

Memorandum

To: Muthu Kuchanur, D1 Geology Supervisor; Mark Rogaczewski, D3 Program Manager
From: Don Fischer, WQD, North District Geology Supervisor
Date: July 29, 2013
Subject: WQD/Groundwater Section Comments and Questions on Linc Energy UCG Aquifer Exemption Document

Comments:

Comment 1: Page 13.14-1, Para 1. The documents states that the injection well is classified as a Class II injection well under Wyoming's UIC Program. This should state that the injection well is a Class III injection well under the UIC Program.

Comment 2: Page 13.14-5. The document states that the Wyodak aquifer within the Project Area should be classified as Class IV (industrial) or Class V (Hydrocarbon Commercial) because the only water wells located within the Project area are either industrial wells or cbm production wells. The document does acknowledge that the WDEQ performs the "official" groundwater classification but then proceeds to recommend groundwater classifications. For example, although stated as such, CBM production wells are not Class V (hydrocarbon commercial) wells as per WQD rules and regulations. Furthermore, some of the listed CBM wells are permitted through the WSEO as cbm/stock wells. The operator would be better served by presenting the empirical data and letting the WDEQ perform the groundwater classification rather than presenting recommendations that are not factual.

Comment 3: Figure 13.14-3. The figure depicts water supply wells within the proposed aquifer exemption boundary. CBM wells KBar CS State #2, KBar CS State #7, KBar CS State #10, KBar CS State# 20 are all permitted through the WSEO as cbm/stock wells. LQD Rules (Chapter 11, Section 10) states that an aquifer may be designated as an "exempted aquifer" if not does not serve as a source of water for Class I, II, III, Special A or Class IVA as described in Chapter 8 of WQD rules. It is not clear to me if this regulation would apply to an in-situ UCG project since LQD Chapter 11 are non-coal regulations. However, I believe that the intent of the regulation in Chapter 11 is to protect groundwater for its intended use as discussed in WQD Chapter 8. This issue probably needs discussion at the LQD/WQD administrator level.

Comment 4: Table 13.14-3. "Representative Background Groundwater Quality". I do not understand what the data in this table refers to. Does "representative" indicate the statistical mean value of all samples in each formation? There is however, other data to perform a groundwater classification.

Comment 5: Table 13.14.4: "Groundwater Classification Based on Groundwater Quality". I do not agree with the "recommended classifications" as stated in the table. For example, several parameters (e.g., Fe, Mn) are easily treatable to Class I groundwater. Therefore, some of the underburden wells would be classified as Class I (domestic) groundwater rather than Class III or IV, as stated in the document. This same table is presented again later in the document as Table 13.14-B2.

Comment 6: Table 13.14-B1 "Background Groundwater Quality". The units (mg/l) for each parameter should be stated, along with analysis type (dissolved or total). However, those data are presented elsewhere in the document.

Questions:

Question 1: Do these issues (e.g., erroneous comments on groundwater classifications) need to be corrected in the document before going to public notice?

Question 2: For in-situ uranium facilities, after issuance of a LQD permit, LQD later receives a wellfield data package with additional groundwater information in order to establish class of use standards for groundwater restoration. These groundwater data are submitted to the WQD for classification. The data from production zone wells are averaged and the monitoring well ring, overburden and underburden wells are classified on a well by well basis. For UCG facilities, will any additional information be supplied? Will the Groundwater Section perform a formal groundwater classification for restoration at the Linc Energy UCG facility? Do we follow the ISR (uranium) protocol, even though ISR permitting requirements are found in LQD non-coal regulations and policy and the UCG is considered coal and therefore LQD Chapter 11 is not applicable?

Question 3: Should WDEQ WQD submit the entire Volume 3 to USEPA? It contains Section 13.9 through Section 13.14. The groundwater reclassification (proposed aquifer exemption) is contained within Section 13.14.

General Comment on our current review process for aquifer exemptions: While I certainly appreciate the fact that LQD does not want to submit an incomplete aquifer exemption request document to WQD, I think that we should consider involving WQD (Groundwater Section) earlier in the process to perform a cursory (completeness?) review of the Appendix D-12 document (aquifer exemption) to address some of the issues discussed above.

End of Memorandum

CC: Kevin Frederick, WQD Administrator
Mark Taylor, LQD D3 Program Principal