THE WELL SCREEN

178 NAC 12-003.08



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

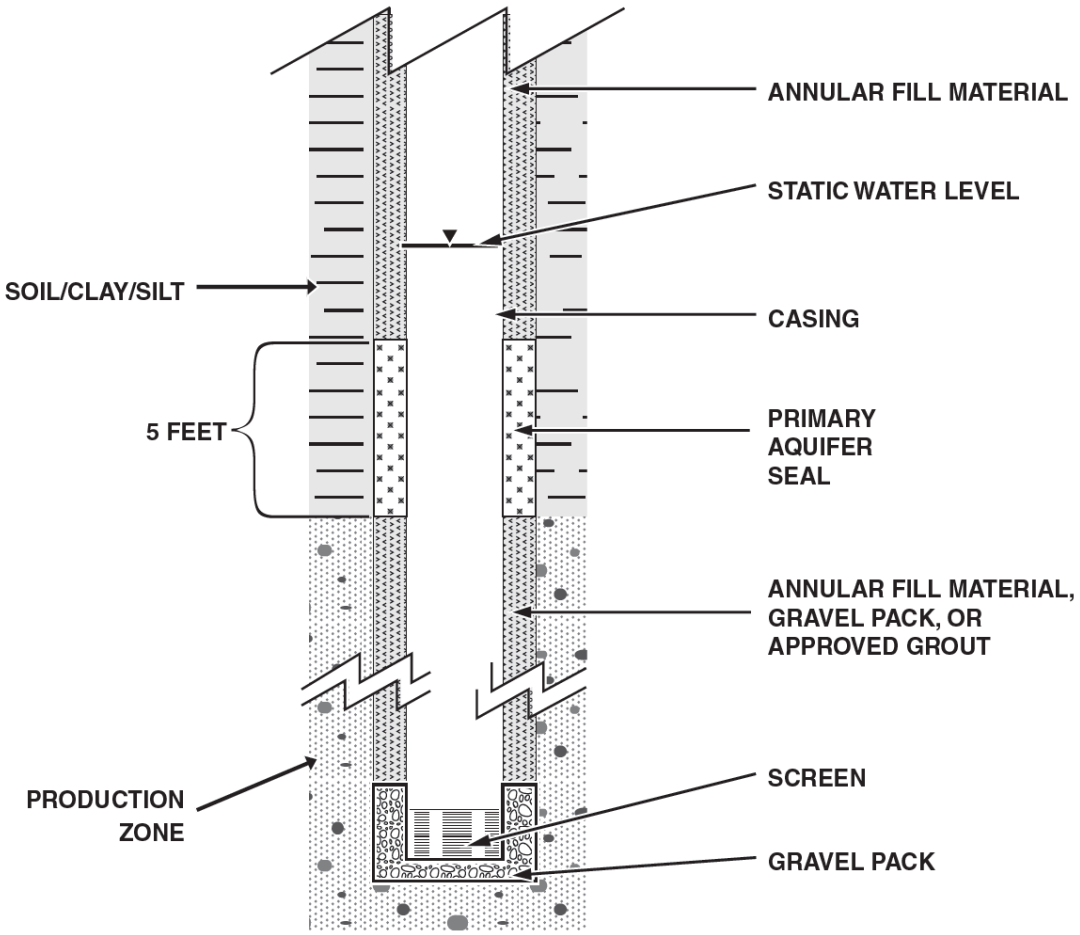
FIGURE 1B. PRIMARY AQUIFER SEAL AT THE BASE OF THE FIRST SILT/CLAY LAYER ABOVE THE PRODUCTION ZONE



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 1B.
PRIMARY AQUIFER SEAL AT THE BASE OF THE FIRST SILT/CLAY LAYER ABOVE THE PRODUCTION ZONE

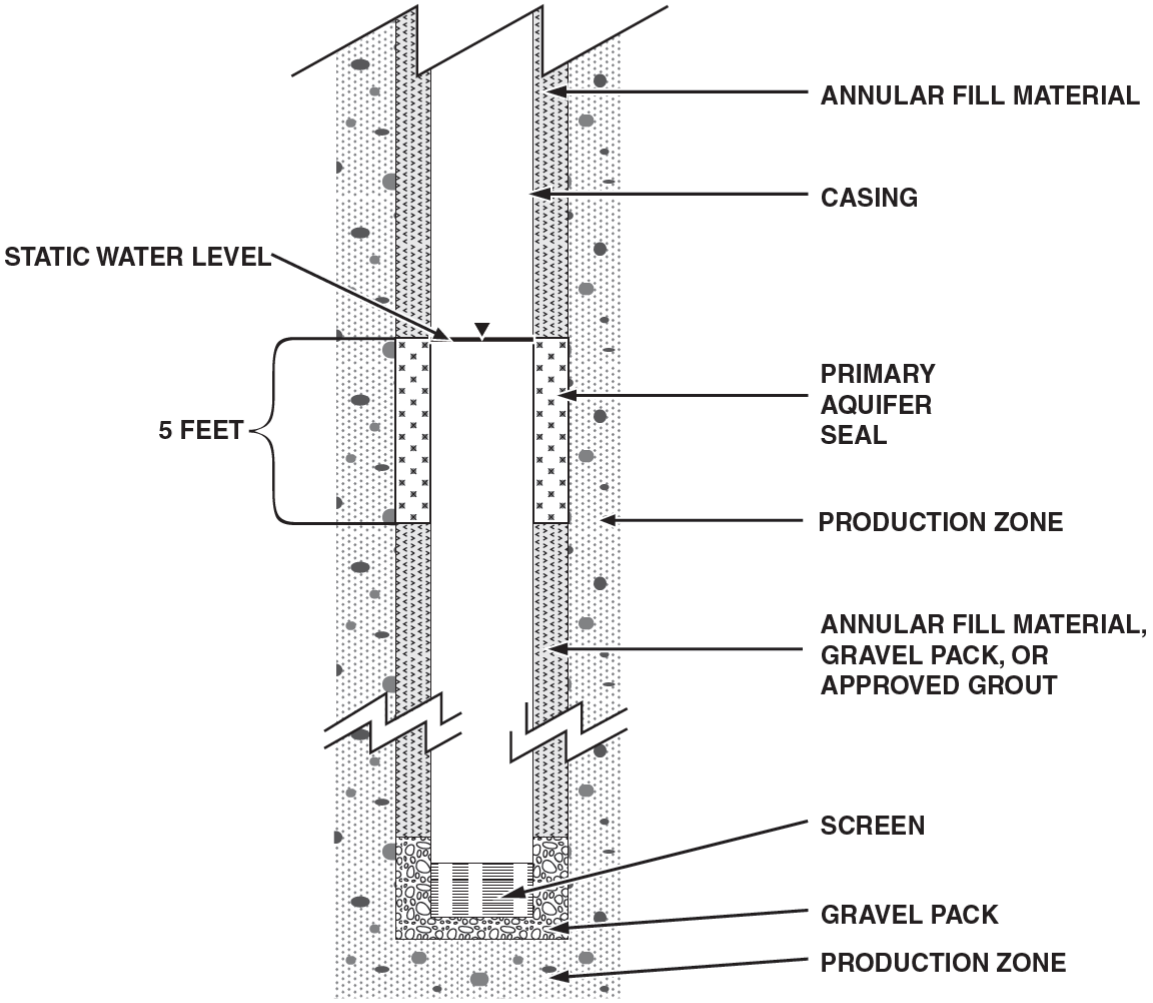
178 NAC 12-003.08A item 2



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 1C.
PRIMARY AQUIFER SEAL AT/OR IMMEDIATELY BELOW THE STATIC WATER LEVEL

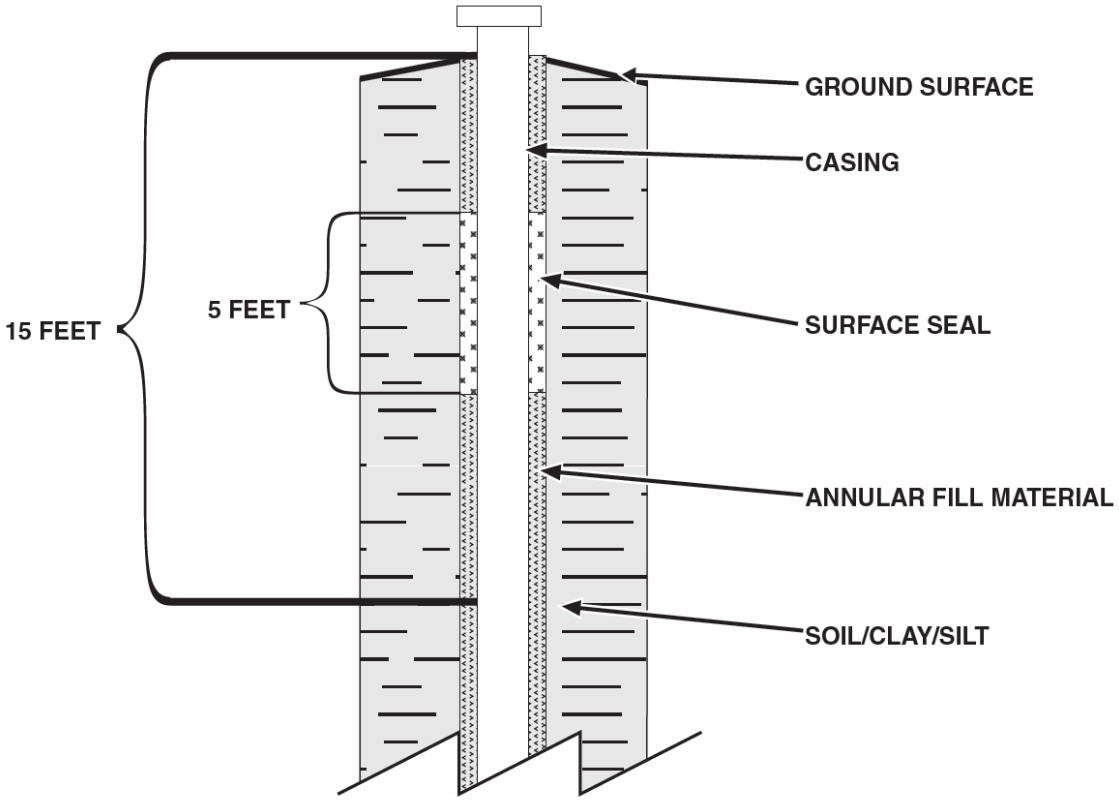
178 NAC 12-003.08A item 3



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 2A.
SURFACE SEAL FOR ALL WELLS NOT EQUIPPED WITH PITLESS UNITS

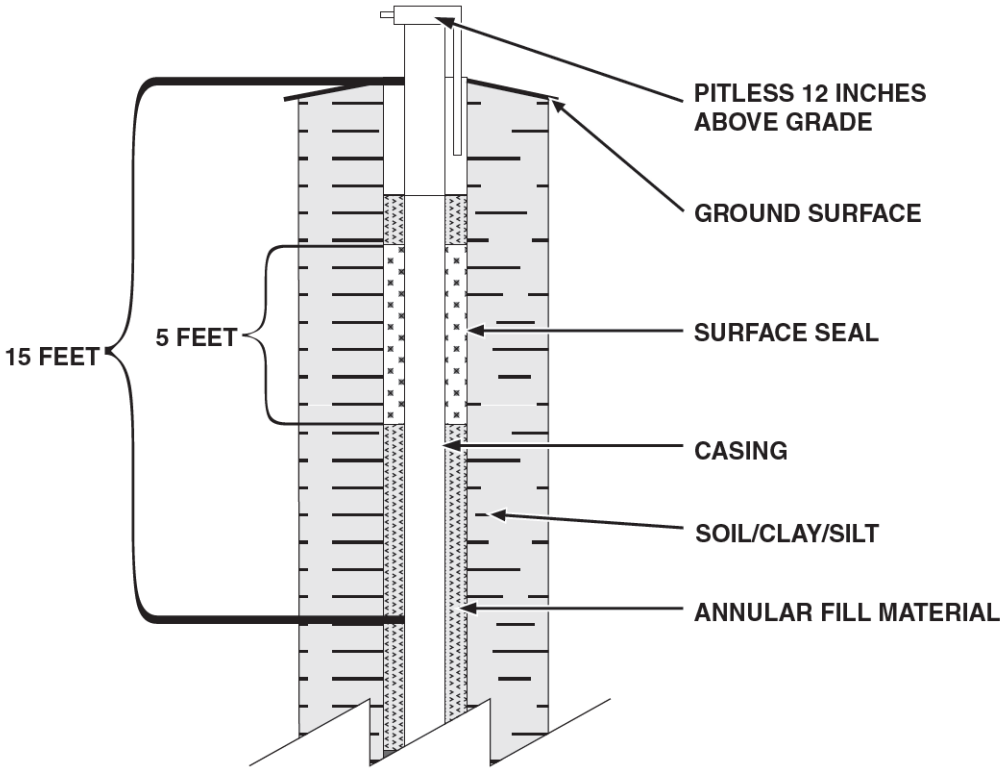
178 NAC 12-003.08C



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 2B.
SURFACE SEALS FOR ALL WELLS WITH PITLESS UNITS

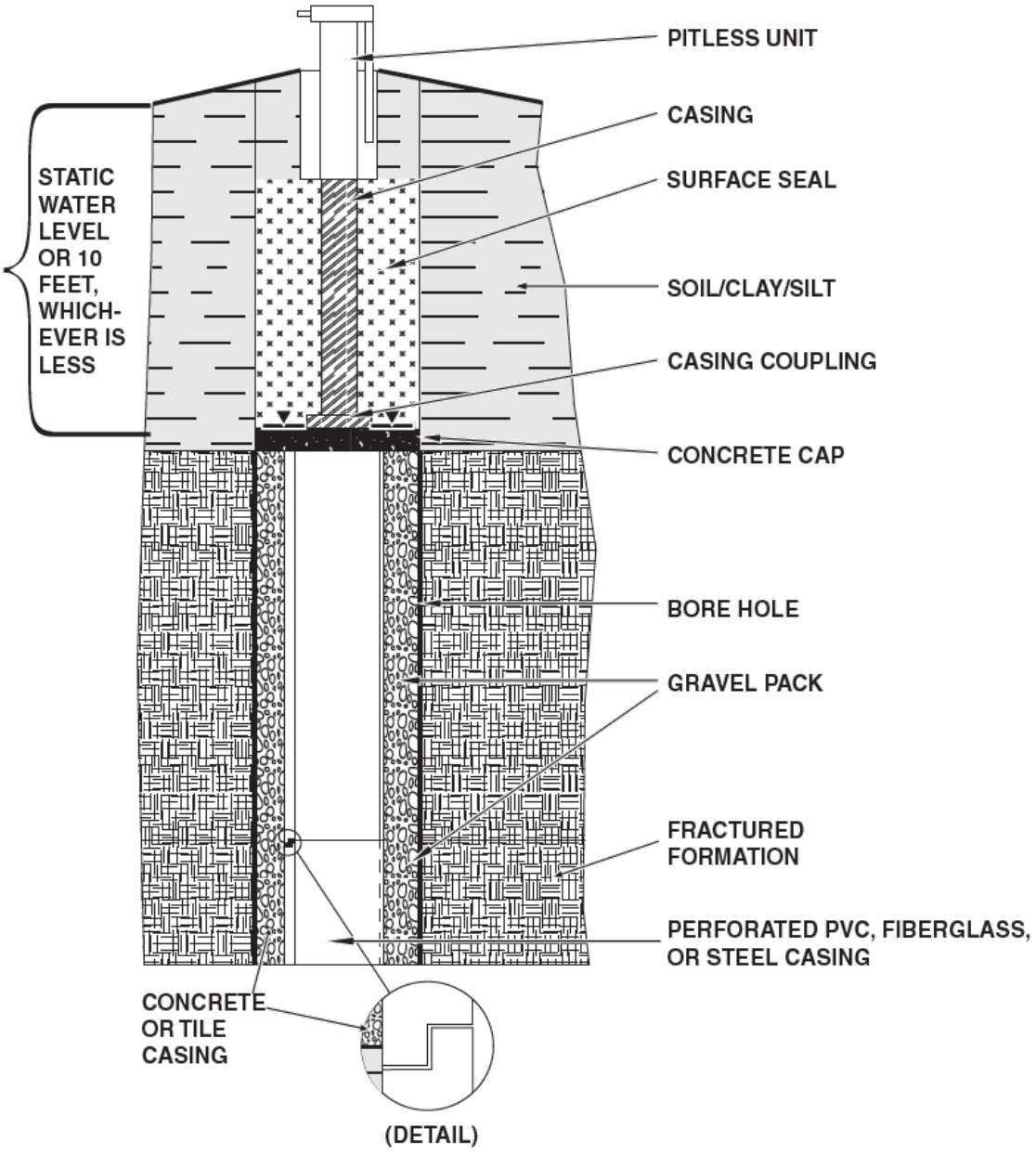
178 NAC 12-003.08C



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 3.
CONSTRUCTION AND REPAIRS OF BORED AND DUG WELLS

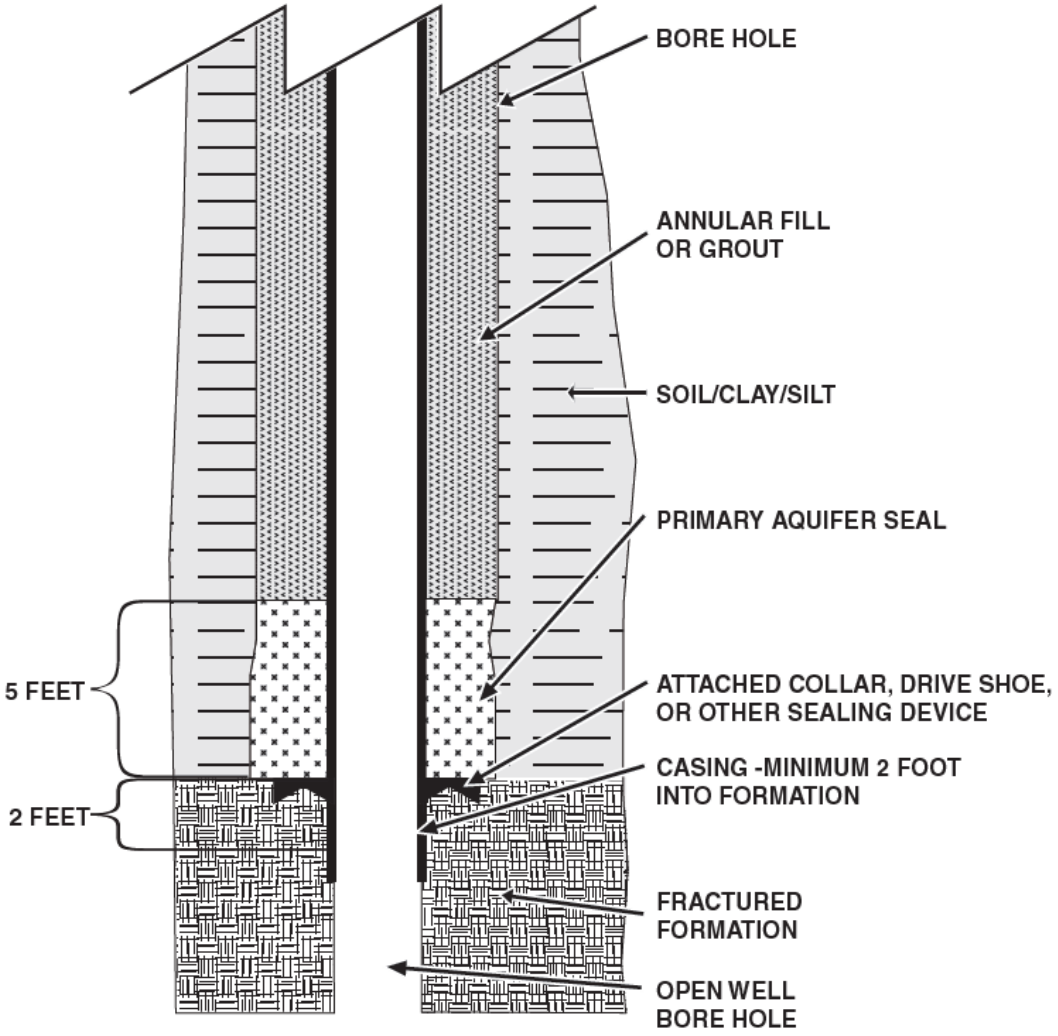
178 NAC 12-003.11
12-004.04
12-005.03



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

178 NAC 12-004.05
12-005.04

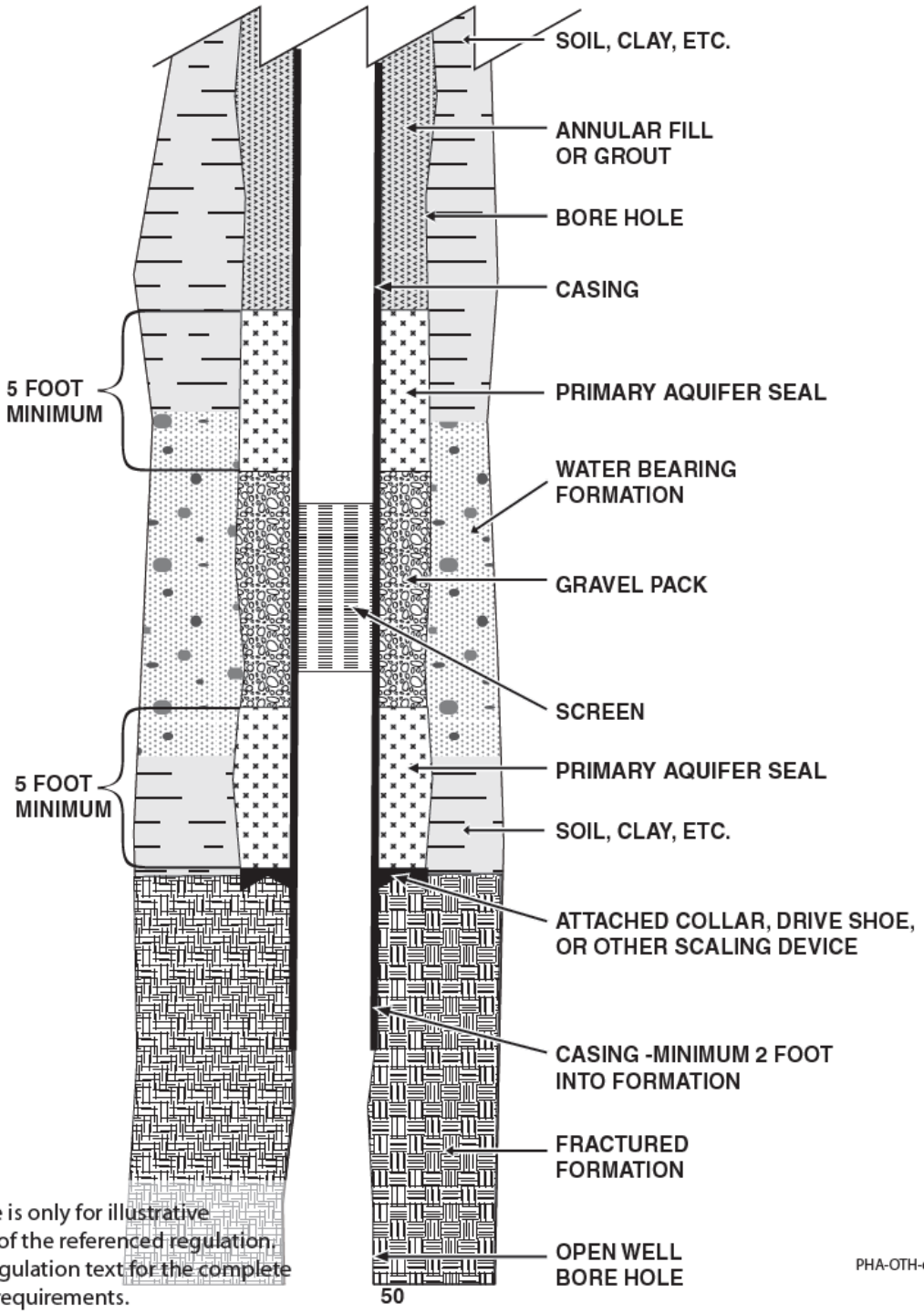
FIGURE 4.
OPEN HOLE WELL CONSTRUCTION



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 5.
OPEN HOLE CONSTRUCTION - MULTIPLE AQUIFERS

178 NAC 12-004.05C
12-005.04C



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

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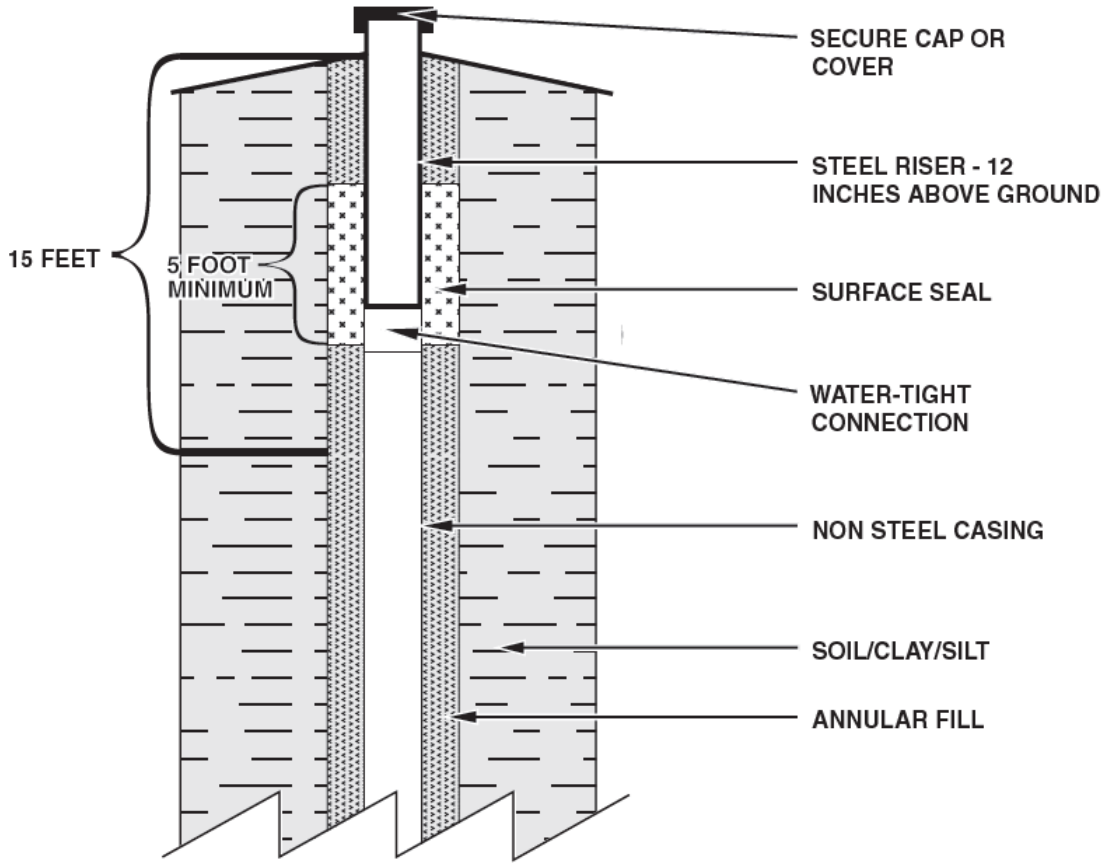
FIGURE 6. 178 NAC 12-005.02A2

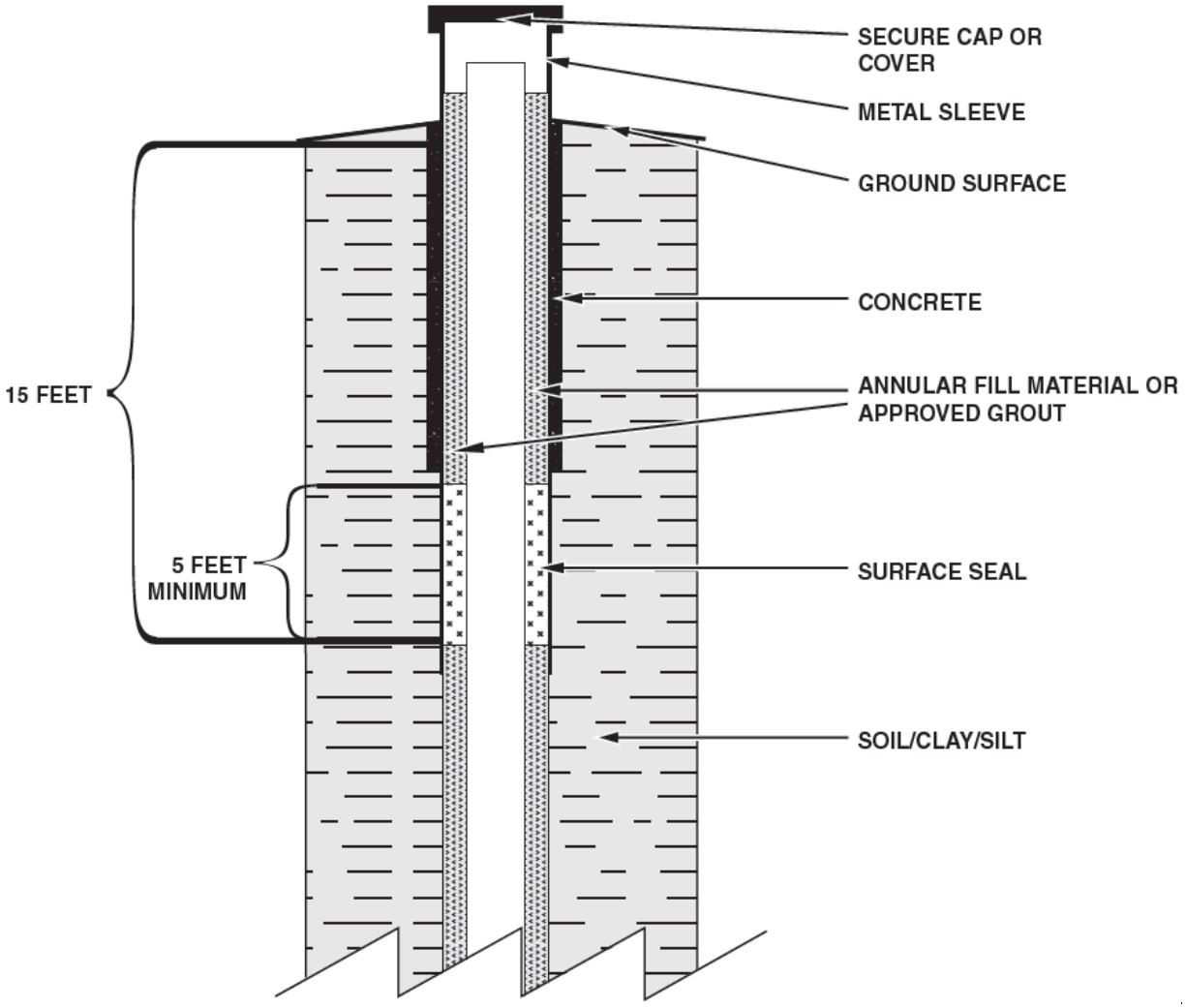
UPPER PORTION OF NON-POTABLE WELLS 6-5/8 INCH OD AND LESS WITH STEEL CASING RISER



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 7.
NON-POTABLE WELLS 6-5/8 INCH OD AND LESS WITH METAL SLEEVE BOLLARD

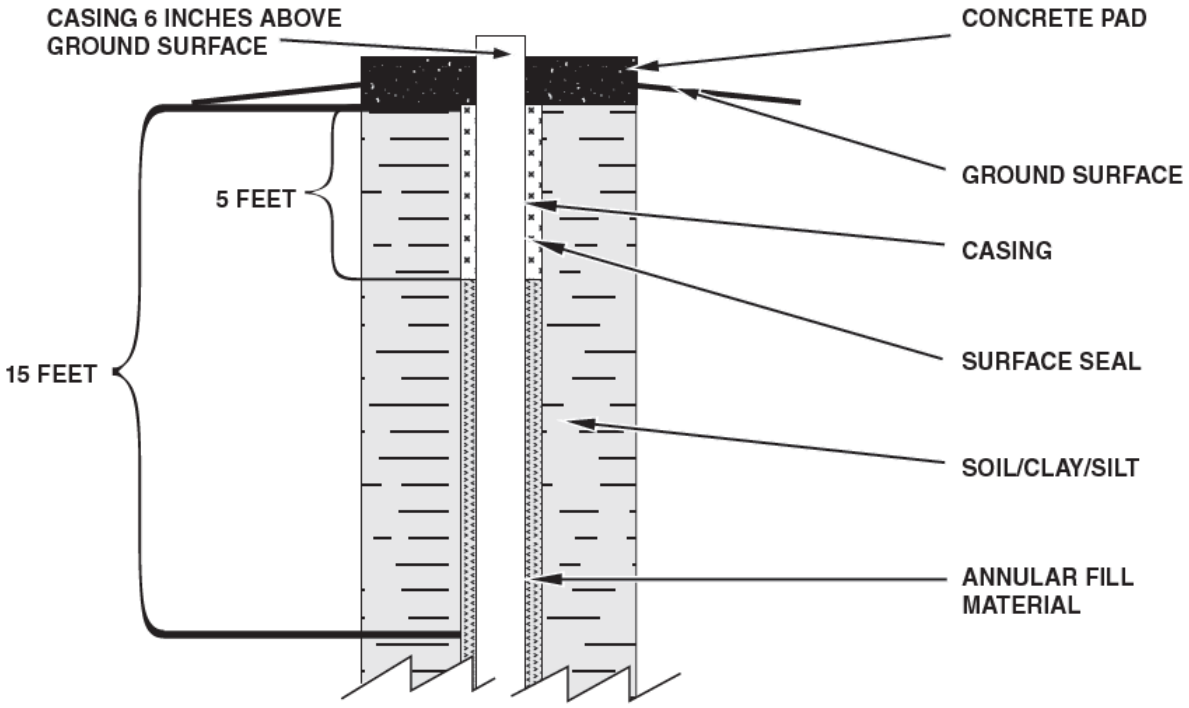
178 NAC 12-005.02A2



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 8.
CONCRETE PAD FOR NON-POTABLE WELLS LARGER THAN 6-5/8 INCHES IN OD

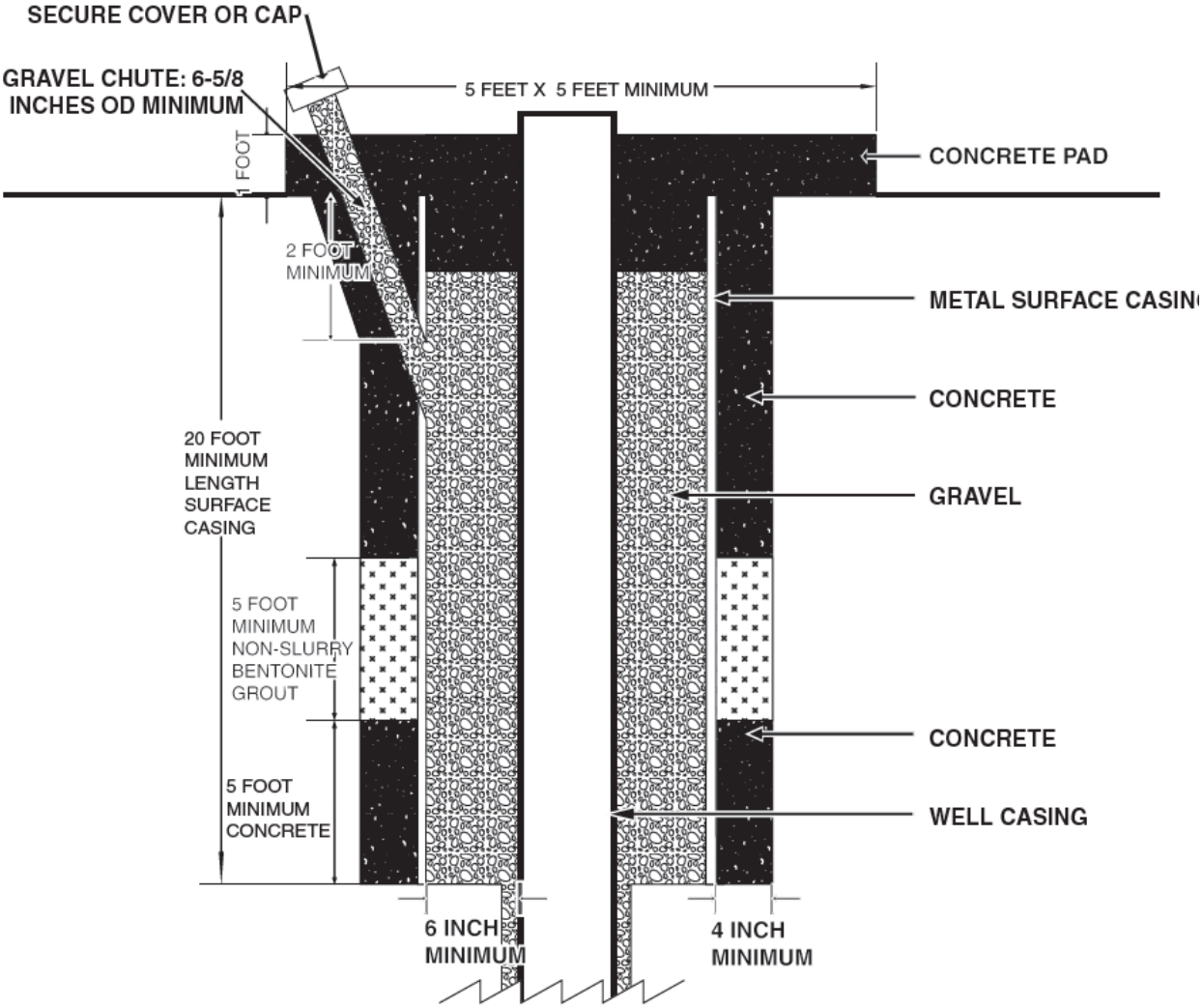
178 NAC 12-005.02B
12-005.02B
12-005.02



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 9
WELLS LOCATED IN THE ARIKAREE FORMATION THAT ARE SUBJECT TO SUBSIDENCE

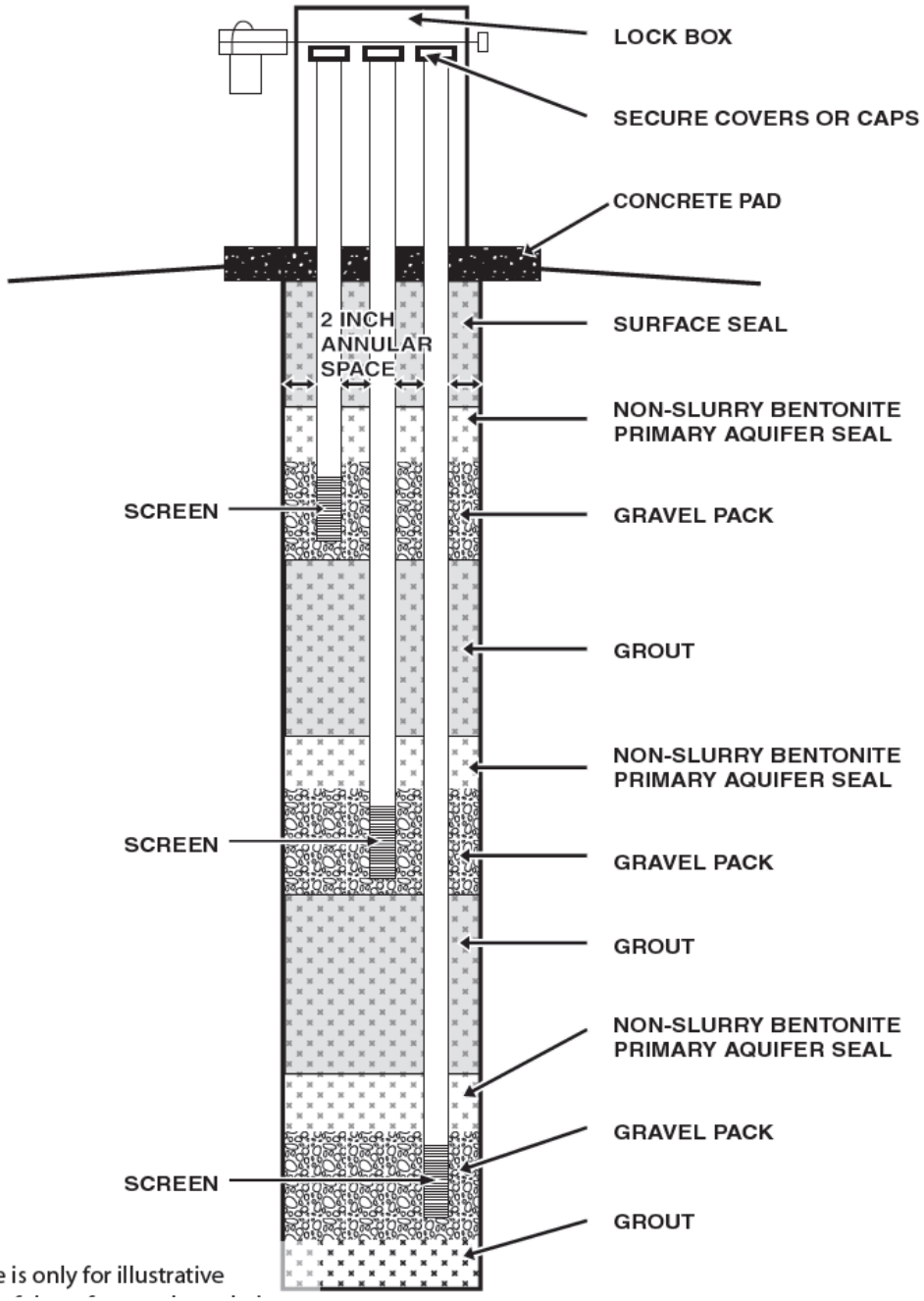
178 NAC 12-005.0



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 10
NESTED WELL DESIGN

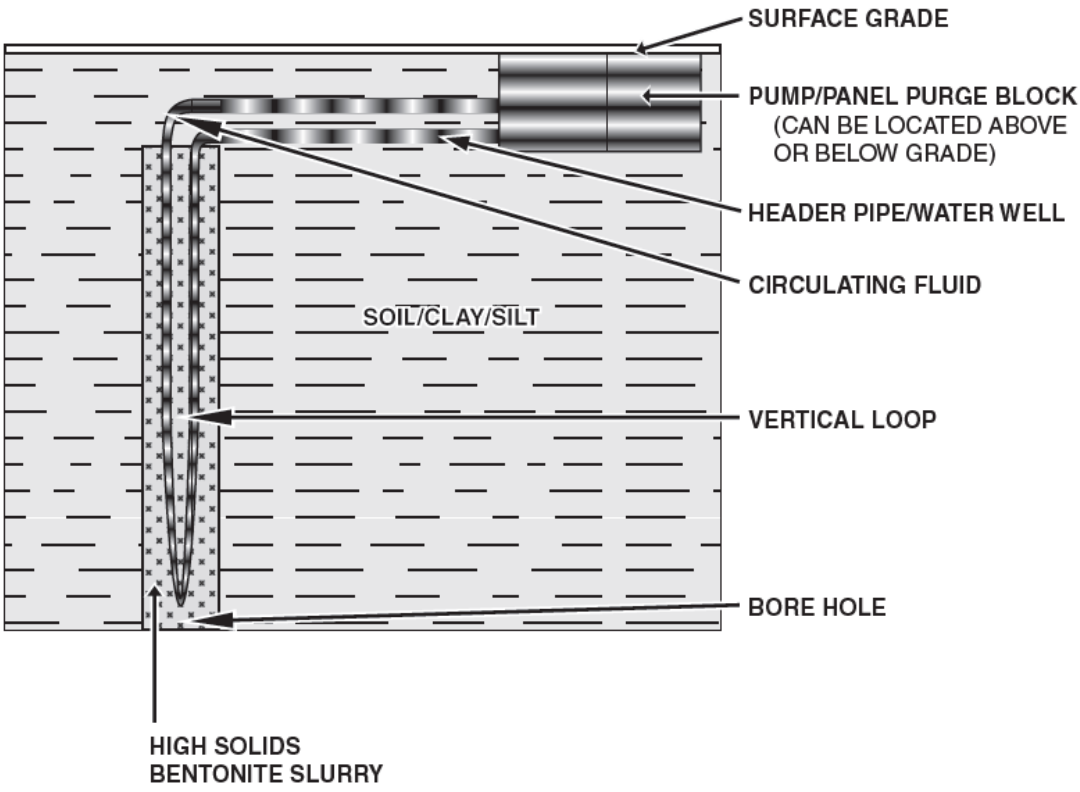
178 NAC 12-007.07



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

178 NAC 12-010.03A

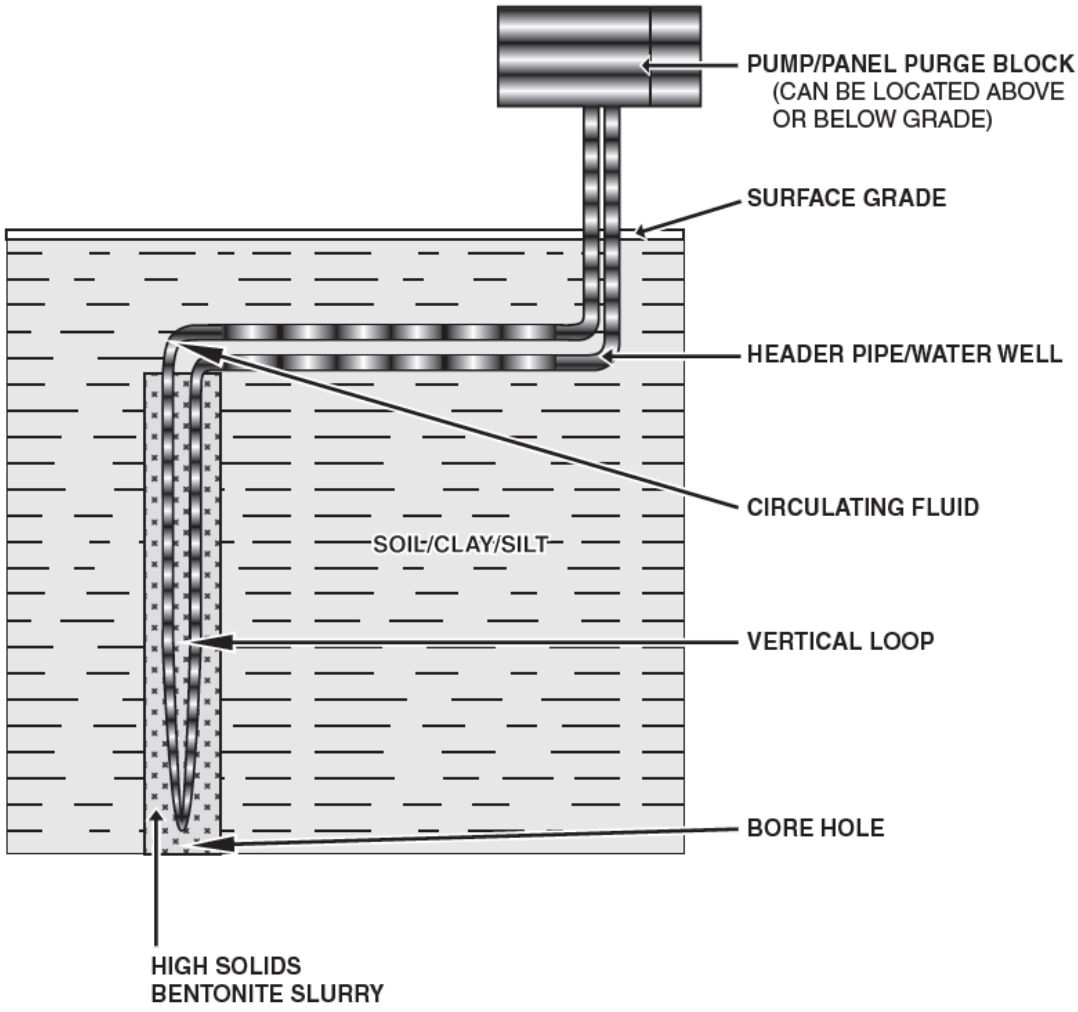
FIGURE 11A.
CLOSED LOOP WATER WELL AS PER 46-1212
10 OR MORE BOREHOLES



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

178 NAC 12-010.03B

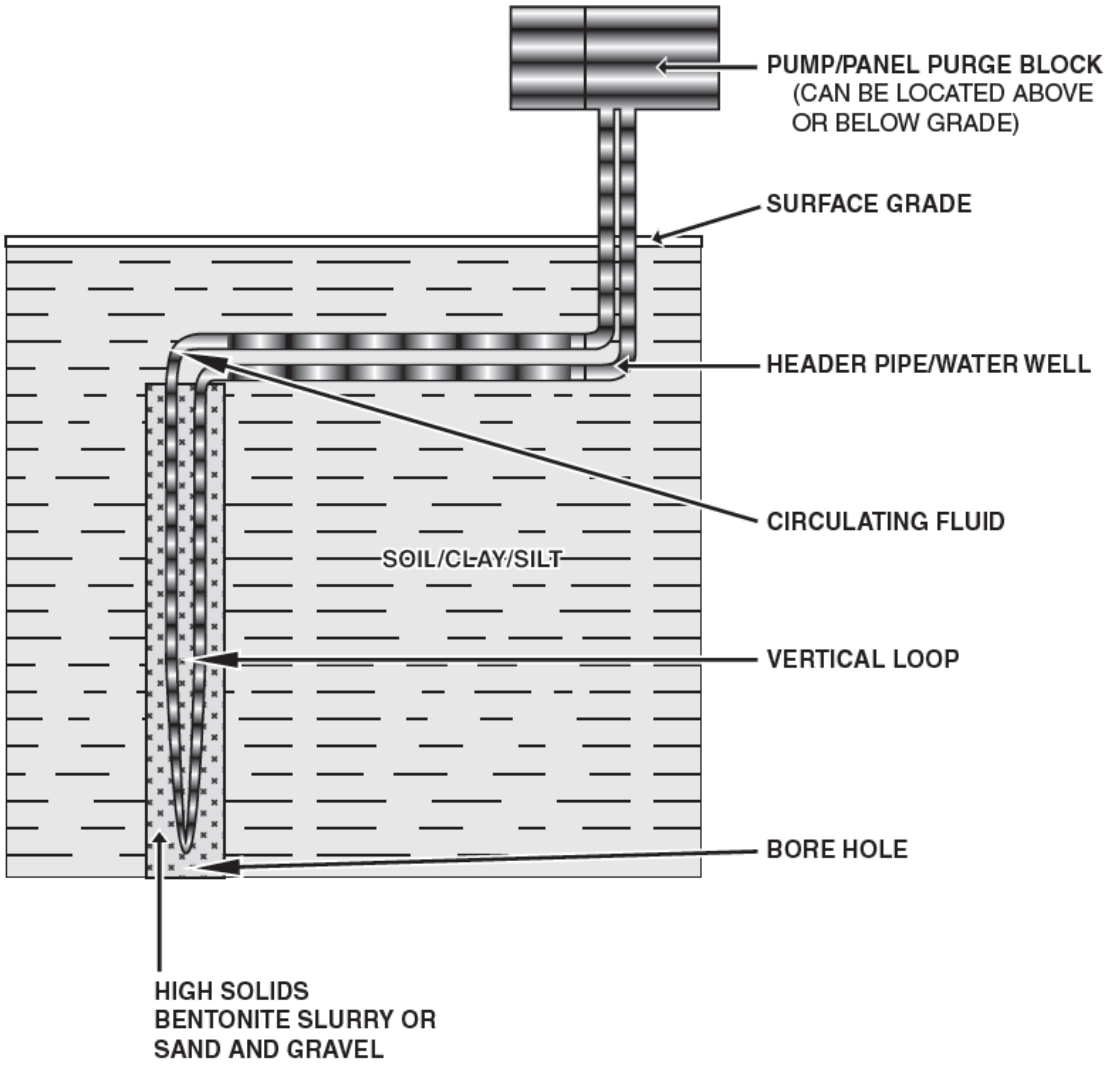
FIGURE 11B.
CLOSED LOOP WATER WELL AS PER 46-1212
LESS THAN 10 BOREHOLES AND LOCATED LESS
THAN 1000 FEET OF A COMMUNITY PUBLIC WATER WELL



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

178 NAC 12-010.03C

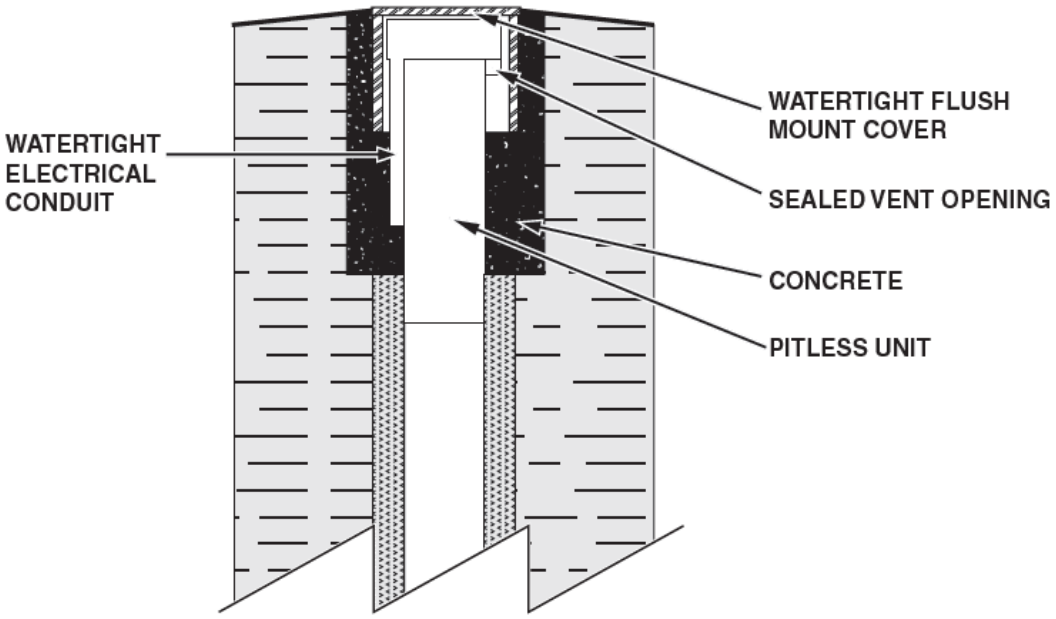
FIGURE 11C.
CLOSED LOOP WATER WELL AS PER 46-1212
LESS THAN 10 BOREHOLES AND LOCATED
1000 FEET OR MORE OF A COMMUNITY PUBLIC WATER WELL



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

178 NAC 12-011.03A item 7

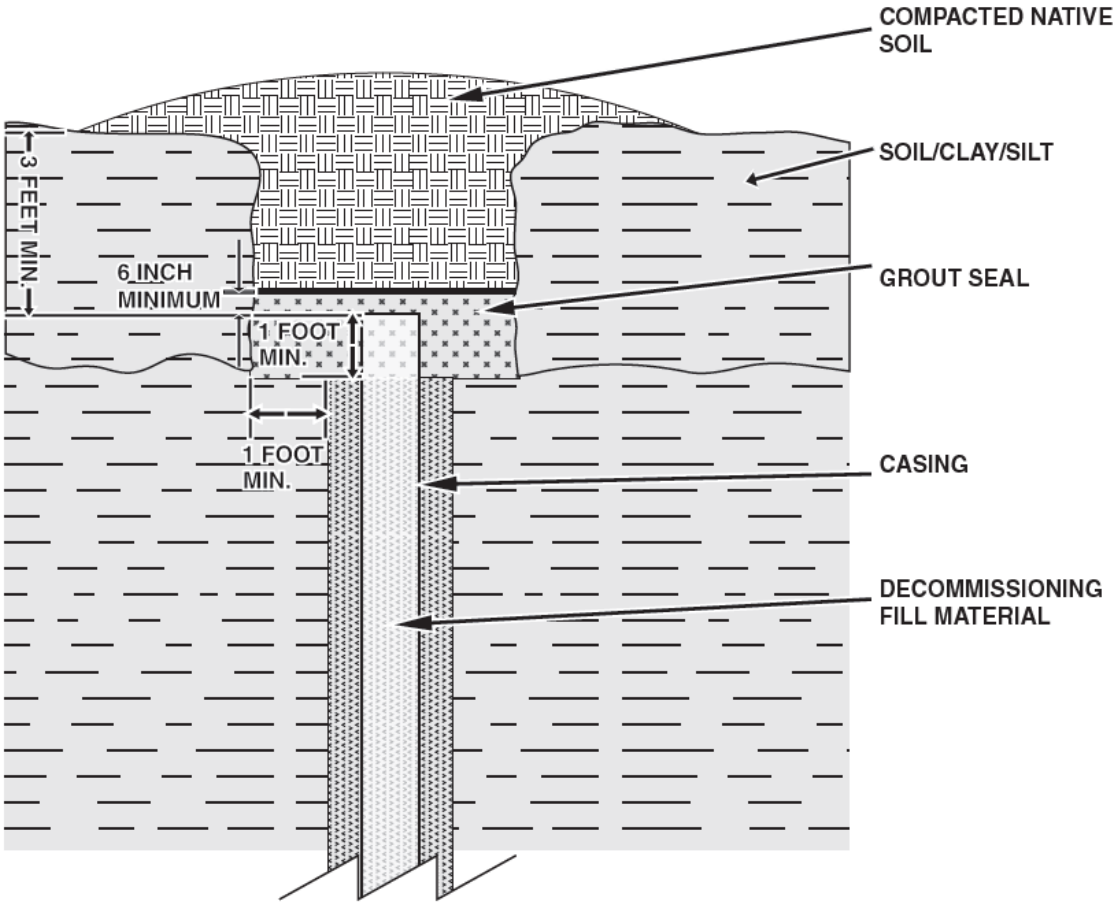
FIGURE 12.
PITLESS UNITS INSTALLATION
IN A HIGH TRAFFIC AREA



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 13.
DECOMMISSIONING THE UPPER PLUG - OPTION 1

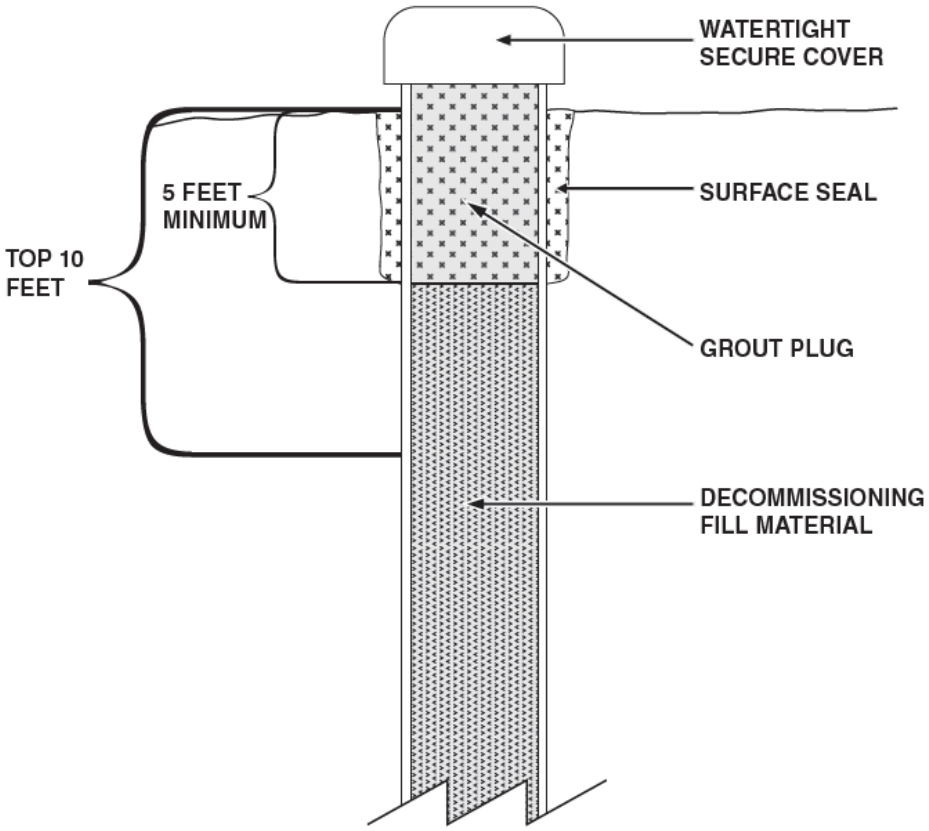
178 NAC 12-012.07A
12-012.08B item 7



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

178 NAC 12-012.07B

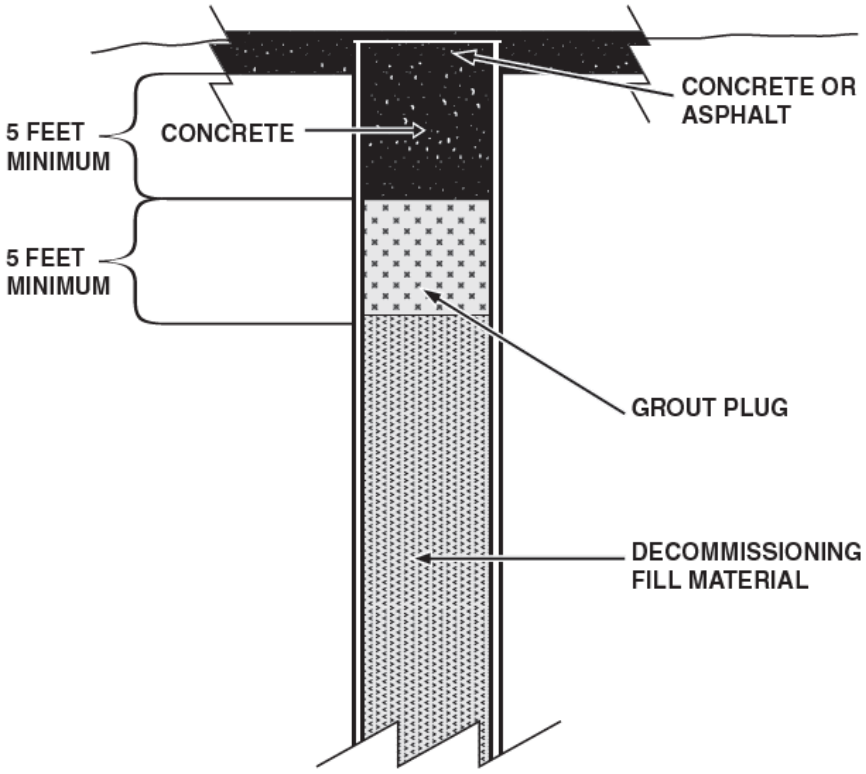
FIGURE 14.
DECOMMISSIONING THE UPPER PLUG - OPTION 2



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 15.
DECOMMISSIONING THE UPPER PLUG - OPTION 3

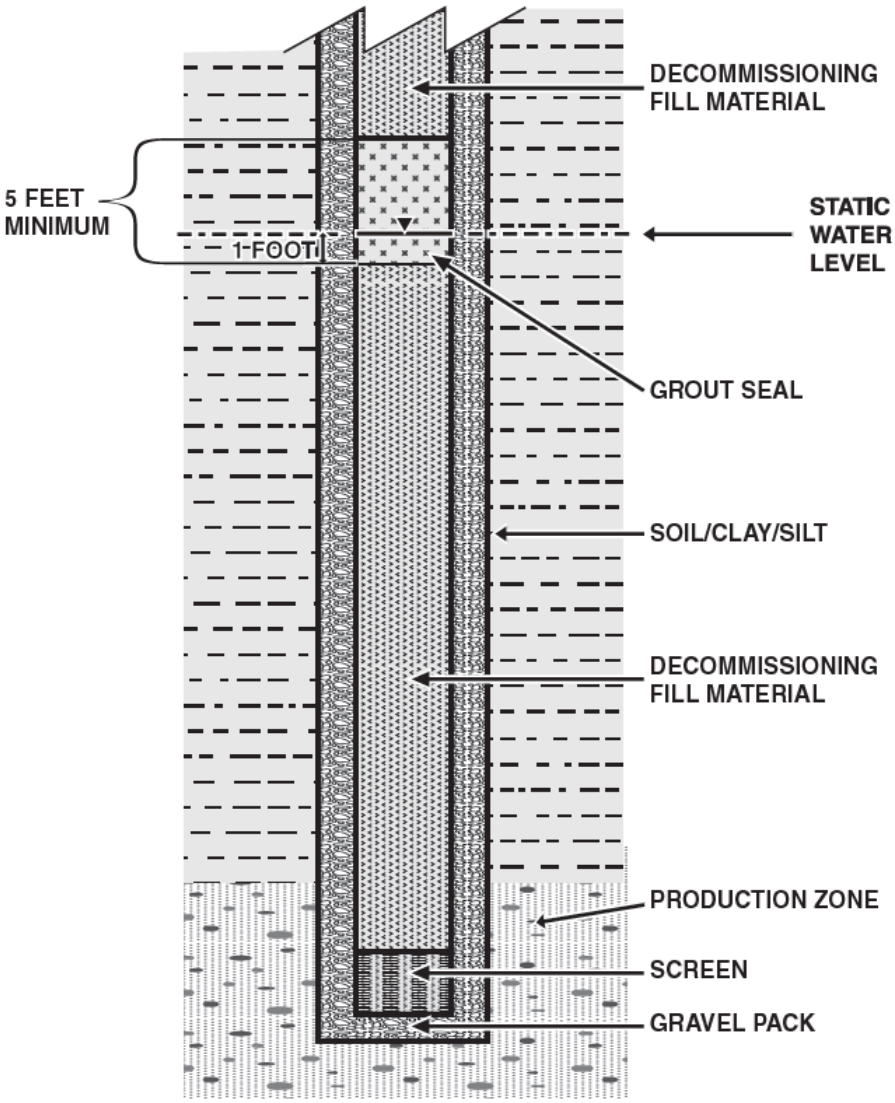
178 NAC 12-012.07C



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 16.
DECOMMISSIONING DRILLED WELLS

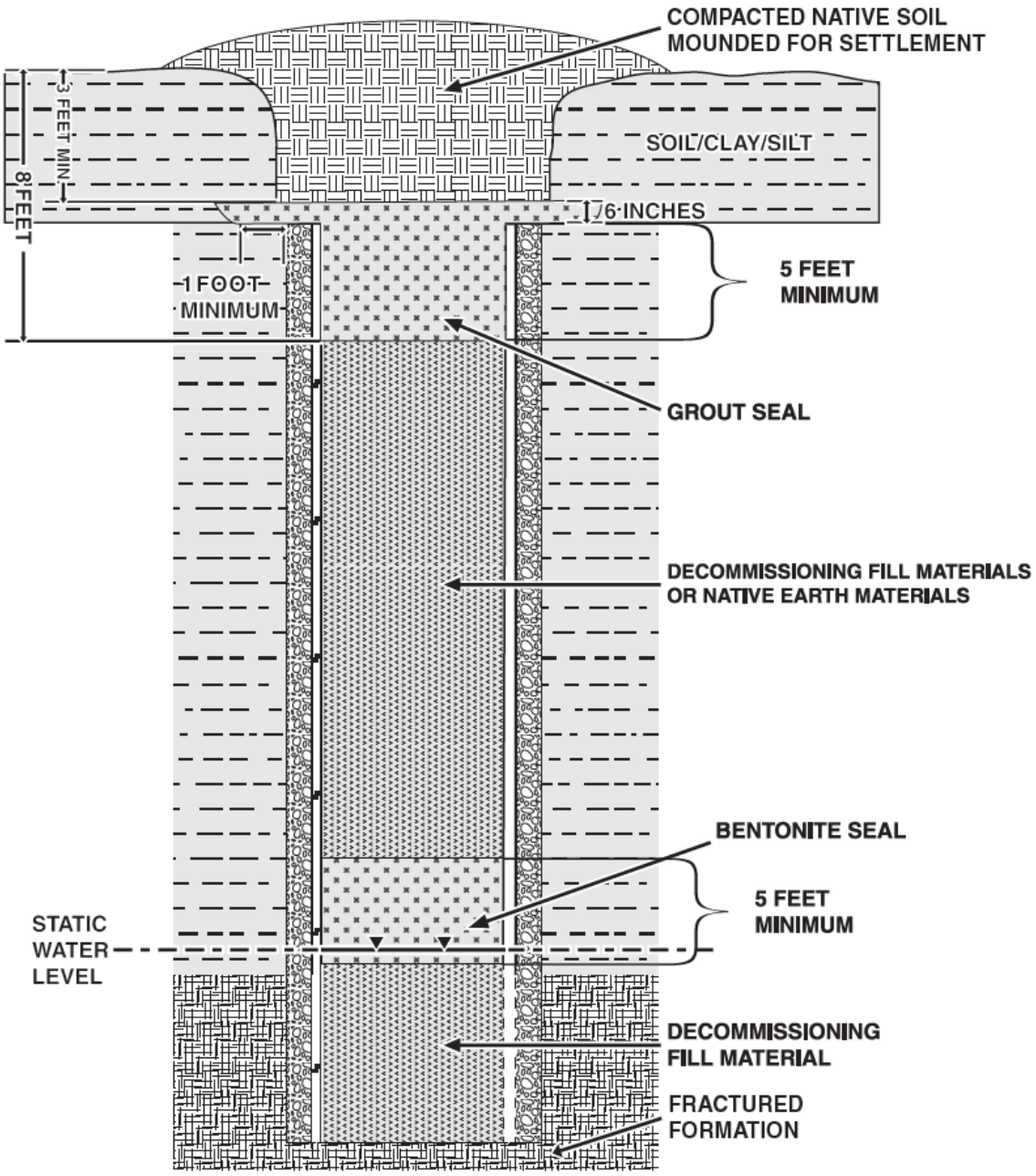
178 NAC 12-012.08B item 4b



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 17.
DECOMMISSIONING DUG OR BORED WATER WELLS

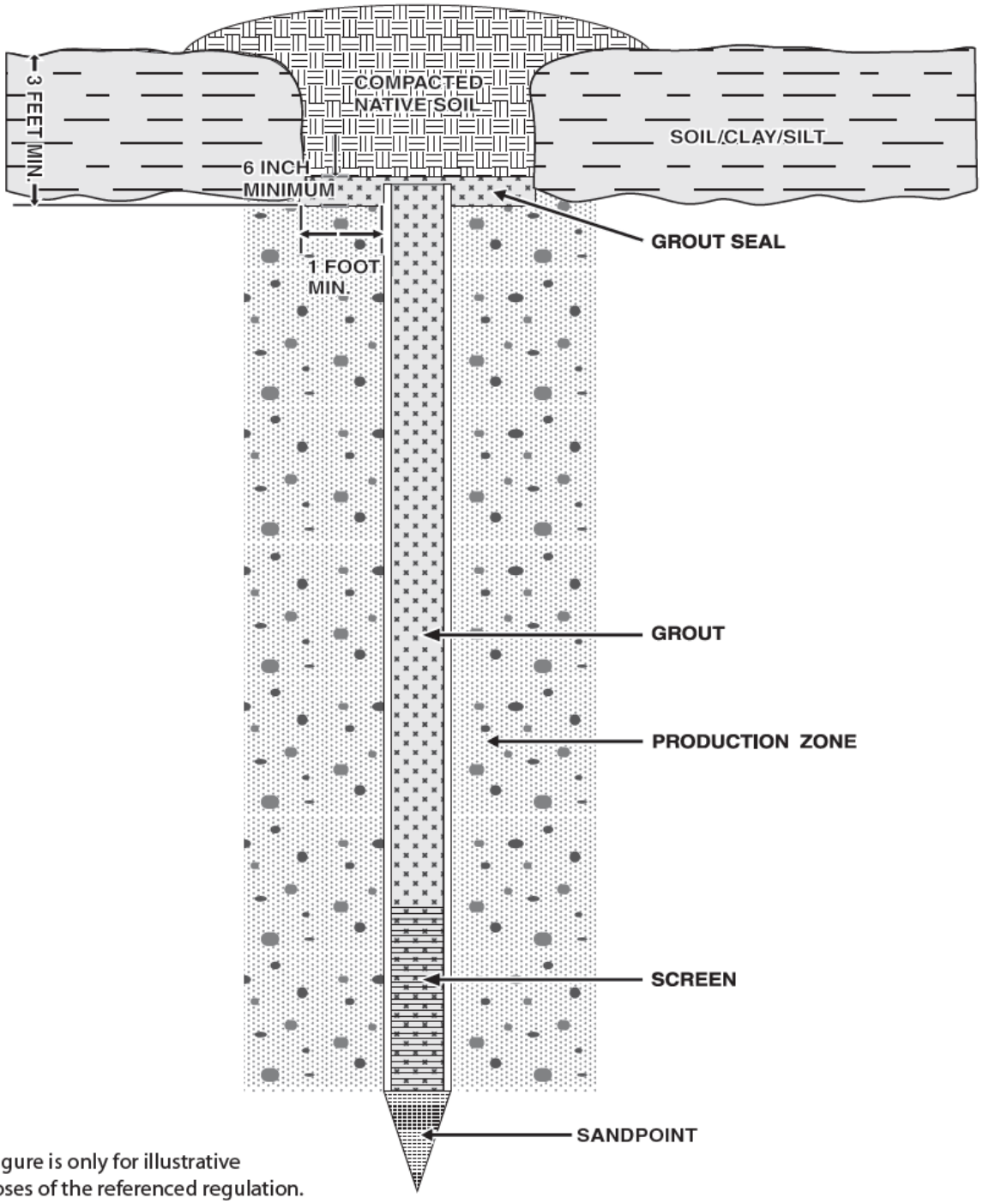
12-012.08B item 5
12-012.08B item 6



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 18.
DECOMMISSIONING DRIVEN SANDPOINT WELLS WHERE THE CASING IS LEFT IN PLACE

178 NAC 12-012.08C item 1

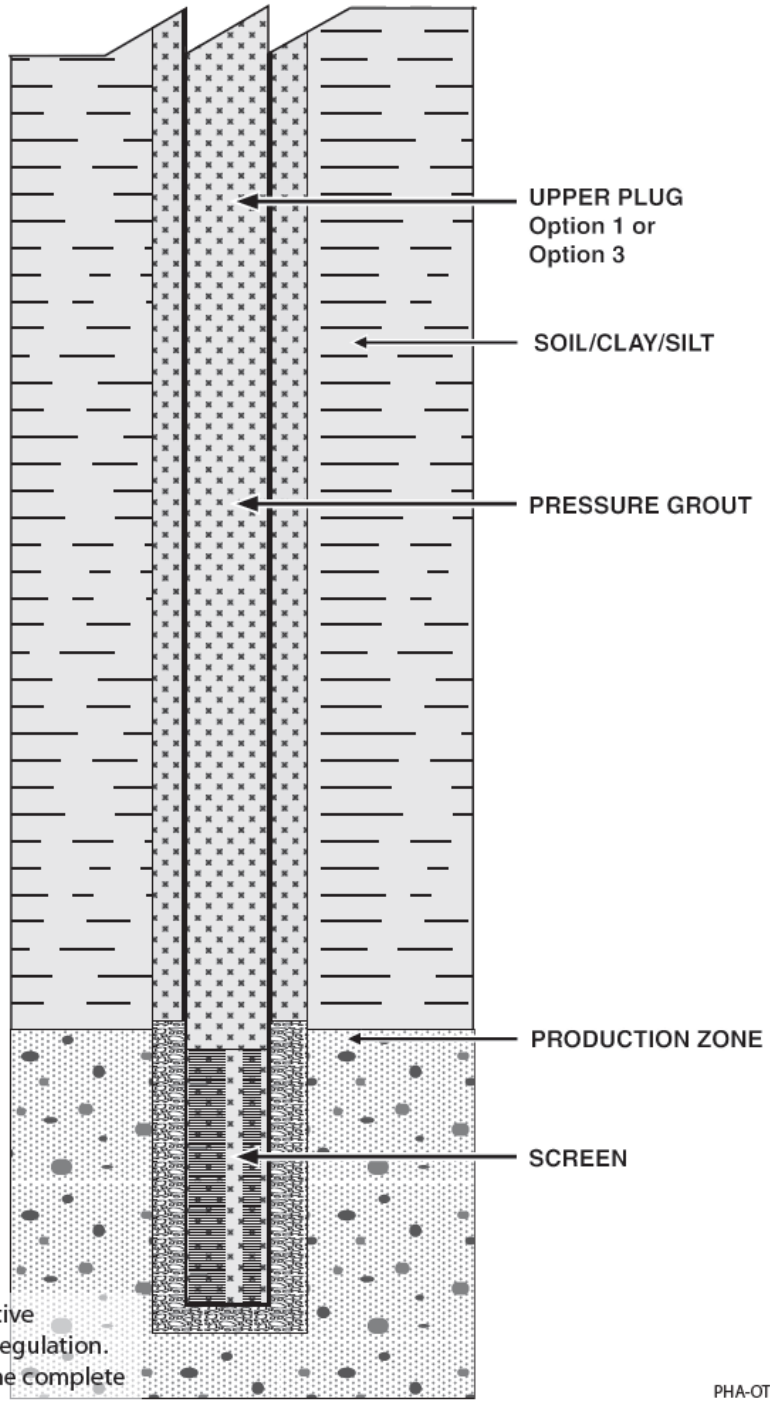


This figure is only for illustrative purposes of the referenced regulation.

See the regulation text for the complete standard requirements.

FIGURE 19.
DECOMMISSIONING FULL LENGTH GROUTED WELLS

178 NAC 12-012.08D



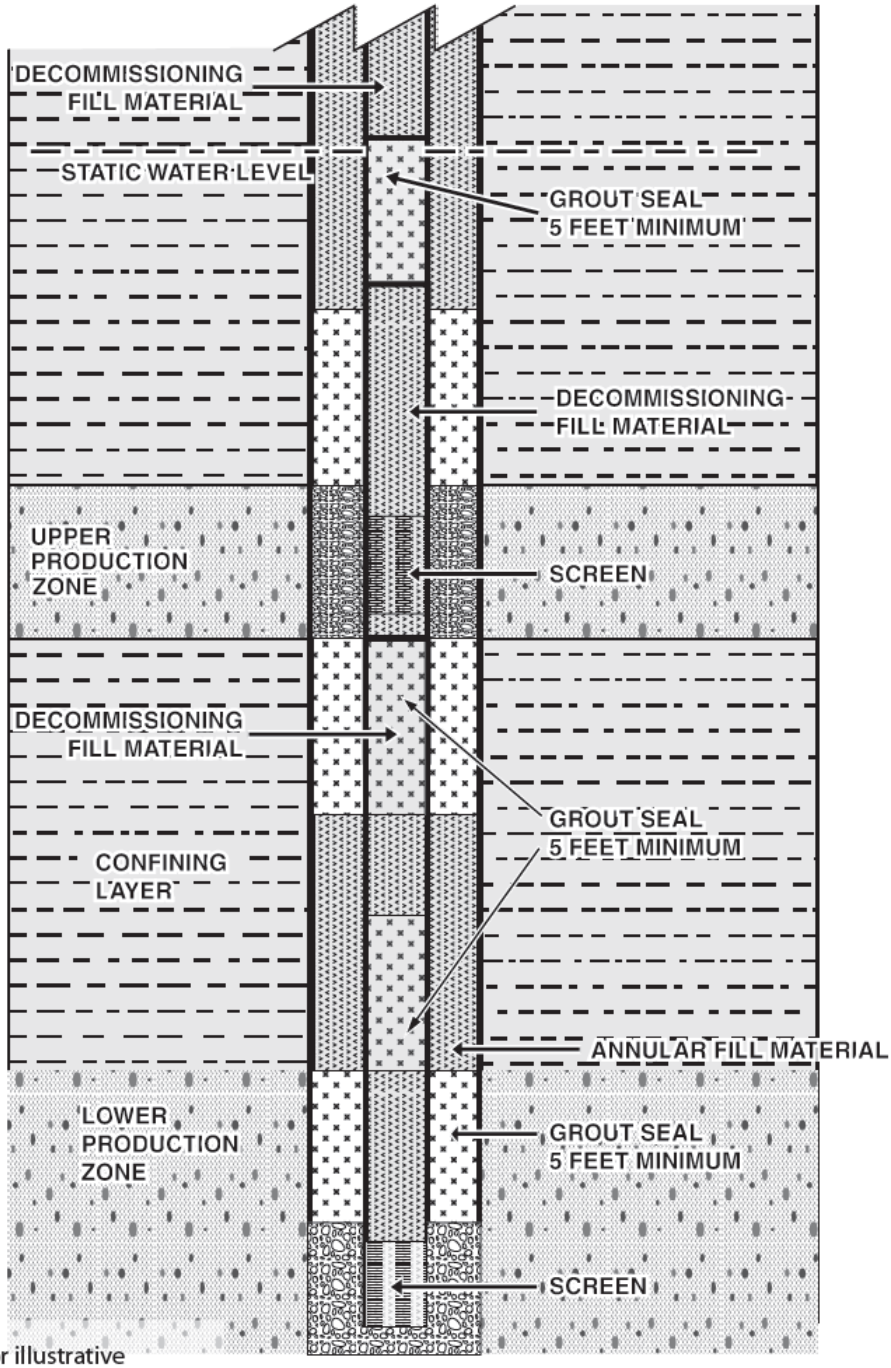
This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete

PHA-OTH-64-19 (65161)

standard requirements

FIGURE 20.
DECOMMISSIONING MULTIPLE AQUIFER WELLS

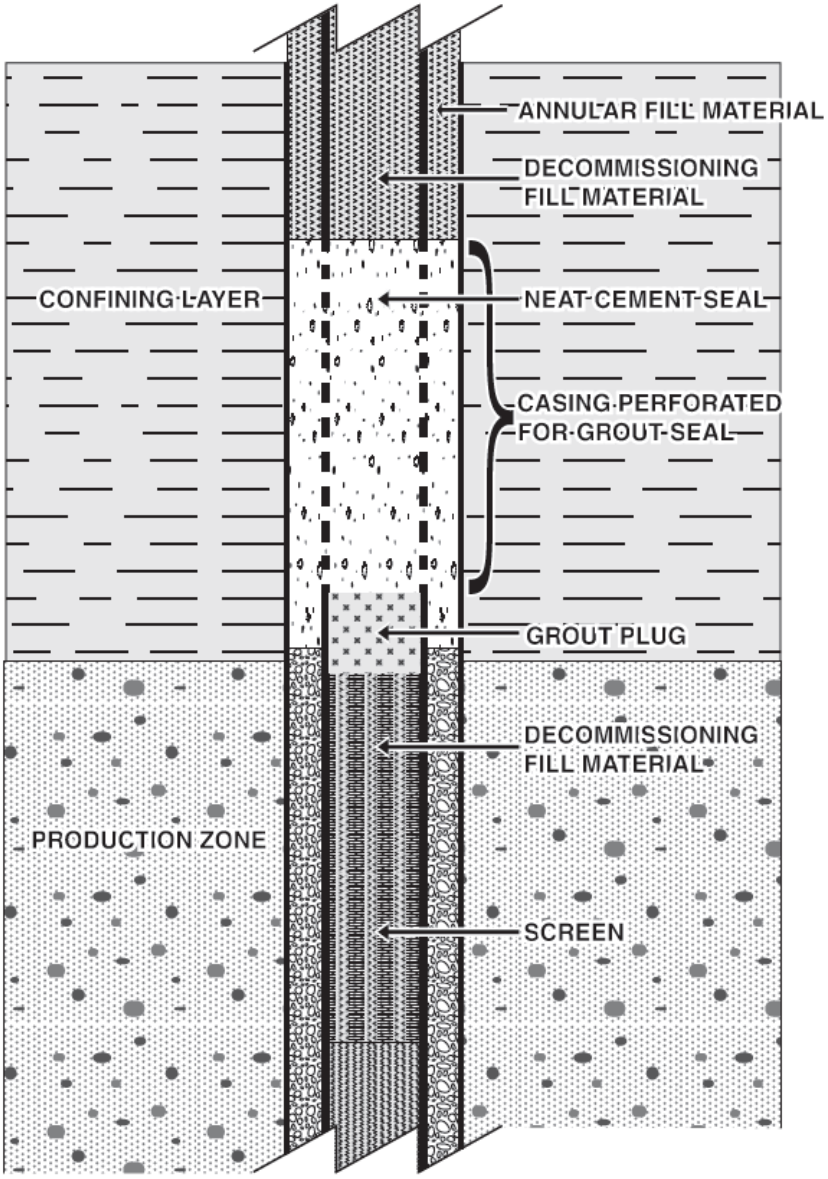
178 NAC 12-012.08E



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

FIGURE 21.
DECOMMISSIONING FLOWING WATER WELLS AND CONFINING LAYERS

178 NAC 12-012.08F1



This figure is only for illustrative purposes of the referenced regulation. See the regulation text for the complete standard requirements.

~~**CHAPTER 13 – THE WATER WELL STANDARDS AND CONTRACTORS' LICENSING BOARD**~~

~~**CHAPTER 14 – RESERVED**~~

~~**CHAPTER 15 – RESERVED**~~

~~**CHAPTER 16 – RESERVED**~~

~~**CHAPTER 17 – RESERVED**~~

~~**CHAPTER 18 – RESERVED**~~

~~**CHAPTER 19 – RESERVED**~~

~~**CHAPTER 20 – RESERVED**~~

~~**CHAPTER 21 – RESERVED**~~

~~**CHAPTER 22 – ASBESTOS PROJECTS**~~

~~**CHAPTER 23 – LEAD-BASED PAINT ACTIVITIES**~~

~~**CHAPTER 24 – METHAMPHETAMINE CLEANUP**~~

Nebraska Administrative Code

~~***Title 200 Petroleum Release Remedial Action Cash Fund***~~

~~**CHAPTER 1 Application for Reimbursement and Department Review**~~

[The entirety of the Petroleum Release Remedial Action Cash Fund is broader in scope and should be completely stricken.]

~~**NATIONAL FIRE PROTECTION ASSOCIATION 30: Flammable and Combustible Liquids Code, 2012 VERSION**~~

~~**21.7.4.3.1** General. Underground tanks taken out of service or abandoned shall be emptied of liquid, rendered vapor-free, and safeguarded against trespassing in accordance with this section and in accordance with NFPA 326, Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair, or in accordance with the requirements of the authority having jurisdiction. The procedures outlined in this section shall be followed when taking underground tanks temporarily out of service, closing them in place permanently, or removing them. (See Annex C for additional information.)~~

~~**21.7.4.3.2** Temporary Closure. Underground tanks shall be rendered temporarily out of service only when it is planned that they will be returned to active service, closed in place permanently,~~

or removed within an approved period not exceeding 1 year. The following requirements shall be met:

(1) Corrosion protection and release detection systems shall be maintained in operation.

(2) The vent line shall be left open and functioning.

(3) The tank shall be secured against tampering.

(4) All other lines shall be capped or plugged.

21.7.4.3.2.1 Tanks remaining temporarily out of service for more than 1 year shall be permanently closed in place or removed in accordance with 21.7.4.3.3 or 21.7.4.3.4, as applicable.

21.7.4.3.3 Permanent Closure in Place. Underground tanks shall be permitted to be permanently closed in place if approved by the authority having jurisdiction. All of the following requirements shall be met:

(1) All applicable authorities having jurisdiction shall be notified.

(2)*A safe workplace shall be maintained throughout the prescribed activities.

(3) All flammable and combustible liquids and residues shall be removed from the tank, appurtenances, and piping and shall be disposed of in accordance with regulatory requirements and industry practices, using a written procedure.

(4) The tank, appurtenances, and piping shall be made safe by either purging them of flammable vapors or inerting the potential explosive atmosphere. Confirmation that the atmosphere in the tank is safe shall be by testing of the atmosphere using a combustible gas indicator if purging, or an oxygen meter if inerting, at intervals in accordance with written procedures.

(5) Access to the tank shall be made by careful excavation to the top of the tank.

(6) All exposed piping, gauging and tank fixtures, and other appurtenances, except the vent, shall be disconnected and removed.

(7) The tank shall be completely filled with an inert solid material.

(8) The tank vent and remaining underground piping shall be capped or removed.

(9) The tank excavation shall be backfilled.