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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

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TO: Internal File
THRU: William J. Malencik, Inspector and Team Lead *Sm for wjm*
FROM: Michael J. Suflita, Senior Reclamation Specialist *MS*
RE: Midterm Review with Emphasis on Hydrology, Genwal Resources Company, Crandall Canyon Mine, C/015/032-MT00-1

SUMMARY:

The Crandall Canyon Mine Permit is at it's midterm and Division review is required. This review emphasizes the Hydrology aspects of the Mining and Reclamation Plan (MRP) and includes a review of past monthly inspections, submitted water monitoring data, and correspondence. A site visit by the review team was conducted on November 21, 2000. The Division sent a Technical Analysis (TA) to the Operator on December 14, 2000. The Operator sent a submittal in response to the TA and it was received by the Division on February 7, 2001. This Technical Memo is a review of this latest submittal. There are deficiencies.

TECHNICAL ANALYSIS:

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: R645-300-730

Analysis:

As part of the midterm review the following documents were reviewed to determine their applicability to the Crandall Canyon Mine using the Best Technology Currently Available (BTCA). This is to prevent additional contributions of suspended solids, or other contaminants, to stream flows outside of the permit area.

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- Chapter 7, Hydrology
- Correspondence Folder #2 for the Mine, spot checking for the last two years.
- Inspections Folder #5 for the Mine for the past two years.
- Water monitoring data in the DOGM database.

The MRP contains appropriate provisions for diversion ditches and culverts and these have all been installed. Also, numerous plan amendments have modified the basic plan over the life of the current permit. The inspection reports indicate the diversions have been performing adequately and they have been regularly maintained as needed to maintain their capacity. Sediment control measures at the minesite consist of straw bales, silt fences, gravel cover, and vegetative cover. Inspection reports indicate these are performing as intended and reduce sediment loss. These have been maintained as needed to retain their capacity. A site visit showed much of the disturbed area is paved and gravel cover extends over nearly all the remaining disturbed area. This will minimize sediment contributions to the sed pond.

The sediment pond appears to have been adequately designed and has been performing as intended. Inspection reports show it rarely discharges. Records indicate that, although the mine started operation in 1984, the first discharge occurred in 1996. Apparently there have only been five pond discharges during the life of the mine. During the site inspection it was noted that there was no "Existing Riser Decant with Trash Rack and Skimmer" as indicated on the original Plate 7-3. The new Plate 7-3 and 7-5 no longer indicates a decant system. The plates now accurately reflect actual as-built conditions. The MRP indicates, on page 7-44, paragraph 2, that there is supposed to be a decant system controlled by a valve. Sampling and testing to assure compliance with UPDES discharge requirements will be done before releases are made from this decant system. The new submittal, Appendix 7-4, page 36, paragraph c), indicates the pond will be decanted using a portable pump. The Chapter 7 text on page 7-44 needs to be revised to be consistent with Appendix 7-4.

During the site inspection it was noted that there is a UPDES sampling point in the 12-inch pipe near the road. This pipe conveys the minewater discharge directly into Crandall Creek. Discussions with the Utah Division of Water Quality indicate this is an acceptable arrangement and is in compliance with UPDES permit provisions. However, most such arrangements are for holding systems that discharge on the order of once or twice a year, and only after sampling is done to assure compliance with the UPDES permit. The Operator is cautioned that the current arrangement could result in non-compliance discharges that would only be discovered AFTER the discharge had occurred. The Division strongly recommends that an "Investigative Sample" be taken from the sump at the inlet end of the pipeline and sent for laboratory analysis. Then, IF the water does not exceed UPDES requirements, the water can be discharged. This investigative sampling would be in addition to the regular UPDES permit sampling. Essentially, the same discharge sampling needs to be employed for this pipe UPDES discharge point as is described in the MRP for the sediment pond UPDES discharge point.

The shotcrete wall on the uphill side of the road leading to the portal is performing as designed. No sediment appears to be generated by the installation. The several Alternate Sediment Control Areas (ASCA) were inspected. They all appear to be performing well. These are mostly undisturbed areas left during original mine site construction. Almost no sediment appears to be generated in the unused area drained by ditch UD-2. The sediment trap at the inlet to C-6 shows almost no sediment.

During the site inspection, Division employees and the Operator discussed the possibility of installing a sediment trap between the crusher building and the sed pond. This is the main source of coal fines entering the pond. Such a trap would save money for pond cleanout and reduce the sed pond loading. Unfortunately, the crowded conditions at the site prevent installation of such a sediment trap. There just is no space available.

The Genwal Mine has had difficulty complying with their water monitoring program. Two Notices of Violation were issued for not submitting water monitoring data. These were on 11/24/98 and 10/29/99. In addition, a Division Order was issued on 11/23/99 to clarify the monitoring program. During the site visit the Operator indicated they have hired a new firm to perform the water monitoring. It appears the past problems have been resolved and the Operator will now be willing and able to meet the MRP monitoring requirements.

When the mine site operation pad was expanded four years ago, the U. S. Forest Service undertook to enhance the stream habitat in Crandall Creek above the mine. This proved successful and further enhancement is planned further above the mine. This is NOT part of the mine plan. However, since Genwal Resources Company paid for these improvements, it's worthy of noting that these efforts have improved environmental conditions. The site visit included a walk to examine the stream and note the improved habitat. The further enhancement is planned to take place next summer during low flows.

Overall, the mine site appears to be using the BTCA appropriate for the site conditions and is in good condition.

There are some typographic errors in the newly submitted pages of Appendix 7-4 Sedimentation and Drainage Control Plan. First, the revision dates at the top of the pages are 01/98. Since this is March, 2001, the pages need to reflect the correct revision date. Second, page 31 indicates the one year sediment load is 0.112 ac. ft. The next line indicates the three year sediment load is 1.112 ac. ft. The three year sediment load should be 0.336 ac. ft. since 3 times 0.112 equals 0.336. Third, the page titled STAGE-VOLUME, GENWAL SEDIMENT POND (As-Constructed) is not labeled. It's a figure and appears to be a new edition of Figure 6 of the appendix.

The submittal contained new editions of Map 7-3 Crandall Canyon Mine Genwal Pond (As-Built) and 7-5 Crandall Canyon Mine Drainage Map. These new maps show the as-built

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conditions of the minesite. Comparing the new Map 7-5 to the old edition showed several minor corrections are needed on the new map. First, the NPDES discharge point 001 needs to be designated. Second, NPDES discharge point 002 needs to be designated and it needs to be shown where the pipe enters the main culvert under the minesite. The pipe leading down the hillside is shown, but not the pipe across the minesite. Third, DD-11 is not designated on the new map. Fourth, C-13 is not shown on the new map.

The new Map 7-5 shows the originally approved culvert C-12 was replaced by a longer ditch DD-5. In addition the underground culverts are all now shown as dotted, and the several buildings are no longer shown, all of which makes the drainage map easier to understand.

Comparison of Maps 7-3 and 7-5 shows inconsistencies which need to be corrected.. First, The south corner of the sediment pond shows a culvert emptying into the pond. This culvert is not shown on Map 7-5. Second, the southwest side of the pond on map 7-3 shows two culverts. The second culvert, in its entirety, needs to be shown on Map 7-5. Third, the outlet of culvert C-4 is not shown on Map 7-5.

Findings:

In its present form, the MRP does not meet minimum regulatory requirements. Accordingly, the Permittee must address those deficiencies as found within this Technical Memo and provide the following, prior to approval, in accordance with the requirements of:

R645-301-730, 1) The Chapter 7 text on page 7-44 needs to be revised to be consistent with Appendix 7-4. **2)** Appendix 7-4 needs to be corrected as detailed above. **3)** Maps 7-3 and 7-5 need to be revised as detailed above.

RECOMMENDATION:

The submittal should not be approved until the above deficiencies are corrected.