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State of Utah
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DIVISION OF OIL, GAS AND MINING

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August 28, 1997

Chuck Semborski, Environmental Supervisor
Energy West
P. O. Box 310
Huntington, Utah 84528

Re: Deficiencies in Fan Portal Reclamation Plan (Midterm Review), PacifiCorp,
Cottonwood/Wilberg Mine, ACT/015/019-97C, Folder #3, Emery County, Utah

Dear Mr. Semborski:

The Division has conducted a review of your July submittal which addressed reclamation of the Cottonwood Fan Portal at the Cottonwood/Wilberg Mine and was submitted as a result of the mid term review. While improvements have been made in the reclamation plan there are still a few remaining deficiencies.

The enclosed Technical Analysis and Findings document discusses the review and outlines the deficiencies that still need to be corrected. Please review the document carefully. It is imperative that the deficiencies be corrected by no later than September 29, 1997. If you have any questions regarding the requirements or the analysis, please don't hesitate to call.

Sincerely,

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

Daron R. Haddock
Permit Supervisor

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Enclosure
cc: W. Malencik
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State of Utah
Division of Oil, Gas and Mining
Utah Coal Regulatory Program



Technical Analysis and Findings
Cottonwood Fan Portal Reclamation
Round 2
August 27, 1997

INTRODUCTION

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

Often the first technical review of an application finds that the application contains some deficiencies. The deficiencies are discussed in the body of the TA and are identified by a regulatory reference which describes the minimum requirements. In this Technical Analysis we have summarized the deficiencies at the beginning of the document to aid in responding to them. Once all of the deficiencies have been adequately addressed, the TA will be considered final for the permitting action.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

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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.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference R645-301-411.

Analysis:

The Old Johnson Mine is located directly across the canyon from the Trail Mountain Mine surface facilities and directly adjacent to the Cottonwood Fan Portal area (Appendix III, page 5 and Plate 3-16A). The Old Johnson Mine site has been recorded as a historic resource and provided with the Smithsonian registration number 42Em1633. An analysis of the site by F.R. Hauck of AERC concluded that this mine is of historic significance and has the potential for nomination to the National Register. The Johnson Mine site includes two walled-in portals, a mine terrace associated with the portals, road, the remnants of a coal slide or chute, a storage area under a rock walled boulder, an outhouse, and the old weigh house structure. The site is justified to the National Register Status as significant because it is an integral unit.

A rough sketch of the Old Johnson Mine is given in the original 1983 site survey in Chapter 2 Attachment 6. Plate 5-1 delineates the site in conjunction with the other surface facilities of the Cottonwood Mine and Trial Mountain Mine. An e-mail received from Jim Dykman, SHIPO, (received August 5, 1997) states: "the road has been updated and changed over, our office believes that the road no longer has integrity and would not be an eligible part of the historic mine". The permit must be updated to reflect this determination.

In section Protection of Public Parks and Historic Places (page 4-40) of the permit a discussion is provided for methods used to protect the Johnson Mine site during reclamation activities. Methods used will include establishing a berm along the roadway, flagging and ribbon barrier zones and educating construction works about the old mine site.

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LAND-USE RESOURCE INFORMATION

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

Analysis:

The stated premining land use is range forage and wildlife habitat. The land in the Cottonwood portal area is used primarily for spring and winter range forage, wildlife habitat and mineral mining. This submittal has changed the post mining land use to wildlife only. It seems doubtful that cattle have in the past or will in the future use the steep slopes in the Cottonwood fan portal area for grazing. The requirement to return the site to a grazing land use may be revised, if the stated premining land use was incorrect. If revised, the permit should justify this revision by discussing the terrain and other factors that inhibit cattle use on this slope although the surrounding lands (canyon bottoms and top of plateau) may be used for grazing. By eliminating this land use the requirement for a production success standard is also eliminated.

No comments could be found in the permit from the surface land owner concerning the proposed reclamation and post mining land use. The L.D.S. Church is shown as the land owner.

Findings:

The permittee must provide the following in accordance with the requirements of :

R645-301-412.130, the permit must discuss the criteria for higher and better uses for the proposed alternative postmining land use.

R645-301-412.200, a copy of the comments from the land owner concerning the proposed reclamation and the post mining land use must be included in the permit.

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Soil Sampling - Confusion Between Sample Sets

Confusion exists between soil sample data sets. These sample sets as referenced by the amendment include the 1997 samples, tube-conveyor samples on pages 14-16, Appendix-C Order-I soil survey samples, and the Biology Section referenced sample set. Primarily, how do they relate to each other and how do they pertain to the reclamation of the fan portal? In addition, there appears to be discrepancies with certain parameter results between sample sets (e.g., parameters that appear to have the largest discrepancies are pH, EC, and SAR). These discrepancies need to be addressed and how they relate to reclamation of the fan portal.

Please locate all sample sets and references on a map. Provide discussion concerning the map and each sample set succinctly within the amendment.

What are the Biology Section soil samples? Why, where, when, and how were these samples taken?

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-223, R645-301-120 and R645-301-130, Please provide soil sampling information as discussed above.

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

The amended MRP submittal needs to address and clarify the following:

- Soil Salvage - information is incomplete
- Stockpile Locations - conflicting information

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Conflicting information exists within the MRP amendment concerning soil redistribution. Please address the following to clarify soil redistribution:

- The amendment states different amounts of topsoil and subsoil for reclamation than those shown in the mass-balance tables as referenced on the reclamation map.
- In addition to the mass-balance tables, provide a table and discussion for all soil redistribution. The information should identify where topsoil and subsoil will be placed, what areas, how thick and what volumes.
- Any remaining soil left in the stockpiles needs to be identified and discussed. Identify interim reclamation of the remaining soil and stockpiles. How will the remaining soil be used?

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-241 and R645-301-120, Please provide soil redistribution information as discussed above.

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APPROXIMATE ORIGINAL CONTOUR RESTORATION

Analysis:

Information regarding the restoration of the Cottonwood Fan Portal area to its approximate original contour are found on pages 5 through 7 of Section 500, in Appendix A, and on Plates 5-1, 5-2, 5-3 and 5-5. See also **BACKFILLING AND GRADING** below.

On April 15, 1997, Division personnel and representatives of the permittee visited the Cottonwood Fan Portal site in order to determine the best way to reclaim the site. During that visit, it became obvious that the site could not be restored to its exact original contour. The excessive slope length, subsurface seeps, and rock strata which slope outward would make the resulting slope unstable.

However, the area will be restored to a configuration which both approximates the original contour and attains the necessary stability. Exposed coal seams will be covered. Ledges and cutslopes will be backfilled. Seeps which might jeopardize fill stability will be drained through gravel underdrains. Vegetation will be reestablished. These reclamation measures will serve to blend the site into the surrounding topography and make it aesthetically and geomorphically compatible with the surrounding area. The net result is shown by computer- assisted photographic reconstructions in Appendix A.

Findings:

The plan fulfills the requirements of this section.

BACKFILLING AND GRADING

Analysis:

Information regarding the final backfilling and grading of the Cottonwood Fan Portal area is found on pages 5 through 8 of Section 500 and on Plates 5-1, 5-2, 5-3 and 5-5. See also **APPROXIMATE ORIGINAL CONTOUR RESTORATION** above.

For purposes of backfilling and grading, 5 main terraces have been identified on the hillside of the Cottonwood Fan Portal area. These have been designated, from lowest to highest, Terrace 1, Terrace 2, Terrace 3, Terrace 4 and Terrace 4A. Terraces 1 and 2, the lowest terraces, are the areas of most concern. Both contain sizable ledges and Terrace 1 contains an exposed coal seam which must and will be covered.

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Findings:

The plan fulfills the requirements of this section.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Analysis:

Affected area boundary maps.

In 1997, the reclamation plan for the Cottonwood Fan Portal area was modified. As part of the modified plan, the reclamation maps were also modified. The affected area remained unchanged except for a small addition which was made to its southeast corner to accommodate the rerouting of the main undisturbed drainage in that area.

The affected area boundary of the Cottonwood Fan Portal area, as modified in 1997, is shown on Plates 5-1--Cottonwood Fan Portal Reclamation Slope, 5-2--Cottonwood Fan Portal Proposed Soil Placement, and 5-5--Cottonwood Fan Portal Final Reclamation. These maps were certified by John Christensen, a professional engineer licensed and registered in the state of Utah.

Bonded area map.

In 1997, the reclamation plan for the Cottonwood Fan Portal area was modified. As part of the modified plan, the reclamation maps were also modified. The bonded area remained unchanged except for a small addition which was made to its southeast corner to accommodate the rerouting of the main undisturbed drainage in that area.

The bonded area boundary of the Cottonwood Fan Portal area, as modified in 1997, is shown on Plates 5-1--Cottonwood Fan Portal Reclamation Slope, 5-2--Cottonwood Fan Portal Proposed Soil Placement, and 5-5--Cottonwood Fan Portal Final Reclamation. These maps were certified by John Christensen, a professional engineer licensed and registered in the state of Utah.

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HYDROLOGIC RECLAMATION 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.

Ground-water Monitoring

No ground water monitoring plan is planned for the fan portal reclamation area. A number of seeps along the contact between the Blackhawk and Star Point formations occur but, none are at a rate sufficient to collect water samples based on the seepage rates observed in 1997. The source of this water is stated to be from local snowmelt that is transported through vertical fractures. No ground water monitoring is specifically tied to reclamation of this area.

The coal seam near the fan portal area dips 2 degrees to the northwest. The disturbance is along the west face of the coal out crop. This suggests, that changes in seepage following mining may occur. The dip of the strata in the central portion of East Mountain dips into the Straight Canyon Syncline, generally 2 to 3 degrees plunging to the northeast. The axis of this syncline lies north of the cottonwood fan portal area and would flow away from the fan portal outcrop. This suggests, that although changes in seepage following mining may occur, a large portion of the mined area to the north would not be a source of recharge/discharge to this outcrop location. Future observations should be made to determine if increases in seepage does occur at the Blackhawk/Star Point contact zones.

Surface-water Monitoring

The monitoring plan states that water monitoring will be conducted at the Cottonwood Fan Portal above and below the mine. The surface water monitoring program will be conducted quarterly through the reclamation period according to the monitoring schedule in Appendix A.

Drainage from the Cottonwood Fan Portal area will be monitored at the sedimentation pond outfall according to the UPDES permit. The UPDES permit only measures treated outflow; therefore, no monitoring is presented which will demonstrate that vegetation is adequate to control erosion on this site. Information that demonstrates that adequate erosion control exists is required prior to removal of the pond and prior to bond release.

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Ditch #UD-3" and, cross-section detail on CM-10827-CP provides the ditch design information as it existed on the 1989 survey map. The plan states that some modifications would be necessary to provide and maintain the drainage along the terrace. R645-301-761 requires that all permanent diversions meet the requirements of the approved reclamation plan. **It is recommended the applicant be sure the drainage configuration designs can be met by modifying the existing site configuration.**

The applicant has proposed to change the existing drainage at the south end of the permit area. This proposal will decrease the gradient at the junction of a natural drainage. Natural rock outcrops at this location should aid in decreasing the erosion which is occurring in the existing drainage location. An earlier recommendation by the division hydrologist suggested a grading plan that distributes the flow over the slopes and concentrates water beneath areas of upstream concentration points be proposed. However, during a site visit company representatives stated that flow over the face could jeopardize the revegetated embankment that lies below and is adjacent to the road. With that concern in mind the proposal to retain this ditch is reasonable.

The diversion DD-4, at the top of the reclaimed bank adjacent to the road, is constructed to drain to the sedimentation pond. The plan references the county official as stating that the lower reclaimed slope would continue to provide a buffer zone to absorb rock fall and, to minimize impacts to the road. However, where this request concerns the sediment control ditch (within the final revegetated area as shown on KS1709D) this logic does not hold. The drainage can be re-established over the slope and continue to provide a buffer. Contrary information exists in section 760. The plan indicates that the silt fences, gabions, and undisturbed diversion ditches will be removed and reclaimed.

There would be some logistic problems in coordinating the drainage discharged from DD-4 and the final reclamation of the site. The resulting configuration would not approximate the premining characteristics (R645-301-742.313). Final reclamation configuration and plans for the sedimentation ponds and the ditch must be presented. In order to meet AOC, the plan must include backfilling DD-4 to promote overland flow. The road, bypass culverts and ditch configuration should account for runoff from the final reclaimed site configuration.

The applicant has committed to provide a french rock drain at the seep locations the size and design is dependent on topographic constraints and seep size.

Stream Buffer Zones

The Cottonwood Fan Portal is within 100 feet of the Cottonwood Canyon Creek stream channel. The adjacent Trail Mountain Mine diverted the Cottonwood Canyon Creek into a culvert thus, diverting the stream. The reclamation of this site is expected to be

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Impoundments

No impoundments are proposed to be retained as permanent structures at the reclaimed cottonwood fan portal site.

Casing And Sealing Of Wells

No casing and sealing of wells are directly associated with the cottonwood mine portal reclamation.

Findings:

The permittee has not met all requirements of this section. The permittee must provide the following in accordance with:

R645-301-512, provide a map for the final site configuration including filling of sedimentation ponds, and provide the professional certification with a signature on all applicable maps.

R645-301-742.313, The plan must include backfilling ditch DD-4 (the sediment control ditch is depicted in figure KS1709D). This ditch will no longer be needed to achieve the purpose for which it was authorized. Backfilling and regrading to promote overland flow will approximate AOC for the regraded portion of the site.

R645-301-742.200, Provide a sediment control plan for controlling sediment following sediment pond removal.

BONDING AND INSURANCE REQUIREMENTS

Analysis:

Determination of bond amount.

In 1995, the permittee notified the Division that it planned to reclaim the Cottonwood Fan Portal area sometime in 1997. The Division then decided to review the reclamation plan, which it had approved in the 1980s, for technical adequacy and regulatory compliance. The Division found the reclamation plan to be technically and regulatorily deficient and