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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Grand Junction Field Office
2815 H Road
Grand Junction, Colorado 81506



6830 (LLCOS08000)
COC38492

RECEIVED

SEP 22 2017

SEP 28 2017

DIVISION OF RECLAMATION
MINING AND SAFETY

Mr. Bruce Smith
Western Water and Land, Inc.
743 Horizon Court, Suite 330
Grand Junction, CO 81506

RE: Occidental Oil Shale, Inc., Logan Wash, ROW #COC38492, Proposed Relining of Logan Wash Mine Evaporation Pond.

Dear Mr. Smith,

The Bureau of Land Management (BLM) has reviewed your proposal to reline the existing Logan Wash Evaporation Pond. The information on water quality testing provided to our office was reviewed by our Wildlife Biologist, Heidi Plank and Creed Clayton, of the US Fish and Wildlife Service.

Based on the information provided it appears the salinity levels in the pond are high while the salinity levels of the water entering the pond are not a concern. Because you intend to put a new liner in the pond, we assume that the salinity levels will initially be the same as those in the retort water. At this time BLM is not requiring netting of the evaporation pond. However the BLM will require water quality monitoring of water in the pond both in the spring and fall and will require netting if water quality concerns are found as salinity levels are expected to increase over time. These monitoring reports need to be submitted to the BLM by March 1 of each year.

The smaller settling pond next to the main evaporation pond must be netted to prevent bird or wildlife contact as any hydrocarbons that may come through are likely to concentrate here.

After reviewing the video you obtained from the leak detection system, BLM will require:

- 1) The current leak detection system has been in place for the duration of the project making it around 30 years old. There are a few low spots on the bottom of the current pond. This is concerning in that the leak detection system has proven water is getting through the current liner in the recent past. Our concern is that the low spots could exist because this is the location of the leaks and soil saturation is occurring under the liner. BLM requires that these low spots be investigated to determine if saturation has occurred in these locations. We believe investigations can be completed as easily as

cutting a series of small holes in the liner and using a hand auger to dig holes to a depth of 4 feet to determine if saturation is/has occurred. Soil samples should be tested for toxicity concerns. The holes can then be back-filled and the liner can be patched. We encourage care be taken so as not to bore into the current leak detection system. It might also be worth taking a couple samples from the high spot in the bottom of the pond as a control point. If indeed soils are saturated and/or contaminated in these locations BLM will need to re-evaluate acceptable future remedies for this project.

- 2) The video of the middle perforated line showed that there are places where crystallization of salts has nearly plugged the pipe. The lateral perforated pipes should be cleaned out (e.g. with an auger or vacuum) to renew the life expectancy of the leak detection system.
- 3) The video also showed that the delivery pipe on the end of the leak detection system has areas filled with water indicating that there are dips in this pipe both north and south of the sump. This water filled pipe also indicates lack of sufficient drop from the laterals to the sump. BLM request that this line be dug up and replaced, preferable providing more drop to the sump so less head is necessary to drain the leak detection pipes. While this line is being replaced a perfect opportunity to clean the perforated laterals would be available as required above under #2.

If you have questions or need additional information, please contact Wayne Werkmeister, Associate Field Office Manager, at (970) 244-3037.

Sincerely,



Katie A. Stevens
Field Office Manager

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