Certification Page
Regular and Emergency Rules

Revised May 2014

☐ **Emergency Rules** *(After completing all of Sections 1 and 2, proceed to Section 5 below)* ☑ **Regular Rules**

1. General Information

a. Agency/Board Name Department of Environmental Quality - Land Quality Division		
b. Agency/Board Address 200 West 17th Street, Lower Level	c. City Cheyenne	d. Zip Code 82002
e. Name of Contact Person Craig Hults	f. Contact Telephone Number (307) 777-7066	
g. Contact Email Address craig.hults@wyo.gov	h. Adoption Date March 2, 2016	
i. Program Land Quality - Coal		

2. Rule Type and Information: For each chapter listed, indicate if the rule is New, Amended, or Repealed.

If "New," provide the Enrolled Act numbers and years enacted: N/A

c. Provide the Chapter Number, Short Title, and Rule Type of Each Chapter being Created/Amended/Repealed
(Please use the Additional Rule Information form for more than 10 chapters, and attach it to this certification)

Chapter Number:	Chapter Name:	
14	Exploration for Coal by Drilling	☐ New ☑ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed
		☐ New ☐ Amended ☐ Repealed

d. ☑ The Statement of Reasons is attached to this certification.

e. If applicable, describe the **emergency** which requires promulgation of these rules without providing notice or an opportunity for a public hearing:

N/A

3. State Government Notice of Intended Rulemaking

a. Date on which the Notice of Intent containing all of the information required by W.S. 16-3-103(a) was filed with the **Secretary of State**:	January 8, 2016
b. Date on which the Notice of Intent and proposed rules in strike and underscore format and a clean copy were provided to the **Legislative Service Office**:	January 8, 2016
c. Date on which the Notice of Intent and proposed rules in strike and underscore format and a clean copy were provided to the **Attorney General**:	January 8, 2016

4. Public Notice of Intended Rulemaking

a. Notice was mailed 45 days in advance to all persons who made a timely request for advance notice. ☑ Yes ☐ No ☐ N/A

b. A public hearing was held on the proposed rules. ☑ Yes ☐ No

If "Yes:"	Date:	Time:	City:	Location:
	March 2, 2016	9:00 a.m.	Cheyenne, WY	Herschler Building Room 1699 122 W. 25th Street Cheyenne, WY 82002

5. Final Filing of Rules

a. Date on which the Certification Page with original signatures and final rules were sent to the **Attorney General's Office for the Governor's signature**:	March 8, 2016
b. Date on which final rules were sent to the **Legislative Service Office:**	March 8, 2016
c. Date on which a PDF of the final rules was electronically sent to the **Secretary of State**:	March 8, 2016

6. Agency/Board Certification

The undersigned certifies that the foregoing information is correct.

Signature of Authorized Individual *(Blue ink as per Rules on Rules, Section 7)*	
Printed Name of Signatory	Todd Parfitt
Signatory Title	Director, Department of Environmental Quality
Date of Signature	March 8, 2016

7. Governor's Certification

I have reviewed these rules and determined that they:

1. Are within the scope of the statutory authority delegated to the adopting agency;
2. Appear to be within the scope of the legislative purpose of the statutory authority; and, if emergency rules,
3. Are necessary and that I concur in the finding that they are an emergency.

Therefore, I approve the same.

Governor's Signature	
Date of Signature	

Attorney General: 1. Statement of Reasons; 2. Original Certification Page; 3. Summary of Comments (regular rules); 4. Hard copy of rules: clean and strike/underscore; and 5. Memo to Governor documenting emergency (for emergency rules only).

LSO: 1. Statement of Reasons; 2. Copy of Certification Page; 3. Summary of Comments (regular rules); 4. Hard copy of rules: clean and strike/underscore; 5. Electronic copy of rules (PDFs) emailed to Criss.Carlson@wyoleg.gov: clean and strike/underscore; and 6. Memo to Governor documenting emergency (for emergency rules only).

SOS: 1. PDF of clean copy of rules; and 2. Hard copy of Certification Page as delivered by the AG.

BEFORE THE

ENVIRONMENTAL QUALITY COUNCIL

STATE OF WYOMING

March 2, 2016

IN THE MATTER OF THE	**)**	
PROPOSED REVISION OF	**)**	**STATEMENT OF PRINCIPAL**
THE LAND QUALITY	**)**	**REASONS (SOPR) FOR ADOPTON**
DIVISION RULES RELATED	**)**	
TO THE REGULATION OF	**)**	**DOCKET #: 16-4101**
COAL MINING	**)**	

Coal Rules and Regulations, Chapter 14

Exploration for Coal by Drilling

Table of Contents

Introduction to Rule Package

Chapter 14, Exploration for Coal by Drilling

Chapter 14 was promulgated in 1992, with updates in 1995 and 1998. Since 1998, it has remained unchanged. Chapter 14 contains regulations on exploratory drilling, and provides requirements for plugging and abandonment (sealing) of drill holes after obtaining exploratory data. One of the main areas that these new rules seek to address is drill hole plugging and sealing requirements.

LQD Noncoal, Chapter 8 (Exploration by Drilling) was revised in a similar manner in 2012. This revision allows for consistency between the requirements for coal and non-coal mines.

The revisions in this Chapter include current best management practices and standards adopted by the Wyoming State Engineers Office (SEO) in 2010, which brought the SEO's Rules and Regulations into conformance with accepted practices as set forth by the American Society for Testing and Materials (ASTM), the American Water Works Association (AWWA), and the WDEQ-WQD Chapter 11, Part G, Well Construction Standards, among others. These standards do not allow the use of drilling mud as an acceptable sealant. The SEO's list of approved grout materials and methods has been copied verbatim in these proposed rules.

Another issue that the proposed rules seek to correct is that the current LQD rules do not require plugging the entire hole. The DEQ/WQD and SEO rules make no distinction between an exploration test well (e.g., an exploration hole) and a constructed water well in terms of plugging and sealing requirements. The DEQ/WQD and SEO both require that the hole be plugged or sealed by filling the entire hole from the bottom to the ground surface to preclude the well, borehole, or drill hole from acting as a vertical conduit and to prevent contamination of ground water.

A provision has been added from the statute [W.S. § 35-11-404(h)] requiring that drill holes be capped immediately after the hole is probed. Another provision has been added to require that drill holes be temporarily marked with an identification number to facilitate inspection by WDEQ-LQD staff.

Surface reclamation requirements have been split out as a separate section from the plugging and abandonment requirements for the sake of clarity. Some minor additions have been made to address the disposal of drilling wastes and contaminated materials and reclamation of access routes.

Chapter 14 currently states that a bond in the amount of $10,000 will be posted for each exploration area. This amount is generally insufficient to cover current abandonment and reclamation costs for medium to large scale exploration programs. Therefore, the specific value of the bond has been deleted from the proposed rules to allow for establishing bond

amounts to cover actual costs. The types of allowable bonding instruments have also been specified. Other proposed changes include a provision that the bond may be reduced following proper drill hole abandonment.

A provision has been added to the section on reporting of abandoned drill holes to specify that the reports will be held confidential for a two year period after bond is released. This change was made to conform to statutory changes that were made in 2007.

The approved Chapter 8 rules were provided to the Wyoming Mining Association and representatives of the uranium industry to solicit their input on the rules. Meetings were held with LQD staff and numerous industry representatives on January 18th and February 9th specifically to review and discuss Chapter 8. The proposed rules were thoroughly vetted and have been revised to reflect numerous changes and clarifications that were recommended by the group. Chapter 8 was adopted September 26, 2012.

In summary, the purpose of this Rules package is to update Chapter 14 to meets today's best management practices related to plugging and sealing exploration drill holes, to be consistent with LQD regulations pertaining to drilling, to be consistent with other State Regulatory agencies, to clarify bonding procedures and to codify provisions for authorizing the construction of baseline ground water monitoring and test wells.

Summary of Proposed Amendments

Chapter 14 Proposed Changes

Section 1 was revised to codify the requirement that drilling notifications must be submitted prior to conducting exploration by drilling outside of a permitted mine. It is also clarified that the requirements for plugging and abandonment apply within a permitted mine.

Section 2, was substantially revised to cover drill hole abandonment requirements The intent of the revision is to bring this chapter up to date, reflect industry standards as described in ASTM International D-5299, and generally eliminate conflicts between DEQ/LQD and DEQ/WQD and SEO Rules and Regulations. To accomplish this Section 2 was modified to eliminate any reference to the use of drilling mud as an acceptable sealant material and to require the entire drill hole be completely filled from bottom to ground surface. Acceptable grout or sealant materials are defined consistent with current SEO rules.

Section 3, now covering surface reclamation requirements, was split out as a separate section for clarity.

Section 4, now covering bond requirements, was rewritten to eliminate the flat $10,000 bond requirement, which is insufficient for most exploration projects. Provisions were also added to provide for bond reductions after drill hole abandonment has been completed and for bond release following successful revegetation.

Section 5, now covering termination and report of operations, was revised to include the option of requiring additional reclamation of a hole(s) rather than just bond release or forfeiture. A confidentiality provision was also added to be consistent with W.S. §35-11-404(e).

Section 6, Exceptions (previously covered in section 5), has been revised to clarify that drill hole abandonment and reclamation requirements do not apply to development drilling in advance of an open pit mine. The exclusion clause regarding oil and gas exploration remains in force.

Section 7 was added to provide a regulatory framework for LQD to authorize the installation of baseline ground water monitoring and testing wells, outside of a permitted mine. Construction standards relate back to those currently approved under LQD Non-Coal, Chapter 8 and plugging and sealing relates back to the proposed rewrite of Section~~s~~ as described above.

Summary of October 26, 2015 Advisory Board Meeting

The Land Quality Advisory Board met on October 26, 2015 in Casper, Wyoming to discuss the proposed Coal Chapter 14 revisions. The Board voted to recommend the rules proceed to the Environmental Quality Council for formal rulemaking with several small revisions as were discussed during the meeting. The Land Quality Division did not receive any public comments on the proposed rule package. The following revisions were made to the proposed rules to clarify the intent of the rules and to use terms which have already been defined in rule or statute:

- Chapter 14, Section 1(b) – this section was revised to use the terms "permit area" and "surface coal mining and reclamation operation" which are defined in regulation to replace the undefined term "permit boundary". A second revision was added to clarify that the requirements of this Chapter would not apply to backfill wells within the permit area.
- Chapter 14, Section 1(c) – same as first change in 1(b).
- Chapter 14, Section 1(f) – this section was revised to include a five year period of confidentiality to be consistent with W.S. 35-11-404(e).
- Chapter 14, Section 2(a) – same as first change in 1(b).
- Chapter 14, Section 3(a) – this section was revised to remove an outdated reference to "light-use roads" which was replaced by the term "ancillary road" which is defined in Chapter 1 and 4.
- Chapter 14, Section 3(d) – this section was revised to include the term "ancillary road".
- Chapter 14, Section 3(e) – same as 3(d).
- Chapter 14, Section 3(f) – this section was revised to use the term "ancillary road" instead of "access road" to ensure the consistent use of defined terms.
- Chapter 14, Section 6 – this section was revised to include the defined terms "permit area" and "surface coal mining and reclamation operation".

Further details regarding the Advisory Board discussions that led to the changes above can be found in the Advisory Board Minutes on the following pages:

- Permit boundary discussion – (Pages 56 – 60, 62)
- Light-use road discussion – (Page 63)
- Confidentiality period – (Pages 60-61)

The authority to amend these rules is provided by Wyoming Statute (W.S.) §§ 35-11-112(a)(i), 35-11-114(b), 35-11-402(a) and 35-11-404.

DEPARTMENT OF ENVIRONMENTAL QUALITY

LAND QUALITY DIVISION

CHAPTER 14

EXPLORATION FOR COAL BY DRILLING

Section 1. **Conducting ~~of~~ 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 (~~1977~~ 2015) and ~~Sections 3, 4, and 5 of~~ this Chapter.

(b) The requirements of this Chapter shall apply to exploration by drilling within and outside of the permit area of a surface coal mining and reclamation operation. The requirements of this Chapter shall not apply to backfill wells or coal developmental drilling conducted within five hundred (500) feet of the active mine area.

(c) Prior to any coal exploration by drilling inside a permit area where the drilling is located five hundred (500) feet or more from the active mine area, the developer shall notify the Administrator and adjust the reclamation bond for the coal permit.

(d ~~b~~) Prior to any coal exploration by drilling outside of the permit area of a surface coal mining and reclamation operation, the discoverer shall provide a Drilling Notification and a reclamation bond acceptable to the Administrator ~~submit a hole completion and surface restoration plan in accordance with Section 2~~.

(e) The Drilling Notification shall be in a form as specified by the Administrator and shall include:

(i) The approximate number and depth of holes to be drilled; and

(ii) A map showing the approximate hole locations within the exploration area.

(f) The Administrator shall review the notification and the bond and shall notify the discoverer in a timely manner, not to exceed sixty (60) day from receipt, whether the drilling is approved or additional information is required.

~~Section 2. **Coal Exploration Hole Completion and Surface Restoration Plan.**~~

~~(a) For coal exploration by drilling, the hole completion and surface restoration plan shall include:~~

~~(i) The name, address and telephone number of the discoverer;~~

~~(ii) The name, address and telephone number of the person who will be~~

~~present at and/or responsible for the exploration operation;~~

~~(iii) A legal description of the area which shall include an original or high quality reproduction of a USGS topographic map of the areas that will be disturbed or utilized by the proposed exploration by drilling and surface restoration activities;~~

~~(iv) The number of proposed exploration holes to be drilled; and~~

~~(v) A clear and concise description of the measures to be used to comply with the requirements of Section 3 of this Chapter.~~

(g ~~b~~) For the purpose of this Chapter, the discoverer's hole completion and surface restoration plan is a report or information which, if made public, would divulge trade secrets. Upon request by the discoverer, the Director and Administrator shall consider this report or information confidential pursuant to W.S. § 35-11-1101 (~~1977~~ 2015). This shall be deemed a request to hold the information confidential only for ~~two~~ five years unless the discoverer justifies a longer period of time.

Subsection 1 above was revised to improve readability and organization of the information. The proposed changes above are intended to maintain compliance with Federal requirements while updating the requirements to reflect current best management practices.

Subsection 1 was also revised based on discussions during the October 26, 2015 Land Quality Advisory Board meeting to include the terms "permit area" and "surface coal mining and reclamation operation" which are defined terms used throughout the regulations.

In addition Subsection 1(b) was revised in response to comments received during the EQC public comment period to clarify that the requirements are applicable to "exploration by drilling", but not backfill wells or "developmental drilling". A Subsection 1(c) was added to clarify the requirements for exploration by drilling within a permit area , and to be explicit when drilling is "exploration by drilling" as distinguished from "developmental drilling".

Section 2 ~~3~~. **General Drill Hole Abandonment ~~Completion and Restoration~~ Requirements.**

(a) All drill holes sunk for the purpose of conducting exploration, including those drilled within the permit area of a surface coal mining and reclamation operation, by drilling 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.

(i) When the underground pressure head producing flow is such that a counter pressure must be applied to force a sealant into the drill hole, this counter pressure shall be maintained for the length of time required for the cementing mixture to set.

(ii) The minimum time that must be allowed for materials containing cement to "set" shall be in accordance with ASTM C150 or API RP 10B.

(c) Drill holes that have encountered any groundwater 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 (1×10^{-7} cm/sec or less) and possesses minimum shrinking properties such that they are optimal sealing materials for well plugging and drill hole abandonment. Used drilling muds are not acceptable.

(e) 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 more than six (6) gallons of clean water per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

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

(iii) Concrete Slurry must consist of a mixture of Portland Cement, sand and gravel aggregate and water in a proportion of not more than one (1) peart by weight of aggregate to one (1) part of cement with not more than six (6) gallons of clean water per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

(iv) Cement/Bentonite Slurry must consist of a mixture of cement and bentonite in the proportion of not more than six and a half (6.5) gallons of water and three (3) to five (5) pounds of powdered bentonite per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

(v) High Solids Bentonite Slurry means an inorganic mixture with a slurry density of nine and four tenths (9.4) pounds per gallon (lbs/gal) minimum twenty percent (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 one (1) x 10^{-7} cm/sec) and is mixed to the manufacturer's specifications;

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

(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 fifteen (15) pounds of abandonment material with a minimum slurry density of eight and six tenths (8.6) pounds per gallon (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 twenty (20) pounds per one hundred (100) square feet (20 lbs/100 sq. ft.);

(B) Filtrate volume not to exceed thirteen and one half (13.5) cubic centimeters (cc); and

(C) Minimum Marsh Funnel viscosity of sixty (60) seconds per quart.

(f) 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 (4) inches or greater in diameter and less than five hundred (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 three hundred (300) feet of standing liquid.

(g) For any drill 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 of twenty-four (24) hours) has been allowed for the column of sealant materials to set up;

(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 fifty (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 five (5) feet of the ground surface.

(h) 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 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.

(i) All drill holes shall be backfilled to the surface with dry nonslurry materials or capped with a concreted cap set at least two (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.

(j) Drill holes shall be capped or backfilled immediately after drilling and probing in accordance with W.S. §35-11-404(h) (2015). 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 thirty (30) days without specific authorization from the Administrator.

(k) 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. Drill holes shall not be marked with rebar, metal pipe or metal posts which could pose a hazard to people, livestock, wildlife or machinery.

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

~~(i) To prevent adverse changes in water quality or quantity, drill holes~~

~~shall be plugged in the manner described in W.S. § 35-11-404(c)(i), and sealed in the manner described in W.S. § 35-11-401(c)(ii) which shall include but not be limited to:~~

~~(A) Drilling muds used to seal exploration drill holes shall meet the following specifications, when using procedures provided in the latest current edition of American Petroleum Institute Standard Procedures for Testing Drilling Fluids:~~

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

~~(II) Filtrate volume not to exceed 13.5 cc.~~

~~(B) For drill holes in gravel, scoria (clinker) or other materials resulting in lost circulation (drilling fluids cannot be circulated to the surface), the discoverer may use drill cuttings or other earthen materials to adequately backfill the hole.~~

~~(C) The Administrator and Director may approve other procedures at the request of the discoverer.~~

~~(ii) Drill holes shall be capped in the manner described in W.S. § 35-11-404(c)(iii) to ensure the safety of people, livestock, wildlife, and machinery in the area.~~

Section 2 was rewritten to be consistent with the test hole plugging and sealing requirements contained in DEQ/WQD Rules and Regulations Chapter 11, Part G, Section 70; the recently approved SEO Rules and Regulations Part III and standards contained in American Society for Testing and Materials (ASTM) D-5299. In so doing any reference to the term "drilling mud" has been removed and acceptable plugging and sealing materials have been defined consistent with the SEO Part III regulations.

The proposed regulations also require that holes be plugged and sealed bottom to top. The purpose for this requirement is three-fold: (1) to minimize the potential for any future settlement of the surface cap which could cause injury to humans, livestock, or wildlife, (2) to eliminate a vertical conduit that could allow contamination of ground water or at the very least soils deep within the profile, and (3) as described above, to be in conformance with DEQ/WQD and SEO standards. While the proposed changes were intended to address all exploration drilling in general, care was taken to differentiate between drilling operations that did and those that did not penetrate an aquifer. As such, the abandonment practices used for shallow auger type drilling in dry formations, such as in bentonite exploration, where drill cuttings are used for backfill, remain in effect.

Section 2(a) was also revised to include the defined terms "permit area" and "surface coal mining and reclamation operation" as discussed in Section 1.

Section 3. **Reclamation of Drill Sites and Affected Lands**

(a ~~b~~) Drill sites and associated ancillary roads, as defined in Chapter 1 and 4 of these rules and regulations, shall be restored as nearly as possible to their original location. ~~Each drill site as defined in Chapter 1, shall be restored as nearly as possible to its original condition, including:~~

(b) To the extent possible, all drilling fluids, drill cuttings and geologic samples shall be handled in the following manner:

(i) For those drill holes abandoned as per Subsection 2(h) of this chapter, remaining drill cuttings may be spread on the surface in such a manner as to prevent impairment of vegetation. 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.

(ii) For all other drill holes: 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 ~~ii~~) To the extent possible, any surface preparation of the drill site shall be accomplished in a manner consistent with Chapter 4, Section 2(b), Land Quality Coal Rules and Regulations.

(d ~~iii~~) To the extent possible, topsoil removal and stockpiling shall precede any excavation within the drill site and associated ancillary roads in a manner consistent with Chapter 4, Section 2(c) and 2(j), Land Quality Coal Rules and Regulations.

(e ~~iv~~) To the extent possible, the discoverer shall reestablish the vegetative cover where vegetation has been removed or destroyed within the drill site and associated ancillary roads by seeding, planting, transplanting, or by other adequate methods in a manner consistent with Chapter 4, Section 2(d) and 2(i), Land Quality Coal Rules and Regulations.

(f ~~c~~) All lands, including ~~access~~ ancillary 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 reseeding if grass or other crop was destroyed.

This section on surface reclamation was broken out as a separate section from the drill hole abandonment requirements for the sake of clarity. Minor

additions were made to address several ubiquitous problems associated with exploration drilling operations: containment of drilling mud, disposal of petroleum contaminated soils, and reclamation of access routes.

Sections 3(a) and 3(d)-(f) were revised to include the term "ancillary road" which is defined in Chapter 1 and 4 and are subject to reclamation standards of Chapter 4.

Subsection 3(b) was revised in response to comments received during the EQC public comment period. The comments requested recognition of the LQD's current policy and practice related to those instances when excess drill cuttings may not practicably be placed within a drill hole. In order to clarify under what circumstances the operator may place excess drill cutting around the area of the drill hole, the LQD split Subsection 3(b) into two subsections. The first subsection includes a reference to Subsection 2(h) which describes abandonment procedures for drill holes that are drilled without the use of drilling fluids. In this instance drill cuttings may be spread on the surface in a manner that does not impair vegetation. The second subsection was added to address those instances when drilling fluids are used and therefore additional disturbance may be required to properly dispose of the materials generated at the drill site.

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 the established engineering principles, for accomplishing proper drill hole abandonment and surface restoration in accordance with the standards set out in this Chapter ~~and keep posted a bond in the amount of $10,000 for each exploration area. This amount may be reduced when the discoverer demonstrates to the satisfaction of the Administrator, a lesser estimate, computed in accordance with established engineering principles, for accomplishing proper hole completion 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 reestablished. All bonds shall be signed by the discoverer as principal, by a good and sufficient corporate surety licensed to do business in the State, and be made payable to the State of Wyoming.

(c) In lieu of a bond, the discoverer may deposit federally insured certificates of deposit payable to the Department of Environmental Quality, cash or government securities or all three.

(d) 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 11, Land Quality Coal Rules and Regulations.

This section was modified to eliminate the reference to a flat $10,000.00 bond as it is inadequate to address the large scale exploratory drilling performed by interests contemplating in situ operations or other major exploration projects. A provision has been added to allow for the bond to be reduced following proper abandonment of the drill holes.

Section 5. **Termination and Report of Operations.**

(a) Within 12 months after compliance with 3(a) and sufficient compliance with 3(b) and (c) so that full compliance can be predicted by the Administrator, the discoverer shall comply with the reporting requirements of W.S. § 35-11-404(e) or (f) (2015). After receipt of such report, the Administrator shall have one year to inspect and evaluate the hole completion and surface restoration work and make a determination of whether to release the bond to the discoverer or institute forfeiture proceedings.

(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 (2015); substituting therein "discoverer" for "operator"; "surface restoration" for "reclamation" and "exploration by drilling" for "surface mining".

(c) Failure to so inspect and evaluate 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) (2015), or any other rights of action against the discoverer granted pursuant to the statutory provisions of the Wyoming Environmental Quality Act.

Statutory citations were updated to current year to reflect the current statutory language as amended through 2015 legislative session.

Section 6. **Exceptions.**

This Chapter shall not apply to holes drilled ~~in conjunction with development within an existing permitted mine operation or~~ 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) (2015).

Statutory citations were updated to current year to reflect current statutory language as amended through the 2015 legislative session. Section 6 was further revised to remove the discussion of development within the permit area. This revision was made in response to comments received during the EQC public comment period. Those comments were addressed in Section 1 and therefore the development discussion in this section was removed from the proposed rule language that was originally submitted to the EQC.

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 groundwater 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 thirty (30) days.

(c) Wells shall be permitted in accordance with the requirements of the State Engineer's Office, in accordance with W. S. §35-11-404(c)(iv) (2015).

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

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

(f) 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.

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

Current LQD Rules and Regulations do not provide a formal permitting mechanism for the installation of baseline ground water monitoring and test wells that are needed in order to prepare a mine permit or R&D application. The DEQ/LQD has allowed for well installation under Drilling Notifications, but there are currently no regulatory standards for well construction or abandonment under a Drilling Notification. Assuming the operator proceeds with a mine permit application, the majority of such wells will be utilized in the proposed operation. Well plugging and sealing requirements utilize the same procedures outlined in the Section 2 rewrite.

CONCLUSION

The Environmental Quality Council, in accordance with the authority granted to it by W.S. § 35-11-112 As Amended, and having complied with the provision of the Wyoming Administrative Procedures Act, find as follows:

1. These rules provide for the regulation of coal mining and reclamation operations in accordance with the requirements of W.S. § 35-11-101 through W.S. § 35-11-1803, As Amended (Wyoming Environmental Quality Act), and the requirements of the Surface Mining Control and Reclamation Act, (P.L. 95-87, As Amended).

2. These rules and regulations are as effective as those promulgated by the Secretary of the Interior pursuant to P.L. 95-87, As Amended.

3. The Department of Environmental Quality, Land Quality Division, Coal Rules and Regulations are necessary and appropriate to preserve and exercise the primary responsibilities and rights of the State of Wyoming; to retain for the State the control over its air, land, and water resources and secure cooperation between agencies of the State and Federal Government in carrying out the policy and purposes of the Environmental Quality Act.

4. These Land Quality Division Coal Rules and Regulations are reasonable and necessary for the effectuation of the Wyoming Environmental Quality Act, W.S. § 35-11-101 through W.S. § 35-11-1803, As Amended.

5. These Land Quality Division Coal Rules and Regulations are necessary and appropriate to protect the public health, safety, welfare, and environment of the State of Wyoming.

Dated this 2 day of March, 2016.

Paul M. Rogly

Environmental Quality Council

DEPARTMENT OF ENVIRONMENTAL QUALITY

LAND QUALITY DIVISION

CHAPTER 14

EXPLORATION FOR COAL BY DRILLING

Section 1. **Conducting ~~of~~ 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 (~~1977~~ 2015) and ~~Sections 3, 4, and 5 of~~ this Chapter.

(b) The requirements of this Chapter shall apply to exploration by drilling within and outside of the permit area of a surface coal mining and reclamation operation. The requirements of this Chapter shall not apply to backfill wells or coal developmental drilling conducted within five hundred (500) feet of the active mine area.

(c) Prior to any coal exploration by drilling inside a permit area where the drilling is located five hundred (500) feet or more from the active mine area, the developer shall notify the Administrator and adjust the reclamation bond for the coal permit.

(d ~~b~~) Prior to any coal exploration by drilling outside of the permit area of a surface coal mining and reclamation operation, the discoverer shall provide a Drilling Notification and a reclamation bond acceptable to the Administrator ~~submit a hole completion and surface restoration plan in accordance with Section 2~~.

(e) The Drilling Notification shall be in a form as specified by the Administrator and shall include:

(i) The approximate number and depth of holes to be drilled; and

(ii) A map showing the approximate hole locations within the exploration area.

(f) The Administrator shall review the notification and the bond and shall notify the discoverer in a timely manner, not to exceed sixty (60) day from receipt, whether the drilling is approved or additional information is required.

~~Section 2. **Coal Exploration Hole Completion and Surface Restoration Plan.**~~

~~(a) For coal exploration by drilling, the hole completion and surface restoration~~

~~plan shall include:~~

~~(i) The name, address and telephone number of the discoverer;~~

~~(ii) The name, address and telephone number of the person who will be present at and/or responsible for the exploration operation;~~

~~(iii) A legal description of the area which shall include an original or high quality reproduction of a USGS topographic map of the areas that will be disturbed or utilized by the proposed exploration by drilling and surface restoration activities;~~

~~(iv) The number of proposed exploration holes to be drilled; and~~

~~(v) A clear and concise description of the measures to be used to comply with the requirements of Section 3 of this Chapter.~~

(g ~~b~~) For the purpose of this Chapter, the discoverer's hole completion and surface restoration plan is a report or information which, if made public, would divulge trade secrets. Upon request by the discoverer, the Director and Administrator shall consider this report or information confidential pursuant to W.S. § 35-11-1101 (~~1977~~ 2015). This shall be deemed a request to hold the information confidential only for ~~two~~ five years unless the discoverer justifies a longer period of time.

Section 2 ~~3~~. **General Drill Hole Abandonment ~~Completion and Restoration~~ Requirements.**

(a) All drill holes sunk for the purpose of conducting exploration, including those drilled within the permit area of a surface coal mining and reclamation operation, by drilling 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.

(i) When the underground pressure head producing flow is such that a counter pressure must be applied to force a sealant into the drill hole, this counter pressure shall be maintained for the length of time required for the cementing mixture to set.

(ii) The minimum time that must be allowed for materials containing cement to “set” shall be in accordance with ASTM C150 or API RP 10B.

(c) Drill holes that have encountered any groundwater 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 (1 x 10^{-7} cm/sec or less) and possesses minimum shrinking properties such that they are optimal sealing materials for well plugging and drill hole abandonment. Used drilling muds are not acceptable.

(e) 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 more than six (6) gallons of clean water per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

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

(iii) Concrete Slurry must consist of a mixture of Portland Cement, sand and gravel aggregate and water in a proportion of not more than one (1) peart by weight of aggregate to one (1) part of cement with not more than six (6) gallons of clean water per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

(iv) Cement/Bentonite Slurry must consist of a mixture of cement and bentonite in the proportion of not more than six and a half (6.5) gallons of water and three (3) to five (5) pounds of powdered bentonite per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

(v) High Solids Bentonite Slurry means an inorganic mixture with a slurry density of nine and four tenths (9.4) pounds per gallon (lbs/gal) minimum twenty percent (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 one (1) x 10^{-7} cm/sec) and is mixed to the manufacturer's specifications;

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

(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 fifteen (15) pounds of abandonment material with a minimum slurry density of eight and six tenths (8.6) pounds per gallon (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 twenty (20) pounds per one hundred (100) square feet (20 lbs/100 sq. ft.);

(B) Filtrate volume not to exceed thirteen and one half (13.5) cubic centimeters (cc); and

(C) Minimum Marsh Funnel viscosity of sixty (60) seconds per quart.

(f) 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 (4) inches or greater in diameter and less than five hundred (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 three hundred (300) feet of standing liquid.

(g) For any drill 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 of twenty-four (24) hours) has been allowed for the column of sealant materials to set up;

(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 fifty (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 five (5) feet of the ground surface.

(h) 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 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.

(i) All drill holes shall be backfilled to the surface with dry nonslurry materials or capped with a concreted cap set at least two (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.

(j) Drill holes shall be capped or backfilled immediately after drilling and probing in accordance with W.S. §35-11-404(h) (2015). 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 thirty (30) days without specific authorization from the Administrator.

(k) 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. Drill holes shall not be marked with rebar, metal pipe or metal posts which could pose a hazard to people, livestock, wildlife or machinery.

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

~~(i) To prevent adverse changes in water quality or quantity, drill holes shall be plugged in the manner described in W.S. § 35-11-404(c)(i), and sealed in the manner described in W.S. § 35-11-401(c)(ii) which shall include but not be limited to:~~

~~(A) Drilling muds used to seal exploration drill holes shall meet the following specifications, when using procedures provided in the latest current edition of American Petroleum Institute Standard Procedures for Testing Drilling Fluids:~~

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

~~(II) Filtrate volume not to exceed 13.5 cc.~~

~~(B) For drill holes in gravel, scoria (clinker) or other materials resulting in lost circulation (drilling fluids cannot be circulated to the surface), the discoverer may use drill cuttings or other earthen materials to adequately backfill the hole.~~

~~(C) The Administrator and Director may approve other procedures at the request of the discoverer.~~

~~(ii) Drill holes shall be capped in the manner described in W.S. § 35-11-404(c)(iii) to ensure the safety of people, livestock, wildlife, and machinery in the~~

~~area.~~

Section 3. **Reclamation of Drill Sites and Affected Lands**

(a ~~b~~) Drill sites and associated ancillary roads, as defined in Chapter 1 and 4 of these rules and regulations, shall be restored as nearly as possible to their original location. ~~Each drill site as defined in Chapter 1, shall be restored as nearly as possible to its original condition, including:~~

(b) To the extent possible, all drilling fluids, drill cuttings and geologic samples shall be handled in the following manner:

(i) For those drill holes abandoned as per Subsection 2(h) of this chapter, remaining drill cuttings may be spread on the surface in such a manner as to prevent impairment of vegetation. 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.

(ii) For all other drill holes: 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 ~~ii~~) To the extent possible, any surface preparation of the drill site shall be accomplished in a manner consistent with Chapter 4, Section 2(b), Land Quality Coal Rules and Regulations.

(d ~~iii~~) To the extent possible, topsoil removal and stockpiling shall precede any excavation within the drill site and associated ancillary roads in a manner consistent with Chapter 4, Section 2(c) and 2(j), Land Quality Coal Rules and Regulations.

(e ~~iv~~) To the extent possible, the discoverer shall reestablish the vegetative cover where vegetation has been removed or destroyed within the drill site and associated ancillary roads by seeding, planting, transplanting, or by other adequate methods in a manner consistent with Chapter 4, Section 2(d) and 2(i), Land Quality Coal Rules and Regulations.

(f ~~c~~) All lands, including ~~access~~ ancillary 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 reseeding 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 the established engineering principles, for accomplishing proper drill hole abandonment and surface restoration in accordance with the standards set out in this Chapter ~~and keep posted a bond in the amount of $10,000 for each exploration area. This amount may be reduced when the discoverer demonstrates to the satisfaction of the Administrator, a lesser estimate, computed in accordance with established engineering principles, for accomplishing proper hole completion 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 reestablished. All bonds shall be signed by the discoverer as principal, by a good and sufficient corporate surety licensed to do business in the State, and be made payable to the State of Wyoming.

(c) In lieu of a bond, the discoverer may deposit federally insured certificates of deposit payable to the Department of Environmental Quality, cash or government securities or all three.

(d) 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 11, Land Quality Coal Rules and Regulations.

Section 5. **Termination and Report of Operations.**

(a) Within 12 months after compliance with 3(a) and sufficient compliance with 3(b) and (c) so that full compliance can be predicted by the Administrator, the discoverer shall comply with the reporting requirements of W.S. § 35-11-404(e) or (f) (2015). After receipt of such report, the Administrator shall have one year to inspect and evaluate the hole completion and surface restoration work and make a determination of whether to release the bond to the discoverer or institute forfeiture proceedings.

(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 (2015); substituting therein "discoverer" for "operator"; "surface restoration" for "reclamation" and "exploration by drilling" for "surface mining".

(c) Failure to so inspect and evaluate 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) (2015), or any other rights of action against the discoverer granted pursuant to the statutory provisions of the Wyoming Environmental Quality Act.

Section 6. **Exceptions.**

This Chapter shall not apply to holes drilled ~~in conjunction with development within an existing permitted mine operation or~~ 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) (2015).

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 groundwater 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 thirty (30) days.

(c) Wells shall be permitted in accordance with the requirements of the State Engineer's Office, in accordance with W. S. §35-11-404(c)(iv) (2015).

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

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

(f) 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.

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

DEPARTMENT OF ENVIRONMENTAL QUALITY

LAND QUALITY DIVISION

CHAPTER 14

EXPLORATION FOR COAL 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 (2015) and this Chapter.

(b) The requirements of this Chapter shall apply to exploration by drilling within and outside of the permit area of a surface coal mining and reclamation operation. The requirements of this Chapter shall not apply to backfill wells or coal developmental drilling conducted within five hundred (500) feet of the active mine area.

(c) Prior to any coal exploration by drilling inside a permit area where the drilling is located five hundred (500) feet or more from the active mine area, the developer shall notify the Administrator and adjust the reclamation bond for the coal permit.

(d) Prior to any coal exploration by drilling outside of the permit area of a surface coal mining and reclamation operation, the discoverer shall provide a Drilling Notification and a reclamation bond acceptable to the Administrator.

(e) The Drilling Notification shall be in a form as specified by the Administrator and shall include:

(i) The approximate number and depth of holes to be drilled; and

(ii) A map showing the approximate hole locations within the exploration area.

(f) The Administrator shall review the notification and the bond and shall notify the discoverer in a timely manner, not to exceed sixty (60) day from receipt, whether the drilling is approved or additional information is required.

(g) For the purpose of this Chapter, the discoverer's hole completion and surface restoration plan is a report or information which, if made public, would divulge trade secrets. Upon request by the discoverer, the Director and Administrator shall consider this report or information confidential pursuant to W.S. § 35-11-1101 (2015). This shall be deemed a request to hold the information confidential only for five years unless the discoverer justifies

a longer period of time.

Section 2. **General Drill Hole Abandonment Requirements.**

(a) All drill holes sunk for the purpose of conducting exploration, including those drilled within the permit area of a surface coal mining and reclamation operation, by drilling 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.

(i) When the underground pressure head producing flow is such that a counter pressure must be applied to force a sealant into the drill hole, this counter pressure shall be maintained for the length of time required for the cementing mixture to set.

(ii) The minimum time that must be allowed for materials containing cement to "set" shall be in accordance with ASTM C150 or API RP 10B.

(c) Drill holes that have encountered any groundwater 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 (1×10^{-7} cm/sec or less) and possesses minimum shrinking properties such that they are optimal sealing materials for well plugging and drill hole abandonment. Used drilling muds are not acceptable.

(e) 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 more than six (6) gallons of clean water per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

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

(iii) Concrete Slurry must consist of a mixture of Portland Cement, sand and gravel aggregate and water in a proportion of not more than one (1) peart by weight of

aggregate to one (1) part of cement with not more than six (6) gallons of clean water per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

(iv) Cement/Bentonite Slurry must consist of a mixture of cement and bentonite in the proportion of not more than six and a half (6.5) gallons of water and three (3) to five (5) pounds of powdered bentonite per bag of cement (one (1) cubic foot or ninety-four (94) pounds);

(v) High Solids Bentonite Slurry means an inorganic mixture with a slurry density of nine and four tenths (9.4) pounds per gallon (lbs/gal) minimum twenty percent (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 one (1) x 10^{-7} cm/sec) and is mixed to the manufacturer's specifications;

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

(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 fifteen (15) pounds of abandonment material with a minimum slurry density of eight and six tenths (8.6) pounds per gallon (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 twenty (20) pounds per one hundred (100) square feet (20 lbs/100 sq. ft.);

(B) Filtrate volume not to exceed thirteen and one half (13.5) cubic centimeters (cc); and

(C) Minimum Marsh Funnel viscosity of sixty (60) seconds per quart.

(f) 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 (4) inches or greater in diameter and less than five hundred (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 three hundred (300) feet of standing liquid.

(g) For any drill 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 of twenty-four (24) hours) has been allowed for the column of sealant materials to set up;

(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 fifty (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 five (5) feet of the ground surface.

(h) 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 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.

(i) All drill holes shall be backfilled to the surface with dry nonslurry materials or capped with a concreted cap set at least two (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.

(j) Drill holes shall be capped or backfilled immediately after drilling and probing in accordance with W.S. §35-11-404(h) (2015). 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 thirty (30) days without specific authorization from the Administrator.

(k) 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. Drill holes shall not be marked with rebar, metal pipe or metal posts which could pose a hazard to people, livestock, wildlife or machinery.

(l) 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 ancillary roads, as defined in Chapter 1 and 4 of these rules and regulations, shall be restored as nearly as possible to their original location.

(b) To the extent possible, all drilling fluids, drill cuttings and geologic samples shall be handled in the following manner:

(i) For those drill holes abandoned as per Subsection 2(h) of this chapter, remaining drill cuttings may be spread on the surface in such a manner as to prevent impairment of vegetation. 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.

(ii) For all other drill holes: 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 4, Section 2(b), Land Quality Coal Rules and Regulations.

(d) To the extent possible, topsoil removal and stockpiling shall precede any excavation within the drill site and associated ancillary roads in a manner consistent with Chapter 4, Section 2(c) and 2(j), Land Quality Coal 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 ancillary roads by seeding, planting, transplanting, or by other adequate methods in a manner consistent with Chapter 4, Section 2(d) and 2(i), Land Quality Coal Rules and Regulations.

(f) All lands, including ancillary 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 reseeding 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 the 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 reestablished. All bonds shall be signed by the discoverer as principal, by a good and sufficient corporate surety licensed to do business in the State, and be made payable to the State of Wyoming.

(c) In lieu of a bond, the discoverer may deposit federally insured certificates of deposit payable to the Department of Environmental Quality, cash or government securities or all three.

(d) 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 11, Land Quality Coal Rules and Regulations.

Section 5. **Termination and Report of Operations.**

(a) Within 12 months after compliance with 3(a) and sufficient compliance with 3(b) and (c) so that full compliance can be predicted by the Administrator, the discoverer shall comply with the reporting requirements of W.S. § 35-11-404(e) or (f) (2015). After receipt of such report, the Administrator shall have one year to inspect and evaluate the hole completion and surface restoration work and make a determination of whether to release the bond to the discoverer or institute forfeiture proceedings.

(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 (2015); substituting therein "discoverer" for "operator"; "surface restoration" for "reclamation" and "exploration by drilling" for "surface mining".

(c) Failure to so inspect and evaluate 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) (2015), or any other rights of action against the discoverer granted pursuant to the statutory provisions of the Wyoming Environmental Quality Act.

Section 6. **Exceptions.**

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) (2015).

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 groundwater 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 thirty (30) days.

(c) Wells shall be permitted in accordance with the requirements of the State Engineer's Office, in accordance with W. S. §35-11-404(c)(iv) (2015).

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

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

(f) 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.

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