

In the Matter of

PR Spring Tar Sands Project, Ground Water Discharge Permit-by-Rule

No. WQ PR-11-001

PREFILED DIRECT TESTIMONY

OF

ROBERT HERBERT P.G.

February 29, 2012

Prefiled Testimony of Rob Herbert, P.G.

Q Please state your name and employment.

A My name is Rob Herbert and I am the manager of the Ground Water Protection Section in the Division of Water Quality, Utah Department of Environmental Quality.

Q What is your education and professional experience?

A I have a Bachelor of Science degree in professional geology from Louisiana State University (1983), and a Master of Science degree in geology with emphasis in hydrogeology from the University of New Orleans (1991).

I am a licensed professional geologist in the State of Utah and have been employed at the Utah Department of Environmental Quality since 1997 including six years as a Hydrogeologist in the Division of Radiation Control (1997-2003) providing regulatory oversight of ground water hydrology issues. Since November 2003 I have been the Manager of the Ground Water Protection Section in the Division of Water Quality. In addition to my experience at DWQ, my professional experience includes six years as an Exploration Geologist in the oil and gas industry (1984 to 1990); Research Geologist for the Water Resources Section of the Louisiana Geological Survey (1991); and five years as a Hydrogeologist in Environmental Consulting (1992-1997).

Q What are your job responsibilities at the Division of Water Quality?

As the manager of the Ground Water Protection Section, my primary responsibilities are to administer the Utah Ground Water Quality Protection Program (UAC R317-6) under the Utah Water Quality Act, and the 1422 Underground Injection Control (UIC) Program (UAC R317-7) delegated by EPA under the federal Safe Drinking Water Act.

I supervise six environmental scientists and one environmental engineer by assigning tasks and providing guidance and direction to ensure that assigned tasks and program goals are met.

I prepare annual staff performance plans to establish, track, and measure annual program goals and objectives including the issuance of construction permits, ground water discharge permits, and UIC permits; inspection and compliance evaluation of permitted facilities; initiating enforcement actions and negotiating consent agreements; conducting technical reviews and requesting board approval of aquifer classifications; and providing regulatory oversight of soil and ground water subsurface investigations and corrective actions for contaminant releases.

My section currently administers 37 ground water discharge permits and six underground injection control permits for agricultural, mining, milling, power generation, and municipal facilities and operations. I evaluate staff performance with bi-weekly task tracking reports for each employee, and conduct annual employee performance

evaluations using queries of the task tracking database and customer service feedback data. I formulate and complete rulemaking actions, prepare guidance documents as needed, and schedule and participate in stakeholder and public comment periods, meetings, hearings, and outreach activities with the public, industry, and federal, state, and local officials.

Q What was your involvement in the U.S. Oil Sands ground water discharge permit-by-rule?

I assigned the review of the permit-by-rule request we received from JBR Environmental to Mark Novak, a professional geologist in my section, and I reviewed the permit-by-rule approval letters that Mark drafted after he completed his reviews.

Q Why did you assign the permit-by-rule review to Mark Novak?

Mark has been reviewing U.S. Oil Sands activities since their 2005 pilot project. This included information related to their original permit-by-rule request in 2008, and modifications related to that determination in February 2011. In addition, Mark has been reviewing permit-by-rule requests since 1990 and is the most experienced staff member in the ground water protection section for reviewing permit-by-rule requests. Mark also has previous experience working in the mining industry, and is familiar with the hydrogeology of the Uinta Basin.

Q Was there coordination with the Division of Oil, Gas and Mining?

A Yes. We have a Memorandum of Understanding (MOU) with the Division of Oil, Gas and Mining (DOGGM) for mining operations with the intent to coordinate permitting, compliance, and enforcement activities between agencies. Upon receipt of a complete mining and reclamation plan, DOGM consults DEQ to determine whether required approvals for DEQ have been issued.

Q Was DOGM or DWQ the lead agency for reviewing the tailings management, disposal, and reclamation for the U.S. Oil Sands PR Spring project?

A Under the MOU, DOGM is recognized as the designated regulatory authority for the State of Utah responsible for implementation and enforcement of a statewide program for the regulation of mining and reclamation activities under state and federal laws. The U.S. Oil Sands PR Spring project is utilizing concurrent reclamation techniques for tailings disposal during the mining and processing operations. With the intent of reducing duplication of effort and in the interest of best utilizing State resources, DEQ utilizes DOGM comments, expertise, and familiarity with proposed mining operations in the development of permits and approvals to the maximum extent possible. In this case, DWQ is relying on the best management practices and inspections that U.S. Oil Sands has committed to implementing in the NOI, which are described below.

In the NOI filed with DOGM, U.S. Oil Sands has committed to using best management practices (BMPs) and mitigative measures throughout all phases of the project to control

runoff and erosion. As long as these BMPs are effectively implemented by U.S. Oil Sands under the DOGM NOI, I anticipate little potential for surface water discharges or ground water contamination. Specifically, the Storm Water Pollution Prevention Plan requires good housekeeping practices, preventative maintenance for both equipment and structural BMPs, weekly inspections of sediment control measures, and monitoring for runoff. Further, the highwall safety berms will prevent outside runoff from entering the pit. Surface water will be restricted to that generated by onsite precipitation since little or no runoff will enter the site. All precipitation falling within the mine pit will be collected in collection sumps located in the bottom of the pit thereby preventing runoff from leaving the mine site. The accumulated precipitation will be removed from the pit and transported to the process plant site or used for dust suppression on mine and plant roads. Runoff from the overburden/interburden storage areas will be controlled in rip-rap armored areas at the margins and energy dissipation at the toes of their slopes. These structures as with all site BMPs, will be maintained to ensure that they are functional.

Q What is the alternative to a permit-by-rule?

A A ground water discharge permit.

Q Would this be a practical site for a ground water discharge permit?

A No. The primary premise of the permit-by-rule approval was the absence of ground water to a depth of 1,500 to 2,000 feet below the mine site. The great depth to ground water makes it impractical to issue a ground water discharge permit. The fundamental basis for issuing a ground water discharge permit is to monitor points of compliance to ensure that ground water degradation of the shallow aquifer is not occurring from the permitted facility or operation. This demonstration is made by periodically monitoring points of compliance, which may be one or more ground water monitoring wells or an engineered monitoring point such as a pan lysimeter or a leak detection sump for a multiple liner system. In this case, there is no point of compliance to monitor because it is impractical to install monitoring wells to depths of 1,500 to 2,000 feet and it would not be practical to install a pan lysimeter or leak detection system below the 140-foot deep tailings disposal pit. Installing monitoring wells in ground water at depths of 1,500 to 2,000 feet would not be justified in this case because of the extreme length of time it would take pore water to reach ground water, and even longer time for the transport of contaminants to ground water, which would make the ground water monitoring data useless.

Q What if future information indicates a potential threat to ground water quality?

A We would reassess the permit-by-rule determination and probably require a ground water discharge permit. This is an important point that is included in the Ground Water Quality Protection Rules, both Ground Water Discharge Permit-By-Rule approval letters, and the JBR Ground Water Discharge Permit-by-Rule Demonstration. UAC R317-6-6.2(C) of the Ground Water Quality Protection Rules states:

“The submission of an application for a ground water discharge permit may be required by the Executive Secretary for any discharge permitted by rule under UAC R317-6-6.2 if it is determined that the discharge may be causing or is likely to cause increases above the ground water quality standards or applicable class TDS limits under UAC R317-6-3 or otherwise is interfering or may interfere with probable future beneficial use of the ground water.”

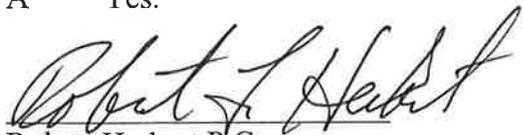
Therefore, if DWQ becomes aware of information indicating that the U.S. Oil Sands PR Spring project is causing ground water degradation or interfering with beneficial uses of ground water, the Executive Secretary will require the company to submit an application for a ground water discharge permit. Furthermore, the issuance of a ground water discharge permit-by-rule does not absolve U.S. Oil Sands of any liability for addressing potential ground water degradation if it occurs as a result of the PR Spring tar sands project. In this potential situation, U.S. Oil Sands would be subject to Corrective Actions under UAC R317-6-6.15 of the Utah Ground Water Quality Protection Rules, enforcement actions under Section 19-5-115 of the Utah Water Quality Act, and the Penalty Criteria for Civil Settlement Negotiations under UAC R317-1-8.

In addition, both the March 4, 2008 and the February 11, 2011 Ground Water Discharge Permit-By-Rule approval letters include language that *“[i]f future project knowledge or experience indicates that ground water quality is threatened by this operation, the Executive Secretary may require that you apply for a ground water discharge permit in accordance with UAC R317-6-6.2.C.”*

Finally, the JBR Ground Water Discharge Permit-by-Rule Demonstration stated that the company will verify the absence of shallow ground water prior to initial operations from additional exploration drilling planned *“within a wider area of the proposed pit and storage site for processed sands, which will provide more information on subsurface conditions and encountered water, if any. Should evidence of shallow ground water be discovered, Earth Energy will coordinate with DWQ to further investigate this issue.”* Information obtained from the drilling and coring program conducted by U.S. Oil Sands in 2011 confirmed the absence of shallow ground water in the initial 3-pit mine area and that ground water was not present to a depth of 1,500 to 2,000 feet.

Q Does this conclude your testimony at this time?

A Yes.



Robert Herbert P.G.

Utah Division of Water Quality

~~288 North 1460 West~~ 195 N. 1950 W.

Salt Lake City, UT 84114-4870

801-536-4350

References

Earth Energy Resources, Inc., PR Spring Operation, Uintah and Grand Counties, Utah, Ground Water Discharge Permit-by-Rule Demonstration, February 22, 2008, prepared by JBR Environmental Consultants, Inc.

Memorandum of Understanding between the Utah Division of Oil, Gas and Mining, and the Utah Department of Environmental Quality for Mining Operations, September 1, 1999.

Notice of Intention to Commence Large Mining Operations, PR Spring Mine M0470090, submitted by Earth Energy Resources, Inc., Calgary, Alberta, to the Utah Division of Oil, Gas and Mining, Salt Lake City, Utah.

U.S. Oil Sands, Lithologic Core Logs, provided to Utah Division of Water Quality under Stipulation for the Production of Confidential Business Information to Counsel for the Executive Secretary, received by Utah Assistant Attorney General Paul M. McConkie from Holland & Hart LLP, Attorneys for U.S. Oil Sands, February 9, 2012.

Utah Department of Environmental Quality, Division of Water Quality, Administrative Rules for Ground Water Quality Protection, R317-6, Utah Administrative Code, effective date of last revision, January 19, 2007.