

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.



Dave Freudenthal, Governor

RECEIVED

February 4, 2009

FEB 05 2009

Mr. John Cash Lost Creek ISR, LLC 5880 Enterprise Drie, Suite 200 Casper, WY 82609

Bureau of Land Management Rawlins Field Office

Subject: DRAFT LQD Policy regarding In-situ recovery (ISR) operations, ISR Permit Application Requirement and Conversion of Drilling Notification (DN) to License to Explore (LE), Lost Creek ISR 334 DN and TFN 4 6/268

Dear Mr. Cash,

The purpose of this letter is to inform potential InSitu Recovery (ISR) operators of several recent changes to past Wyoming Department of Environmental Quality / Land Quality Division (LQD) policy concerning ISR permitting.

First Well Field Package is required in Permit Application

Because the Mine and Reclamation Plans that have been submitted to date have been conceptual in nature, it is the opinion of the LQD Administrator that the requirements of W.S. §35-11-406 and §35-11-428 are not being met. The LQD Administrator has determined that all ISR applications must contain a Mine and Reclamation Plan for the initial well field in addition to detailed plans for the mine facilities.

DN versus LE

It is LQD's judgment that the intent of a DN is to conduct exploratory drilling for purposes of discovery and not to perform delineation drilling to establish areal extent of a deposit or conduct monitoring well installations. Therefore, if any of the following three limitations is exceeded, LQD will direct the operator to file for a *License to Explore (LE)*: 1) The total cumulative affected acreage at the DN operation exceeds five acres, 2) the DN operation is in effect for greater than two years, or 3) one or more monitoring well(s) is (are) installed at the DN operation.

LE Application Package

The LE application should address the applicable sections of LQD Non-Coal Rules and Regulations Chapter 5 with special emphasis placed on the following seven items: 1) Drilling and Abandonment



ISR Uranium DN vs. LE Policy February 4, 2009

methods, 2) Monitoring well installations, 3) Phased plan to locate and properly abandon to the surface all drill holes previously drilled by the operator and any historic holes that may exist, 4) Road network, 5) Bond estimate, 6) LE Annual Reporting Procedures; and 7) Well Field Hydrologic Investigation for First Well Field. The attachment entitled "LE Application Requirements" provides the details required for the LE application.

LE and Permit Application

The contents of the LE should be rolled into the permit application. The LE will govern all activities at the site until the permit application is approved. Once the Mine Permit is approved, the LE will be terminated unless the operator decides to keep it in force to perform exploration related activities outside the proposed permit area.

It should be noted that since 334DN meets the requirements of being converted to an LE, the next update made to 334DN should be accompanied by an LE application package. Any questions regarding the above please contact Mark Moxley at the LQD Lander Field Office at (307) 332-3047.

Respectfully,

isin 7- Bank

Melissa L. Bautz Environmental Scientist 2 WDEQ/LQD, District 2 (Lander)

Enclosure LE Application Requirements for ISR Facilities

Cc: Don McKenzie, WDEQ/LQD Cheyenne →334DN File Mark Moxley, WDEQ/LQD Lander →334DN File Mark Newman, BLM Rawlins, P O Box 2407, Rawlins, WY 82301 Chron

LE Application Requirements for ISR Facilities

- Drilling and Abandonment methods; 1.
 - a. A map to illustrate the location of the proposed drilling
 - b. Type of drilling rig to be used
 - c. Procedures to backfill the hole to the surface with grout and/or chips as needed. Included here must be a commitment to only use bentonite chips in dry holes (or holes with less than 20 feet of standing water) as well as a commitment to hydrate the chips with water during abandonment.
 - d. Identify the water source to be utilized
 - e. Provide a site plan for the drilling operation that includes:
 - Stripping a minimum of six-inches of topsoil from all areas to be disturbed by drilling
 - If drilling with a mud-rotary rig, provide a commitment to construct all mud pits so that their . total capacity will hold at a minimum of 25% excess of the calculated volume of drill cuttings and discuss the maximum anticipated time for the mud pits to evaporate before begin backfilled. Please include a commitment to leave reclaimed mud pits slightly mounded (i.e., 6 to 12-inches above the surrounding reclaimed ground elevation) to allowing the additional setting over time. Additionally, provide a commitment to install woven wire fencing secured by metal t-posts (or a reasonable substitute) around each open mud pit (wet or dry), until backfilled in order to protect wildlife, livestock, and people.
 - If drilling with an air-rotary rig, provide a commitment to bury the drill cuttings on each of the drill sites or a commitment to collect the drill cuttings and then haul them offsite to an approved solid waste disposal facility.
 - The use of absorbent diapers beneath the equipment to control leaks of fuel, transmission and hydraulic fluids
 - f. The specific seed bed preparation method, seeding method, seed mixture and seeding rates to be used during reclamation
- Monitoring well installations: The operator should address the following in addition to Items 1a, 1b, 1d, 2. 1e and 1f:
 - a. A map that illustrates the location of each monitoring well
 - b. A Table that provides a description of the baseline monitoring wells
 - c. Provide very detailed well completion procedures, which, at a minimum, should specific address the following:
 - Drilling mud composition (trade names, additives, loss of circulation material, etc.) and • weight
 - Hole geophysical logging procedure .
 - Casing (include type, specifications, I.D., O.H, wall thickness, and collapse pressure)
 - Cement slurry (composition, mix water quality and slurry weight and yield)
 - Cement's hardening time @ 70-degrees at 8 hrs, 12 hrs. 24hrs, 48hrs, 72 RECEIVED .
 - Casing cementing hardware (centralizers, float shoe, wiper plug) .
 - Hole conditioning practice prior to cementing in the casing
 - Cement slurry mix procedures and equipment. .
 - Procedure used to displace cement from casing to annulus.
 - Time waiting for cement to cure before re-entering casing •
 - Casing/well under-reaming (equipment, tools, procedure) .
 - Screens (include type, specifications, I.D., O.H. slot opening, and collapse pressure) ٠
 - Gravel packing procedure (sand specifications) .
 - Packer assemblies (include type, manufacture name, manufactures specifications) ٠
 - Installation of locking metal surface cap and a concrete apron around each well head;
 - d. Provide a well completion diagram(s) that include the use of spacers every 40 feet as specified under LQD Non-Coal Rules and Regulations Chapter 11, Section 6 (e)

Page 1 of 2

LE Application Requirements

Rev. 02/09, MLB/BRW

- Bureau of Land Management
 - **Rawlins Field Office**
- FEB 05 2009

LE Application Requirements for ISR Facilities

- e. Provide the water sampling protocol (e.g., field measurements, purging requirements, QA/QC, chain of custody, and sample preparation) and a listing of the parameters to be analyzed (alternately, state that the samples will be analyzed for the Guideline 8 parameter suite, including radionuclides)
- 3. Phased plan to locate and abandon holes previously drilled by the operator and any historic holes that may exist;

This item requires the complete abandonment to the surface of holes previously drilled by the operator as well as those completed under historic drilling programs. Proper abandonment of historic drill holes is deemed a best management practice. Drill hole abandonment activities can be accomplished in a phased approach on well field by well field basis. In should be noted that LQD will not authorized production/mining at an ISR facility unless historic holes are addressed according to the above guidance. An exception to the below requirements may requested if it can be demonstrated and verified that previously-drilled holes are adequately backfilled. It is suggested that the following criteria be followed:

a. For <u>historic holes</u>, the operator must reopen the hole, t.d. the hole to establish volume of "fill" required, and abandon it to the surface.

b. For <u>holes previously drilled by the operator</u>, the hole must be reopened, probed to determine presence of water, then properly abandoned to the surface. The presence/absence of water as well as the depth to the top of the existing grout/plug and water must be recorded in the field and reported in an abandoned drill hole report (refer to item 6 of this guidance document). The presence of any shallow aquifer identified by this effort will need to be fully characterized for the mine permit application.

4. Road network;

Details of the road network required to complete the tasks associated with Items 1 and 2 must be presented. Designs submitted must include a plan view of location, typical cross section, and details (culvert design) for any planned stream crossings.

5. Bond estimate;

This item requires that an estimate of the cost of reclamation of the site be provided. For further guidance on this item, refer to Guideline 12, notably Appendix L.

6. LE Annual Reporting Procedures;

An Abandoned Drill Hole (ADH) report must be submitted to the LQD within 12 months of cessation of activities for a given phase of the project. The ADH shall comply with the reporting requirements of W.S. §35-11-404(e) or (f). The ADH report (followed by a site inspection) is the only mechanism by which LQD can consider bond release/reduction at an ISR LE operation.

In addition to summarizing the abandonment of current exploration/delineation holes at the project, the ADH report must also summarize the abandonment of historic holes at the site. The presence/absence of water as well as the depth to the top of the existing grout/plug and water must be included in the ADH

 Well field hydrologic investigation for first well field. The well field hydrologic investigation can be conducted under the LE. Prior to conducting this investigation, a meeting with LQD should be arranged to review the testing proposal.

Page 2 of 2

LE Application Requirements

Rev. 02/09, MLB/BRW