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State of Utah  
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DIVISION OF OIL, GAS AND MINING

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September 8, 1995

Val Payne  
Senior Environmental Engineer  
Energy West/PacifiCorp  
P.O. Box 310  
Huntington, Utah 84528

Re: Rilda Canyon Permit Conditions, PacifiCorp, Deer Creek Mine, ACT/015/018, Folder #3,  
Emery County, Utah

Dear Mr. Payne:

As you are aware the approval to install the Rilda Canyon facilities contained 9 conditions. Condition #8 required characterization of the proposed imported fill material. Samples were collected on August 25, 1995, which have subsequently been analyzed and determined to be acceptable for use as proposed.

Condition #8 is considered to be satisfied, however, another condition is now necessary as follows. PacifiCorp must submit an application to the Division to modify the permit to identify the locations from which imported fill must be removed upon reclamation, and to identify and commit to establish a water monitoring station above the facilities pad culvert in the left fork of Rilda Canyon, with water to be sampled for DOGM field parameters at the same frequency as the presently approved water monitoring station RCL-1. This condition must be satisfied within 30 days or by no later than October 10, 1995.

Details of the analysis and basis for the revised condition are contained in the enclosed revised Technical Analysis under the Topsoil and Subsoil heading.

Permit Condition #6 has been rendered moot since violation #N95-35-01-01 was vacated. The other conditions are still pending at this time. We hope to have them satisfied in the near future.

Please call if you have any questions.

Sincerely,

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

Daron R. Haddock  
Permit Supervisor

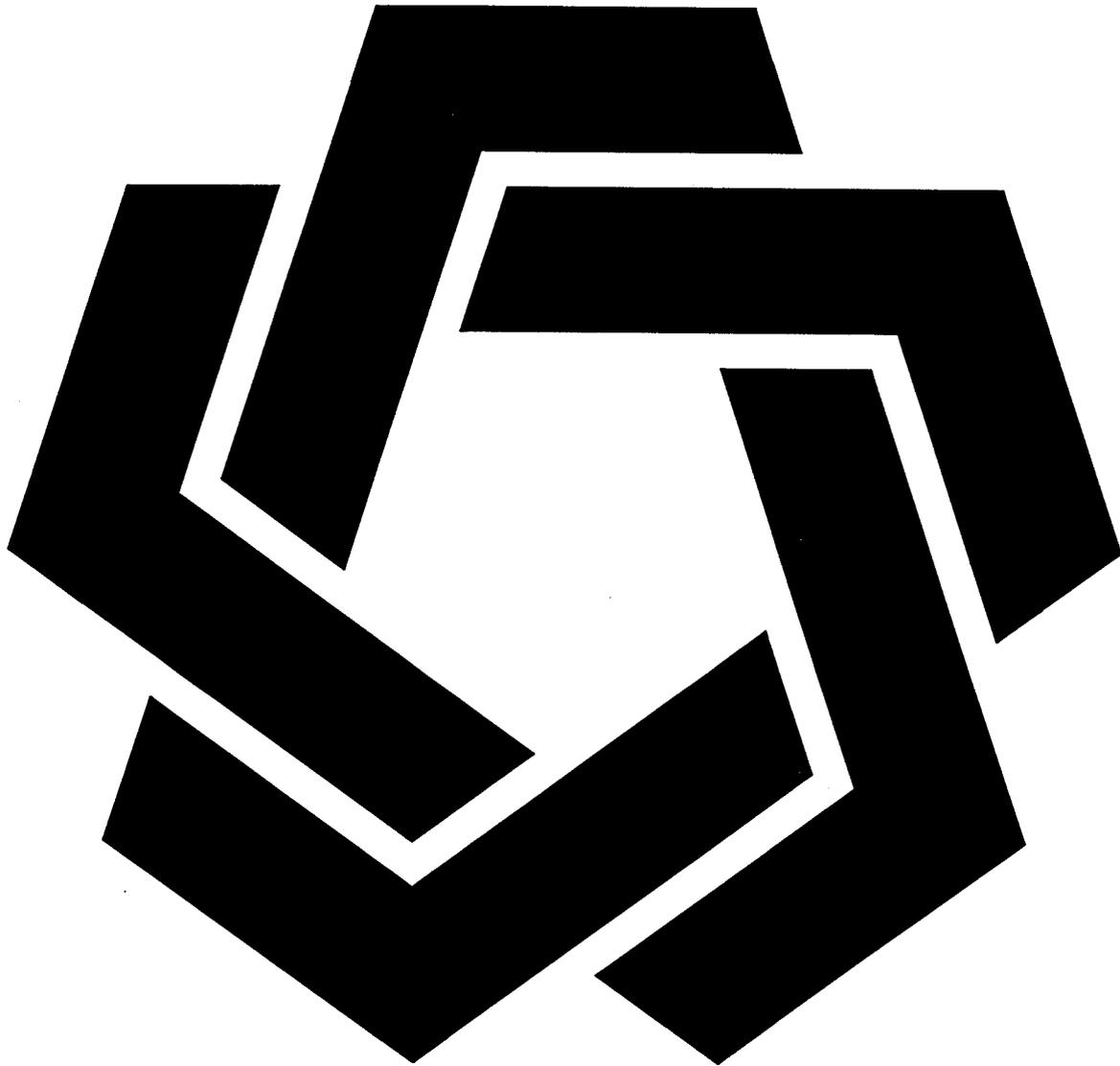
Enclosure

cc: P. Grubaugh-Littig  
L. Braxton  
S. White

COND#8.RIL



State of Utah  
Division of Oil, Gas and Mining  
Utah Coal Regulatory Program



Analysis and Findings  
Deer Creek  
Rilda Canyon Surface Facilities  
ACT/015/018 - 94E  
Revised September 8, 1995

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## TECHNICAL FINDINGS

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# TECHNICAL ANALYSIS

## INTRODUCTION

A technical analysis was completed by the Division's biology, soils, engineering, and hydrology specialists July 1995. From the reviews of the permit application, the Division found that the application is complete other than a few minor deficiencies. These problems were not major, and it was not deemed necessary to complete subsequent rounds of modification and review prior to approving the permit. Therefore, the deficiencies were included as stipulations to the permit which must be satisfactorily responded to within thirty days of permit issuance. The stipulations are listed below. Condition **R645-301-731.300** has subsequently been addressed which is discussed in the body of this TA. A revised condition has been added which is also found below.

## SUMMARY OF CONDITIONS TO APPROVAL

As determined in the analysis and findings of this Technical Analysis, approval of the plan is subject to the following Permit Conditions. The applicant is subject to compliance with the following Approval Conditions and must commit to comply with the requirements of these conditions within thirty days of the date of approval.

Accordingly, as a condition of this approval, the permittee must commit to do the following, in accordance with the requirements of:

### **R645-300-121.320**

1) PacifiCorp must provide an adequate response to the Forest Service comments made in the July 11, 1995 letter to the Division. 2) A prework meeting must be conducted with the operator, the Forest Service, and the Division.

### **R645-301-321.100**

The aspen/fir/dogwood community reference area must be sampled for total vegetation ground cover.

### **R645-301-333**

The application must contain a commitment to restrict construction period to the time of year so as not to disturb crucial times for wintering elk, fawning deer, and nesting raptors.

### **R645-301-353.100**

The Riparian seed mixture must be modified by reducing the current grass component to 1 to 2 pounds per acre and adding mountain brome, slender wheatgrass, letterman's needlegrass, Kentucky bluegrass, and mutton grass. Additionally, Utah sweetvetch must be substituted for yellow sweetclover.

### **R645-301-356.120**

The aspen/fir/dogwood reference area must be reconfigured so as not to include the disturbance from power line development and then resampled to include total vegetation cover.

## TECHNICAL FINDINGS

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### **R645-301-527.200**

Permitting of surface disturbances associated with powerline construction will be done in accordance with the decision rendered at the fact of violation hearing for NOV 95-35-01-01.

### **R645-301-534.130 and R645-301-553.130**

The RB&G study indicates that the design slopes should attain at least the required safety factor of 1.3. However, the permittee will gather additional information through drilling when the area is accessed for construction of the road and pad. If the slopes, as designed, do not reach the 1.3 safety factor, the permittee must redesign them and submit the revised designs for Division approval.

### **R645-301-731.300**

The permittee must demonstrate that the proposed imported fill material is suitable for reclamation, compatible with natural surroundings and approved postmining landuse, by characterizing the acid- and/or toxic-forming and alkalinity producing potential of the imported fill material.

#### **Revised Permit Condition:**

Within 30 days of notice by DOGM PacifiCorp must submit an application to the Division to modify the permit to identify the locations from which imported fill must be removed upon reclamation, and to identify and commit to establish a water monitoring station above the facilities pad culvert, in the left fork of Rilda Canyon, with water to be sampled for DOGM field parameters at the same frequency as the presently approved water monitoring station RCL-1.

### **R645-301-742.110**

1) PacifiCorp must show the location of sediment control measures as part of the reclamation sediment control plan designs. 2) PacifiCorp must revise Sheet 2 of 3 of the HAL Report to show that BTCA Area 2 will not include treatment and activity outside the permit area.

## TECHNICAL FINDINGS

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# ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR Sec. 783., et. al.

## PERMIT AREA

Regulatory Requirements: 30 CFR Sec. 783.12; R645-301-521.

### Analysis:

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. To accommodate the new facilities, the permit area was extended in a block called the Rilda Lease Tract Extension. The extent of the revised permit area is shown in Figure 1 of Chapter 3 and on Plate 3-9A.

### Findings:

The plan fulfills the requirements of this section.

## VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.19; R645-301-320.

### Analysis:

The application includes a vegetation study done in 1990 by Mt. Nebo Scientific. Three vegetation communities: spruce/fir coniferous forest, aspen/fir/dogwood, and mountain brush/salina wild rye, will be disturbed by the facilities. However, since less than one acre of the spruce/fir coniferous forest would be affected, the vegetation in this area was not described. The report also contains quantitative vegetation information for aspen/fir/dogwood and mountain brush/salina wildrye reference areas.

Approved methods were used to measure vegetation. With one exception, ground cover as defined in R645-100-200 was not sampled in the aspen/fir/dogwood community. Ground cover is defined as "the area of ground covered by the combined aerial part of vegetation and the litter that is produced naturally on-site, expressed as a percentage of the total area of measurement." Aerial parts is interpreted as all aboveground living plant material. The applicant sampled overstory cover and understory cover, total ground cover was not sampled. Mr. Payne's, PacifiCorp, response, dated August 26, 1994, to the inadequacy of the aspen/fir/dogwood was that the Division's Vegetation Guidelines does not specifically require overstory cover sampling. The guidelines require ground cover as defined in R645-100-200 to be sampled.

The application contains a letter from the Soil Conservation Service stating that the salina wildrye/mountain brush reference area is in good condition and produces approximately 700 lbs. per

## TECHNICAL FINDINGS

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acre air dry herbage. The aspen/fir/dogwood riparian site is in high fair condition and produces approximately 3000 lbs. per acre air dry herbage (page 2-173.49).

### Findings:

The application is deficient. In accordance with R645-301-321.100 the aspen/fir/dogwood community reference area must be sampled for total vegetation ground cover.

## FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21; R645-301-322.

### Analysis:

The Rilda Canyon surface facilities would be built in an area designated by the Utah Division of Wildlife Resources as high priority deer summer range and critical elk winter range.

PacifiCorp has conducted annual raptor surveys in the area since 1986. Three nests have been found within one-half mile of the proposed facilities. In 1986 and 1987, one of the nests was old and dilapidated, and it has not been found since then. The other nests have been active, inactive, and tended in various years since the surveys began (page 2-210.6).

The application says that no other high interest avian species are known to be present in the Rilda Canyon facilities area. However, prior to surface disturbing activities, surveys will be conducted in cooperation with the appropriate agencies, to determine if other species of interest are present (page 2-210.7). Appropriate mitigation measures will be developed with concerned agencies to address identified impacts.

Migratory birds of high federal interest other than raptors are known to nest in the Huntington Canyon area. Consultations with Wildlife Resources and the Forest Service and the possible additional surveys committed to in the application will determine what mitigation or protective measures might need to be taken.

Stanley L. Welsh, Endangered Plant Studies, Inc., Robert M. Thompson, Manti-La Sal National Forest, and Val Payne, PacifiCorp have all conducted surveys in the Rilda Canyon area for listed endangered, threatened, and sensitive plant species. None to date have been found although potential habitat for Hedysarum occidentale var. canone and Hymenoxys helenioides occur in Rilda Canyon (page 2-173.1).

### Findings:

The applicant is in compliance with this section.

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### LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.22; R645-301-411.

#### Analysis:

The primary land uses in Rilda Canyon are wildlife habitat, recreation, and grazing. These will continue during operation of the facilities and following final reclamation.

The Rilda Canyon facilities are located on Manti LaSal National Forest lands. All public uses consistent with the Forest Land Resource Management Plan will remain available during the operation and following reclamation of the facilities.

The application does not include new cultural or archaeological resources information. The current mining and reclamation plan includes an archaeological survey that included part of Rilda Canyon as part of the survey area, but no sites were located.

#### Findings:

The plan satisfies the requirements of the coal mining regulations respecting land-use resource information.

### MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

#### Analysis:

##### Affected Area Boundary Maps

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. To accommodate the new facilities, the permit area was extended in a block called the Rilda Lease Tract Extension. The extent of the revised affected area is shown on Plate 3-9A.

##### Existing Structures and Facilities Maps

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. The new facilities are shown on Plate 3-9A.

##### Existing Surface Configuration Maps

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. To accommodate the new facilities, the permit area was extended in a

## TECHNICAL FINDINGS

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block called the Rilda Lease Tract Extension. The existing surface configuration of the lease tract extension is represented by contours on Plates 2-15A and 2-17A and by cross sections on Plate 4-4A, which consists of 3 drawings.

### **Permit Area Boundary Maps**

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. To accommodate the new facilities, the permit area was extended in a block called the Rilda Lease Tract Extension. The extent of the revised permit area is shown in Figure 1 of Chapter 3 and on Plate 3-9A.

### **Surface and Subsurface Ownership Maps**

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. The entire surface area of the extension is United States Forest Service land. The permit areas of the Deer Creek Mine, the Des-Bee-Dove Mine, and the Cottonwood Mine extend into the surrounding area and the area is divided among various Federal and state leases. The status of the surface and subsurface is shown in Figure 1.

### **Findings:**

The plan fulfills the requirements of this section.

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# OPERATION PLAN

## MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR Sec. 784.2, 784.11; R645-301-231, -301-526, -301-528.

### Analysis:

#### Facilities and Structures

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. The new facilities are shown on Plate 3-9A. They include an access road, a facilities pad, a ventilation portal, an access portal, a substation, a 25 kV power line, a water storage tank, a pump house, and a fan. The road will be used infrequently since access to the facilities pad will be gained by way of the access portal. Topsoil from the construction of the facilities and the improvement of the access road will be stockpiled immediately north of the access road adjacent to the permit boundary (page 3-42.1).

### Findings:

The plan fulfills the requirements of this section.

#### R645-300-121.320

1) PacifiCorp must provide an adequate response to the forest service comments made in the July 11, 1995 letter to the Division. 2) A prework meeting must be conducted with the operator, the Forest Service, and the Division.

## EXISTING STRUCTURES:

Regulatory Reference: 30 CFR Sec. 784.12; R645-301-526.

### Analysis:

#### Road Systems

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. An ancillary road, approximately 1,150 feet long, was constructed to provide access to the area for the construction and eventual reclamation of the new facilities. The road is used infrequently since access to the facilities pad is gained by way of the access portal.

The Rilda Canyon road is gravel surfaced and has a travel width of 12 feet. Its average grade is 8%, but it has pitches from 4% to as steep as 13%. Its horizontal alignment is shown on Plate 3-9A. Its vertical alignment and several typical design cross sections are shown on Plate 3-9B. Less detailed cross sections of the road are also shown on Plate 4-4A.

## TECHNICAL FINDINGS

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The consulting firm of RB&G of Provo, Utah conducted a preliminary geotechnical study of the Rilda Canyon area in 1991 and the findings of this investigation are found on pages 3-95 through 3-110. The design of the road and the facilities pad are based on this study. The study is only preliminary because the area was not accessible to drilling equipment at the time the study was done.

The RB&G study indicates that the design slopes should attain at least the required safety factor of 1.3. However, the permittee will gather additional information through drilling when the area is accessed for construction of the road and pad. If the slopes, as designed, do not reach the 1.3 safety factor, the permittee must redesign them and submit the revised designs for Division approval.

The Division has issued a NOV on unpermitted powerline construction within the permit area. The NOV is now a subject of a hearing. If the Board or hearing officer rules that the activities fall under the authority of SMCRA and the Division, PacifiCorp must permit the construction and reclamation of the powerlines.

The United States Forest Service (USFS), which has jurisdiction over the land upon which the Rilda Canyon surface facilities lie, had 6 concerns about the road. USFS discussed these concerns in a July 11, 1995 letter to the Division.

1. Because of the steepness of the road, the spacing of the road culverts is greater than USFS's recommended spacing. Therefore, an additional culvert is needed at station 10+00.
2. The steepness of the road and the road ditch create the possibility of excessive erosion damage. Therefore, the road ditch must be armored from stations 6+00 to 6+50 and from stations 11+25 to 14+25.
3. The road cut slopes can, by stability criteria, be as steep as 1h:1v. However, 1.5h:1v slopes provide a much better base for interim vegetation. Therefore, the road cut slopes from stations 6+00 to 7+95 must be laid back to 1.5h:1v.
4. Erosion protection is shown only in the typical designs of Plate 3-9B. Erosion protection must be shown on the plans for each structure or slope which lies within the 100-year flow zone.
5. Subgrade widths as shown in the typical designs and in the cross sections are not consistent and must be made consistent. The typical designs of Plate 3-9B show additional subgrade width to accommodate a safety barrier, but the cross sections of Plate 4-4A do not show the additional subgrade width.
6. Unless specifically required by MSHA, the additional 2 feet of road width intended for a safety berm should be eliminated, thus keeping the width of the running surface of the road to 12 feet.

### Findings:

The plan fulfills the requirements of this section. However, as a condition of this permit, the permittee must commit to do the following, in accordance with the requirements of:

## TECHNICAL FINDINGS

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### **R645-301-527.200**

Permitting of surface disturbances associated with powerline construction will be done in accordance with the decision rendered at the fact of violation hearing for NOV 95-35-01-01.

### **R645-301-534.130**

The RB&G study indicates that the design slopes should attain at least the required safety factor of 1.3. However, the permittee will gather additional information through drilling when the area is accessed for construction of the road and pad. If the slopes, as designed, do not reach the 1.3 safety factor, the permittee must redesign them and submit the revised designs for Division approval.

## **VEGETATION AND WILDLIFE INFORMATION**

Regulatory Reference: R645-301-330, -301-331, -301-332.

### **Analysis:**

The operation plan says that vehicular access is controlled by a locked barrier gate near the public turnaround area. The road will continue to serve as a Forest Development Trail allowing access beyond the facilities area. Unauthorized access to the facility pad is controlled with fencing and a locked gate where the road enters the pad, and the trail continues beyond this point.

Vehicular use of the road will only occur in emergency situation. Routine access will be performed from underground. Environmental compliance inspections will be by foot from the public turnaround. Snow removal will only occur in emergency situations.

There is only a short section of trail beyond where the surface facilities would be. Beyond this, the bottom of the canyon is littered with downed aspen trees, and the side is very steep and difficult to hike.

The applicant has committed to on site and off site restoration and riparian habitat enhancement and mitigation work (page 2-210.7) Much of this work involves shrub plantings and fencing in cooperation with the UDWR and Manti-La Sal personnel.

As part of the protection and enhancement plan, PacifiCorp needs to commit to not construct the facilities during crucial times for wintering elk, fawning deer, and nesting raptors. The combined crucial period for these species extends from December 1 to about July 31. If there are no nesting raptors in the area, the period could be ended on July 5.

### **Findings:**

The application is deficient. In accordance with R645-301-333 the application must contain a commitment to restrict construction period to the time of year so as not to disturb crucial times for wintering elk, fawning deer, and nesting raptors.

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### 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:

##### **Discharges into an underground mine**

The Division may allow discharges of water into an underground mine provided the four criteria of R645-301-731.511 are met. PacifiCorp has R645-301-731.511.1 on pages 3-94 and 3-94.1. Discussion about the water quantity and quality of discharge into the mine is also found on pages 3-94 and 3-94.1 as required by R645-301-751 (R645-301-731.511.3). The discharge into the mine has been approved by MSHA as stated on page 3-94. The design storm flow into the mine would be 0.74 cfs and 0.07 acre-feet.

##### **Stream buffer zones**

The plan for development of Rilda Canyon shows that some facilities and the topsoil pile would be located within the 100 foot stream buffer zone. This is permissible with the approval of the Division if the conditions in R645-301-731.610 are met. PacifiCorp has provided information on stream channel alteration and sediment control measure in the disturbed area (pages 3-94.1 and 9-111 through 3-114). Use of the road will be infrequent which will minimize the amount of sediment production off of the road. The Left Fork of Rilda Creek is an intermittent stream by definition because it has a drainage area greater than one square mile. PacifiCorp has requested and received a stream alteration permit from the Division of Water Rights.

##### **Sediment control measures**

PacifiCorp proposes that the water from the pad area in Rilda Canyon will be routed through a sediment trap into sumps within the mine. This would eliminate the need for any additional sediment control measures.

PacifiCorp proposes to put silt fences the entire tow of the topsoil pile as an alternate sediment control measure. The topsoil pile will be revegetated as further sediment control.

##### **Road Drainage**

PacifiCorp plans to build a road in the location of an existing development trail. to the surface facilities in Rilda Canyon on a limited bases. "Vehicular use of the road will only occur in emergency situations." (page 3-91 of proposal.) In designing a road that matches the use, culverts may not be necessary and an appropriate drainage system can be achieved with water bars or other low maintenance measure. However, PacifiCorp says that the road and drainage system was

## TECHNICAL FINDINGS

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designed in cooperation with the Manti-La Sal National Forest personnel. Snow removal will only occur in emergency situations.

Drainage control on the road is provided by a ditch along the north side of the road which routes flows through silt fences and/or straw bale structures and into culverts and the natural drainage way (see page 3-91 and Appendix VII, Volume 3). Road culverts will be removed during final reclamation and the road will be returned to a development trail. The proposed location of the culverts are shown on Sheet 1 of 3 in the HAL Report. (Road designs are located in HAL Report, pages 49/76 through 60/76.) There are two 18 inch culverts shown for road drainage control. The map on page 49/76 of the HAL Report and Drawing CE-10890-EM show the locations of the culverts with the road stations. One culvert is located above station 6+50, the other is near station 14+26. Manti-La Sal Forest Service personnel have voiced concerns that these culverts are too far apart and that a third culvert should be placed at station 10+00 (see letter dated July 11, 1995 to the Division).

The drainage ditch has a design maximum velocity 3.9 ft/second (Page 53/76, HAL Report). The design says that the soil is "erosion resistant;" therefore, no erosion protect must be afforded. The Forest Service has said, in the previously mentioned letter, that the soil along the road is highly erodible, and considering long flow lengths in the channel, the reaches running from stations 6+00 to 6+50 and 11+25 to 14+25 must be armored.

### **Findings:**

PacifiCorp has shown that discharging water into the mine would minimize the disturbance to the hydrologic balance on the permit area (R645-301-731.511.1). The discharge will be at a rate and quality that will not adversely effect the hydrologic balance and will meet the effluent limitations of R645-301-751 (R645-301-731.511.3) for pH and total suspended solids.

PacifiCorp has provided sufficient information that shows that operations within the stream buffer zone will not contribute to the violation of applicable Utah and federal water quality standards and will not adversely effect water quality or quantity or other environmental resources. The sediment control plan shows that all water leaving the disturbed area will meet applicable effluent limits. By greatly restricting the amount of traffic on the access road sediment production, and, therefore, contamination of stream flow, will be minimized. To further protect water quality from degradation, all construction must be completed during a period of no flow within the immediate channel.

PacifiCorp has not used prudent engineering design practices for the road drainage system according to R645-301-742.423.1 and R645-301-742.423.3. The length of flow in the road drainage diversion should be made shorter by adding an additional cross culvert at about station 10+00 as required by the Manti-La Sal Forest service office. Further, the road drainage diversion will be constructed in highly erodible soil; therefore, it should be protected against erosion by armoring the channel with riprap, particularly in the reaches 6+00 to 6+50 and 11+25 to 14+25, as required by the Manti-La Sal Forest service office.

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### SUPPORT FACILITIES AND UTILITY INSTALLATIONS

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

#### Analysis:

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities, including a fan, were constructed in Rilda Canyon. An ancillary road, approximately 1150 feet long, was constructed to provide access to the area for the construction and eventual reclamation of the new facilities. A substation was installed adjacent to the other surface facilities to supply power to the fan, the pump house, and underground facilities. Power is supplied to the substation by a power line which parallels the ancillary road. The substation and power line are shown on Plate 3-9A.

#### Findings:

The plan fulfills the requirements of this section.

### MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

#### Analysis:

##### Affected area maps

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. To accommodate the new facilities, the permit area was extended in a block called the Rilda Lease Tract Extension. The extent of the revised affected area is shown on Plate 3-9A. This plate is certified by John Christensen, a professional engineer registered in the state of Utah.

##### Mining facilities maps

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. The new facilities are shown on Plate 3-9A. This plate is certified by John Christensen, a professional engineer registered in the state of Utah.

#### Findings:

The plan fulfills the requirements of this section.

## TECHNICAL FINDINGS

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# RECLAMATION PLAN

## APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-270, -301-271, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

### Analysis:

At the end of mining operations, the entire Rilda Canyon area will be restored to approximate original contour. The facilities pad will be removed and the cutslope completely backfilled. The excess material used in the construction of the facilities pad, approximately 3,010 cubic yards, will be disposed of at the Deer Creek Waste Rock Site. The access road cut will likewise be completely backfilled. The final surface configuration is shown by contours on Plate 4-1A and by cross sections on Plates 4-4A.

### Findings:

The plan fulfills the requirements of this section.

## BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

### Analysis:

The final reclamation of the Rilda Canyon area will include removal of the portal liners, sealing of the portals, removal of all surface facilities (fan, substation, pumphouse, water tank, and power line), removal of the facilities pad and regrading of the pad area, removal of culverts, construction of reclaimed channels, regrading of the access road and reestablishment of the USFS forest development trail, redistribution of topsoil, and revegetation. The power line will be removed by Utah Power (pages 4.53 to 4-54.6).

The surface facilities will be dismantled and removed from the area. All structural steel, metal siding, and other building material will be dismantled and salvaged or disposed of at an approved landfill outside the permit area. Concrete foundations and portal liners will be broken up and disposed of at the Deer Creek Waste Rock Site.

The concrete portal liners will be demolished and disposed of at the Deer Creek Waste Rock Site. The portals will then be sealed and backfilled as shown in the approved Deer Creek plan on page 4-3. The necessary backfill material will come from the facilities pad.

## TECHNICAL FINDINGS

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The substation will be dismantled and the structural steel and electrical components will be salvaged. The concrete foundation will be broken up and disposed of at the Deer Creek Waste Rock Site. The power line will be removed by Utah Power and salvaged.

The backfilling of the portals and the regrading of the access road and facilities pad will require approximately 11,280 cubic yards of material. There will be a surplus of approximately 3,010 cubic yards of material which will be disposed of at the Deer Creek Waste Rock Site.

The facilities pad area and access road will be regraded as shown on Plates 4-4A. After backfilling and grading, the surface will either be left in a roughened condition or will, if necessary, be roughened to eliminate slippage of the redistributed topsoil layer and enhance revegetation. The regraded areas will then be covered with a 12-inch layer of topsoil.

The consulting firm of RB&G of Provo, Utah conducted a preliminary geotechnical study of the Rilda Canyon area in 1991 and the findings of this investigation are found on pages 3-95 through 3-110. The design of the reclaimed slopes is based on this study. The study is only preliminary because the area was not accessible to drilling equipment at the time the study was done.

The RB&G study indicates that the reclaimed slopes, as designed, should attain at least the required safety factor of 1.3. However, the permittee will gather additional information through drilling when the area is accessed for construction of the road and pad. If the slopes, as designed, do not reach the 1.3 safety factor, the permittee must redesign them and submit the revised designs for Division approval.

### **Findings:**

The plan fulfills the requirements of this section. However, as a condition of this permit, the permittee must commit to do the following, in accordance with the requirements of:

#### **R645-301-553.130**

The RB&G study indicates that the reclaimed slopes, as designed, should attain at least the required safety factor of 1.3. However, the permittee will gather additional information through drilling when the area is accessed for construction of the road and pad. If the slopes, as designed, do not reach the 1.3 safety factor, the permittee must redesign them and submit the revised designs for Division approval.

## TECHNICAL FINDINGS

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### MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

#### Analysis:

The concrete portal liners in Rilda Canyon will be demolished and disposed of at the Deer Creek Waste Rock Site. The portals will then be sealed and backfilled as shown in the approved Deer Creek plan on page 4-3. The necessary backfill material will come from the facilities pad.

#### Findings:

The plan fulfills the requirements of this section.

### TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-232, -301-233, -301-234, -301-242, -301-243.

#### Analysis:

The original Rilda Canyon Surface Facilities proposal included plans to import approximately 17,000 cubic yards of fill material from outside the proposed permit area. Ten thousand cubic yards would remain on site and 7,000 cubic yards would be "... hauled off-site by the reclamation contractor and disposed of in accordance with current regulations."

The most recent submittal includes plans to purchase, from a local contractor, 9,000 cubic yards of fill material from outside the proposed permit area. Approximately 5990 cubic yards will remain on site and be used for backfilled. The remaining 3010 cubic yards will be disposed of at the Deer Creek Waste Rock Site.

The permittee must demonstrate that the proposed imported fill material is suitable for reclamation, compatible with the natural surroundings and the approved postmining land.

As a means of meeting the aforementioned goals the fill material must be characterized (prior to excavation activities at the commercial fill facility) for its acid- and/or toxic-forming and alkalinity producing potential.

In conversations held with Mr. Val Payne (PacifiCorp, Senior Environmental Engineer) on July 20, 1995 it was decided that once a commercial fill source was identified, Division staff and representatives of PacifiCorp would conduct an on site (commercial fill facility) visit to sample and physically describe representative portion of the proposed fill material. Laboratory analyses required to determine the material's acid- and/or toxic-forming and alkalinity producing potential will be determine based on site observations and local geology.

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### Permit Condition:

The permittee must demonstrate that the proposed imported fill material is suitable for reclamation, compatible with the natural surroundings and the approved postmining land by characterizing the acid- and/or toxic-forming and alkalinity producing potential of the imported fill material.

### Resolution of Permit Condition:

In satisfaction of this permit condition, 9 samples were collected on August 25, 1995. Samples, analytical methods, results, recommendations and conclusions are discussed below. Laboratory data is found in the Division files.

#### Summary

Rilda Canyon Samples 1-5 were sampled to create a basis from which to compare prospectively imported fill for pH and alkalinity. Soils in the Rilda Canyon permit area have been characterized, and are not the subject of this sampling program, nor are the engineering characteristics of fill materials. The heterogeneous nature of the 5 Rilda Canyon samples supports an alluvial, colluvial environment of deposition. The angular nature of clasts, the occurrence of at least one clast of shale typical of the Blackhawk, and the intercalation of oxidized sandstone boulders all support short transport, fluvial processes.

Pit samples 1-4 characterize the proposed fill materials to be used in the construction of the Rilda Canyon surface facilities.

The diverse particle size, range of lithologic character, poorly developed bedding and location of the borrow pit at the mouth of Huntington Canyon suggest an alluvial fan/ pediment depositional environment for the pit materials. These materials unconformably overly the Mancos shale in the area of the sample location.

#### Conclusions

Geologic similarities between the short transport, fluvial/colluvial fill material in Rilda Canyon and the canyon-mouth alluvial fan/pediment borrow area satisfy the condition of compatibility with natural surroundings, as do similar pH characteristics.

The pH readings for the proposed import fill material are non-acid, as defined by DOGM's acid-drainage definition. Similarities in alkalinity based on pH comparisons between colluvial materials at Rilda and the borrow area suggest alkalinity in the import materials will not be a problem.

The TA generating the above permit condition did not require full chemical characterization of fill. The pediment/alluvial fan deposit is dominated by competent clastics that are not noted for toxicity problems, as might be the case with fill materials emanating from a dark marine shale such as the Mancos Shale. Alluvial fan/pediment deposits have been used as substitute topsoils for reclamation at Horse Canyon, but in this instance specific caliche horizons were identified and

## TECHNICAL FINDINGS

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disqualified. The screening of the import fill proposed for Rilda should dilute any similar carbonate "hot spots" in the fill, and post-mining redistribution of topsoil over reclaimed fill should allow ample opportunity for revegetation establishment.

Conductivity contrasts between the Rilda canyon samples and the pit samples suggest a potential for a greater mineral leaching rate from the imported fill than from native fill materials. Compaction of the fill coupled with surface water management proposed for roads and pads should preclude water quality degradation during the operational phase of Rilda canyon facilities.

The sampling and analysis conducted during the weeks of August 21 and 28 coupled with the above discussion support import of fill materials from the sampled pit site for use as fill at Rilda. The mining and reclamation plan contemplates removal of certain fill material during reclamation, and leaving other fill materials on site during and following reclamation. The potential for leaching of saline materials from the imported fill suggests that these materials should not remain in close proximity to surface waters after reclamation. Imported fill should be removed from all channel crossings in the Rilda Canyon permit, and from those locations within the level of the 500 year flood event. PacifiCorp has information suggesting the crest from such an event would be approximately 2 1/2 feet above the low-flow level for the reach of the stream juxtaposed to the permitted fill placement.

PacifiCorp should establish a water monitoring station above the facilities pad culvert, in the left fork of Rilda Canyon, with water to be sampled for DOGM field parameters at the same frequency as the presently approved water monitoring station RCL-1.

### **Revised Permit Condition:**

Within 30 days of notice by DOGM PacifiCorp must submit an application to the Division to modify the permit to identify the locations from which imported fill must be removed upon reclamation, and to identify and commit to establish a water monitoring station above the facilities pad culvert, in the left fork of Rilda Canyon, with water to be sampled for DOGM field parameters at the same frequency as the presently approved water monitoring station RCL-1.

## **ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

### **Analysis:**

See also **BACKFILLING AND GRADING** above.

The facilities pad area and access road in Rilda Canyon will be regraded as shown on Plates 4-4A. After backfilling and grading, the surface will either be left in a roughened condition or will,

## TECHNICAL FINDINGS

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if necessary, be roughened to eliminate slippage of the redistributed topsoil layer and enhance revegetation. The regraded areas will then be covered with a 12-inch layer of topsoil.

The backfilling of the portals and the regrading of the access road and facilities pad will require approximately 11,280 cubic yards of material. There will be a surplus of approximately 3,010 cubic yards of material which will be disposed of at the Deer Creek Waste Rock Site.

### Findings:

The plan fulfills the requirements of this section.

## 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:

#### Sediment Control Measures

Silt fence with wire mesh backing will be installed during reclamation and maintained until revegetation is sufficient to control sediment. The alternate sediment control areas are shown on Sheet 2 of 3 in the HAL Report. BTCA Area 1 in the location of the pad; while BTCA Area 2 will be created by reclaiming the road. The map shows that BTCA Area 2 begins about 160 feet below the permit boundary. The location of the silt fence is not shown on any maps and the exact location of placement is unclear.

### Findings:

PacifiCorp has not sufficiently shown the location of alternate sediment control measure. These locations are necessary to evaluate the effectiveness of the designs for the measures. Sheet 2 of 3 in the HAL Report shows reclamation activities outside the permit area. This map must be corrected to show all activities within the proposed permit area.

#### R645-301-742.110

1) PacifiCorp must show the location of sediment control measure as part of the reclamation sediment control plan designs. 2) PacifiCorp must revise Sheet 2 of 3 of the HAL Report to show that BTCA Area 2 will not include treatment and activity outside the permit area.

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### REVEGETATION AND WILDLIFE PROTECTION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

#### Analysis:

Map 3-9A, Deer Creek Mine - Rilda Canyon Plan View Of Surface Facilities And Access Road, delineate the disturbed area boundary. The map fails to include power poles and the additional 400 feet of road used to facilitate installation of those poles. These areas must be included in the interim and final revegetation work.

Reclaimed areas within the aspen/fir/dogwood and the spruce/fir coniferous forest communities of the Rilda Canyon area will be seeded with the riparian seed mixture (page 4-54.2). The riparian mixture should be altered for this site and used on areas now classified as spruce/fir coniferous forest and aspen/fir/dogwood communities. Recommended changes are to reduce the current grass component to 1 to 2 pounds each, and add Mountain Brome, Slender wheatgrass, Letterman's needlegrass, Kentucky bluegrass, and Mutton grass. Additionally, Utah sweetvetch should be substituted for Yellow sweetclover.

Two problems still remain prior to final approval of the reference areas. First, the mountain brush/salina wildrye vegetation type only makes up approximately .63 acres of the proposed disturbance. The Division's Vegetation Information Guidelines require a reference area only when greater than 1 acre is disturbed. The Division recommends deleting the mountain brush/salina wildrye reference area and combining the entire proposed disturbed area into the aspen/fir/dogwood reference area standard. The reason for this recommendation is to prevent the potential for problems in obtaining sample adequacy when sampling for bond release in such a small area. The second problem, other than the vegetation sampling which has already been previously stated is that during power line construction a road was bladed through the proposed reference area. To correct for this problem the reference area may have to be narrowed and elongated to exclude the disturbance and then resampled.

The Division is required to consult with and gain approval from Utah agencies responsible for the administration of forestry and wildlife programs for the woody plant density standard for success. The density standards established in consultation with Wildlife Resources are 900 and 3000 woody plants per acre for mountain brush/salina wild rye and aspen/fir/dogwood (including spruce/fir coniferous forest) respectively. This has been committed to by the applicant (page 4-54.3).

The density for the mountain brush/salina wild rye community is nearly identical to the baseline density for the reference area (907) and the planting rate (900). Although the revegetation plan does not allow for any seedling mortality, there should be some natural invasion during the extended responsibility period. The Operator may want to consider increasing the planting rate to accommodate seedling mortality.

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The density standard for the aspen/fir/dogwood community is approximately one to one for the number currently growing in that area. Some of the species in the planting mix reproduce vegetatively and would be expected to increase through the extended responsibility period. Natural invasion will probably occur, however the operator may want to consider augmenting the seed mixture with shrub seed.

### **Findings:**

The application is deficient. In accordance with R645-301-353.100 the Riparian seed mixture must be modified by reducing the current grass component to 1 to 2 pounds per acre and adding Mountain brome, Slender wheatgrass, Letterman's needlegrass, Kentucky bluegrass, and Mutton grass. Additionally, Utah sweetvetch must be substituted for Yellow sweetclover.

In accordance with R645-301-356.120 the aspen/fir/dogwood reference area must be reconfigured so as not to include the disturbance from power line development and then resampled to include total vegetation cover.

## **MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

### **Analysis:**

#### **Affected Area Boundary Maps.**

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. To accommodate the new facilities, the permit area was extended in a block called the Rilda Lease Tract Extension. The extent of the revised affected area is shown on Plate 3-9A. This plate is certified by John Christensen, a professional engineer registered in the state of Utah.

#### **Bonded Area Map.**

The Deer Creek mine was extended to the north in 1994 and 1995 and surface facilities were constructed in Rilda Canyon. To accommodate the new facilities, the permit area was extended in a block called the Rilda Lease Tract Extension. The extent of the revised affected area, which is identical to the bonded area, is shown on Plate 3-9A. This plate is certified by John Christensen, a professional engineer registered in the state of Utah.

#### **Reclamation Backfilling and Grading Maps.**

Plate 4-1A shows the final, backfilled and regraded surface configuration of the Rilda Canyon area by contours. Plates 4-4A show the final surface configuration by cross sections. All

## TECHNICAL FINDINGS

of these plates are certified by John Christensen, a professional engineer registered in the state of Utah.

### Final Surface Configuration Maps.

Plate 4-1A shows the final, backfilled and regraded surface configuration of the Rilda Canyon area by contours. Plates 4-4A show the final surface configuration by cross sections. All of these plates are certified by John Christensen, a professional engineer registered in the state of Utah.

### Findings:

The plan fulfills the requirements of this section.

## BONDING AND INSURANCE REQUIREMENTS

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

### Analysis:

#### Determination of Bond Amount.

The reclamation costs associated with the Rilda Canyon surface facilities total \$103,943, in 1993 dollars. The permittee added this total to the approved total of \$1,473,173 to obtain a total of \$1,577,116. To this total, the permittee added a \$10,000 mobilization cost, a 10% contingency (\$157,712), and a 4.3% reclamation management cost (\$67,816) to obtain a new total of \$1,812,644, in 1990 dollars. The permittee then incorrectly escalated this total through 1995, using an obsolete escalation factor of 1.84%, to obtain an incorrect overall reclamation cost estimate of \$1,985,658, in 1995 dollars.

Instead of calculating the overall reclamation cost according to the previous paragraph, the permittee must calculate the cost according to the following discussion.

The approved 1990 reclamation cost estimate, without contingency, mobilization, or reclamation management costs, is \$1,473,173. This sum should be escalated through 1993, the year upon the costs of which the Rilda Canyon surface facilities reclamation cost estimate is based, as follows.

| <u>Year</u> | <u>Escalation<br/>Factor*</u> | <u>Reclamation<br/>Cost</u> |
|-------------|-------------------------------|-----------------------------|
| 1990        | --                            | \$1,473,173                 |
| 1991        | 1.27%                         | \$1,491,882                 |
| 1992        | 2.21%                         | \$1,524,853                 |
| 1993        | 2.61%                         | \$1,564,652                 |

\*Escalation factors are taken from Means®

## TECHNICAL FINDINGS

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To the escalated 1993 total of \$1,564,652 should be added the reclamation cost of \$103,943 associated with the Rilda Canyon surface facilities. This gives a total, in 1993 dollars, of \$1,668,595, which becomes the new total to which the mobilization costs are added and upon which the contingency and reclamation management costs are based. These costs should then be added, as follows, to obtain the new overall reclamation cost estimate in 1993 dollars.

\$1,668,595  
+ \$10,000 (mobilization costs)  
+ \$166,859 (10% contingency)  
+ \$70,081 (4.2% reclamation management)  
\$1,915,535 (1993 overall reclamation cost estimate)

The new 1993 overall reclamation cost estimate should then be escalated through 1995, as follows.

| <u>Year</u> | <u>Escalation<br/>Factor*</u> | <u>Reclamation<br/>Cost</u> |
|-------------|-------------------------------|-----------------------------|
| 1993        | --                            | \$1,915,535                 |
| 1994        | 3.21%                         | \$1,977,024                 |
| 1995        | 2.68%                         | \$2,030,008                 |

\*Escalation factors are taken from Means®

The escalated overall reclamation cost estimate, in 1995 dollars, is thus \$2,030,008. The present surety bond is in the amount of \$2,000,000. The difference between the overall estimate and the actual bond amount is approximately \$30,008, which constitutes only about 1.5% of the total bond amount. Since the difference between the reclamation cost estimate and the reclamation bond is so small, and since the reclamation cost estimate includes a 10% contingency, and since the present permit term ends at the end of 1995, at which time the bond will be adjusted, the Division finds that the present reclamation bond is adequate and does not need to be revised for the addition of the Rilda Canyon surface facilities.

### Findings:

The plan fulfills the requirements of this section.