April 13, 2004

Johnny Pappas, Sr. Environmental Engineer
Plateau Mining Corporation
P.O. Box 30
Helper, Utah 84526-0030

Re: Conditional Approval of Refuse Pile Redesign and PMLU, Plateau Mining Corporation, Willow Creek Mine, C/007/0038, Task ID #1875, Outgoing File

Dear Mr. Papaps:

The above-referenced amendment is conditionally approved upon receipt of five clean copies prepared for incorporation. Please submit these copies by May 3, 2004. Once we receive these copies, final approval will be granted.

A stamped incorporated copy of the approved plans will also be returned to you at that time, for insertion into your copy of the Mining and Reclamation Plan. A copy of our Technical Analysis is enclosed.

If you have any questions, please call me at (801) 538-5325 or Dana Dean at (801) 538-5320.

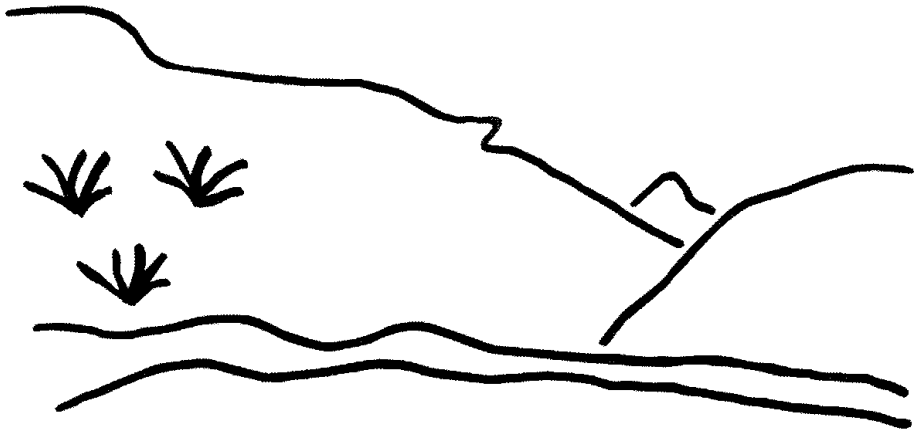
Sincerely,

/S/

Daron R. Haddock
Permit Supervisor

an
Enclosure
cc: Price Field Office
O:\007038.WIL\FINAL\COND_APP1875.DOC

State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Willow Creek Mine
Refuse Pile Redesign and PMLU
C/007/0038, Task ID #1875
Technical Analysis
April 13, 2004

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TECHNICAL ANALYSIS

The Division ensures compliance with the Surface Mining Control and Reclamation Act of 1977(SMCRA). When mines submit a Permit Application Package or an amendment to their Mining and Reclamation Plan, the Division reviews the proposal for conformance to the R645-Coal Mining Rules. This Technical Analysis is such a review. Regardless of these analyses, the permittee must comply with the minimum regulatory requirements as established by SMCRA.

Readers of this document must be aware that the regulatory requirements are included by reference. A complete and current copy of these regulations and a copy of the Technical Analysis and Findings Review Guide can be found at http://ogm.utah.gov/coal

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.

INTRODUCTION

Plateau Mining Corporation submitted an application on December 22, 2003 to amend the Mining and Reclamation Plan (MRP) for the Willow Creek Mine. The Division found the application deficient and asked for more information on February 18, 2004. The Permittee responded with additional information on March 22, 2004.

The Permittee would like to change the postmining land use of a 46.2 acre portion of the permitted area to industrial so that the Price River Water Improvement District (PRWID) may expand their facilities to meet the growing needs of the area's population. The changes to the hydrologic reclamation would be minor and would mostly involve leaving hydraulic structures in place to support the industrial use.

The Permittee would also like to change the reclamation of the large refuse pile in Schoolhouse Canyon so that it has a more natural shape. This will also change the flow path of any storm water from the approved reclamation plan to a more natural path. However, the new drainage path will involve a large reclamation channel built on top of the refuse. The design of this and associated channels is very important and the Division will scrutinize it in detail to ensure the designs are adequate.

INTRODUCTION

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The MRP indicates that Mollisol's from Barn Canyon currently stored at the Willow Creek topsoil storage site (Map 18B) will be returned to Barn Canyon as a final top dressing (v.1, sec 4.2, p. 4.2-10). However, page 4.2-10 indicates that the Barn Canyon shaft site was never developed.

Findings:

Information provided in the application meets the minimum Permit Application Format and Contents requirements of the Regulations.

PERMIT AREA

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

Analysis:

Table 4.5-1 provides a summary of the mining related disturbance by location. The total bonded area is 176.35 acres. The total area to have an industrial post mining land use is 82.5 acres. Table 4.5-1 lists 92.96 acres within the disturbed area boundary at the Preparation Plant and Loadout area, however only 77.9 acres were actually disturbed (sec 3.4-6(2)). Section 3.4-6(1) indicates that 46.2 acres will have the post mining land use changed, (see also Table 4.5-1, Map 3.4-12, and Appendix 3.4L). Table 4.5-1 reports that within the preparation plant area, 46.76 acres will be **reclaimed** to support the wildlife post mining land use. However, the plan indicates there will be 49.1 acres **remaining** to support the wildlife post mining land use (p3.4-18). The difference between the two figures is accounted for by Barn Canyon which was never disturbed and is currently wildlife habitat (e-mail communication from J. Pappas April 12, 2004).

Findings:

Information provided in the application meets the minimum Permit Area requirements of the Regulations.

GENERAL CONTENTS

ENVIRONMENTAL RESOURCE INFORMATION

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

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

The soils of the Willow Creek Preparation Plant are discussed in Volume 1, Section 3.1 and Volume 13, Chapter 8.

Soils and refuse analytical information for the Willow Creek preparation plant is found in the MRP volumes 4 and 5, Exhibit 5 – Soils Information; and Volume 13, Appendix 8-2; and Volume 6, Exhibit 9. Soil sampling locations are found on Map 4 Willow Creek Mine Facilities Area Soils Map (found in v. 2) and on the Castle Gate Area Preparation Plant Facilities Soil Survey Map, Exhibit 8-4 (found in v. 13).

The disturbed soils of the preparation plant were sampled in 1979 by Horrocks & Carroll for Price River Coal Company (five backhoe pits) and again in 1990 (six samples). The 1990 samples were composited over a depth of 0 – 4 feet and analyzed by Intermountain Laboratories (Farmington) (found in v4, Ex 5, Soil Sample Analyses Data. These 1990 analytical results indicate that the waste in the vicinity of the mine water treatment pond are high in boron (4 ppm reported for the sample combined from two locations (sites 3 & 4) and composited over the 0 - 4' depth. In addition, the Sodium Adsorption Ratio is between 4 and 6 mmhos/cm for the composited samples taken at locations 5 and 6. The MRP indicates that the soils of the preparation plant will be resampled at 500 ft intervals before final grading to assure suitability as defined by the 1988 UDOGM Topsoil/Overburden Guidelines (v. 1 sec. 4.2.2.2). This commitment was not repeated in the current proposal. (See deficiency written under R645-301-731).

Ten undisturbed soil locations were sampled on the slopes of the Schoolhouse Canyon refuse site in 1996. Analytical results from this sampling are summarized in Table 3.1-1A of volume 1. The ACZ laboratory analytical reports are found in v. 5, under Schoolhouse Canyon Refuse Pile and Castle Gate Conveyor 1996 Soils Analyses. Three facts stand out from reviewing these analyses:

1. At location SHRP –9, the undisturbed soil was acid forming in the C2 horizon (7 – 17 inches).
2. All the undisturbed soils had very high saturation percentages, which was at odds with the texture determined by the hydrometer method in half of the reports.
3. The background level of boron in the undisturbed subsoil (all C horizons) averages 1.2 ppm.

Three undisturbed soil samples were taken from the slopes of the clean storage coal stockpile (v.13, Chap 8., Appendix 8-3). These samples labeled CPTP-1 through 3 indicate that the native soils have an SAR of approximately 0.83 units and a pH of 7.7, on the average. The soils collected from these slopes have a neutralization potential of about 100 tons/KT of soil and an innate boron content averaging 1.27 ppm.

The undisturbed soils of the Willow Creek Office/Bathhouse site are represented by samples taken in 1995 (designated 95WCTO 11, 12, 13) and samples taken in 1996 designated U WC96 1, 3, 6, 11, 12. Disturbed soils removed during project development are respresented by samples taken in 1988 and 1989 and by all the remaining samples designated WC 96 and WC 95 taken in 1995 and 1996. All samples of the Willow Creek Office/Bathhouse site were analyzed by ACZ Laboratories (Steamboat Springs, CO). These samples indicate that the soil is near neutral in pH with low SAR values. The samples all have between 10 – 16% clay. To the extent that these samples represent the content of the Willow Creek substitute topsoil pile, the material is suitable for use as substitute topsoil over the Schoolhouse Refuse site and /or the Castle Gate Preparation Plant site as well as the intended use of reclamation of the Office/Bathhouse site.

The Soils of Barn Canyon were surveyed and sampled in 1998 by Jim Nyenhuis (four backhoe pits). The Barn Canyon survey and sampling locations are provided in v. 5, Exhibit 5, Figure 3.1-1. As indicated on page 4.2-10 and Table 4.2-1, the Barn Canyon shaft was never developed and soils were not disturbed.

Soils information for the Gravel Canyon storage area is described in MRP v.13, sec 8.4-2(4) and v. 11, sec 3.6. Exhibit 3.6-2 and 3.6-3 (v. 11) illustrate the operations and reclamation contours for the site. The five acre Gravel Canyon site was previously disturbed for road construction materials. Native soils were lost. Its use as a topsoil storage area began in 1983. The reclamation plan described in the MRP for the Gravel Canyon Mine site entails removing 97,000 cu yds of stored topsoil from Gravel Canyon (v. 11, sec 3.6, Table 3.6-6 and Figure 3.6-5). However, current plans are to leave material stored in Gravel Canyon for reclamation of the canyon (Sec 3.4-6(2) p 3.4-23). To date 36,9984 CY of topsoil have been removed from Gravel Canyon and placed in Schoolhouse Canyon (Email communication from J. Pappas, April 12, 2004). The Permittee will be updating the Gravel Canyon reclamation plan (Section 3.6) in the near future (personal communication with J. Pappas, April 12, 2004).

ENVIRONMENTAL RESOURCES INFORMATION

Findings:

Information provided in the application meets the minimum Soils Resource Information requirements of the Regulations.

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:

The Permittee gave the Division a revised reclamation plan based on the assumption that the Division will grant an alternative postmining land use for the Willow Creek Mine and the Permittee will be able to implement it. The postmining land use change involved the Price River Water Improvement District purchasing some of the disturbed area to build water treatment facilities.

To avoid confusion the Division decided to allow the Permittee to modify the reclamation plan based on the alternative postmining land use. If the alternative postmining land use is not implemented the Permittee must reclaim the area according to the current reclamation plan. The Division will keep a copy of the worst-case scenario on file

The Permittee made the following adjustments to the upland seed mix (Table 5.3-2): (personal communications December 1st, 8th 2003 and January 8th 2004):

- Added two shrub species: Mountain Big Sage and Utah Serviceberry
- Removed two non-native species: Intermediate Wheatgrass and Yellow Sweetclover
- Replaced one forb species: Blueleaf Aster with Showy Goldeneye
- Changed the pounds per acre for a few of the species.
-

The Permittee provided an additional table showing the changed seed mix (Table 5.3-2b). The Permittee mentioned that the change in seed mix related to availability. Although availability may have been the driving force, the Division's phone log (December 1, 2003) indicates that the Permittee requested the change because of the desire to remove introduced species and to add more shrubs to the mix. Because the change was driven by more than just availability, the Division requested a new table in the MRP rather than just submitting the change in an "as-built".

The Division recommends retaining Table 5.3-2 in case the Permittee used the out-dated mix for previous projects.

Findings:

Information provided in the application meets the minimum General Reclamation Plan requirements of the Regulations..

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

All information relative to the Castle Gate area is contained in Exhibit 19, Volumes 10 through 14. Chapter 3, Section 3.4, subsection .2, (See 3.4.2, page 3.4-3, Volume 1). As described in Section **3.4.1.3, General Land Use Patterns of Permit Area and Adjacent Areas** (page 3.4-2), "the general uses of the surface lands within the Willow Creek Mine permit area include mining, scattered oil and gas production, low-intensity grazing, wildlife habitat, limited timber production at the higher elevations, and dispersed recreational uses including hunting, fishing, hiking and similar activities. With the exception of the Carbon Station, historic and current mining activities, and limited grazing, there are no significant residential, commercial, or agricultural land uses in the permit area and adjacent areas." It should be noted here that the transfer of land ownership in upper Crandall Canyon to "C" Canyon, LC, and the potential for cabin site development will expand the recreational use capability in that area.

Land uses in the Castle Gate portion of the permit area "are presently and have historically been constrained by location, topography, climate, and availability of important resource values," (See page 3.4-2, Section **3.4.1.3**). "Rugged terrain, limited soil resources, low precipitation and seasonably harsh weather conditions, limited water resources, and existence of significant high quality coal reserves are the primary factors which determine land use capabilities in this area." Thus, the potential for expanding the productivity of the lands within the area is limited by factors that are generally uncontrollable. Geologic conditions in the area have impacted the recovery of the coal reserves for decades.

PRWID's proposal to purchase up to 130 acres of land currently owned by Cyprus Plateau Corporation in the Price Canyon area is for the purpose of expanding their water treatment capability. This land use would provide an important ingredient for future economic expansion of the Carbon County area. Thus, the approval of an industrial classification for the

Castle Gate area would provide an enhanced usage of that land, benefiting the entire local population.

The proposal to change the final surface configuration of the School House Canyon refuse facility by changing the reclamation plan for that area will not change the already approved pre-mining/post-mining land use of wildlife habitat, (See page 3.4-18, TASK ID#1788). An examination of *EXHIBITS 3.4-9 and 3.4-10* reveals that although a drainage will be established through the center of the refuse facility, the slopes of the final surface configuration will be established at gradients varying from 2.68H/1V to as high as 9H/1V, (See cross sections A-A', B-B', C-C', *EXHIBIT 3.4-10*). The refuse pile will be re-soiled and re-vegetated, providing grazing on moderate slopes. These slopes are much more gentle than the gradients upon which grazing and wildlife habitat had occurred prior to the construction of waste rock disposal facility.

MAP 9, WILLOW CREEK MINE, *REGIONAL LAND USE MAP,* depicts the uses of the surface acreages involved for the preparation plant area and the School House Canyon waste rock disposal facility. Both areas exist within the green crosshatched area designated as *MG-1 LANDS (MINING AND GRAZING)* depicted within the legend. The approval and addition of an industrial classification to the Castle Gate area will have no effect on the grazing classification relative to ingress/egress for wildlife in the School House Canyon area. Although the amount of grazing acreage for wildlife may be reduced in the wash plant area due to the construction of sludge or water treatment facilities, an adequate amount of acreage will remain in other areas of this Canyon for low intensity grazing, wildlife habitat.

The structures to remain after reclamation to support the industrial post mining land use are labeled on Exhibit 3.4-12 and includethe substation, warehouse/bathhouse/shop, pumphouse, and water treatment plant at the mouth of Barn Canyon.

A professional engineer, registered in the State of Utah, has certified MAP 9.

Findings:

Information provided in the application meets the minimum Postmining Land Uses requirements of the Regulations.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -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 approximate original contour requirements are couched in the general backfilling and grading requirements. To help clarify what is needed to achieve AOC the Division wrote Technical Direction 002, Approximate Original Contour Requirements.

The general goal of AOC is to ensure that mined lands closely resemble the pre-mining topography. That does not mean that the pre-mining and postmining contour must be identical rather, the postmining area must blend into the surrounding topography. The three key elements of the AOC plan are:

- All highwalls are eliminated, with the exception of pre-SMCRA highwalls
- All spoil piles are reclaimed.
- The drainage system is compatible with the surrounding area.

The specific AOC requirements have been achieved for both the approved reclamation plan and the alternative postmining land use plan. The reasons for achieving the general AOC are:

- No highwall exist in the area associated with the alternative postmining land use including the refuse pile.
- No spoil piles exist in the area.
- The hydrology requirements will be meet under an approved reclamation plan.

The general requirement that the site blend into the surrounding area is complicated because most of the site was disturbed pre-SMCRA. Large cut slopes were created during pre-SMCRA activities. The cut slopes were made into hills that do not have safety factors of 1.3 or higher. To eliminate the cut slopes, much of the area would have to backfilled to a gentler slope than the surrounding area. To accomplish those requirements large amounts of fill would have to be imported and there are limitations on where the fill can be placed because of the Price River.

The cut slopes left in the industrial area are associated with roads. The cut slopes are similar to those in the surrounding areas where roads have been constructed. The roads are needed as part of the industrial land use.

Another AOC requirement is that the area be compatible with the postmining land use. The postmining land use does not have to be the same as the pre-mining land use. For the case of a postmining land use as industrial, the Permittee must show that the land would have a higher and better use. In order to approve the postmining land use the Division must make a finding that the land would have a high and better use. That finding will be made in other sections of the TA.

Findings:

Information provided in the application meets the minimum Approximate Original Contour Restoration requirements of the Regulations.

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:

General

The general requirements for backfilling and grading are:

- Achieve the approximate original contour.
- Eliminate all highwalls, spoil piles, and depressions.
- Achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long-term static safety factor of 1.3.
- Minimize erosion and water pollution both on and off the site.
- Support the approved postmining land use.

The Division made the AOC findings in that section of the TA. There are no highwalls, or spoil piles in the area. The major depressions at the site are sediment ponds that the Permittee will reclaim as part of general earthwork. The ponds will be needed for sediment control until alternative sediment control methods can be established. The alternative sediment control methods include:

- Filtering, silt fences that reduce velocities and trap sediment.
- Surface roughening to trap water and help establish plant growth.
- Surface protection that includes: mulch, nets and vegetation.

The reclaimed slopes will be stable. In Appendix 3.4H of Section 4.0, contains information on slope stability. The slope stability analysis shows that if the slopes in soil are kept at 2H to 1V then they will be stable. None of the slopes shown in the cross-sections exceeds a 2H to 1V slope. Cut slopes in rock have been shown to be stable.

Before bond release, the Division will require that as-built maps and cross-sections be provided along with other engineering data. The Permittee will be required to show that the as-built slopes are stable.

Under the proposed alternative postmining land use plan the refuse pile will be shaped different from the approved design. Under the approved design less than four feet of non-refuse material needs to be placed on the refuse because the upper part is nontoxic and nonacid forming. If acid or toxic materials are uncovered, then the Permittee must bury them under clean refuse or place four feet of cover over that area. This issue will be addressed in the soils section of the TA.

Findings:

Information provided in the application meets the minimum Backfilling and Grading requirements of the Regulations.

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:

There are no mine openings associated with the alternative postmining land use or refuse pile.

Findings:

Information provided in the application meets the minimum Mine Openings requirements of the Regulations.

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

The Willow Creek topsoil stockpile is described in Section 4.2 of Volume 1. The stockpile holds 120,470 CY (Table 4.2-1) of which 43,536 CY (Table 5.4-2) are required for the industrial post-mining alternative reclamation plan (approved and incorporated in January 2004). This leaves a possibility for use of 76,934 CY to cover the School House Canyon refuse site. The characteristics of the materials in the Willow Creek stockpile are described in Section 3.1.2.4.

The Gravel Canyon storage site holds 107,639 CY (Table 4.2-1). Using load counts, the Permittee estimates that 36,984 CY of topsoil has been transported to Schoolhouse Canyon to date (Email communication from J. Pappas, April 12, 2004). By difference, 70,655 CY of topsoil remains in Gravel Canyon for reclamation of that site.

The Permittee is keeping load counts of the material moved from the Willow Creek stockpile. After reclamation is complete, Table 3.4-5 will be revised to indicate the amount of topsoil transported from Gravel Canyon and Willow Creek Canyon to the Schoolhouse Canyon refuse site (J. Pappas personal communication, April 12, 2004).

The reclamation plan for the preparation plant site entails removing 80,654 CY of stockpiled topsoil from Gravel Canyon and Willow Creek stockpiles and 16,146 CY of excess cut from Pond 013 embankment to cover the refuse with three feet. Using soil from the Willow Creek stockpile allows for some topsoil to be left in Gravel Canyon to contribute towards reclamation of that site (Table 3.4-5 and Sec 3.4-6(2) p 3.4-23.

The MRP describes twenty inches of cover over the clean coal storage area and Pond 011 Expansion area (v. 1, sec 5.2, p 5.2-2). Further information on reclamation of the preparation plant, loadout, clean coal storage area and schoolhouse Cyn refuse pile is found in v. 10, Ex 19, sec 3.4-6.

Currently the MRP describes the use of the graded surface within the preparation plant area as substitute topsoil (v1, sec 5.2, p5.2-2). This plan remains unchanged with this submittal, except for the clean coal storage area and Pond 011 expansion area discussed above. Reclamation plans for the 46.2 acre industrial site entails grading 29,920 CY mostly in the vicinity of the mine water treatment pond and School house canyon access road (Table 3.4-5 and sec 3.4-6(2)). Pits were dug during February 2004 at several locations in the preparation plant and samples were taken to ascertain the characteristics of the existing soils (Appendix 3.4M has the sample locations and results).

Plans for the clean coal stockpile are to use 10,639 CY of topsoil (stored in the Willow Creek stockpile) to reclaim the cut slope. Thus the clean coal stockpile cut slope (2.5h:1v and 3.91 acres) will receive twenty inches of replacement topsoil.

The MRP currently describes twenty seven inches of cover over the refuse in Schoolhouse Canyon (V. 13, Chap 8, p8-17 and v. 1, sec 5.2, p 5.2-2 and v. 1, sec 4.2, page 4.2-4). This depth will increase to a minimum of thirty six inches under the proposed plan (section 3.4-6(2), using 96,800 cu yds from two sources: 80,654 cu yds from either the gravel canyon or willow creek stockpiles and 16,146 cu yds from the Pond 13 embankment. In actuality, there are deep pockets of topsoil along the main drainage channel and against the north facing slope.

During a field visit on January 29, 2003, the pond 013 embankment was observed to be vegetated with fragments of red rock scattered on the surface. The embankment was assumed to have come directly from the location of the pond excavation.

No fertilizer will be applied.

The MRP indicates that the graded surface will be deep ripped prior to topsoil coverage (v. 1, sec 5.2, p 5.2-2). However, the proposal has removed this commitment from Section 3.4-6 in Exhibit 19, in favor of gouging (sec 3.4-6(1)). The MRP currently states that the slopes less than 20% slopes will be deep ripped to a depth of 18- 24 inches prior to topsoil application (v 10, sec 3.4, p 3.4-23.) This commitment has been replaced with the commitment to mechanically gouge the refuse pile slopes to a depth of 18-24 inches (sec. 3.4-6(1)). The extent of the gouging is shown on Ex 3.4-12. The gouging process will extend into the area of industrial post mining land use

Findings:

Information provided in the application meets the minimum Topsoil and Subsoil requirements of the Regulations.

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:

All roads within the area proposed for the alternative postmining land use will be retained either because they are needed for access, or to facilitate the alternative postmining land use. All roads not to be retained will be reclaimed according to the approved plan.

Retention

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The Permittee states on Page 3.4-18 the following:

- Primary roads P-1 and P-2 are not only used by the Permittee but also by Utah Power and Light, Helper City, Price City and PRWID.
- Primary roads P-1 and P-2 can be used as secondary escape routes.
- Primary road P-2 and P-5 are used by Utah Power and Light to inspect and repair their power lines in Barn Canyon
- Primary roads P-1, P-2, P-4 and P-5 are needed for the postmining industrial land use.

In order for a road to be retained after reclamation, it must meet the following requirements:

- The road must be classified as primary.
- The road must be designed and maintained in accordance with the regulations.
- The road must be needed for an approved postmining land use.

All the roads proposed for retention are classified as primary roads. Those roads were built according to the plans in the MRP, or existed before the area was permitted but meet regulatory requirements. The roads are needed to support the alternative postmining land use.

Findings:

Information provided in the application meets the minimum Road Systems and Other Transportation Facilities requirements of the Regulations.

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:

General

Once the Division approves the postmining land use of industrial and the Permittee implements it, the Permittee will reclaim all existing hydraulic structures not associated with that land use. If the Permittee is unable to implement the land use, the Permittee must reclaim all operational structures not necessary for the stability of the final reclamation. The structures that

the Permittee will retain to support the industrial postmining land use are CGD-3, CGD-4, CGD-14, CGC-1, CGC-2, CGC-3, CGC-5, and CGC-11 (See Map "Exhibit 3.4-9")

Acid- and Toxic-Forming Materials and Underground Development Waste

The new reclamation design for School House Canyon (sec 3.4-6(2)) requires moving 172,318 tons of refuse and 20,508 tons of Pond 013 fill material to create a drainage channel down the center of the canyon to the culvert leading to the Price River (Table 3.4-5). Cuts will be from 20 to 40 feet deep in the existing surface of the refuse, exposing buried coal mine waste (Ex. 3.4-10 and 3.4-10a).

A report of sampling of the refuse in 1982 by Native Plants Inc (v. 4, Ex 5, Soil Sample Analysis Data) indicates boron levels were at 58 ppm in the "new" Schoolhouse refuse. (This same report indicates that "Gob" sampled at Castlegate had an SAR of 13.4.)

The refuse was sampled at seven locations in 1990. Soil sampling locations are found on Map 4 Willow Creek Mine Facilities Area Soils Map (found in v. 2) and on the Castle Gate Area Preparation Plant Facilities Soil Survey Map, Exhibit 8-4 (found in v. 13). These samples were analyzed in 1990 by Intermountain Laboratories in Farmington, New Mexico (v.4, Ex 5, Soil Sample Analysis Data). The notable characteristic of the waste is elevated SAR values below the two feet of soil cover (6.5 – 10 units) and correspondingly high exchangeable sodium percentages (39 - 65%) at four out of seven sampling locations (sample locations 2, 4, 5, & 6).

Other analyses that may be pertinent to the quality of the refuse are those found in v. 4 and v. 5, Exhibit 5:

- 1994 Soil Sample Site (v. 4 sample ID 94-12-1R and 2R);
- Willow Creek Mine 1995 Soils Analyses (v. 5 sample ID 95WCWT01 and 02);
- Willow Creek Mine 1996 Soils Analyses (v. 5 sample ID sites WC96-1, WC96-2, WC96-4, WC96-5, WC96-7 & WC96-10 were in coal mine waste);
- Willow Creek Mine 1994 "D" seam Roof and Floor Samples (v.4);
- and miscellaneous samples of refuse (v. 4).

In particular samples 94-12-1R and 9412-2R taken in 1994; and 95WCWT01 and 95WCWT02 taken in 1995 in the same location provide information on coal waste removed from the Willow Creek facilities pad and placed in Schoolhouse Canyon. These samples are located on Map 4. No depth interval was reported with these samples and the Division assumes that they were a composite taken from the top few feet. Samples taken in 1994 revealed elevated levels of boron (4.5 and 7.2 ppm) and prompted the 1995 sampling. The 1995 samples do not indicate high boron, however no depth interval was reported with these samples and they may also represent mostly the surface (cover) soil material placed over the waste. A minimum depth

of eighteen inches of cover was specified by the Abandoned Mine Lands (AML) Price River Coal Pile contract (AML/007/907 Phase III, p101).

Samples taken in 1996 of the buried waste were composited by depth interval (the WC96 series). As discussed above, the intervals from 0 – 48 inches would have included the soil cover over the waste that was specified by the AML contracts. The sampling showed boron concentrations of the waste at toxic levels for plant growth (10 – 95 ppm boron below 50 inches) at the four waste sampling locations (sites WC96-2, WC96-4, WC96-5, & WC96-10). These samples represent approximately 460,000 cu yds of waste buried in the Willow Creek Disposal Site (AML/007/907 Phase III, pp 93,98,104). The 1996 Annual Reports provided cross-sections that shows the elevation of this AML waste within the Schoolhouse Canyon refuse pile (personal communication with Mr. Pappas on February 10, 2004). The cross-sections show the elevation of the AML waste is between 6390 and 6448 ft across the width and length of the refuse pile. Accordingly, samples of the waste encountered at Stations 14+00 (sampling elevation 6381 ft) and 15+00 (sampling elevation 6402 ft) were taken on February 10, 2004 for analysis of pH, EC, SAR, hot water soluble boron, and texture. Sampling locations and sample analysis results should be included in the application.

The quality of the waste brought to the Schoolhouse Canyon during the operation of the Willow Creek Mine is represented by the Willow Creek Mine 1994 "D" seam Roof and Floor Samples (personal communication with Johnny Pappas, January 29, 2003). The information found in v. 4, Ex 5 is as follows:

- Roof and floor samples with the identification 94-33-1D, (two samples each of roof and of floor) were within the limits of suitability for boron, SAR, and Acid Base Potential.
- Roof and floor of location 94-12-1D was also sampled twice. Although SAR was elevated (10.3 – 14.5 units), samples were otherwise within the limits of suitability for boron, SAR, and Acid Base Potential.

Thus, information in the MRP concerning Schoolhouse Canyon indicated that it may contain high levels of boron and may be saline-sodic. Boron is an essential micronutrient for plant growth, but is required in small concentrations. Boron toxicity to agricultural plants occurs when soils contain more than 5 ppm of hot-water-soluble boron. In boron rich areas, many native plant varieties are adapted to boron levels in excess of 5 ppm. Generally boron tolerance follows sodium tolerance. As noted in the discussion above, the sampling of the AML waste showed boron concentrations at levels between 10 and 95 ppm boron. These levels of boron are likely toxic even to the native plants.

The Schoolhouse refuse contains high levels of exchangeable sodium that will form ionic bonds with the boron to create soluble sodium-borate salts. These boron salts are quite mobile in soils. Low rainfall allows soluble borate salts to accumulate in the surface layer. Boron uptake by plants depends upon the activity of the B in soil solution. The Schoolhouse refuse has little

organic matter, clay polymers or carbonates to adsorb the boron and keep it from being plant available.

Although boron can be leached from the soil with water, this process would take about three times as much water as to leach sodium from the soil and would contribute to degradation of the receiving waters. Therefore, the best approach to dealing with elevated boron concentrations is either avoidance of the material or where necessary, selective burial of high boron waste.

Mr. Pappas has indicated that the regraded waste pile will intercept the storage location of the potentially high boron waste along the length of the regraded drainage from Station 22+00 down through Station 14+00. Below Station 14+00. Cross sections for station locations 26+00 through 14+00 showing the final elevation of the graded site have been provided in conjunction with the 1996 cross-sections from the Annual Report, to establish the location of the waste within the pile (see Schoolhouse Canyon Refuse Pile Upper Terrace Topography and Sections Plate 1 dated December 2000 and March 1, 1996.

The Permittee in communication with the Division (teleconference on February 6, 2004 and on site meeting February 10, 2004) developed a means of monitoring the characteristics of the regraded refuse prior to placement of the cover soil. As noted above, on February 10, 2004 samples were drawn from Station 14+00 below the established location of the high boron waste and from Station 15+00 within the established location of the high boron waste. This preliminary information indicated hot water soluble boron levels between 6 and 10 ppm.

This preliminary information was followed by composite sampling of the final graded surface of the refuse pile on February 24, 2004, for the parameters of concern: pH, EC, SAR, boron and texture at station locations 21+00, 19+00, 17+00, 15+00, and 13+00 prior to placement of channel bedding, rip rap and cover soil. Information collected from this sampling is in Appendix 3M. Sodium Adsorption Ratios (SAR) values fell between 1.3 and 23.0 units with the highest values found at Station 13+00 and Station 21+00. Hot water soluble boron levels were between0.8 and 18.4 ppm, with the highest value at Sta 19+00. [A comparison between the hot water soluble boron levels and the saturated paste levels were attempted. However, this information needs to be repeated since the saturated paste is reported on a liquid basis (ug/ml of extract) and the hot water soluble is reported in ug/g of soil (personal communication with Bruce Webb, BYU Soil and Plant Laboratory, March 24, 2004)].

These extremes of salinity and boron concentrations at Sta 21+00 , Sta 19+00, and Sta 13+ 00 should be alleviated by the minimum three feet of cover over all slopes and by the additional one foot of bedding, two foot of riprap and one foot of soil cover over the channel itself. In addition, the channel sides are being steepened to 2:1 slopes using topsoil. So that at the side of the channel there are deep pockets of topsoil (see Technical Report #228 dated March 25, 2004).

In addition, the preparation plant soils in the vicinity of the mine water treatment pond, and the pad area just north of Schoolhouse Canyon were excavated by trenching for evaluation and sampling prior to grading (Pits 1, 2, 3, and 6). These soils were analyzed for parameters of concern: pH, EC, SAR, boron and texture, so that suspect areas of high boron waste or elevated salts could be specially handled during grading (Appendix 3M). There appears to be no toxic material at any pit location with pH values falling between 7 and 8 units; Electrical conductivity values between 1.5 and 2.4 dS/m; and SAR values between 1.0 and 5.2 units.

The proposal indicates in section 3.4-6 (2) that acid toxic material will be placed under at least four feet of non-acid/toxic forming material. Mr. Pappas indicated that approximately 6,000 cu yds of storage is available within pond 013 for burial of high boron waste (personal communication on February 10, 2004).

Transfer of Wells

The Permittee does not plan to transfer any wells to another party for further use. The Permittee will remove the piezometers in the downstream embankment of Pond 013 during the Schoolhouse Canyon reclamation. The Permittee has already sealed the slurry injection wells discussed in Section 3.10 of the MRP and reclaimed the immediate surrounding area.

Diversions: General

All diversions are designed based on an "SCS type b storm". The reference cited in the original application does not refer to a "type b storm" in those terms nor could the Division find a reference to it as a "type b storm" in any standard references. Most current standard references refer to a type II storm to be used in Utah and it is the only type of storm accepted and used by OSM, the NRCS, and other State agencies that administer SMCRA. The Permittee has now included a complete reference for the "type b storm", which is actually *figure b* on page 21.81 of the former Soil Conservation Service's National Engineering Handbook (this section most recently updated in 1972).

The Division accepts the storm shown in *figure b* (for 6-hour storms only) only because it more closely reflects the type of storms found to be typical to Utah. The type II storm assumes that the precipitation is almost equally distributed over the storm's duration, with about 50% occurring before the mid-point and 50% after. The distribution in *figure b* assumes that more of the precipitation comes at the beginning of the storm (50% occurs when the storm is $^{4}/_{10}$ complete). Since studies such as those done by Richardson (Richardson, E.A. 1971. *Estimated Return Periods for Short Duration Precipitation in Utah.* Utah State Univ., Department of Soils and Biometeorology Bulletin #1.), and Farmer and Fletcher (Farmer, E.E. and J.E. Fletcher. 1971. *Precipitation Characteristics of Summer Storms at High Elevation Stations in Utah.*

USDA Forest Service Research Paper INT-110) have shown that storms in the coal mining areas of Utah generate most of the precipitation in the first ¼ of the duration; the *figure b* distribution is acceptable.

All diversion channels are designed with 2:1 side slopes, except the operational channels CGD-3 and CGD-4, which were constructed with 1:1 side slopes.

In all riprapped channels the filter blanket thickness will be ½ of the riprap thickness, or 6", whichever is greater. In all cases the riprap thickness will be twice the D_{50} riprap size. When transitioning downstream from a steep channel slope to a flat channel slope the Permittee will extend the larger riprap size from the steep slope into the flatter slope section for at least 15 feet to minimize erosion.

The Permittee has clarified the statements referring to riprap design on page 3.4-28 (previously p. 3.4-29) omitting the reference to Simons, et al (1982) and stating that they will use the Searcy (1967) method for designing all riprap sizes . Also, a nomograph for the maximum velocity for a riprap channel referred to on page 15 of the diversion design calculations that was missing is now included.

Each channel will have a minimum freeboard of 0.5 feet.

The Permittee did not present a detailed riprap and filter design, though they have committed to do so before implementation.

Diversions: Refuse Pile Flows

The Permittee designed all diversions associated with the refuse pile to safely pass the peak runoff from a 100 year 6 hour storm as required by R645-301-745.222. The design storm event is 2.10 inches.

As mentioned above, the Permittee used an "SCS type b storm" (*figure b distribution)* hydrograph to design the diversions.

Each structure and its design is discussed below:

CGRD-1

CGRD-1 is the main channel that runs the length of the canyon on top of and in the middle of the refuse pile. It will need to contain all runoff from CGRWS-1 and as appropriate from side channels CGRD-2, CGRD-3, CGRD-4, and CGRD-5. It is very important that this channel function properly or the stability of the entire refuse pile could be compromised.

The Permittee was very conservative in the design of this channel and it should function properly, even for a type II storm peak discharge calculations. The channel will be 8 feet wide at the bottom (top of riprap) with 2:1 side slopes, and a depth of 1.5 feet (See Figure 3, and Table 3.4-7). The D_{50} riprap size is 12 inches.

The *figure b* peak discharge for this structure is 36.92 cfs. The type II storm peak discharge is 76.72 cfs. The structure, as designed, can handle a peak discharge of over 100 cfs.

CGRD-2

CGRD-2 is the uppermost side channel flowing into CGRD-1. It will collect the runoff from CGRWS-2 and divert it into CGRD-1.

The channel will be 3 feet wide at the bottom (top of riprap) with 2:1 side slopes, and a depth of 1 foot (See Figure 4, and Table 3.4-7). The D_{50} riprap size is 6 inches.

The *figure b* peak discharge for this structure is 4.36 cfs.

CGRD-3

CGRD-3 will collects the runoff from CGRWS-3 and divert it into CGRD-1.

The riprapped portion of the channel will be 3 feet wide at the bottom (top of riprap) with 2:1 side slopes, and a depth of 1 foot (See Table 3.4-7). The D_{50} riprap size is 6 inches.

The unlined portion of the channel will be 3 feet wide at the bottom with 2:1 side slopes, and a depth of 1 foot (See Table 3.4-7).

The *figure b* peak discharge for this structure is 1.80 cfs.

CGRD-4

CGRD-4 will collects the runoff from CGRWS-4 and divert it into CGRD-1.

The riprapped portion of the channel will be 3 feet wide at the bottom (top of riprap) with 2:1 side slopes, and a depth of 1 foot (See Figure 4, and Table 3.4-7). The D_{50} riprap size is 6 inches.

The unlined portion of the channel will be 3 feet wide at the bottom with 2:1 side slopes, and a depth of 1 foot (See Figure 5, and Table 3.4-7).

The *figure b* peak discharge for this structure is 1.82 cfs.

CGRD-5

CGRD-5 is the lowermost side channel flowing into CGRD-1. It will collect the runoff from CGRWS-5 and divert it into CGRD-1.

The riprapped portion of the channel will be 3 feet wide at the bottom (top of riprap) with 2:1 side slopes, and a depth of 1 foot (See Figure 4, and Table 3.4-7). The D_{50} riprap size is 6 inches.

The unlined portion of the channel will be 3 feet wide at the bottom with 2:1 side slopes, and a depth of 1 foot (See Figure 5, and Table 3.4-7).

The *figure b* peak discharge for this structure is 3.08 cfs.

Culvert CGC-5

The operational culvert CGC-5 will remain in place and receive the flow from CGRD-1. It is a 60" concrete culvert. Table 3.4-3 of the MRP states that this culvert has a capacity of 185 cfs, which is adequate for the design event.

Diversions: Miscellaneous Flows

The Permittee has designed several other diversion channels to carry the flow from smaller watersheds to different discharge points. The Permittee has designed each diversion to contain the peak discharge from a 10-year 6-hour storm as per R645-301-742.333. The storm event is 1.40 inches.

Each structure and its design is discussed below:

CGRD-6

CGRD-6 will carry the runoff from CGRWS-6 to the operational culvert CGC-1.

The channel will be 3 feet wide at the bottom with 2:1 side slopes, and a depth of 1 foot (See Figure 5, and Table 3.4-7). The channel will not have a riprap lining.

The *figure b* peak discharge for this structure is 0.12 cfs.

CGRD-7

CGRD-7 will carry the flow from CGD-14 to CGD-3.

The channel will be 3 feet wide at the bottom (top of riprap) with 2:1 side slopes, and a depth of 1 foot (See Figure 4, and Table 3.4-7). The D_{50} riprap size is 6 inches.

The *figure b* peak discharge for this structure is 3.6 cfs.

CGRD-8

CGRD-8 will carry the runoff from a small area above the inlet of CGC-2 to CGD-3.

The channel will be 3 feet wide at the bottom (top of riprap) with 2:1 side slopes, and a depth of 1 foot (See Figure 4, and Table 3.4-7). The D_{50} riprap size is 6 inches.

The *figure b* peak discharge for this structure is 2.5 cfs.

CGRD-9

CGRD-9 will carry the runoff from CGRWS-9 to CGC-5.

The channel will be triangular with 2:1 side slopes, and a depth of 1.25 feet (See Figure 2, and Table 3.4-7). The channel will be unlined.

The *figure b* peak discharge for this structure is 3.08 cfs.

CGRD-10

CGRD-10 will carry the runoff from CGRWS-8 to WCRD-17B.

The channel will be triangular with 1.5:1 side slopes, and a depth of 1.5 feet (See Table 3.4-7). The channel will be unlined.

The *figure b* peak discharge for this structure is 2.24 cfs.

CGRD-11

CGRD-11 will carry the runoff from CGRWS-10 to WCRD-17B.

The channel will be triangular with 3:1 side slopes, and a depth of 1.25 feet (See Figure 2, and Table 3.4-7). The channel will be unlined.

The *figure b* peak discharge for this structure is 0.96 cfs.

Culvert CGC-1

The operational culvert CGC-1 will remain in place and receive the flow from CGRD-6. It is an 18" corrugated metal pipe (CMP) culvert. Table 3.4-3 of the MRP states that this culvert has a capacity of 11 cfs, which is adequate for the design event.

Culvert CGC-2

The operational culvert CGC-2 will remain in place and receive the flow from CGD-3. It has two 84" CMP culverts. Table 3.4-3 of the MRP states that these culverts have a combined capacity of 900 cfs, which is adequate for the design event.

Sediment Control Measures

The Permittee will reclaim Ponds 011, 012A, 012B, and 013 during the shaping of the channel. Between the time the ponds are removed and the time vegetation begins to grow and control sediment the Permittee will implement alternative sediment control measures (ASCM's). They include:

- Placement of growth media,
- Incorporation of hay mulch into the growth media,
- Deep gouging of the growth media,
- Seeding the prepared growth media,
- Addition of more mulch following seeding, and
- Physically or chemically anchoring the final mulch layer.

Modified Universal Soil Loss Equation (MUSLE) calculations presented by the Permittee show that sediment loss immediately following reclamation will be just 0.12 tons/acre/yr compared to 20.78 tons/acre/year pre-mining.

The Permittee will use straw bales and/or silt fences when necessary between the removal of sedimentation ponds and the application of the ASCM's.

Siltation Structures: Sedimentation Ponds

Pond 013 will remain in place and operational during the construction of the upper channel (See Map 3.4-8 of the MRP, Exhibit 13 for the locations of the sedimentation ponds). The Permittee will not remove it until they need to build the channel through it and they have

treated most of the upstream reclamation with deep gouging and mulching for alternative sediment control.

The Permittee will retain Ponds 011, 012A, and 012B until the majority of the land reporting to them is treated with deep gouging and mulching, then the Permittee will backfill them to blend in with the contour of the reclamation.

Discharge Structures

The Permittee has presented riprap designs for each of the culverts discharging outside the permit area. The discharge at CGC-1 does not require riprap, since the flow velocity will be just 3.48 fps. The discharge at CGC-2 will require 20" riprap. The discharge at CGC-5 will require 40" riprap.

Findings:

Information provided in the application meets the minimum Hydrologic Information requirements of the Regulations.

STABILIZATION OF SURFACE AREAS

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

Analysis:

Two tons/acre of certified noxious-weed-free-hay will be gouged into the soil surface. Following seeding an additional 1 to 1.5 tons/acre of certified noxious-weed-free-straw will be applied to the surface and sprayed with a tackifier and mulch mixture at a rate of 0.25 tons/acre (v.1, sec 5.2, p.5.2-3). These commitments are restated in section 3.2-6(2) of the application.

Gullies greater than nine inches in depth will be filled as necessary to establish vegetation (v.10, sec 3.4-6(4).

Appendix 3.4K presents the RUSLE calculations for sediment yield. Appendix 3.4K indicates that pre-mining conditions would yield 20.78 tons/acre/yr and after vegetation establishment that yield is reduced to 18.82 tons/acre/yr.

Findings:

Information provided in the application meets the minimum Stabilization of Surface Areas requirements of the Regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

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

Analysis:

Affected Area Boundary Maps

The affected area for the Willow Creek Mine is the same as the permit area. The request for an alternative postmining land use does not change the permit boundaries. The maps do show what the new permit boundaries would be if the alternative postmining land use is approved, Phase III bond released is approved, and the area is removed from the permit area.

Bonded Area Map

The bonded area is the same as the disturbed area. The maps do show what the new bonded area will be when Phase III bond release is granted

Reclamation Backfilling And Grading Maps

Exhibit 3.4-9 shows the proposed topography for the reclamation of the Preparation Plant under the alternative postmining land use. The map is at a scale of 1" = 200' and was prepared by a P.E.

The cross-sections for the alternative postmining land use area are shown on Exhibit 3.4-10. The cross-sections are 400 feet apart.

Exhibit 3.4-12 provides station locations for the profile of the Schoolhouse Canyon drainage .

The Permittee has indicated in a letter dated March 19, 2004 to Daron Haddock that an as-built topography map will be created from aerial photography of Crandall Canyon, Preparation Plant and Refuse Pile, Gravel Canyon, Adit #1, and the Willow Creek Mine site.

Reclamation Monitoring And Sampling Location Maps

Soil sampling locations and elevations have been indicated on Exhibit 3.4-12 to document the sampling effort.

Reclamation Facilities Maps

On Exhibit 3.4-12, the Permittee shows the location of the structures that will remain as part of the alternative postmining land use. Those structures are: 1) bathhouse, 2) substation and 3) various pump houses.

Final Surface Configuration Maps

The final surface configuration for the alternative postmining land use area is shown on Exhibit 3.4-9. A P.E. certified the final surface configuration maps.

Reclamation Surface And Subsurface Manmade Features Maps

Exhibit 3.4-9 shows the location of the surface and subsurface manmade features

Reclamation Treatments Maps

Table 3.4-7 indicates that channel CGRD-2 will have riprap along its entire length, however Figures 4 and 5 previously depicted a portion of the channel as unlined. The Permittee previously did not depict CGRD-3 or CGRD-10 in any of the figures. The Permittee has cleared up the design of CGRD-2 on Figure 4 and depicted CGRD-3 on Figures 4 and 5.

In the text, Table 3.4-7, and in Figure 2 channels CGRD-9 and CGRD-11 are triangular with 3:1 side slopes, however they were previously depicted on Figure 5 as trapezoidal with 2:1 side slopes. The Permittee has cleared this up by depicting them properly on Figure 2.

Exhibit 3.4-9 shows the final reclamation topography and diversions. Exhibit 3.4-11 shows the watersheds and associated diversions. Exhibit 3.4-12 shows the area to be treated with the ASCM's.

Certification Requirements.

The Permittee has met the requirements for map certification.

Findings:

Information provided in the application meets the minimum Maps, Plans, And Cross Sections Of Reclamation Operations requirements of the Regulations.

BONDING AND INSURANCE REQUIREMENTS

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

Analysis:

The Permittee included a modified reclamation cost estimate based on the alternative postmining land use scenario. The Division cannot base the reclamation cost on an alternative postmining land use. The bond estimate must be based on the approved reclamation plan. The Division will allow the bond calculations to be incorporated into the MRP but they cannot replace the existing calculations.

Findings:

Information provided in the application meets the minimum Bonding and Insurance requirements of the Regulations.

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