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Mark Novak

Ground Water Quality Protection Program

Division of Water Quality, Utah Department of Environmental Quality

195 North 1950 West

Salt Lake City, Utah 84116

RE: Crown Asphalt Ridge Oil Sands Mine and Pilot Plant

Dear Mark,

Thanks for talking with me regarding the Crown Asphalt Ridge (CAR) mine and pilot processing plant. As we discussed, the CAR mine and processing site has a history back to 1996 when it was called the Buenaventura Resources Corporation. At that time Permit-By-Rule (PBR) status was issued for a bitumen extraction process that used an un-named solvent. The plant operated under that PBR for several processes, including a modified hot water extraction process between 1998 and 2001, when it was suspended for economic reasons.

In 2005, as part of a due diligence investigation, Detroit Edison installed three monitoring wells in the mine. Analytical results from 2005, 2008, 2009, and 2012 are attached and show heavier, less mobile hydrocarbon fractions that would be found in the naturally occurring oil sands, but low or non-detect in the lighter fractions that would be used for solvents and that might remain as residual in tailings from a solvent extraction process.

In 2008, CAR requested and received PBR status for a pilot plant to test a new, two-step process for extracting bitumen from oil sand. Hot water would be used to separate out the sand fraction of the matrix holding the bitumen, leaving a bitumen froth consisting of 50-60 percent bitumen, 10-20 percent fines (primarily clay), and water. The second step in the process would have been the separation of the fine particles from the bitumen using a solvent process. The current pilot will be for the first step of this same process, with dry froth being the product (rather than bitumen).

Waste products will consist of clean sand tailings and a material from the water treatment system consisting primarily of clay with traces of flocculent from the water treatment process. Both of these will have a small amount of residual bitumen, but no solvent or other introduced oil sand processing materials. These will be disposed in the disturbed area in and around the mine, same as for all previous processes.

We continue to believe that the current process and other operations are well within the parameters of the existing permits-by-rule from 1996 and 2008. Per your request I have

completed and attached a Utah Ground Water Discharge Permit Application (Application). Attachments to the Application include the following:

- Introduction and project description,
- Expanded geology and groundwater sections from the 2008 request for PBR,
- Analytical results from the three monitoring wells
- Analytical results from unprocessed and processed oil sands,
- Explanation of why permit-by-rule is appropriate and justified for the processing plant and tailings based on *de minimus* actual and potential effect on ground water quality per R317-6-6.2-A25, and
- Explanation of why permit-by-rule is appropriate and justified for the in-pit pond for natural ground water intercepted by mining based on R317-6-6.2-A6.

CAR requests permit-by-rule for the pilot plant, which will take 30 days for the wet froth process (front end) and another 30 days for the dry froth process. Debugging and optimizing the wet froth process would require input of 70 tons per hour over the 30-day period, which would result in a maximum of 50,400 tons of processed ore, and the same tasks for the dry froth process would require 133 tons per hour over the 30-day period for an additional maximum 95,760 tons of processed material.

Please let me know if any additional information is needed or if there is anything we may do to expedite the process. As you know, the bankruptcy court is allowing a very limited time for CAR to demonstrate the viability of this process. My direct line at JBR is 801.438.2237.

Sincerely,

<Jon Schulman> sent via email

Jon Schulman
Environmental Engineer/Project Manager
JBR Environmental Consultants, Inc