



State of Utah

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February 4, 1998

TO: File

THRU: Daron Haddock, Permit Supervisor *DH*

FROM: Sharon Falvey, Senior Reclamation Hydrologist *SF*

RE: Fan Portal Reclamation Round III, PacifiCorp, Cottonwood/Wilburg Mine, ACT\015\019-97MT(3), Folder #2, Emery County, Utah.

SUMMARY:

As part of a midterm permit review, information contained in the existing MRP was examined to determine whether the plan meets the requirements of the R645 regulations for reclamation at the Cottonwood Wilburg Mine, Cottonwood Fan Portal Site. This submittal responds to the deficiencies noted in the September 1997, and the December 1997 Technical Analyses that followed the response to the Midterm Review. The operators response is determined to meet the minimum regulatory requirements.

RECLAMATION PLAN

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 specified 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 Hiawatha 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

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seepage following mining may occur. However, 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. A major portion of the mined area to the north would not drain toward 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.

Acid And Toxic-forming Materials

The plan states that all acid and toxic forming materials will be buried with at least four feet of material. No sites were identified as acid and toxic in this location.

Transfer Of Wells

No transfer of wells are proposed associated with the reclamation of the Cottonwood Fan Portal area.

Discharges Into An Underground Mine

No mine opening was developed at this site. No discharges into the mine will occur associated with the reclamation activity.

Gravity Discharges

No surface entries or access was developed at this site. Gravity discharge could occur from flow accumulated in mine and reaching the out crop. See the discussion under "Ground Water Monitoring" in this T.A.

Water Quality Standards And Effluent Limitations

The permittee will be required to show that ground and surface water at the site meet the requirements of the R645 regulations prior to bond release.

Diversions

The diversion ditch, UD-3, located above the disturbed area is proposed to remain as a permanent structure. Contour map CM-10828-CP "Cottonwood Fan Portal Diversion 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. Existing ditch designs were not reviewed. **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 this 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 states that county official request the ditch be retained so that the ditch would continue to provide a buffer zone to absorb rock fall and, to minimize impacts to the road. This statement does not adequately justify retention of the ditch for the following reasons:

- If this slope has a significant increased potential for rock fall beyond the rock fall potential of other road cuts in this region, it probably does not meet stability requirements of the R645-301 regulations.
- If the ditch is to function as a rock catch then the ditch is not able to function as designed.
- The base width of the slope provides a rock fall barrier.

In conversations with Bill Malnencik, DOGM inspector no rock falls have been observed in this ditch in his experience inspecting this site. However, any rock fall or debris that may fall into this ditch during reclamation construction activities should be cleared so the ditch can function as designed.

This drainage can be re-established to promote flow over the slope and would continue to provide a buffer for rock fall. However, the permittee is concerned that promoting overland flow will encourage rill and gully formation over the well vegetated slope below the existing ditch (discussion during site visit on December 16, 1998). Although, re-grading and promoting overland flow has been completed successfully in other steep slope sites with small drainage areas in Utah, the regrading of this ditch would not greatly increase visual appearance of the site. The trade-off in erosion occurring across the ditch v.s. what may occur due to overland flows is probably minimal. Therefore, because little would be gained by regrading this ditch, the cost benefit ratio is low, and due to the economics this design is considered BTCA for this area. Existing ditch designs were not reviewed and are assumed to meet minimum requirements. Calculations to verify the original designs we located in volume 11, appendix XIII, pages 1 through 8.

The final configuration and ditch location following removal of the pond is presented on the Phase II reclamation map 5-5A.

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 completed prior to reclamation at the Trail Mountain Mine. Based on this information, a specific buffer zone variance is not necessary.

Sediment Control Measures

The plan states that final grading and preparation of overburden will be conducted along the contour to minimize erosion. If grading along the contour is hazardous to equipment operators, grading will be conducted in a direction other than parallel to the contours.

Disturbed areas are presently proposed to drain to the sedimentation ponds. Additional measures such as; a silt fence along DD-4 and rock gabions are also used.

Siltation Structures

Other than the Alternate Sediment Control Measure in place in Area 3-7, the sedimentation ponds will be retained to treat runoff from the site during Phase I reclamation. Measures used following sediment pond removal include silt fence controls in conjunction with the roughening and mulching techniques.

Sedimentation Ponds

Under section 500 the Engineering section, the plan states "Once the bonding period is complete and revegetation is satisfactory the sedimentation ponds/basins at Cottonwood/Wilberg and Proposed Cottonwood Canyon Fan Portal will be back filled and graded". This meets the requirements for removal of siltation structures.

Other Treatment Facilities

No other treatment facilities are associated with the Cottonwood Fan Portal area.

Siltation Structure Exemptions

No exemption from using siltation structures were granted associated with reclamation of the cottonwood fan portal area.

Discharge Structures

No discharge structures are proposed for retention as permanent structures.

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 met the minimum requirements of this section.

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Recommendations:

This amendment can be approved as it meets the minimum regulatory requirements.

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cc: Bill Malencik

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