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TECHNICAL ANALYSIS AND FINDINGS
RECLAMATION PLAN

MOUNTAIN COAL COMPANY
GORDON CREEK #2, #7, #8 MINES
ACT/007/016

March 31, 1995

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SUMMARY OF PERMIT CONDITIONS

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 Permit Conditions and must commit to comply with the requirements of these conditions as referenced in the approved Permit.

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

R645-301-233.100

The results of the laboratory analyses of the proposed substitute topsoil materials in areas with slopes steeper than 70 percent must be submitted to the Division for review at the earliest possible date.

R645-301-321.100

During the growing season, a determination will need to be made as to whether or not a predisturbance vegetation inventory of the proposed 2/7/8 Sediment Pond is necessary.

R645-301-731.311

Results of laboratory analyses of potentially acid- and/or toxic-forming materials must be submitted to the Division for review at the earliest possible date.

SUMMARY OF OUTSTANDING DEFICIENCIES

The Technical Analysis of the proposed final reclamation plan is incomplete at this time, pending submittal of additional information by the permittee and review of that

information by the Division. A summary of the outstanding deficiencies is provided below. Additional comments, concerns, and deficiencies not presented in this summary may be found in the analysis and findings made in this Draft Technical Analysis . In the process of finalizing this review, the Division will evaluate the outstanding deficiencies to insure that they have been corrected and brought into compliance with all applicable regulatory requirements. The Division may deal with the outstanding deficiencies in any of 3 ways: 1) the deficiencies may be made conditions to the requirements of the permit issued by the Division, 2) the deficiencies may result in denial of the proposed permit, or 3) the deficiencies may require other executive or enforcement action, as deemed necessary by the Division, in order to achieve compliance with the Utah Coal Regulatory Program.

Accordingly, the permittee must address the deficiencies found in this Draft Technical Analysis and provide the following, prior to approval, in accordance with the requirements of:

R645-301-233.100

The permittee has adequately demonstrated the suitability of the substitute topsoil material to be used in the No. 2 Mine area and the No. 2 Mine access road area. However, the permittee must demonstrate that the material to be used as substitute topsoil in the Old Fan Portal area and the new sediment pond area is suitable for that purpose.

R645-301-243

The permittee has committed to sample the regraded surface of the No.2 Mine to determine fertilizer requirements (page 3-15). However, the plan does not discuss the sampling program in sufficient detail. The field sampling methodology (i.e. sample depth and frequency), as well as the laboratory analysis parameters, must be described in the plan.

R645-301-412.200

The question of surface ownership of Sweet's Pond needs to be clarified. The permit must either document that E.E. Pierce is the owner of Sweet's Canyon Water Fill Pond and its surrounding area or else tell who the legal owner is and provide comments from the legal owner.

The permittee must provide comments concerning the proposed postmining land use by the legal or equitable surface owner of record (Grant, Jewkes, and Jewkes and Calvin Jacob & Sons Partnership).

R645-301-521.141

Plate 3-1A does not show the disturbed area boundary of the Sweets Pond area and needs to be revised to do so.

R645-301-542.310

It is impossible, from the information provided in the plan, to determine whether or not the planned final configurations of the No. 7 area, the No. 2 area, and the Old Fan Portal area fulfill the requirements of the R645- rules and the Federal regulations. Specifically, the maps and cross sections fail to show 1) the extent to which the cut slopes in the various areas will be backfilled, and 2) exactly where there will be cut slope remnants. For example, Plates 3-7B--Final Reclamation and 3-8E--Cross Sections show the highwall and cutslopes in the Old Fan Portal area as being completely backfilled, but both the Division and the permittee are of the understanding that this will not be the case. And it is impossible to tell, from the cross sections and maps alone, the height to which the backfill will extend in both the No. 7 and No. 2 areas.

The permittee must submit, for Division approval, accurate, surveyed cross sections showing the anticipated final configuration of this site, particularly the extent to which the highwalls and cutslopes will be backfilled. *At a minimum*, one such cross section should be drawn parallel to the slope through each portal area and one through each area where there will be a cut slope remnant. This would make for *at least* 11 cross sections: 1 through the No. 7 portals, 2 through the No. 7 portal faceup, 2 along the No. 7 access road, 1 through each of the 2 No. 2 portals, 1 through the No. 2 pond, 2 through the Old Fan Portal pad backfill, and 1 through the Old Fan Portals themselves. The permittee must also revise the reclamation maps--Plates 3-7A, 3-7B, and 3-7C--to show exactly where there will be cut slope remnants.

R645-301-542.320

There is a point of confusion regarding the reclamation facilities, and it centers around Sweets Pond. A small pumphouse and a water truck filling facility lie next to Sweets Pond. The text of the plan says that the pumphouse will be removed, but doesn't mention the final disposition of the truck filling facility. A section of explanatory text on Plate 3-1A, on the other hand, says that the truck filling facility will be removed and seems to indicate that the pumphouse will remain. This discrepancy must be corrected both in the text of the plan and on Plate 3-1A.

R645-742-220

The operator has to get final approval from the Division of Water Rights for the R-69 application for the construction of the temporary sediment pond. This needs to occur prior to permit approval.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

See individual sections.

POSTMINING LAND USES

Regulatory Reference: R645-301-412, 301-413

Analysis:

The stated postmining land use is the same as the premining land use of wildlife habitat (page 3-8) and the intent of the reclamation designs is to restore the site to a condition compatible with the premining land use. Private landowners presently manage the lands surrounding the mine site for limited livestock forage. There are no range improvements in the area (page 4-53). The only surface owner comments regarding the postmining land use are concerned with the Sweet's Pond area.

Coal mining has been a land use in the area since the early 1900s. The larger mines to be opened in the area were Sweets in 1925, Consumers in 1928 and National in 1928 (page 5-19). The Swisher No. 1 Mine is immediately adjacent to the disturbed area and was reclaimed by the Utah Abandoned Mine Lands program.

Sweet's Canyon Water Fill Area, "Sweet's Pond", will not be reclaimed. The pond is located on private land and the land owner has requested that the pond remain for private use (Page 3-32 and Appendix 3-5). The land owner has committed to leave the fence

surrounding the pond in place in order to keep livestock out of the pond and riparian area. The pond constitutes a utility improvement for the area, supports a fish population, and provides for wildlife habitat. Page 4-11 of Table 4-1, Surface and Mineral Land Status, shows that Carbon County is the owner of the surface in the area of Sweet's Pond and that E. E. Peirce owns the water. Surface ownership needs to be clarified.

Findings:

The plan does not fulfill the requirements of this section.

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

R645-301-412.200

The question of surface ownership of Sweet's Pond needs to be clarified. The permittee must either document that E.E. Pierce is the owner of Sweet's Canyon Water Fill Pond and its surrounding area or else tell who the legal owner is and provide comments from the legal owner.

The permittee must provide comments concerning the proposed postmining land use by the legal or equitable surface owner of record (Grant, Jewkes, and Jewkes and Calvin Jacob & Sons Partnership).

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: R645-301-333, 301-342, 301-358

Analysis:

The permittee will employ the following measures to enhance the suitability of the site for wildlife habitat:

1. A small native rock holding basin will be constructed for wildlife watering near the No. 8 Mine seep.

2. A fence will prevent livestock grazing of the revegetated area for the entire bond liability period.

3. The seeps in the No. 7 area will flow across the surface of the backfill and will thus be accessible to wildlife.

4. The plant species to be used in revegetation have been selected for their value as wildlife forage and cover.

5. Drainage and seep areas will be enhanced by the addition of both seeded and transplanted riparian species.

Findings

The plan fulfills the requirements of this section.

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:

The No. 2 area and the Old Fan Portal area were both built prior to SMCRA and thus do not come under the requirement of restoration to approximate original contour *per se*. Only the No. 7 and No. 8 areas come under the requirements of restoration to approximate original contour and both of these areas will be restored to approximate original contour, as required by R645-301-553.110. For a full discussion, see **Backfilling and Grading** below.

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 first reclamation operation following the final closure of the mining operation was the sealing of the portals. The No. 2 mine was sealed permanently in October of 1985 and the No. 7 and 8 mines were sealed in December of 1990. Each portal was first sealed by placing a block seal 25 to 50 feet in by the portal. The portal structure was then removed and the area out by the seal was completely backfilled to prevent access to the seal and to minimize roof breaking. Exposed coal seams in the portal areas were also covered.

The 2, 7 & 8 mines are considered dry mines, i.e., the mines themselves do not produce enough water to supply the needs of the mining operation. Most of the workings are downdip from the portals. The only area updip from the portal is the area northwest of the No. 2 west portals through the 70-acre lease modification. No water was encountered during the mining of this area. Because of the dryness of the mines and the locations of the portals relative to the dip of the seam, the seals will not impound water and so no hydrologic seals were used.

Shortly after final cessation of operations and portal sealing, all surface structures were removed. Metal, wood, pipe, and other such structural material was hauled away and either resold for scrap or disposed of in a municipal landfill. All concrete, including foundations, floors, and structural supports, was broken up and buried at the toe of the portal faceups.

Reclamation of the minesite will occur in two phases. During the first phase, the entire site will be reclaimed and the natural drainage channels reestablished and reconfigured from the No. 8 area down to the lower end of the No. 2 mine area. The present sediment ponds will be eliminated and a new 3-cell sediment pond will be constructed at the lower end of the site adjacent to the present main entrance gate. The new 3-cell pond will receive runoff from the entire site. All disturbed *and* undisturbed drainage will flow into the pond.

Once vegetation is reestablished and the sediment contribution to the pond is within acceptable limits, the second phase of the reclamation process will be carried out. The 3-cell sediment pond will first be removed and the area reclaimed. The reclaimed main drainage channel will then be extended to intersect the undisturbed channel below the site.

Sweets Pond will not be reclaimed. It is located on private land and the landowner has requested that the pond be left in place for private use. The permittee will turn the pond over to the landowner when reclamation is complete. The pond is designed for long-term stability and is a utility improvement as well as a source of water for wildlife.

All cutslopes along pad and road areas will be reduced as much as possible while maintaining the required minimum stability safety factor of 1.3. This will be accomplished by recovering downslope material with a backhoe and placing it against the cutslope faces with a bulldozer. The fill material will be compacted with a sheepsfoot compactor to improve stability. Temporary erosion controls, such as straw bales and silt fences, will be placed below these backfilled areas to prevent sediment from leaving the site and entering the natural drainage. The Grand Junction consulting firm of J.F.T. Agapito & Associates, Inc. determined the limiting dimensions of the fills in the respective areas by a detailed stability analysis. This analysis is discussed and its results are shown in the discussion which follows.

Since different parts of the site were originally disturbed at different times and under different regulatory requirements, the site has been divided, for the purposes of the backfilling and grading plan, into 4 different areas: the No. 2 area, the No. 7 area, the No. 8 area, and the Old Fan Portal area.

No. 2 Area

A stability analysis of this area was done by the Grand Junction consulting firm of J.F.T. Agapito & Associates, Inc. in August of 1992. For this area, Agapito determined the following slope geometry parameters for a stability safety factor of 1.3.

Slope Angle (degrees)	Width of Base (feet)	Maximum Height (feet)
15	933	250
20	343	125
25	197	92
30	126	73
35	90	63

The natural channels that must be reestablished through the No. 2 area limit the width of the base of the fill. Therefore, the slope of 20° and base width of 343 feet were used in the design of the fill. These geometric parameters allow for a maximum slope height of approximately 125 feet, which will at the same time allow for the backfilling of most of the cut slopes *and* the attainment of the required stability.

The No. 2 area was disturbed prior to SMCRA. For such a site, both the R645- rules and the Federal regulations require *both* that "all reasonably available spoil" be used in backfilling the highwall *and* that the backfill be stable. The designed backfills of the highwalls and cut slopes of the No. 2 area fulfill both of these requirements. Given the amount of material available and the space constraints imposed by the reestablished natural channels, it would not be possible to completely backfill the cut slopes. The final reclaimed slope must be less than the original slope because the fill material is now unconsolidated. To completely backfill the cut slopes with a fill of a lesser slope than the original would create a fill with a larger cross-sectional area than the original configuration and would thus require more material than the original quantity. The designed backfills use all the reasonably available spoil that is necessary to achieve a stable configuration *and* they eliminate as much of the cut slope as possible, even though the upper part of the cut slope will not be eliminated.

In 1993, the permittee performed a stability investigation of the cut slope above the portals in the No. 7 area, which is very similar to, but higher than, the cut slopes in the No. 2 area. This stability investigation, the results of which are found in Appendix 3-1, revealed that the No. 7 cut slope has a stability safety factor of 2.62. Since the No. 2 cut slopes are lower than those in the No. 7 area, and since the No. 2 cut slopes will be at least partially backfilled, which will further increase their stability, then the No. 2 cut slopes can be expected to achieve a stability safety factor *at least* equal to the value 2.62 achieved by the No. 7 cut slope. And this, combined with the fact that the No. 2 cut slopes have been stable throughout the more than 30 years of their existence, demonstrates that the No 2 cut slope remnants fulfill the stability requirement of R645-301-553.523.

There are two seeps which daylight in the cutslope of the No. 2 area: one near the lower end of the No. 7 road and one above the office/shop area. Water from these seeps will flow over the surface of the fill in rip rap channels.

R645-301-542.300 and R645-301-542.310 require that the reclamation plan include " . . . final surface configuration maps with cross sections (at intervals specified by the Division) that indicate: . . . [t]he final surface configuration to be achieved for the affected areas." The cross sections of the No. 2 area which are shown on Plates 3-8B and 3-8C do not adequately depict the final surface configuration. These cross sections were taken directly from the contours of Plate 3-7A and they are of insufficient resolution to adequately show the extent to which the cut slopes and highwalls of the area will be backfilled.

No. 7 Area

A stability analysis of this area was done by the Grand Junction consulting firm of J.F.T. Agapito & Associates, Inc. in April of 1992. For this area, Agapito determined the following slope geometry parameters for a stability safety factor of 1.5.

Slope Angle (degrees)	Width of Base (feet)	Maximum Height (feet)
15	291	78
20	124	45
25	77	36
30	50	29
35	36	25

A safety factor of 1.5, rather than 1.3, was used for this area for a couple of reasons. First, the area contains two seeps and a small fault and the highwall below the MSHA safety bench has a history of natural instability. And since the planned earthwork will make it impossible to reach and repair this site in the event that it requires maintenance, the slightly higher safety factor will provide a greater margin of safety. Second, the MSHA safety bench in this area, which marks the upper extent of the highwall, is approximately 40 feet high and thus forms a good place into which to key the crest of the fill. The planned backfill will be approximately 45 feet high and will thus cover the safety bench while leaving the upper 60 feet of the faceup as it is. The natural channel that must be reestablished through this area limits the width of the base of the fill. So again, as in the No. 2 area, the slope of 20° was used in the design of the fill. This allows a maximum base width of 124 feet and a maximum slope height of 45 feet.

Given the amount of material available and the space constraint imposed by the reestablished natural channel, it would not be possible to completely backfill the portal faceup above the highwall and still achieve a stable configuration. As in the No. 2 area, the final reclaimed slope must be less than the original slope because the fill material is now unconsolidated. To completely backfill the cut slopes with a fill of a lesser slope than the original would create a fill with a larger cross-sectional area than the original configuration, would require more material than the original quantity, and would interfere with the reestablished natural channel. The designed backfill eliminates as much of the cut slope above the highwall as possible, as required by R645-301-553.110, and at the same time achieves a stable configuration, as required by R645-301-553.130. The designed backfill is,

in fact, the only possible configuration that will fulfill the requirements of these two regulations in the No. 7 area.

In 1993, the permittee performed a stability investigation of the cut slopes above the portals and the road in the No. 7 area. This stability investigation, the results of which are found in Appendix 3-1, revealed that the No. 7 portal cut slope has a stability safety factor of 2.62 and that the cut slopes above the road have a stability safety factor of 4.01. Since the No. 7 highwall below the MSHA safety bench, which has had a history of natural instability, will be completely eliminated by backfilling, and since the No. 7 road cut slopes will be at least partially backfilled, which will further increase their stability, the No. 7 cut slopes can be expected to be stable. And this, combined with the fact that the No. 7 cut slopes have been stable throughout their 15-year existence, demonstrates that the No. 7 cut slope remnants fulfill the stability requirement of R645-301-553.130.

R645-301-553.100 requires that disturbed areas be backfilled and grade to 1) achieve the approximate original contour, 2) eliminate all highwalls, spoil piles, and depressions, 3) achieve a stable postmining slope which has a stability safety factor of at least 1.3, 4) minimize erosion and water pollution both on and off the site, and 5) support the postmining land use. Furthermore, R645-100-200 defines approximate original contour as "that [final] surface configuration achieved by backfilling and grading of the mined areas so that the reclaimed area, including any terracing or access roads, closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage pattern of the surrounding terrain with all highwalls, spoil piles, and coal refuse piles having a design approved under the R645- rules and prepared for abandonment." Thus, the concept of approximate original contour involves not only the original geometry of an area, but the stability, hydrology, and suitability to the postmining land use of that area as well. The planned final configuration of the No. 7 area meets all of the parameters of approximate original contour, as the following discussion will demonstrate.

The stability of the final surface configuration has already been discussed at some length. Indeed, it has been shown that the planned final surface configuration is really the only one possible given the space constraints imposed by the natural drainage channel, the amount of fill material available, and the stability characteristics of that material (density, cohesion, and internal friction angle).

R645-301-553.140 requires that the postmining configuration minimize water pollution both on and off the site. The planned configuration will best fulfill this requirement for several reasons. First, the stable configuration achieved using the stability safety factor of 1.5 will prevent slides and minimize erosion. Second, the designed slope of approximately 2.7h:1v will best promote successful revegetation by providing a stable seed bed. Third, the lower fill height will allow for the channeling of water from a seep above the fill over the

surface of the fill, which will prevent the seep from saturating and destabilizing the fill. And fourth, the planned configuration is the only possible configuration which will meet all the requirements of approximate original contour without interfering with the reestablishment of the natural drainage channel.

The planned configuration will also closely resemble the general surface configuration that existed prior to mining and will mimic the visual attributes of the surrounding area. The surrounding area is steep and contains many cliffs and ledges. The remaining 60 feet of faceup above the fill will resemble these cliffs and ledges and the fill at its base will closely resemble the talus slopes which underlie those cliffs and ledges.

The planned configuration will be entirely compatible with the postmining land use of grazing and wildlife habitat. Grazing area and wildlife habitat will merely be displaced, but not eliminated, by the remaining faceup. And the emphasis given in designing the fill to stability, good vegetation, and preservation of good water quality will enhance the value of this area as livestock land and wildlife habitat.

R645-301-542.300 and R645-301-542.310 require that the reclamation plan include " . . . final surface configuration maps with cross sections (at intervals specified by the Division) that indicate: . . . [t]he final surface configuration to be achieved for the affected areas." The cross sections of the No. 7 area which are shown on Plates 3-8A and 3-8B do not adequately depict the final surface configuration. These cross sections were taken directly from the contours of Plate 3-7A and they are of insufficient resolution to adequately show the extent to which the cut slopes and highwalls of the area will be backfilled.

No. 8 Area

This area, which lies opposite the No. 7 area and on a much gentler slope, will be completely backfilled and restored to approximate original contour.

There is a seep in the road cut just below the No. 8 mine pad. This seep has been controlled by two gravel drains. The first, which is approximately 36 inches deep by 12 inches in thickness by 24 inches wide, crosses the road and discharges into a small concrete retention basin in an otherwise undisturbed area. The second is approximately 24 inches wide by 18 inches deep and parallels the road to where it discharges into the main undisturbed culvert.

Both gravel drains will be left in place and covered with additional fill material. The second gravel drain will be supplemented with an additional 24-inch-square section of gravel along the road ditch. This will be covered with roofing paper before it is covered with fill material. The resulting enlarged drain will empty into the restored natural drainage channel

between the No. 8 and No. 7 areas.

Old Fan Portal Area

This area contains an unreclaimed highwall and cut slope. The area was abandoned in 1984 and is, therefore, subject to the reclamation requirements of both SMCRA and the R645- rules.

The same stability and slope geometry parameters that were used in the reclamation design of the No. 2 area were used to design the reclaimed slopes in this area. As with the No. 2 Area, these slope parameters achieve a factor of safety for the reclaimed slopes of at least 1.3.

Slope Angle (degrees)	Width of Base (feet)	Maximum Height (feet)
15	933	250
20	343	125
25	197	92
30	126	73
35	90	63

Again, as with the No. 2 area, the Old Fan Portal area was initially disturbed prior to SMCRA. For such a site, both the R645- rules and the Federal regulations require that "all reasonably available spoil" be used in backfilling the highwall *and* that the backfill be stable. It is impossible, from the information provided in the plan, to determine whether or not the final configuration of this area fulfills the requirements of the R645- rules and the Federal regulations. Plates 3-7B--Final Reclamation and 3-8E--Cross Sections show the highwalls and cut slopes as being completely backfilled, but this will not be the case.

Findings:

The plan does not fulfill the requirements of this section.

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

R645-301-542.310

It is impossible, from the information provided in the plan, to determine whether or not the planned final configurations of the No. 7 area, the No. 2 area, and the Old Fan Portal area fulfill the requirements of the R645- rules and the Federal regulations. Specifically, the maps and cross sections fail to show 1) the extent to which the cut slopes in the various areas will be backfilled, and 2) exactly where there will be cut slope remnants. For example, Plates 3-7B--Final Reclamation and 3-8E--Cross Sections show the highwall and cutslopes in the Old Fan Portal area as being completely backfilled, but both the Division and the permittee are of the understanding that this will not be the case. And it is impossible to tell, from the cross sections and maps alone, the height to which the backfill will extend in both the No. 7 and No. 2 areas.

The permittee must submit, for Division approval, accurate, surveyed cross sections showing the anticipated final configuration of this site, particularly the extent to which the highwalls and cutslopes will be backfilled. At a minimum, one such cross section should be drawn parallel to the slope through each portal area and one through each area where there will be a cut slope remnant. This would make for at least 11 cross sections: 1 through the No. 7 portals, 2 through the No. 7 portal faceup, 2 along the No. 7 access road, 1 through each of the 2 No. 2 portals, 1 through the No. 2 pond, 2 through the Old Fan Portal pad backfill, and 1 through the Old Fan Portals themselves. The permittee must also revise the reclamation maps--Plates 3-7A, 3-7B, and 3-7C--to show exactly where there will be cut slope remnants.

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 first reclamation operation following the final closure of the mining operation was the sealing of the portals. The No. 2 mine was sealed permanently in October of 1985 and the No. 7 and 8 mines were sealed in December of 1990. Each portal was first sealed by placing a block seal 25 to 50 feet in by the portal. The portal structure was then removed and the area out by the seal was completely backfilled to prevent access to the seal and to minimize roofbreaking. Exposed coal seams in the portal areas were also covered.

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:

Prelaw (i.e. P.L.95-87) disturbance at this site is approximately 10.82 acres and comprises the No.2 Mine operation yard and access road (approximately 9.18 acres) and the Old Fan Portal (approximately 1.64 acres). Topsoil was not separately salvaged from these prelaw disturbed areas prior to their disturbance.

The permittee plans to use material from the No. 2 Mine fill and the No.2 Mine access road fill as substitute topsoil (Page 3-14). Laboratory analyses characterizing the proposed substitute topsoil material are found in Appendix 8-1.

The permittee has committed to sample the regraded surface of the No.2 Mine to determine fertilizer requirements (page 3-15). However, the plan does not discuss the sampling program in sufficient detail. The field sampling methodology (i.e. sample depth and frequency), as well as the laboratory analysis parameters, must be described in the plan.

Topsoil and subsoil from the No.7 Mine area were salvaged from all disturbed areas except those areas which were excessively rocky, where topsoil was of limited depth, or where the steepness of the terrain posed a safety hazard to machinery. Topsoil from the No. 7 Mine (3684 cubic yards) is stored adjacent to the No. 2 Mine operations area and subsoil from the No. 7 Mine (8000 cubic yards) is stored adjacent to the No. 7 Mine operational area. This topsoil and subsoil material will be evenly distributed along the contour (page 3-43) to a depth of twelve inches subsequent to backfilling and grading (Table 8-5A).

Topsoil which was salvaged from the No. 8 Mine (2514 cubic yards) disturbance is stored on top of the subsoil pile adjacent to the No.7 Mine operations area. Subsequent to the completion of backfilling and grading, this topsoil material will also be evenly distributed along the contour to a depth of twelve inches (Table 8-5A).

Interim reclamation of the Old Fan Portal area was done in 1984. The existing fill was used as topsoil since no topsoil had been salvaged initially. Vegetation has been established on the regraded spoils. The permittee proposes additional regrading in the Old Fan Portal area. However, the permittee has not demonstrated that the material to be used as substitute topsoil in the Old Fan Portal area and the new sediment pond area is suitable for that purpose, as required by this section.

The permittee proposes that the surface material on slopes steeper than 70 percent (areas depicted on Plate 3-7A, 3-7B, and 3-7C) be left in place and used as substitute topsoil (page 3-17). To demonstrate its suitability as substitute topsoil material, this surface material will be sampled in May and June and analyzed as described in Section 3.5.5.1. Sample site locations are shown on Plate 3-1.

In order to alleviate compaction, all regraded soil will be deep ripped to a depth of 18-inches (page 3-33 & 47). Plant growth medium will be gouged and roughened in order to maximize its surface roughness and thus enhance its revegetation capability. This will be accomplished by using a large backhoe bucket to create 2'-3' diameter, irregularly-placed depressions (page 8-32).

Prior to reexcavation, the topsoil and subsoil stockpiles will be analyzed for nitrogen, phosphorus and potassium (page 3-50). An appropriate fertilizer will then be formulated based on that analysis.

Findings:

The plan does not fulfill the requirements of this section.

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

R645-301-233.100

The permittee has adequately demonstrated the suitability of the substitute topsoil material to be used in the No. 2 Mine area and the No. 2 Mine access road area. However, the permittee must demonstrate that the material to be used as substitute topsoil in the Old Fan Portal area and the new sediment pond area is suitable for that purpose.

R645-301-243

The permittee has committed to sample the regraded surface of the No.2 Mine to determine fertilizer requirements (page 3-15). However, the plan does not discuss the sampling program in sufficient detail. The field sampling methodology (i.e. sample depth and frequency), as well as the laboratory analysis parameters, must be described in the plan.

As a condition of this permit, the permittee must commit to do the following, in accordance with the requirements of:

R645-301-233.100

The results of the laboratory analyses of the proposed substitute topsoil materials in areas with slopes steeper than 70 percent must be submitted to the Division for review at the earliest possible date.

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:

The Grand Junction consulting firm of J.F.T. Agapito & Associates, Inc. determined the limiting dimensions of the fills in the respective areas by a detailed stability analysis. All cutslopes along road areas will be reduced as much as possible while maintaining the required minimum stability safety factor of 1.3. This will be accomplished by recovering downslope material with a backhoe and placing and compacting it against the cutslope faces with a bulldozer. Temporary erosion controls, such as straw bales and silt fences, will be placed below these backfilled areas to prevent sediment from leaving the site and entering the natural drainage.

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:

Acid and toxic-forming materials

The permittee has committed to the removal and relocation of contaminated material

from the No. 2, 7 & 8 Mine yard fills. This includes removal of material contaminated with oil and grease, material which is more than 50 percent coal, and acid- and toxic-forming material as defined by the Utah Coal Mining Regulations and qualified by the Division's Guidelines for Topsoil and Overburden, Table 2. These contaminated materials will be identified during backfilling and grading based on visual observation, combustibility analysis and the sampling outline on pages 3-50 & 3-51. The contaminated materials will then be completely removed from their original location and buried onsite with four feet of non-combustible, nonacid- and nontoxic-forming material.

Exposed coal seams will be covered with a minimum of four feet of noncombustible material. Some small rider seams will not be covered in areas where the fill configuration required to cover them would be unstable (See also **Backfilling and Grading** above). The coal seams will be covered with three feet of "rock material" and one foot of topsoil and/or suitable substitute topsoil (page 3-34).

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:

R645-301-731.311

Results of laboratory analyses of potentially acid- and/or toxic-forming materials must be submitted to the Division for review at the earliest possible date.

Sedimentation Ponds R645-301-742.220 thru 742.225.2

Analysis:

The hydrologic portion of the reclamation plan calls for a new 3-celled sedimentation pond to be constructed at the downstream end of the disturbed area. The Operator has provided for maintenance of the temporary sediment pond during the reclamation phase (page 7-40). It will be reclaimed and the original channel restored when bond release requirements are met for sediment control and vegetation (page 7-40). Per the requirements of R645-301-880-320 and R645-301-732-210 and Phase II bond release criteria, the following structures will be affected (Sweet's Canyon Pond and the temporary sediment pond) and as such, a Division of Water Rights permit, a Division of Dam Safety permit and a maintenance

agreement for these structures have been supplied. The Operator has stated how he will comply with the requirements for permanent maintenance including sediment removal if required for the reconstructed sediment pond on page 7-40 of the plan. Sediment levels are shown as being determined by direct measurement at the sediment marker, as shown on Plate 7-14 and will be cleaned-out when the sediment reaches the cleanout level of 7748.5'. The pond will be inspected quarterly and on an annual basis as required.

The Sweet's Canyon Pond will remain and be maintained by the landowner as stated in the September 28, 1994 letters found in Appendix 3-5 to Beaver Creek Coal Company from Agnes K. Pierce. A Slope Stability Analysis for the Sweet's Canyon Pond is found in Appendix 3-4 demonstrating a slope stability of 2.35 for saturated conditions. Water Rights Lease and Sale Agreement allocated to the Sweet's Canyon Pond was entered into on the 7th of April, 1993 and is found in Appendix 3-9.

The following forms and applications have been approved for the following impoundments to be retained or used during reclamation.

Sweet's Pond

1) Form 69 filed with the Division of Water Rights is found in appendix 7-4.
2) A transfer of Water Rights to the Sweet's Pond from Gordon Creek is found in appendix 3-9 but a change application for the point of use needs to be filed by the owner for the water rights to be valid.
3) A clarification of the use and responsibility for maintenance of the pond now that Mr. E.E. Pierce is deceased is found in appendix 3-5.

Temporary Sediment Pond

1) Sediment clean-out levels will be marked with a sediment marker in the pond.
2) Clean-out of the pond will occur at the 60 % sediment storage level (7748.5').
3) Form 69 for the temporary 3-celled structure is found in appendix 7-4 (approval is pending with the Division of Water Rights).
4) The pond will be decanted using a portable pump to the maximum sediment storage level elevation when necessary. (page 4-2).

Finding of Adequacy:

The permittee meets the requirements of the rules regarding the sediment ponds and permanent impoundments.

Findings of Deficiency:

R645-742-220

The operator has to get final approval from the Division of Water Rights for the R-69 application for the construction of the temporary sediment pond. This needs to occur prior to permit approval.

Diversions R645-301-742.300 et.al. and R645-301-742.400 thru 743

Analysis

The plan provides for reclamation of the Right and Left Forks of Bryner Canyon using the 100-year 6-hour storm event in accordance with R645-301-742.323. Permanent channels for the ephemeral drainages were designed using the 10-year 6-hour event in accordance with R645-301-742.333. The main channel and the Right Fork of Bryner Canyon were considered intermittent and all others considered ephemeral. The watershed boundaries used to determine precipitation runoff from undisturbed areas within Bryner Canyon are shown on Plate 7-5A. The locations of all channels showing riprap sizes and slopes are shown on Plate 3-7A, 3-7B, and 3-7C. All design information for the plan regarding the applicable calculations and methodologies is found in Appendix 7-1.

The plan provides for the restoration of the Right Fork of Bryner Canyon to restore premining characteristics of the original stream channel where it meets the old pad fill. Ponding, in what is considered a natural depression that appeared to be caused by the presence of the pad and failure to reestablish original grade for the channel, has been eliminated.

Reclamation of the mine site will be completed in a single phase, with the exception of the removal of the new sediment ponds. The first step will be to build the new three celled pond in the Bryner Canyon drainage below the mine site. (See Plates 3-7B and 7-14). The minesite will be reclaimed starting from the top down, with No. 8 first, followed by No. 7, No.2 Access Road, and finally, the Old Fan Portal Area. The natural drainage will be restored down to the undisturbed drainage below the No. 2 Mine, as shown on Plate 3-7A. At this point the No.2 pond and 7A pond will be removed and all drainage above the new 2/7/8 Sediment Ponds will flow into the ponds.

There are several diversions of miscellaneous spring flow which drains across reclaimed slopes (springs located at the 2,7, and 8 mine areas). Provisions are discussed on page 7-33 regarding the use of riprap and filter blankets for the appropriate areas and a french drain for the No. 8 Mine road cut seep.

Finding of Adequacy:

The permittee has supplied the neccessary information regarding the restoration of the natural drainages in the area of the No.2,7, and 8 Mine sites

1. The Permittee has filed the necessary Stream Alteration Permit for the reclaimed stream channel with the Division of Water Rights and as such a positive finding can be made pending approval by the Division of Water Rights.

Sediment Control Measures R645-301-742

Analysis

The Permittee has provided details on mulching rates, hydromulch application rates, tackifier amounts and types, and erosion control matting. Commitments to maintain the site from an erosion standpoint have been made in the permit in Section 7.2.8.5 (page 7-58), Maintenance Plan For Erosion. A design summary of the one BTCA area associated with the Old Fan Portal Area is found in Appendix 7-5 and designated as such on Plate 3-2.

There will be a lot of earth moving taking place adjacent to presently undisturbed drainages and it will be considered prudent sediment control to prevent the migration of earth disturbance into those presently undisturbed drainages. The contractor should be made aware of this potential and instructed in regards to using care when operating adjacent to these areas.

Findings of Adequacy:

The Permittee meets the requirements of the rules regarding erosion control and control of sediment from the reclaimed areas.

Water Quality Monitoring R645-301-723 and 742.100,200,300

Analysis

The Permittee has proposed a plan which monitors 6 stations for the parameters shown in Table 7-18. The sampling program provides information on seasonal flow and

water quality on intermittent and ephemeral streams that have potential to be affected by mine discharge and surface disturbance. Discussion of surface water monitoring locations, type, frequency and flow device may be found in Table 7-17. A map of monitoring locations is provided on Plate 7-2. Analyses will be for parameters listed in Table 7-18. The Post Mining Water Monitoring plan is described on 7-67 of the permit.

Findings of Adequacy:

The Permittee meets the requirements of the regulations regarding water monitoring.

REVEGETATION

Regulatory Reference: R645-301-244, 301-353, 301-355, 301-356

Analysis:

General requirements

The revegetation portion of the plan is found on pages 3-52 thru 3-65. The revegetation seed mixture is specified on page 3-54 and 3-55. The mixture contains grasses, forbs, and shrubs which are known to be palatable to big game animals. Cicer milkvetch and alfalfa are the only non-native species in the mixture. Cicer milkvetch has been included both because it is a legume and also because it is palatable to big game animals. Alfalfa is desirable for its quick establishment and nitrogen-fixing capabilities. Alfalfa usually does not persist on these sites for more than a few years. Five other native forb species are included in the mixture. Besides five shrub species to be seeded, the riparian areas will also be transplanted with containerized stock of Salix, Elderberry, Serviceberry and Chokecherry (page 3-55). Seeps and springs will be planted at 25-foot intervals and the main drainages will be planted on each side at 50-foot intervals. An augmented seeded mixture which includes additional grass and forb species will be applied to the riparian areas.

All seeding will be done by either hydroseeding or hand broadcasting and will be followed by light raking (page 3-53). Past interim seeding efforts have shown this procedure to be effective for this area. The permittee has commited to limit the amount of time the seed is in the hydroseeder to no more than 30 minutes.

The plan commits to leaving the site in a roughened state (page 8-32). By using a large backhoe bucket to redistribute the topsoil, depressions 2' to 3' in diameter will be left. The surface material in areas which are not backfilled and which will not receive topsoil will

be amended with straw or hay at a rate of 1500 pounds per acre. Where feasible, the straw or hay will be incorporated into the soil with a trackhoe. In less accessible areas, the straw or hay will be incorporated by punching and gouging the soil (page 3-51). Hand roughening will consist of surface loosening of the soil to a depth of 4 to 6 inches by hand tools.

Timing

The plan commits to begin seeding no earlier than September 1 (page 3-54) and to complete the seeding in the fall of the year. This is the time of year normally accepted for seeding with this particular seed mixture and for this area. The revegetation schedule is outlined on page 3-57. Preliminary work such as seed ordering and soil sampling will begin, respectively, in May and June. Recontouring will begin in July with final mulching occurring in October.

Mulching and other soil stabilizing practices

A wood fiber hydromulch will be applied, at the rate of 2000 lbs per acre (3-56), to all seeded areas with slopes less than 2h:1v and to all nontopsoiled areas with slopes greater than 2h:1v (page 3-58). Hydromulching has been shown, in interim revegetation on this site, to be effective in controlling erosion and stabilizing the soil surface on slopes less than 2h:1v. Erosion control matting will be installed on slopes greater than or equal to 2h:1v where topsoil and/or subsoil is applied. However, erosion control matting is not expected to be used on this site since most slopes 2h:1v or steeper will not be topsoiled.

On slopes steeper than 70 percent where topsoil and/or subsoil is not applied, alfalfa mulch will be placed on the surface at the rate of 1500 lbs per acre. In areas which can be reached by a trackhoe, surface gouging will be performed to create surface roughness and incorporate mulch. In steep areas which cannot be reached by a backhoe, hand tools will be used to roughen the soil surface and incorporate the mulch.

Standards for success

The postmining land use is wildlife habitat. Therefore, the requirements of R645-301-356.230 must be met. Success of vegetation will be determined on the basis of shrub stocking and vegetative ground cover. The plan does not specify a shrub standard. The Division, DWR and the permittee have agreed, as shown by a 10/31/94 letter from Bill Bates of DWR (page 3-58), that a minimum shrub stocking standard of 2000 shrubs per acre will be the success standard to be achieved by this site. The permittee's commitment to this success standard is found on page 3-61 of the plan.

The stated success standard for cover and diversity is to be that of the Mountain

Grassland community (page 3-58). The Mountain Grassland (also referred to as Mountain Brush/Grass Community) reference area is located above the No. 2 Mine and identified on Plate 9-1. The data for this reference area were collected in July of 1981. The most frequent species in the reference area during the 1981 inventory were Salina Wildrye and Indian Ricegrass. Based on an ocular estimate, total vegetative cover was 20 percent. In 1993 the Mountain Grassland reference was again sampled and the vegetative cover was estimated to be 43 percent (Appendix 9-2). Salina Wildrye and Broom Snakeweed were the most frequently encountered plants. Because of the large difference in percent cover values, some doubt exists that the same areas were sampled. However, approval of the reference area is based on the 1993 sampling. If subsequent sampling indicates that the 1981 sampling is more representative of the actual cover value, then the use of the Mountain Grassland reference area as a standard for the entire site will have to be reevaluated.

The proposed 2/7/8 Sediment Pond is to be constructed in an area which is not included in the current approved disturbed area. However, the area was previously disturbed by the construction of the adjacent Carbon County road and by the operation of the abandoned Swisher No. 1 Mine. The plan commits to including this area in meeting the success standard of the Mountain Grassland reference area. A determination will be made during the growing season as to the need for a vegetation inventory prior to disturbance.

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:

R645-301-321.100

During the growing season, a determination will need to be made as to whether or not a predisturbance vegetation inventory of the proposed 2/7/8 Sediment Pond is necessary.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

See **Revegetation** and **Backfilling and Grading** above.

Findings:

The plan fulfills the requirements of this section.

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:

See also **Backfilling and Grading** above.

Affected area boundary maps.

Plates 3-7A, 3-7B, and 3-7C accurately and adequately show the disturbed area boundaries for the No. 2, No. 7, No. 8, and Old Fan Portal areas. Approximately 1.5 acres will be added to the disturbed area with the construction of the new sediment ponds and this added area is shown on Plates 3-7B and 3-7C. Since this area constitutes less than 15% of the total present disturbed area, its addition to the disturbed area does not constitute a significant revision of the permit, but only an amendment.

Plate 3-1A shows Sweets Pond, which will not be reclaimed, and its surrounding area. Plate 3-1A does not show the bonded area boundary of the Sweets Pond area and needs to be revised to do so.

Bonded area map.

Plates 3-7A, 3-7B, and 3-7C accurately and adequately show the bonded area boundaries for the No. 2, No. 7, No. 8, and Old Fan Portal areas. For this site, the bonded area is identical to the disturbed area and comprises approximately 17.2 acres. Approximately 1.5 acres will be added to the disturbed area with the construction of the new sediment ponds and this added area is shown on Plates 3-7B and 3-7C.

Plate 3-1A shows Sweets Pond, which will not be reclaimed, and its surrounding area. Plate 3-1A does not show the bonded area boundary of the Sweets Pond area and needs to be revised to do so.

Reclamation backfilling and grading maps.

Plates 3-7A, 3-7B, and 3-7C show the backfilling and grading which will be done at this site. In addition, Plates 3-8A, 3-8B, 3-8C, 3-8D, and 3-8E contain cross sections, taken from topographic maps, which depict the present surface configuration and the anticipated reclaimed surface configuration.

These maps and cross sections fail to show 1) the extent to which the cut slopes in the various areas will be backfilled, and 2) exactly where there will be cut slope remnants. For example, Plates 3-7B--Final Reclamation and 3-8E--Cross Sections show the highwall and cutslopes in the Old Fan Portal area as being completely backfilled, but both the Division and the permittee are of the understanding that this will not be the case. And it is impossible to tell, from the cross sections and maps alone, the height to which the backfill will extend in both the No. 7 and No. 2 areas.

The permittee must submit, for Division approval, accurate, surveyed cross sections showing the anticipated final configuration of this site, particularly the extent to which the highwalls and cutslopes will be backfilled. At a minimum, one such cross section should be drawn parallel to the slope through each portal area and one through each area where there will be a cut slope remnant. This would make for at least 11 cross sections: 1 through the No. 7 portals, 2 through the No. 7 portal faceup, 2 along the No. 7 access road, 1 through each of the 2 No. 2 portals, 1 through the No. 2 pond, 2 through the Old Fan Portal pad backfill, and 1 through the Old Fan Portals themselves. The permittee must also revise the reclamation maps--Plates 3-7A, 3-7B, and 3-7C--to show exactly where there will be cut slope remnants.

Reclamation facilities maps.

The only reclamation facilities which will remain will be the new sediment ponds, which will be reclaimed at the end of the Phase II reclamation period. These ponds are shown on Plates 3-7B and 3-7C.

Final surface configuration maps.

Plates 3-7A, 3-7B, and 3-7C show the anticipated final surface configuration. In addition, Plates 3-8A, 3-8B, 3-8C, 3-8D, and 3-8E contain cross sections, taken from topographic maps, which depict the present surface configuration and the anticipated final surface configuration.

These maps and cross sections fail to show 1) the extent to which the cut slopes in the various areas will be backfilled, and 2) exactly where there will be cut slope remnants. For

example, Plates 3-7B--Final Reclamation and 3-8E--Cross Sections show the highwall and cutslopes in the Old Fan Portal area as being completely backfilled, but both the Division and the permittee are of the understanding that this will not be the case. And it is impossible to tell, from the cross sections and maps alone, the height to which the backfill will extend in both the No. 7 and No. 2 areas.

The permittee must submit, for Division approval, accurate, surveyed cross sections showing the anticipated final configuration of this site, particularly the extent to which the highwalls and cutslopes will be backfilled. At a minimum, one such cross section should be drawn parallel to the slope through each portal area and one through each area where there will be a cut slope remnant. This would make for at least 11 cross sections: 1 through the No. 7 portals, 2 through the No. 7 portal faceup, 2 along the No. 7 access road, 1 through each of the 2 No. 2 portals, 1 through the No. 2 pond, 2 through the Old Fan Portal pad backfill, and 1 through the Old Fan Portals themselves. The permittee must also revise the reclamation maps--Plates 3-7A, 3-7B, and 3-7C--to show exactly where there will be cut slope remnants.

Reclamation monitoring and sampling location maps.

Reclamation surface and subsurface manmade features maps.

There are no buildings within 1000 feet of this site and no electrical transmission lines or pipelines passing over or under the site.

Plates 3-7A, 3-7B, 3-7C, and 3-1A show the anticipated final surface configuration. These maps show the location and extent of the fence which will be erected around the site to keep livestock from destroying the developing vegetation. Plates 3-7B and 3-7C show the Carbon County access road in relation to the rest of the site and Plate 3-1A shows Sweets Pond and its surrounding area.

There is one point of confusion regarding the reclamation facilities, and it centers around Sweets Pond. A small pumphouse and a water truck filling facility lie next to Sweets Pond. The text of the plan says that the pumphouse will be removed, but doesn't mention the final disposition of the truck filling facility. A section of explanatory text on Plate 3-1A, on the other hand, says that the truck filling facility will be removed and seems to indicate that the pumphouse will remain. This discrepancy must be corrected both in the text of the plan and on Plate 3-1A.

Reclamation treatments maps.

The only reclamation treatment facilities which will remain will be the new sediment

ponds, which will be reclaimed at the end of the Phase II reclamation period. These ponds are shown on Plates 3-7B and 3-7C.

All facilities which will be used to protect and enhance fish and wildlife related environmental values are shown on Plates 3-7A, 3-7B, and 3-7C. These include a small native rock holding basin for wildlife watering near the No. 8 Mine seep, the fence which will prevent livestock grazing of the revegetated area for the entire bond liability period, and the seeps in the No. 7 area which will flow across the surface of the backfill and thus be accessible to wildlife.

Findings:

The plan does not fulfill the requirements of this section.

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

R645-301-521.141

Plate 3-1A does not show the disturbed area boundary of the Sweets Pond area and needs to be revised to do so.

R645-301-542.320

There is a point of confusion regarding the reclamation facilities, and it centers around Sweets Pond. A small pumphouse and a water truck filling facility lie next to Sweets Pond. The text of the plan says that the pumphouse will be removed, but doesn't mention the final disposition of the truck filling facility. A section of explanatory text on Plate 3-1A, on the other hand, says that the truck filling facility will be removed and seems to indicate that the pumphouse will remain. This discrepancy must be corrected both in the text of the plan and on Plate 3-1A.

R645-301-542.310

Plates 3-7A, 3-7B, and 3-7C show the anticipated final surface configuration. In addition, Plates 3-8A, 3-8B, 3-8C, 3-8D, and 3-8E contain cross sections, taken from topographic maps, which depict the present surface configuration and the anticipated final surface configuration.

These maps and cross sections fail to show 1) the extent to which the cut slopes in the various areas will be backfilled, and 2) exactly where there will be cut slope remnants. For example, Plates 3-7B--Final Reclamation and 3-8E--Cross Sections show the highwall and cutslopes in the Old Fan Portal area as being completely backfilled, but both the Division

and the permittee are of the understanding that this will not be the case. And it is impossible to tell, from the cross sections and maps alone, the height to which the backfill will extend in both the No. 7 and No. 2 areas.

The permittee must submit, for Division approval, accurate, surveyed cross sections showing the anticipated final configuration of this site, particularly the extent to which the highwalls and cutslopes will be backfilled. At a minimum, one such cross section should be drawn parallel to the slope through each portal area and one through each area where there will be a cut slope remnant. This would make for at least 11 cross sections: 1 through the No. 7 portals, 2 through the No. 7 portal faceup, 2 along the No. 7 access road, 1 through each of the 2 No. 2 portals, 1 through the No. 2 pond, 2 through the Old Fan Portal pad backfill, and 1 through the Old Fan Portals themselves. The permittee must also revise the reclamation maps--Plates 3-7A, 3-7B, and 3-7C--to show exactly where there will be cut slope remnants.

BONDING AND INSURANCE REQUIREMENTS

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

Analysis:

Form of bond. (Reclamation Agreement)

A surety bond in the amount of $641,443 is held with the United Pacific Insurance Company.

Determination of bond amount.

The total cost of reclaiming this site was estimated to be approximately $327,826, in 1983 dollars. The costs of sealing and backfilling the portals and of removing and disposing of the surface facilities were left out of the calculation of this sum since all of this work was done in 1991, while at the same time the cost of reclaiming the Old Fan Portal area was added in. This estimated cost was escalated through 1988, when the No. 8 Mine started operation, at which time the reclamation costs associated with the No. 8 area were added in, to make up a total of $394,074, in 1988 dollars. This amount was then escalated through 1999 in order to get an estimate of the required bond amount through the end of the present permit term. The required amount turns out to be $483,241, in 1999 dollars. Since the reclamation bond is in the amount of $641,443, this site is more than adequately bonded

through 1999. The following table summarizes the foregoing discussion.

YEAR	ESCALATION FACTOR*	RECLAMATION COST	REMARKS
1983	----	$327,826	#2 and #7 Mines Only
1984	0.92	$330,842	#2 and #7 Mines Only
1985	2.90	$340,436	#2 and #7 Mines Only
1986	2.10	$347,586	#2 and #7 Mines Only
1987	1.95	$354,364	#2 and #7 Mines Only
1988	1.81	$360,777 + $33,297 = $394,074	#8 Mine Added to #2 and #7 Mines
1989	1.77	$401,050	#2, #7 & #8 Mines
1990	0.77	$404,138	#2, #7 & #8 Mines
1991	1.27	$409,270	#2, #7 & #8 Mines
1992	2.21	$418,315	#2, #7 & #8 Mines
1993	2.54	$428,940	#2, #7 & #8 Mines
1994	2.01	$437,562	#2, #7 & #8 Mines
1995	2.01	$446,357	#2, #7 & #8 Mines
1996	2.01	$455,329	#2, #7 & #8 Mines
1997	2.01	$464,481	#2, #7 & #8 Mines
1998	2.01	$472,817	#2, #7 & #8 Mines
1999	2.01	$483,241	#2, #7 & #8 Mines

*Escalation factors are taken from Means©

Terms and conditions for liability insurance.

Liability insurance policy ISL G1 519134-A is held with the Insurance Company of North America through the agency of the CIGNA Insurance Company. The effective term of this policy goes from January 1, 1993 through January 1, 1996. The combined coverage for bodily injury and property damage is $500,000 for each occurrence and $500,000

aggregate. The certificate of insurance which the Division holds states that, in the event that the policy is cancelled for any reason by the permittee, the insurance agency, CIGNA, will give the Division written notification within 45 days.

Findings:

The plan fulfills the requirements of this section.