COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Logan Wash	**MINE/PROSPECTING ID#:** M-1977-424	**MINERAL:** Oil shale	**COUNTY:** Garfield
INSPECTION TYPE: Surety-Related Inspection	**INSPECTOR(S):** Amy Yeldell	**INSP. DATE:** September 7, 2021	**INSP. TIME:** 08:00
OPERATOR: Occidental Oil Shale, Inc.	**OPERATOR REPRESENTATIVE:** Bruce Smith	**TYPE OF OPERATION:** 112 - Hard Rock Regular Operation	
REASON FOR INSPECTION: Citizen Complaint	**BOND CALCULATION TYPE:** None	**BOND AMOUNT:** $570,428.00	
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** DRMS	**JOINT INSP. AGENCY:** None	
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** Amy Yeldell	**SIGNATURE DATE:** October 5, 2021	

GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS---------- Y	(FN) FINANCIAL WARRANTY-------- N	(RD) ROADS---------- Y
(HB) HYDROLOGIC BALANCE---------- Y	(BG) BACKFILL & GRADING---------- Y	(EX) EXPLOSIVES--------- NA
(PW) PROCESSING WASTE/TAILING---- N	(SF) PROCESSING FACILITIES------- Y	(TS) TOPSOIL---------- NA
(MP) GENL MINE PLAN COMPLIANCE- Y	(FW) FISH & WILDLIFE---------- Y	(RV) REVEGETATION---- Y
(SM) SIGNS AND MARKERS---------- Y	(SP) STORM WATER MGT PLAN---- Y	(RS) RECL PLAN/COMP-- Y
(ES) OVERBURDEN/DEV. WASTE--------- N	(SC) EROSION/SEDIMENTATION--- Y	(ST) STIPULATIONS------- Y
(AT) ACID OR TOXIC MATERIALS------- NA	(OD) OFF-SITE DAMAGE----------N	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

OBSERVATIONS

This inspection was conducted in response to the Acreage Reduction Release Request (AR-2) submitted to the Colorado Division of Reclamation, Mining and Safety (Division), on October 14, 2020. Given the location and ability to access the site a weather letter was sent on December 7, 2021. Bruce Smith of Western Water & Land, Inc. represented the Operator and accompanied Amy Yeldell of the Division on the inspection. The Logan Wash Mine is a 108.55 acre 112 HR site operated by Occidental Oil Shale, Inc. The post mining land use of surface disturbances is wildlife habitat. This inspection was of the entire site but focused primarily on areas eligible for reclamation release.

Of the total land disturbed, Logan Wash Road (Area 18) will not be reclaimed as it needs to remain in place to service other users. The Evaporation Pond (Area 23) and Retort Water Pipeline/Manholes have not been reclaimed as these facilities are also still in use. Additionally the Upper access road, the lower bench road and evaporation pond road remain in use and are largely unreclaimed. The Lower Access Road will be reclaimed after final closure since the road is used to access Well LWCW-1A and the Upper Manhole monitoring location. Features requiring no reclamation, as they will remain in place post-mining, still require an acreage reduction/ release to be administratively removed from the permit. Under a separate request the Operator is encouraged to request release of all other eligible areas in an effort to consolidate the permit to just include remaining reclamation liabilities.

Administratively the acreages associates with this site are very hard to track. Over the years there have been several modifications to the permit adding in features while removing others. These modifications track more closely to the actual disturbance rather than the allotted acreages permitted with them. As this project nears completion of final reclamation a records review would be beneficial to ensure that everything has been properly accounted and that all of the numbers match up. Division staff intends to work closely with the Operator to ensure that all disturbances, reclaimed areas and permitted land have been reconciled.

The road realignment areas B2, B3, B5, B5A, B7, B8A, and B8 were inspected. They are located within Area 13 and are generally on BLM. Dirt work naturally blends with undisturbed topography. Vegetation is generally comprised of mature sagebrush with limited grass understory growth. Vegetation is comparable to adjacent areas. Little to no weeds were observed. Reference satellite images were necessary to locate and delineate the affected lands. Overall road realignment areas are indistinguishable from unaffected areas.

The upper portion of the lower access road is located within Area 13 and is on BLM. The lower access road was reclaimed in 2004. The lower part is frequently grazed and used for access. The lower portion is not being requested for release, only the upper portion is at this time. The upper portion of the access road consists of 80% mature sagebrush that is chest high. A small access foot path has been cut to maintain access to the flume and monitoring well. The uppermost portions comprise of more grass with lower forms of sagebrush and other native shrubs. Mr. Smith indicated that once no longer required, the monitoring well would be plugged. Material could be carried in via backpack and plugging and abandonment measures would be done by hand with virtually no disturbance. Reclamation of the flume would be slightly more invasive. It is located in a natural low point and consists of a small liner and metal flume. Presumably these materials could also be removed by hand followed by hand seeding of an approximately 10 ft x 10 ft area.

Upper access road to the upper bench (Area 2) is extremely rocky. Evidence of frequent rock fall is evident by the varying sized of rocks on the previously graded reclaimed road. Some vegetation has established and is primarily grasses and forbs. Areas of direct southern exposure have limited vegetative cover, approximately 30%. As you approach the upper mine bench and the more westerly exposure, plant cover significantly

improves. Once on the upper mine bench overall plant cover is approximately 65% with no weeds observed. Given the lack of topsoil this is considered sufficient vegetative cover. On the upper bench all rock netting has been removed, a few rock anchors still remain as removal is impractical. All portal and other underground storage areas have been closed using an earthen backfill. No equipment or mining related debris remains on site. The PVC irrigation lines used for the upper mine bench/dump (slope between the upper and lower portals) remains in place as do the t-posts used for anchors to establish vegetative islands. According to Mr. Smith the irrigation piping is planned to be removed in fall of 2021. The vegetation islands are thriving and appear well established. Due to safety only visual estimations from the mine benches were made, no up close inspections were made.

The lower mine bench (Area 3) is mostly reclaimed. The access road is well vegetated on the sides but due to frequent used the center of the road is still bare. Located within the lower mine bench on the eastern side is the retort vault and a weather station. Along the western side is an armored rock ditch which includes an overflow pipe from the research mine portal. Overall the eastern side is completely reclaimed with a diverse establishment of native plans including forbs and shrubs. The eastern side near the monitoring areas has lower densities of plants but still a good establishment considering the harsh conditions. Given that the lower access road and monitoring areas of the mine bench are still in use these areas are not being considered for release.

The research mine area (Area 4) is located along upper access road. The portal has been sealed with an earthen backfill. A pipe was installed to carry water from the research mine to the main mine retort water via a PVC pipe that runs along the lower bench road. On the south side of the access road is the research mine dump area and an armored channel to prevent washouts. Both areas have well established vegetation. Topsoil was imported for the research mine dump.

The helo pad (Area 10) has been converted to a stormwater retention basin. It consists of a vegetated depression with a flat bottom. Overall this feature blends naturally with the surrounding topography and vegetation appears well established and diverse. Very little residual sediment was observed and the feature appears to be functioning correctly with adequate storage capacity.

The soil borrow area appears as a natural clearing within the mature scrub oak. Slopes blend naturally and do not appear as though excavations were made. Vegetation is comprised of both well-established grasses and some mature shrubs and forbs. The site is weed free and appears stable.

Based on this inspection it is determined that the Operator has successfully complied with the requirements of the Act, Rules and Regulations, and the approved Reclamation Plan, and that a portion of the permit area is ready to be released from any further reclamation responsibility. A decision letter will be sent under separate cover regarding AR-2.

Responses to this inspection report should be directed to: Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 970-254-8511 or via email at amy.yeldell@state.co.us

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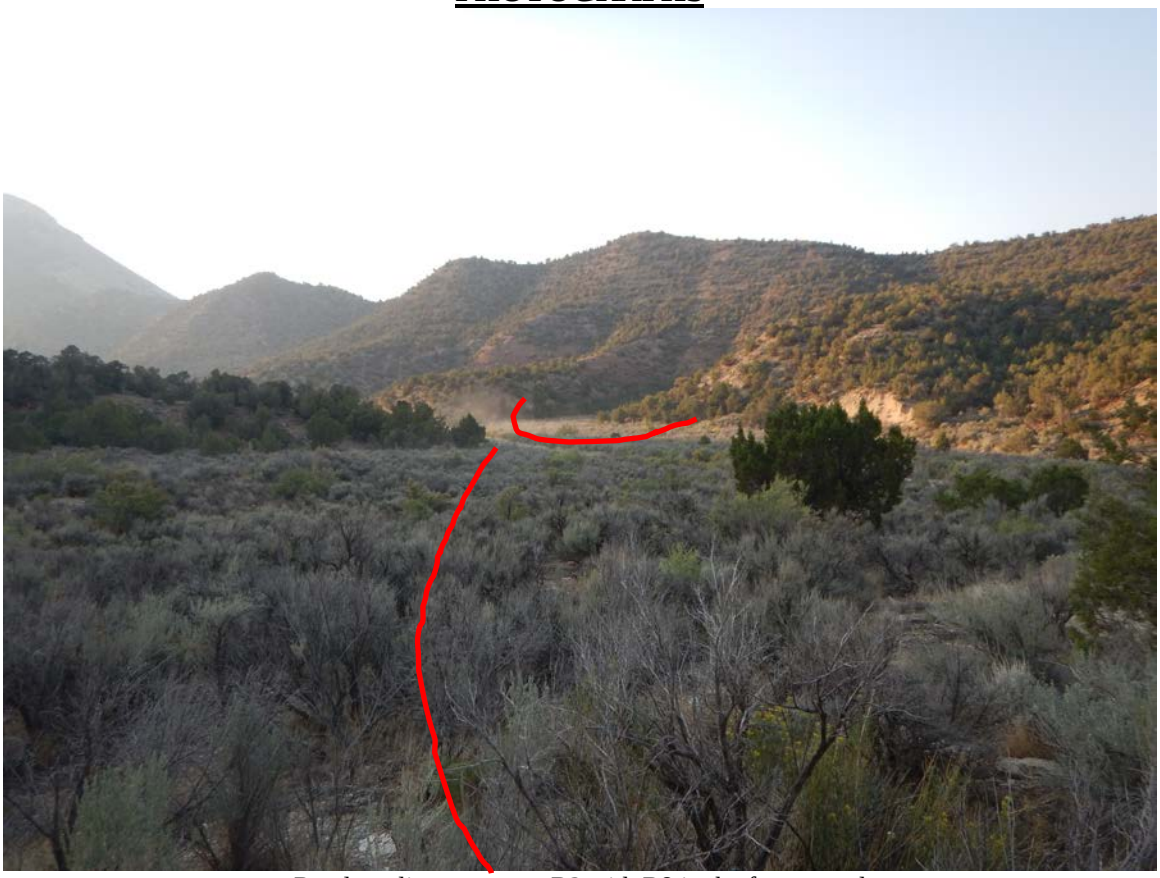
Enclosure

CC:
Travis Marshall, Senior EPS, Grand Junction DRMS
Brittany Cocina, BLM

PHOTOGRAPHS



Road re-alignment area B2 with B8 in the foreground

Road re-alignment area B3 with B8A in the foreground

Road re-alignment area B5

Road re-alignment area B5A

Upper portion of the lower access road

Remaining monitoring well along upper portion of the lower access road.

Flume still in place along upper portion of the lower access road.

Upper access road to the upper bench

Upper access road to upper bench. Backfilled portals.

Upper mine bench with backfilled portals

Vegetation islands on the upper mine bench/dumps. Irrigation and t-post since removed

Lower min bench overview, weather station, backfilled portal

Lower mine bench

Research mine, backfilled portal, dump and soil borrow area

Road re-alignment area B7

Repurposed helo pad as sediment pond

Soil borrow area

Overall site overview form Logan Wash road.

Site overview of upper access road and research mine area

Site overview of upper access road and mine benches