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July 26, 1993

TO: File

THROUGH: Daron Haddock, Permit Supervisor

FROM: James D. Smith, Reclamation Specialist

ADS

RE: Mid-Term Permit Review - Third Term Installment - Geology
Submitted March 25, 1993
Castle Valley Resources, Inc., Wellington Preparation Plant,
ACT/007/012, Folder #2, Carbon County, Utah

The following review covers information submitted by CVR to satisfy three deficiencies in Chapter 6 - Geology - that were identified in the initial Technical Completeness Review of July 22, 1992. Genwal has scheduled response to the only remaining geology deficiency, **R645-301-623**, for the December 10, 1993 submittal.

Responses to six sets of hydrology deficiencies that I identified in the initial TCR were scheduled to be in this submittal but were included with the March 26, 1993 submittal instead.

R645-301-600.
621.

Geology.
Geology within the proposed permit and adjacent areas.

Deficiency:

1. *The permittee should clarify, and perhaps simplify, the descriptions of the nature, thickness and distribution of alluvium. The information is partially conveyed on cross sections on E9-3428, but an isopach map would be very helpful.*

Response:

The Geologic Map, Drawing C9-1213-R, shows the outcrop of the Mancos Shale and

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Quaternary and Recent alluviums and gravels. All drill holes in the area encountered dark shale at a depth of 31 to 57 feet beneath the surface.

Drilling done May 7, 1990 found alluvium ranging in thickness from 31 to 57 feet with 18 to 43 feet of brown clayey silt on top, 10 to 15 feet of sandy gravel beneath, and a dark blue gray shale at the bottom.

Cross sections using data collected in 1990 are on Drawing E9-3428. Lithologic logs of the drill holes are on pages 5 through 8. An isopach of the alluvium is on Drawing 621a.

A new Section 6.21 page 1 and Drawing 621a have been submitted for insertion into the MRP.

Analysis:

The new text greatly simplifies the description of the alluvium and relies on the maps and cross sections to convey much of the information. Information in the new text perhaps helps clarify why the previous description of the alluvium was confusing. Drilling has been done during at least two different periods: 1957 pre-construction drilling and 1990 water monitoring well installation and highway alignment test borings. Different thicknesses and lithologic sequences were revealed by each set of bore holes and appear to have been described separately in the old text.

The Geologic Map, Drawing C9-1213-R, shows the outcrop of the Mancos Shale and Quaternary and Recent alluvium and gravel. This is a USGS reconnaissance map and was probably done mainly from aerial photographs. Cross sections on Drawing E9-3428 (drawings 1 through 4) provide vertical detail and indicate that there is loam or weathered shale on the surface where Mancos Shale has been mapped (Drawing E9-3428, drawing #1, bore holes 12 and V); however, the cross sections generally disregard the Mancos outcrops they encounter.

The thickest alluvium on Drawing 621a is 55 feet near GW-8, which agrees with information on the cross sections, 57 feet at GW-8 (E9-3428, drawing #4). Drawing 621a shows a thick tongue of alluvium extending south-southwest from GW-3 towards the Price River, across the hills mapped as Mancos Shale on C9-1213-R. This tongue is apparently an artifact of the contouring method and ignores the Mancos outcrops in a manner similar to the cross sections. The thickness values at the control points are not marked on the map and it is not clear if the map is based on all alluvium thickness data from all bore holes or just on the 1990 bore hole data.

Lithologic logs of GW-3, GW-7, GW-8, GW-11, and GW-14 and CN-1 are on pages 1 through 4 of Section 6.22, not pages 5 through 8 of Section 6.21. Logs from the 1957

bore holes are not available to Genwal (page 1, Section 6.22) and are not included in the MRP, contrary to what is stated.

Deficiency:

1. Lithologic logs of GW-3, GW-7, GW-8, GW-11, and GW-14 and CN-1 only are in the MRP, on pages 1 through 4 of Section 6.22 rather than on pages 5 through 8 of Section 6.21.
2. Alluvium thickness, including zero thickness at the Mancos-alluvium contacts, is not marked at control points on the isopach map, Drawing 621a.

622. Elevations of Test Borings.

1. *The permittee should provide accurate borehole elevations in the MRP. If elevation information in the current MRP is the most accurate available, this should be discussed in the narrative. Otherwise, the elevation should be shown at each borehole location on Drawing E9-3343, other appropriate map or drawing, or tabulated in the MRP. Similar problems are noted under 722.300 below.*

Response:

Elevations and locations are on Drawings E9-3428 and E9-3343. Measured elevations are not available so bore hole elevations must be estimated from topographic contours or scaled from the cross sections. A new Section 6.22 page 5 (6/25/93) replaces the old one (7/15/90).

Analysis:

The deficiency has been satisfied.

624. Minimum Geologic Information

1. *The permittee should remove all language from the MRP that states or implies that the Wellington Preparation Plant is not involved in regulated UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES.*
2. *The permittee should omit the request that the requirements of R645-301-624.200*

and R645-301-624.300 be waived.

- 3. The permittee should assess possible problems and liabilities associated with storing and shipping potentially acid- and toxic-forming materials through the Wellington facility and establish procedures to obtain analysis results for materials brought to the site.*

Response:

A new Section 6.24 page 2 (6/25/93) replaces Section 6.24 pages 2 & 3 (7/15/90).

1. Language that states or implies that Wellington Preparation Plant is not involved in regulated underground coal mining and reclamation activities has been removed.
2. The request referred to in the deficiency has been omitted.
3. It is not anticipated that coal and/or sediment pond wastes will be received from any other source besides Genwal. Prior to receiving coal and/or sediment pond wastes from any other source besides Genwal, Castle Valley Resources will submit results of analyses for potentially acid- or toxic-forming materials to DOGM.

Analysis:

Deficiencies 1, 2, and 3 of **624. Minimum Geologic Information** have been satisfied.