

Wyoming Administrative Rules

Environmental Quality, Dept. of

Land Quality - Non Coal

Chapter 8: Exploration by Drilling

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DEPARTMENT OF ENVIRONMENTAL QUALITY

LAND QUALITY DIVISION

NONCOAL RULES AND REGULATIONS

CHAPTER 8

EXPLORATION BY DRILLING

Section 1. Conducting Exploration by Drilling.

(a) Any discoverer conducting exploration by drilling within this State, shall do so in strict compliance with all the provisions of W.S. § 35-11-404 (2007) and this Chapter. The requirements of this Chapter shall apply to exploration drilling within permitted mine operations.

(b) Prior to conducting any exploration by drilling outside of a permitted mine operation, the discoverer shall provide notification (Drilling Notification) and a reclamation bond acceptable to the Administrator. Construction of water wells outside of a permitted mine operation may be authorized under a drilling notification in accordance with Section 7 and in compliance with applicable requirements of the Wyoming State Engineer's Office. The Drilling Notification shall be in a form as specified by the Administrator and shall include information describing the approximate number and depth of holes to be drilled and a map showing approximate hole locations within the exploration area. The Administrator shall review the notification and the bond and notify the discoverer in a timely manner not to exceed 60 days from receipt whether the drilling is approved or additional information is required.

Section 2. General Drill Hole Abandonment Requirements.

(a) All drill holes sunk for the purpose of conducting exploration by drilling, including those drilled within a permitted mine operation, shall be capped, sealed or plugged in the manner described hereinafter.

(b) Drill holes that have artesian flow of groundwater to the surface shall be plugged with cement-based sealant material, as specified and in the manner described below, to prevent fluid communication and adverse changes in water quality or quantity.

(c) Drill holes that have encountered any ground water or saturated stratum shall

be sealed utilizing sealant materials and emplacement methods as prescribed hereinafter to prevent fluid communication and adverse changes in water quality or quantity.

(d) “Sealant materials” are materials that are stable, have low permeability and possesses minimum shrinking properties such that they are optimal sealing materials for well plugging and drill hole abandonment. Sealant materials shall be either: 1) a fluid mixture of water plus a cement-based or bentonite-based material, or 2) a dry bentonite-based material, either chips or pellets specifically designed for sealing drill holes. Sealant materials shall meet the technical requirements for making a proper seal, shall meet applicable recognized industry standards and shall be prepared according to manufacturer’s directions for specific site requirements. The following are approved sealant materials:

(i) Neat Cement Slurry must consist of a mixture of Portland Cement and not more than 6 gallons of clean water per bag (1 cubic foot or 94 pounds) of cement;

(ii) Sand Cement Slurry must consist of a mixture of Portland Cement, sand, and water in the proportion of not more than 1 part by weight of sand to 1 part of cement with not more than 6 gallons of clean water per bag of cement (1 cubic foot or 94 pounds);

(iii) Concrete Slurry must consist of a mixture of Portland Cement, sand and gravel aggregate, and water in the proportion of not more than 1 part by weight of aggregate to 1 part of cement with not more than 6 gallons of clean water per bag of cement;

(iv) Cement/Bentonite Slurry must consist of a mixture of cement and bentonite in the proportion of not more than 6.5 gallons of water and 3 to 5 pounds of powdered bentonite per 94-pound sack of Portland cement;

(v) High Solids Bentonite Slurry means an inorganic mixture with a slurry density of 9.4 lbs./gal. minimum (20%) by weight of solids bentonite, with polymers, water, or other additives for the yield/rate control, which forms a low permeability seal (not greater than 1×10^{-7} cm/sec), and is mixed to the manufacturer’s specifications; and

(vi) Nonslurry Bentonite must consist of chipped or pelletized bentonite varieties specifically designed to be used to seal drill holes.

(vii) Abandonment Gel means a mixture of bentonite with polymers and other additives and water in the proportion of one (1) barrel of water to 15 pounds of abandonment material with a minimum slurry density of 8.6 lbs./ gal. Abandonment Gel used to seal boreholes shall meet the following specifications when using American Petroleum Institute Standard Procedures for Testing Drilling Fluids:

(A) Ten minute gel strength of at least 20 lbs. / 100 sq. ft.

(B) Filtrate volume not to exceed 13.5 cc.

(C) Minimum Marsh Funnel viscosity of 60 sec. / quart.

(e) Sealant materials shall be emplaced in a manner that provides a water tight seal utilizing one of the following approved methods:

(i) By placing sealant materials by drill pipe, tremie pipe, or similar device in an upward direction from the bottom of the drill hole to within approximately five (5) feet of the ground surface; or

(ii) By placing nonslurry bentonite from the bottom of the drill hole to within approximately five (5) feet of the ground surface. Nonslurry bentonite shall not be utilized unless the drill hole is four inches or greater in diameter and less than 500 feet in depth and the material must be placed in such a manner that a bridge does not occur. Nonslurry bentonite may not be placed in more than 300 feet of standing liquid.

(f) For any hole that has been sealed with a sealant material, the discoverer responsible for sealing the drill hole shall:

(i) Measure the depth of the top of the sealant material column with the appropriate equipment after sufficient time (minimum 24 hours) has been allowed for the column of sealant material to set up; and

(ii) If the column of sealant material has dropped or fallen back, the discoverer shall continue to install sealant material until the top of the sealant material column remains at least 50 feet above the top of the uppermost saturated groundwater stratum; and

(iii) Install uncontaminated fill material, drill cuttings or one of the approved sealant materials listed herein from the top of the sealant material column to within approximately 5 feet of the ground surface.

(g) If a hole is drilled without the use of drilling fluids and the bottom of the hole is above the preexisting natural elevation of the uppermost saturated groundwater stratum, the drill hole shall be abandoned by completely backfilling from the bottom of the drill hole to the surface with uncontaminated earthen material or drill cuttings or approved grout materials described herein. When using uncontaminated earthen material or drill cuttings as a backfill material, this material should be emplaced in a manner to promote settling and compaction and to minimize voids caused by bridging. If the drill hole is backfilled to the natural ground surface with dry nonslurry materials then no surface cap is necessary.

(h) All drill holes shall be backfilled to the surface with dry nonslurry materials or capped with a concrete cap set at least 2 feet below the ground surface and then backfilled to

the surface with native earthen materials to ensure the safety of people, livestock, wildlife, and machinery in the area.

(i) Drill holes shall be capped or backfilled immediately after drilling and probing in accordance with W.S. 35-11-404(h). If it is necessary to temporarily delay the abandonment or keep the drill hole open for any reason, the drill hole must be securely covered with a temporary cap in a manner which will prevent injury to persons or animals. Drill holes shall not be left open for more than 30 days without specific authorization from the Administrator.

(j) For inspection and verification purposes, each drill hole shall be marked with a temporary marker that clearly identifies the name of the discoverer and the hole number until bond release is authorized. Holes shall not be marked with rebar, metal pipe or metal posts which could pose a hazard to people, livestock, wildlife or equipment.

(k) The Administrator may approve other drill hole abandonment procedures, and/or sealant materials, at the request of the discoverer.

Section 3. Reclamation of Drill Sites and Affected Lands.

(a) Drill sites and associated Light-use roads, as defined in Chapter 1, shall be restored as nearly as possible to their original condition.

(b) All drilling fluids, drill cuttings and geologic samples shall be confined and buried below grade to the extent possible. Excess drilling mud and drill cuttings or any acid-forming or toxic materials uncovered during or created by exploration by drilling, including petroleum contaminated soils, shall be properly disposed of so as not to constitute a fire, health, or safety hazard during or after the exploration by drilling.

(c) To the extent possible, any surface preparation of the drill site shall be accomplished in a manner consistent with Chapter 3, Section 2(b), Land Quality Noncoal Rules and Regulations.

(d) To the extent possible, topsoil removal and stockpiling shall precede any excavation within the drill site and associated light-use roads in a manner consistent with Chapter 3, Section 2(c) and 2(i), Land Quality Noncoal Rules and Regulations.

(e) To the extent possible, the discoverer shall reestablish the vegetative cover where vegetation has been removed or destroyed within the drill site and associated light-use roads by seeding, planting, transplanting, or by other adequate methods in a manner consistent with Chapter 3, Section 2(d) and 2(i), Land Quality Noncoal Rules and Regulations.

(f) All lands, including access roads or terrain damaged in gaining access to or

clearing the site, or lands whose natural state has been substantially disturbed as a result of the exploration by drilling, shall be restored as nearly as possible to their original condition, including reseeded if grass or other crop was destroyed.

Section 4. Bond.

(a) In order to assure and secure performance of the discoverer's obligations, each discoverer shall agree to post a bond for each exploration area. The amount of the bond shall be computed in accordance with established engineering principles, for accomplishing proper drill hole abandonment and surface restoration in accordance with the standards set out in this Chapter.

(b) The bond amount for any drill holes or any portion of the exploration area may be reduced when the discoverer demonstrates to the satisfaction of the Administrator that drill hole abandonment has been accomplished in accordance with the standards set out in this Chapter. The amount by which the bond is reduced may be returned to the discoverer or applied towards additional drilling. The bond for any drill sites or any portion of the exploration area may be released when reclamation has been completed and the Administrator finds that vegetation has been re-established.

(c) The Administrator may accept the bond of the discoverer itself without separate surety when the discoverer demonstrates to the satisfaction of the Administrator substantial compliance with the applicable provisions of Chapter 6, Land Quality Noncoal Rules and Regulations.

Section 5. Termination and Report of Operations.

(a) Within 12 months after the completion and proper abandonment of any exploration drill hole, the discoverer shall comply with the reporting requirements of W.S. § 35-11-404(e) or (f). The report shall be in a form as specified by the Administrator. After receipt of such report, the Administrator shall have one year to inspect and evaluate the abandoned drill holes, drill sites, and access routes and make a determination of whether to release the bond to the discoverer, require additional reclamation, or institute forfeiture proceedings. The abandoned drill hole reports shall be held as confidential for a period of five years from the date of filing. The period may be extended for additional five (5) year periods upon request of the person filing the report.

(b) Forfeiture proceedings and release of bonds shall be according to the procedure set forth in W.S. §§ 35-11-421 through 35-11-423; substituting therein "discoverer" for "operator;" "surface restoration" for "reclamation," and "exploration by drilling" for "surface mining."

(c) Failure to so inspect and evaluate abandoned drill holes shall constitute a decision by the Administrator that the discoverer has complied with this Chapter for release

of bond purposes only. This one year limitation shall not be construed to alter or affect W.S. § 35-11-404(k)-(n), or any other rights of action against the discoverer granted pursuant to the statutory provisions of the Wyoming Environmental Quality Act.

Section 6. Exceptions.

Sections 2 and 3 of this Chapter, relating to drill hole abandonment and site reclamation, shall not apply to holes drilled in conjunction with open-pit development within an existing permitted surface mine operation that are within 500 feet of the active pit and are projected to be mined through within 12 months of drilling. This Chapter shall not apply to holes drilled for the purpose of conducting oil and gas exploration operations. Specific exceptions from certain requirements of this Chapter shall also be preserved in accordance with W.S. § 35-11-404(g) and (h).

Section 7. Installation of Wells for Collection of Baseline Information.

(a) Construction of wells may be authorized by the Administrator under a Drilling Notification for the purpose of collecting ground water baseline data in preparation of a mine permit application.

(b) Prior to installation, the discoverer is encouraged, but not required, to submit a plan for review by the Administrator that describes the location and completion details of each proposed well. The Administrator shall review the plan and respond within 30 days.

(c) Wells shall be permitted in accordance with requirements of the State Engineer's Office, in accordance with W.S. 35-11-404 (c)(iv).

(d) Wells shall be constructed according to the standards contained in Chapter 11, Sections 6(b), 6(c), 6(d), 6(e), and 6(f), Land Quality Noncoal Rules and Regulations.

(e) Provisions shall be made such that each well is secured to prevent contaminant entry.

(f) Adequate bond shall be provided to assure that all wells are properly plugged and sealed and the sites restored.

(g) Well plugging and sealing and site reclamation shall follow the procedures outlined in Sections 2 and 3. Well casing shall be cut off at least two (2) feet below ground surface and any pump and associated appurtenances removed, as applicable, before the well is plugged and sealed.

(h) Well abandonment reports shall be filed with the Administrator and the State Engineer's Office within 12 months of abandonment.