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March 27, 2001

Gary Gray, Resident Agent  
Genwal Resources, Inc.  
P.O. Box 1420  
Huntington, Utah 84528

Re: Findings for Midterm Review, Genwal Resources, Inc., Crandall Canyon Mine,

15032-CRA-FINAL-defMT00-1, C

Dear Mr. Gray:

The above referenced amendment has been reviewed and there are deficiencies that must be adequately addressed prior to approval. A copy of our Technical Analysis is enclosed for your information. In order for us to complete the midterm review process, please respond to the identified deficiencies by no later than April 27, 2001.

If you have any questions, please feel free to call Bill Malencik, at (435) 613-5330, or me at (801) 538-5325.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock".

Daron R. Haddock  
Permit Supervisor

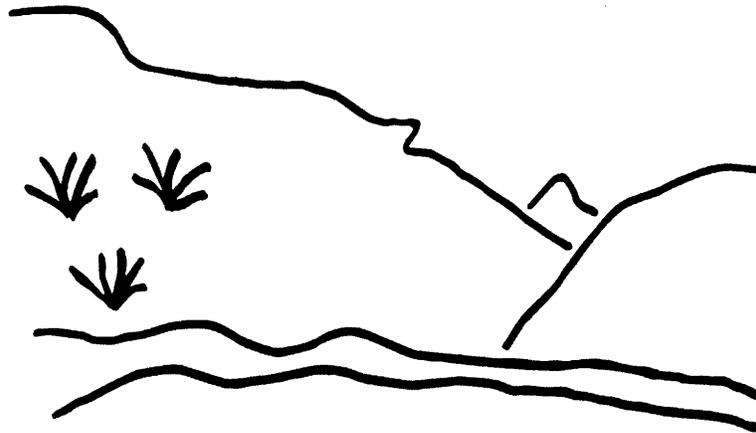
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Enclosure:

cc: Price Field Office

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# State of Utah



## Utah Oil Gas and Mining

### Coal Regulatory Program

Crandall Canyon Mine  
Midterm Review Correction  
C/015/032-MT00-1  
Analysis and Findings  
March 21, 2001

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INTRODUCTION

**TECHNICAL ANALYSIS**

**INTRODUCTION**

On March 1, 2001, the Division reviewed the information submitted by the Crandall Canyon Mine on three items: 1) reclamation agreement/disturbed areas, 2) diversions, and 3) sediment pond.

As related to item #1, the only issue is a 0.05 acres difference between the MRP and the reclamation agreement. The operator checked the records and concluded that the MRP was not correct. This submission now corrects this problem by updating page 2 of the MRP.

The midterm on diversions pointed out that part of the culvert is buried and part is uncovered. Furthermore, the length of the culvert was not correct. This has been corrected on plate 7-5.

The sediment pond has been increased in size at the request of the US Forest Service. The enlarged capacity of the pond is 3.572 acre feet. The coal rules require ponds to be designed for a 10 year/24 hour storm event. The calculations are as follows:

<u>Storm Event</u>	<u>Pond Volume Required</u>	<u>Pond Capacity Provided</u>
10 yr./24 hr.	2.06 acre ft.	173%
100 yr./6 hr.	1.93 acre ft.	185%
50 yr./24 hr.	3.53 acre ft.	101%
100 yr./24 hr.	4.51 acre ft.	79%

Refer to the following pages on the nine mandatory items that need to be addressed in the Technical Analysis.

The Crandall Canyon Mine Permit is at it's midterm and Division review is required. Part of 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. The Hydrology aspects of the review are from this latest submittal. There are deficiencies.

As part of the midterm review the Division evaluated the reclamation bond for the Crandall Canyon mine. The review consisted of updating the indirect costs to standards developed in June 2000, updating concrete demolition costs, and converting the spreadsheets from Quattro Pro to Excel. The Division used the existing reclamation costs in the MRP.

**SUMMARY OF OUTSTANDING DEFICIENCIES**

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**SUMMARY OF OUTSTANDING DEFICIENCIES**

The permittee must address those deficiencies as found within this Draft Technical Analysis 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. .... 9

# OPERATION PLAN

## HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

### 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.

- 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 mine site 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 mine-water 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 clean-out 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.

**OPERATION PLAN**

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

**Diversions**

The diversion drainage map, Plate 7-5 has been corrected. Plate 7-5 shows diversion DD-1 in its current configuration. The culvert had to be extended. It was extended and shown on Plate 7-5. In addition, part of the culvert is buried and part lies on the surface. New symbols have been included to differentiate between buried and unburied culverts.

**Sedimentation ponds**

Sediment ponds, when used, shall be located as near as possible to the disturbed area and out of the perennial stream. The sediment pond is located at the bottom of the mine site adjoining the undisturbed area. The reconstructed sediment pond was designed, constructed, and supervised by a registered professional engineer. The coal rules requires that nine items be discussed.

- 1) Provide adequate sediment storage volume.

The sediment pond located in Crandall Canyon has been redesigned to control additional storm runoff from the pad extension and from the undisturbed drainage area above the pad extension.

The universal soil equation was used to determine sediment loss that would be delivered to and deposited to the sediment pond. The areas involved include the disturbed, reclaimed, and undisturbed areas. The total sediment yield is as follows:

Total Sediment, one year	0.112 acre feet
Total Sediment, three years	0.336 acre feet

The pond life, in terms of sediment yield, is three years.

- 2) The detention time is 24 hours. The pond has a culvert as the principal spillway and an open-channel emergency spillway. Any discharge from the pond will be in accordance with the

UPDES permit. The pond will be decanted as needed by a portable pump that is readily available at the mine site.

- 3) The sediment pond located in Crandall Canyon has be redesigned and constructed to control additional storm runoff from the pad, and undisturbed drainage above the pad. The pond will meet the detention time of a 10 year, 24 hour storm event. The outgoing components includes the As-constructed topography and cross-section of the pond design are shown on Plate 7-3.

The designed storm calculations are shown on Table 4 of this appendix. These calculations address the storm runoff from the pad and the undisturbed drainage that goes into the sediment pond.

The determination of the adequacy of the spillway was based on a precipitation event from the 25 year, 6 hour storm event which is 1.9 inches (Miller et. al 1973). The 25 year, 6 hour flow is calculated at 9.07 cfs. The spillway is more than adequate.

The volumes shown in Table 11 are from the volumes calculated from the precipitation, runoff, and sediment yield for a 10 year, 24 hour precipitation event. The volumes as shown on 3.3 herein were calculated based on the disturbed area, the undisturbed area that drains into the pond, runoff values, and developed using the design parameters described in this section.

The sediment pond reconstructed volumes are shown on Table 11, Table 12, and Figure 6 all represent the "As-constructed" pond. Please refer to the aforecited Tables and Figure 6.

- 4) The mine proposes to utilize a pump to decant the pond. The detention time required is 24 hours. The mine has a pump on site to decant whenever it is necessary to decant the pond.
- 5) The pond has been in place since the fall of 1997. There is no evidence of short circuiting. Furthermore, bentonite was placed in the bottom of the pond as a short circuiting preventative measure.
- 6) The mine is required to submit an annual report on the amount of sediment that has accumulated in the pond. This will be the basis for a determination by the Division Hydrologist on the need to clean the pond in order to have adequate sediment capacity. The theoretical cleaning time is every three years.
- 7) The pond has been in place since the fall of 1997. There are no tension crack or other indication of improper settling.
- 8) The construction eliminated all sod and large roots in the construction.
- 9) It has been compacted correctly.

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OPERATION PLAN

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**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 Analysis 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.

The items addressed in the Diversions section meet the requirements of the coal rules.

On item 1) under the heading Sedimentation Ponds, the sediment yield is 0.336 acre feet for three years. This meets the requirements of the coal rules.

Items 2) through 9), under the heading Sedimentation Ponds, meet the requirements of the coal rules.

# RECLAMATION PLAN

## HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

### Analysis:

#### Sedimentation ponds

The total capacity of the dirt work to reclaim the pond is slightly more than the initial pond that was reconstructed. However, when one considers the total yardage of dirt work on the entire disturbed area the increased yardage of the pond is not germane to the total dirt work. The pond will be removed after Phase II Bond Release.

### Findings:

This meets the requirements of the coal rules.

## BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

### Analysis:

#### Determination of bond amount

As part of the midterm review the Division examined the reclamation bond and cost estimate for the Crandall Canyon Mine. The Division revised the bond amount based on several factors included the updated indirect costs and revised concrete demolition costs. The Division also converted the spreadsheets from Quattro Pro to Excel.

The current bond is \$1,654,000 in 2004 dollars. The Division's revised reclamation cost estimate is \$1,678,000 in 2004 dollars. The revised reclamation cost estimate is \$24,000 higher than the existing bond.

The percent difference between the posted bond and the revised reclamation cost estimate is 1.4%. The Division sometimes does not increase bonds if the difference between the bond amount and the reclamation cost estimate is less than 5%. After reviewing the reclamation bond the Division determined that an increase at this time is not needed. The Division based this finding on the quality of the reclamation cost estimate. The bond amount was based on methods that are outlined in the *OSM Reclamation Handbook*. Enclosed is a copy of the Division's reclamation cost estimate.

**Findings:**

The permittee has met the minimum requirements of this section.

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## RULES INDEX

### 30 CFR

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