Incoming
M/037/0043
cc: Tom

0012

From: Robert Herbert
To: Sarah Fields
Date: 5/14/2009 3:23 PM
Subject: Re: Energy Queen GWDP

CC: Ann_Marie_Aubry@blm.gov; John Kennington; Keith Eagan; Matthew Garn; ...

Ms. Fields,

Thank you for your additional comments on the Energy Queen Mine. The 30-day public comment period for Ground Water Quality Discharge Permit UGW370007 for the Energy Queen Uranium Mine concluded on March 13, 2009. The Division of Water Quality (DWQ) received written comments from four individuals (including yourself) during the public comment period. At the request of three La Sal residents who submitted written public comments, DWQ held a public meeting on April 6, 2009 at the La Sal Community Center. At the public meeting I gave a presentation on the scope of the Ground Water Discharge Permit, followed by a two-hour Q&A Session in which questions from the public were answered by an expert panel, concluding with the receipt of oral public comments. Oral comments were received from three individuals (including yourself) at the public meeting. A Public Participation Document was prepared and posted on the DWQ Public Notice webpage, and can be found at the following internet address: http://www.waterquality.utah.gov/PublicNotices/Energy_Queen_Mine_Public_Participation_Doc.pdf.
An email with the link to the Public Participation Document was sent to all citizens who provided written and oral comments (including yourself) during the public comment period and public meeting. As indicated by the public comments and the DWQ responses, most of the public comments were outside the scope of the ground water discharge permit, and none of the public comments caused any changes in the draft permit. As a result, the Ground Water Discharge Permit (UGW370007) was issued to Energy Fuels Resources Corporation on May 7, 2009 and is no longer open for public comment.

Because all of your questions below pertain to the UPDES Permit, your email should have been addressed to the manager of the UPDES Engineering Section, John Kennington. However, since you sent it to me, I have coordinated with Mr. Kennington and his staff to address your questions. Your questions have been addressed below under the aggregated headings.

Different Flow Values Provided in the UPDES and Ground Water Discharge Permits
You are correct that there are different flow values identified in the August 6, 2007 UPDES Permit Application and the October 31, 2008 Ground Water Discharge Permit Application. Actually, Part B.3 on page 3 of the Ground Water Discharge Permit Application indicates a daily average discharge volume of 144,000 gallons and a daily maximum discharge of 360,000 gallons. However, these differences in flow values are irrelevant for the following reasons: 1) The Untreated Water Pond is designed to contain 1.5 million gallons of water and will maintain a minimum two feet of freeboard, which is required by ground water discharge permit as a best available technology performance standard. This is more than sufficient to contain the flows in either permit application; and 2) There is no outfall flow limit in the UPDES permit. As long as the effluent concentration limits in the UPDES Permit are being met, the permittee is compliant with the permit, which satisfies regulatory requirements for water quality, and is protective of human health and the environment.

Technical Review of Barium Chloride Treatment System
DWQ contracted the review of the report titled "Mine Water Treatment and Discharge Alternatives, Energy Queen Mine", dated June 6, 2007 to URS Corporation. The Department of Environmental Quality, Division of Radiation Control has a contract with URS based on their expertise in radiation safety, health physics, and environmental radiological issues. URS conducted a review of the report, which presents a proposal by Energy Fuels Resources Corporation to treat and discharge water from the Energy Queen Mine in San Juan County, Utah. Mine water will be treated by adding barium chloride, which is a standard practice for removing radium from tailings water. The proposed method entails adding a large excess of barium ions, which will come from a 13% barium chloride solution. The barium precipitates primarily the sulfates in solution to produce a very insoluble barium sulfate precipitate. Radium co-precipitates as radium sulfate, which is also very insoluble. Based on its common usage at uranium mill sites, URS concluded that the proposed treatment method is effective. As long as the effluent concentration limits in the UPDES Permit are being met, the permittee is compliant with the permit, which satisfies regulatory requirements for water quality, and is protective of human health and the environment. Therefore, Energy Fuels Resources Corporation will not be required to submit an amended UPDES Permit Application. In reference to the statement claiming that you have not received a reply to your April 27, 2009 email to Matt Garn, I spoke to Matt Garn he stated that he responded to your inquiry by telephone.

Updated Treatment System and Precipitate Removal after Barium Chloride Treatment
The treatment system in the Ground Water Discharge Permit Application is the updated system that will be used by Energy Fuels Resources Corporation at the Energy Queen Mine. A barium chloride solution will be mixed inline with the untreated mine water prior to flowing into multimedia filters. The mine water will reside in the multimedia filters long enough for the radium to precipitate out of solution inside the filters. The precipitate will then be backwashed out of the filter systems into large geofabric collection bags and the bags will be placed on a concrete pad that slopes back towards the Untreated Water Pond. The geomembrane fabric of the collection bags allows water to flow through and drain from the filter bags while the solids are contained within the bags. Prior to disposal, the contents of each bag will be analyzed for radium-226 and uranium and the 8 RCRA metals using the Toxicity Characteristic

Leaching Procedure. The results of these analyses will determine the appropriate disposal method for the precipitate.

Thanks again for your additional comments.

Rob Herbert, P.G., Manager

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>>> Sarah Fields <sarahmfields@earthlink.net> 5/13/2009 5:21 PM >>>
Dear Mr. Herbert,

I have some questions regarding the proposed Ground Water Discharge Permit for the Energy Queen Mine in La Sal, San Juan County.

Recently I received a copy of the Energy Queen August 6, 2007, UPDES permit application
that was approved by the Division of Water Quality (DWQ). See
http://www.uraniumwatch.org/energyqueenmine/dwq_eq_UPDES_app.070806.pdf

There is information in that application that is very different than the information provided in the October 31, 2008, Water Discharge Permit (GWDP) application and at the hearing and meeting in La Sal on April 6.

1. First of all there is a discrepancy between the amount of water that Energy Fuels Resources expects to pump from the mine and discharge into the West Coyote Wash. The UPDES application estimates 288,000 gallons per day pumped from the mine, with a discharge of 286,600 gallons per day. The GWDP application estimated half that amount: 144,000 gpd from the mine and 142,700 gpd surface discharge.

Can you explain this discrepancy?

2. Then there is the flow of the mine water from the mine, through the treatment system, to the point of surface discharge. The UPDES application, Figure 2, Water Flow Schematic (page 12), shows 288,000 gpd of mine water entering the treatment plant (or surge tank), flowing from the treatment plant to ponds ("direct precipitation into ponds"), then flowing to the out fall, with some evaporation from the ponds.

The Conceptual Diagram of Flow in the Proposed Energy Queen Mine Water Treatment Plant, Figure B2, that accompanied the application for the Ground Water Discharge

Permit shows 144,000 gpd of mine water flowing to the untreated water pond (or contingency pond), then to the treatment plant, then to the treated-water tank (with some flowing to a geomembrane bladder), and from the treated-water tank to the point of discharge. These are two very different systems.

How do you explain that there are two different treatment systems described in two different applications for the same facility?

Do you know if Energy Fuels intends to make such substantial changes in the amount of water and the treatment system, they would have to submit an amended UPDES application? The DWQ approved the UPDES permit based on the information in the August 6 application, which is no longer applicable.

3. This brings up the question of the barium chloride system itself. In an April 27 message to Matt Garn of the DWQ I asked the following:

"Also, I was wondering whether the barium chloride treatment facility, itself, is under the DWQ's jurisdiction. If so, is it under the UPDES permit or the GWDP, or both? Does the DWQ review the construction plans for the treatment system? Do you have data
and information about the specific system from the manufacturer that shows exactly how
it will work, its specifications, how it should be operated, and demonstrates that
the system will will be able to remove the radium and (supposedly) some of the uranium
to meet the standards. The information in the GWDP is rather scant."

I have not received a reply to that inquiry.

In reviewing some technical information about barium chloride treatment systems, it is clear that after the addition of the barium chloride to mine water, the water must sit for a while, then the precipitant must be filtered out in some manner. In past treatment systems, the mine water would flow into ponds, where the precipitant would settle out. The diagram in the GWDP application does not explain or show how the precipitant would be removed from the mine water after the barium chloride treatment. Additionally, the diagram does not contain any information about the capacity of the treatment system.

It seems that the DWQ has not reviewed any technical or scientific information about the treatment system and has little to go on. Is that information irrelevant?

Does some other agency deal with the barium chloride system, how it is operated (it can be tricky), and the chemical and radiological hazards associated with such systems?