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State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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August 14, 2001

Johnny Pappas, Sr. Environmental Engineer  
Castle Gate Holding Company  
847 Northwest Highway 191  
Helper, Utah 84526

Re: #1 Adit Reclamation, Castle Gate Holding Company, Castle Gate Mine, C/007/004-AM01B, Outgoing File

Dear Mr. Pappas:

The above-referenced amendment has been reviewed and there are deficiencies that must be adequately addressed prior to approval. A copy of our Technical Analysis is enclosed for your information. In order for us to continue processing your application, please respond to these deficiencies by September 14, 2001.

If you have any questions, please call me at (801) 538-5325 or Joe Helfrich at (801) 538-5290.

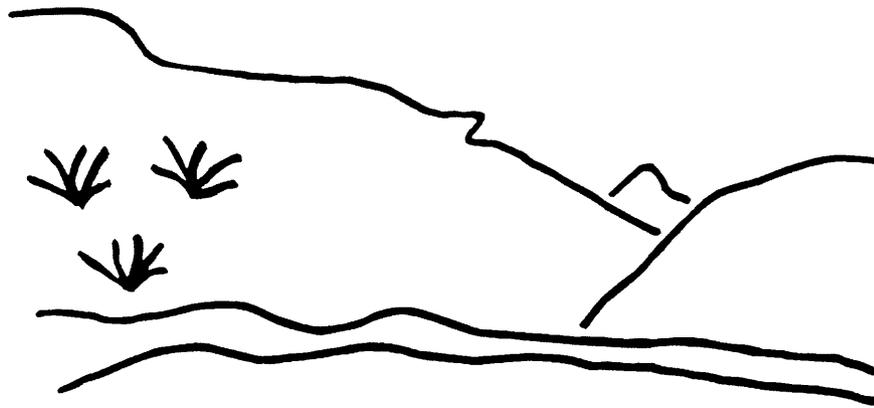
Sincerely,

A handwritten signature in cursive script that reads "Daron R. Haddock".

Daron R. Haddock  
Permit Supervisor

sd  
Enclosure  
cc: Price Field Office  
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# State of Utah



## Utah Oil Gas and Mining

### Coal Regulatory Program

Castle Gate  
Adit #1 Revised Reclamation Plan  
C/007/004-AM01B  
Technical Analysis  
August 15, 2001  
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## TABLE OF CONTENTS

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INTRODUCTION .....	1
SUMMARY OF OUTSTANDING DEFICIENCIES .....	3
ENVIRONMENTAL RESOURCE INFORMATION .....	7
HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION .....	7
VEGETATION RESOURCE INFORMATION .....	7
FISH AND WILDLIFE RESOURCE INFORMATION .....	8
SOILS RESOURCE INFORMATION.....	9
LAND-USE RESOURCE INFORMATION.....	11
MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION .....	12
Affected Area Boundary Maps .....	13
Cultural Resource Maps.....	13
Existing Structures and Facilities Maps.....	13
Existing Surface Configuration Maps.....	13
OPERATION PLAN .....	15
FISH AND WILDLIFE INFORMATION .....	15
Protection and Enhancement Plan .....	16
Endangered and Threatened Species .....	16
Bald and Golden Eagles.....	16
Wetlands and Habitats of Unusually High Value for Fish and Wildlife .....	16
VEGETATION .....	17
SPOIL AND WASTE MATERIALS .....	18
Disposal of noncoal waste .....	19
RECLAMATION PLAN .....	21
POSTMINING LAND USES.....	21
PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES...	22
APPROXIMATE ORIGINAL CONTOUR RESTORATION.....	23
BACKFILLING AND GRADING.....	26
TOPSOIL AND SUBSOIL.....	29
HYDROLOGIC INFORMATION .....	30
General.....	30
Ground-water monitoring .....	31
Surface-water monitoring .....	31
Acid and toxic-forming materials .....	31
Discharges into an underground mine .....	31
Gravity discharges .....	31
Water quality standards and effluent limitations .....	32
Diversions .....	32
Stream buffer zones .....	33
Sediment control measures .....	33
CONTEMPORANEOUS RECLAMATION.....	35
REVEGETATION.....	36
General requirements .....	38
Timing.....	38

**TABLE OF CONTENTS**

---

Mulching and other soil stabilizing practices .....	38
Standards for success .....	38
STABILIZATION OF SURFACE AREAS .....	39
MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS .....	39
Reclamation backfilling and grading maps.....	41
Final surface configuration maps.....	41
Reclamation monitoring and sampling location maps.....	41
Reclamation treatments maps .....	41
BONDING AND INSURANCE REQUIREMENTS.....	42
Determination of bond amount .....	43
Terms and conditions for liability insurance .....	44

INTRODUCTION

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## TECHNICAL ANALYSIS

### INTRODUCTION

On May 1, 2001, the Division received an amendment to revise the Castle Gate Reclamation Plan (MRP) for the #1 Adit facility. The submittal changes Appendix 3-2 to include incorporation of best management practices such as extreme roughening and the placement of filter fabric on the channel bottom. The site to be regraded and contoured is approximately 1.5 acres. There is an ephemeral stream channel in the middle of the site. There has been no topsoil salvaged from the pre-SMCRA site. Soil will be tested for suitability for use as topsoil substitute. There is also a perennial spring in one of the old portals. This proposal also addresses the diversion of the spring water into the Price River. This Technical Analysis is a review of the proposed revisions to the current Castle Gate reclamation plan.

Page 2  
C/007/004-AM01B  
July 16, 2001

**INTRODUCTION**

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SUMMARY OF OUTSTANDING DEFICIENCIES

**SUMMARY OF OUTSTANDING DEFICIENCIES**

*Regulations*

- R645-301-121.200**, 1) the confusion of whether a one-foot or four-foot soil depth will be used for reclamation needs to be resolved. 2) It needs to be made clear that ACD-1 will be removed as part of the reclamation of the adit site. 3) Provide a drawing or other method of demonstrating how straw bales will be installed. 4) Provide Fig. 3.5.4 installation methods for silt fences and update the Table of Contents to show its location. .... 34
- R645-301-121.200**, The permittee must clarify the statements about how asphalt will be disposed of. If no asphalt is present, then the permittee should remove reference to its disposal in the demolition section. If asphalt will be disposed of on site, then the permittee must show that asphalt can be properly used (land owner and DEQ consent etc.) as backfill. .... 19
- R645-301-121.200**, The permittee must clarify the statements about how steel will be used for backfill. The Division usually does not allow steel to be used as backfill; however, steel (rebar) in concrete is allowed in backfill. .... 19
- R645-301-133.100**, Appendix 3-G referred to on page 3.5-13 of the application could not be found. .... 11
- R645-301-224**, The Division requests an opportunity to review the results of the soils analyses referred to in Appendix 3-2, Section 3.1, page 3.5-13, please submit these analytical results as soon as they become available. .... 11
- R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284**, The application needs to include references to the other seed mixes identified in the reclamation plan. The application needs to include a detailed schedule and timetable for the steps and phases of reclamation. The application needs to include a reference area for the #1 Adit. The reference area for the adit should be established in accordance with the vegetation guidelines established by the Division. .... 38
- R645-301-320**, The applicant needs to identify which seed mix or mixes they are proposing to use for reclamation of the adit. .... 8
- R645-301-322, -301-333, -301-342, -301-358, Protection and Enhancement Plan:** The text in chapter 10 needs to include information that explains what is meant by “natural succession of the reclaimed and stabilized mine sites.” The current MRP does not define what natural succession is and what it includes. The current MRP does not define “micro-topographic features.” The portion of the text that indicates that wildlife enhancement will be created by the species listed above needs to be clarified and defined. A discussion that includes the

SUMMARY OF OUTSTANDING DEFICIENCIES

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species of vegetation and the relationship to benefiting wildlife should be provided. Exhibit 3.5-3 or an individual exhibit should be provided that includes the wildlife topographic features. As noted in the Fish and Wildlife Resource Information section, the application needs to include resource information sufficient to provide for a protection and enhancement plan that ensures compliance with the Endangered Species Act of 1973. **Endangered and Threatened Species:** The application needs to include or provide reference to listed or proposed threatened species of plants or animals or their critical habitats listed by the secretary under the Endangered Species Act of 1973. **Bald and Golden Eagles:** The applicant needs to provide supportive information on the current status of raptors in order to make a finding. **Wetlands and Habitats of Unusually High Value for Fish and Wildlife:** A discussion needs to be provided which addresses the manner in which the water will be transported from the spring down gradient to the culvert. The discussion should also include the development of aquatic and terrestrial habitat..... 17

R645-301-322, -330, The application should delineate that portion of the baseline wildlife information that applies to the #1 Adit area. The application needs to include a current raptor survey for the #1 Adit area. The application needs to include resource information sufficient to provide for a protection and enhancement plan that ensures compliance with the Endangered Species Act of 1973. .... 9

R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731, The application needs to include maps 3.2-1, 3.3-1, an Archeological site map, a Historical Resource map, and a map identifying the reference area for the adit. Maps 9-1 and 9-3 should be properly labeled as vegetation maps identifying what each represents. They should also indicate which portions of the disturbed area is allegedly pre 1977 mining disturbance. As well, Exhibit 3.5-1 should be updated to reflect post 1977 mining disturbances..... 14

R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731, The reclamation plan for the #1 Adit needs to include reclamation treatments, and monitoring and sampling location maps. .... 42

R645-301-411.100, .130, .250, The application needs to provide a description of the wildlife habitat and the information required by these sections of the regulations..... 12

R645-301-411.140-.144, The application must address the resource information required by this section of the regulations and ensure that the proposed structures to remain are compatible with the post mining land use. Although the staff may concur with the applicant's proposal, (Page six of Division Order response dated 1/13/93), the applicant needs to provide concurrence from the appropriate agency that has jurisdiction over the classification of historical structures and a demonstration to ensure that the remaining structures are compatible with the post mining land use. .... 7

R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275, The application needs to provide the information required by these sections of the

**SUMMARY OF OUTSTANDING DEFICIENCIES**

regulations..... 22

**R645-301-553.110**, The permittee must give the Division information on why the cut slopes cannot be fully reclaimed..... 26

**R645-301-553.120**, The permittee must describe how the highwalls will be or have been eliminated..... 26

**R645-301-553.120**, The permittee must describe spoil disposal plan..... 29

**R645-301-553.120**, The permittee must show that the reclaimed slopes will have a safety factor of at least 1.3 and the slope angles will not exceed the angle of repose..... 29

**R645-301-724**, The amendment does not make it explicitly clear that BM-30 will be monitored through reclamation until bond release. This needs to be made clear. Further, the original MRP, pages 7-58 and 7-59 indicate, "Groundwater will be sampled for a period of two years after sealing of the mine unless significant changes in quality of the water occurs from previous years of data." This is not consistent with R645-301-731.214, which states, "Ground-water monitoring will proceed through mining and continue during reclamation until bond release." This must be clarified..... 34

**R645-301-731.300**, There is no indication that materials at the site will be tested to identify their acid/toxic characteristics. Since identification is a requirement, this should be added to the amendment in order to fulfill the commitment to treat such materials..... 34

**R645-301-742**, 1) Appendix 3.5C and/or the Exhibit 3.5-3A needs to be revised to remove the confusion regarding drainage areas. 2) The operator will need to design and install a riprap-lined channel when reclaiming below the box culvert. 3) The use of silt fences along the reclaimed stream cannot be completely eliminated. The Division would be amenable to a series of two or three silt fences across the channel just upstream of the box culvert under the road. These would be constructed and maintained as originally explained in the MRP. 4) Use the Best Technology Currently Available and import soil to fill erosion gullies and definitely reseed and mulch the bare area. To be consistent, item 7 in the list on page 3.5-18 should not be crossed out. In addition, the silt fences and straw bales should NOT be removed until after vegetation has been fully re-established. .... 35

**R645-301-830.120, R645-301-830.130 and R645-301-121.200**, The permittee must provide the following information: 1) the time needed to complete excavating and grading, 2) the time support personnel are needed, and 3) the additional costs for applying mulch after seeding and chemical or physical anchors. .... 44

Page 6  
C/007/004-AM01B  
July 16, 2001

**SUMMARY OF OUTSTANDING DEFICIENCIES**

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**ENVIRONMENTAL RESOURCE INFORMATION**

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## **ENVIRONMENTAL RESOURCE INFORMATION**

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

## **HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.12; R645-301-411.

### **Minimum Regulatory Requirements:**

Describe and identify the nature of cultural historic and archeological resources listed or eligible for listing on the National Register of Historic Places and known archeological sites within the proposed permit and adjacent areas. The description shall be based on all available information, including, but not limited to, information from the State Historic Preservation Officer and local archeological, historical, and cultural preservation groups.

Identify and evaluate important historic and archeological resources that may be eligible for listing on the National Register of Historic Places, through the collection of additional information, conduct of field investigations, or other appropriate analyses.

### **Analysis:**

Neither the application nor Chapter 5 (Historic and Cultural Resources), of the operation and reclamation plan addresses the required Historic and Cultural Resource information for the adit. However, on page 3.5-10 of the application it does state the following: "the stone retaining walls and concrete brows over the portal entrances will be left for historical reference."

### **Findings:**

The information provided is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-411.140-.144**, The application must address the resource information required by this section of the regulations and ensure that the proposed structures to remain are compatible with the post mining land use. Although the staff may concur with the applicant's proposal, (Page six of Division Order response dated 1/13/93), the applicant needs to provide concurrence from the appropriate agency that has jurisdiction over the classification of historical structures and a demonstration to ensure that the remaining structures are compatible with the post mining land use.

## **VEGETATION RESOURCE INFORMATION**

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

### **Minimum Regulatory Requirements:**

## ENVIRONMENTAL RESOURCE INFORMATION

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Provide a map that delineates existing vegetative types and a description of the plant communities within the area affected by surface operations and facilities and within any proposed reference area. The description shall include information adequate to predict the potential for reestablishing vegetation. The map or aerial photograph is required, sufficient adjacent areas shall be included to allow evaluation of vegetation as important habitat for fish and wildlife for those species of fish and wildlife as identified under the fish and wildlife resource information.

### Analysis:

The vegetation resource information is provided for in Chapter 9 sections 9.1-9.3 of the current operation and reclamation plan. The seed mixes to be used in reclamation of the #1 adit facility are also provided for in chapter 9, section 9.4-1(2). There are three seed mixes listed in chapter 9. The application suggests species list #1 as the seed mix to use for the reclamation of the #1 Adit. However, chapter 9 prescribes seed mixes for pre and post SMCRA areas as well as areas within 20' of the edge of reclamation channels. In reading the application, it appears as though only seed mix # 1 will be used in the reclamation of the #1 Adit.

On page 3.5-9 of the application it states that "The reclamation plan shows 1.5 acres of the 3 acres of pre SMCRA receiving reshaping, diversion construction, resoiling, and revegetation activities." Chapter three, page 9-2 of the reclamation plan refers to the previously mined areas as being shown on maps 3.2-1, 3.3-1, and 3.5-1. Maps 3.2-1 and 3.3-1 are not included in chapter three of the MRP.

### Findings:

The information provided is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-320**, The applicant needs to identify which seed mix or mixes they are proposing to use for reclamation of the adit.

## FISH AND WILDLIFE RESOURCE INFORMATION

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

### Minimum Regulatory Requirements:

The application shall include fish and wildlife resource information for the permit area and adjacent area. The scope and level of detail for such information shall be determined by the Division in consultation with State and Federal agencies with responsibilities for fish and wildlife and shall be sufficient to design the protection and enhancement plan required under the operation and reclamation plan.

Site-specific resource information necessary to address the respective species or habitats shall be required when the permit area or adjacent area is likely to include:

- (1) Listed or proposed endangered or threatened species of plants or animals or their critical habitats listed by the Secretary under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), or those species or habitats protected by similar State statutes;
- (2) Habitats of unusually high value for fish and wildlife such as important streams, wetlands, riparian areas, cliffs supporting raptors, areas offering special shelter or protection, migration routes, or reproduction and wintering areas; or
- (3) Other species or habitats identified through agency consultation as requiring special protection under State or Federal law.

**ENVIRONMENTAL RESOURCE INFORMATION**

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**Analysis:**

The fish and wildlife information is provided for in chapter ten of the current operation and reclamation plan. However, the information does not include a current raptor survey of the #1 Adit area. The most recent raptor survey was conducted in 1981 for the power lines associated with the development of the Crandall Canyon facility. The application does not include or provide reference to site-specific resource information necessary to ensure compliance with the Endangered Species Act of 1973. Current information regarding the status of endangered or threatened species of plants or animals or their critical habitat is available through the U. S. Fish and Wildlife Service.

**Findings:**

The information provided for in chapter ten is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-322, -330,** The application should delineate that portion of the baseline wildlife information that applies to the #1 Adit area. The application needs to include a current raptor survey for the #1 Adit area. The application needs to include resource information sufficient to provide for a protection and enhancement plan that ensure compliance with the Endangered Species Act of 1973.

**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.

**Minimum Regulatory Requirements:**

Provide adequate soil survey information on those portions of the permit area to be affected by surface operations or facilities consisting of a map delineating different soils, soil identification, soil description, and present and potential productivity of existing soils.

Where selected overburden materials are proposed as a supplement or substitute for topsoil, provide results of the analysis, trials and tests required. Results of physical and chemical analyses of overburden and topsoil must be provided to demonstrate that the resulting soil medium is equal to or more suitable for sustaining revegetation than the available topsoil, provided that trials and tests are certified by an approved laboratory. These data may be obtained from any one or a combination of the following sources: U.S. Department of Agriculture Soil Conservation Service published data based on established soil series; U.S. Department of Agriculture Soil Conservation Service Technical Guides; State agricultural agency, university, Tennessee Valley Authority, Bureau of Land Management or U.S. Department of Agriculture Forest Service published data based on soil series properties and behavior; or, results of physical and chemical analyses, field site trials, or greenhouse tests of the topsoil and overburden materials (soil series) from the permit area. If the permittee demonstrates through soil survey or other data that the topsoil and unconsolidated material are insufficient and substitute materials will be used, only the substitute materials must be analyzed.

**Analysis:**

This 3.0-acre pre-SMCRA site has had no topsoil salvaged from the site. Only 1.5 acres of the 3.0 total will be redisturbed during final grading and reclamation. The remainder is well vegetated and was not disturbed during post-SMCRA operations (page 3.5-9).

Appendix 3-2, Section 3.1, page 3.5-13 indicates that soils on site will be sampled for pH, Electrical Conductivity, Saturation Percentage, particle size analysis, soluble calcium, magnesium, sodium, selenium, total nitrogen, nitrate-N, boron, maximum acid potential, neutralization potential, total organic carbon, exchangeable sodium, available water capacity, and rock fragments. The sodium absorption ratio (SAR) will be calculated from the soluble calcium, magnesium and sodium values.

The Division recommends that percent rock fragments is estimated in the field using the examples provided in the Field Book for Describing and Sampling Soils<sup>1</sup> and that available water capacity is estimated by using texture and the Texture and AWC Table below.

TABLE 5

TEXTURE	AWC*
Soil Texture	Available Water Capacity cm <sup>3</sup> /cm <sup>3</sup>
Clay	0.14 – 0.16
Silty Clay	0.15 – 0.17
Sandy Clay	0.15 – 0.17
Silty Clay Loam	0.19 – 0.21
Clay Loam	0.19 – 0.21
Sandy Clay Loam	0.14 – 0.16
Silt Loam	0.19 – 0.21
Loam	0.16 – 0.18
Very Fine Sandy Loam	0.15 – 0.17
Fine Sandy Loam	0.13 – 0.15
Sandy Loam	0.11 – 0.13
Loamy Fine Sand	0.09 – 0.10
Loamy Sand	0.06 – 0.08
Fine Sand	0.05 – 0.07
Sand	0.06

\* Adapted from Estimation of Soil Moisture Holding Capacity, USDA Forest Service, Southwestern Region, March 1970.

Plateau Mining Corporation intends to dig two pits for the purposes of identifying

<sup>1</sup> Schoeneberger, P.J. Wysocki, D.A., Benham, E.C., and Broderson, W.D. 1998. Field Book for Describing and Sampling Soils, Version 1.1. Available on the internet at [www.statlab.iastate.edu/soils/nssc/field\\_gd/field\\_gd.htm](http://www.statlab.iastate.edu/soils/nssc/field_gd/field_gd.htm)

**ENVIRONMENTAL RESOURCE INFORMATION**

suitable soil. One pit will be located in front of the portals and one will be located at the lower end of the site in locations on either side of a rock ledge that runs through the site.<sup>2</sup> The Division requests notification of this activity in advance.

Appendix 3-G provides information from the sediments removed from Pond 10 in 1998 during the pond clean out (page 3.5-15). The material was determined suitable for use as a substitute topsoil at that time and placed on the Gravel Canyon topsoil pile. This analysis could give an indication of the nature of the material at Adit No 1. Unfortunately, Appendix 3-G does not exist in the MRP.

**Findings:**

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-133.100**, Appendix 3-G referred to on page 3.5-13 of the application could not be found.

**R645-301-224**, The Division requests an opportunity to review the results of the soils analyses referred to in Appendix 3-2, Section 3.1, page 3.5-13, please submit these analytical results as soon as they become available.

**LAND-USE RESOURCE INFORMATION**

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

**Minimum Regulatory Requirements:**

Provide a statement of the condition; capability, and productivity of the land that will be affected by surface operations and facilities within the proposed permit area.

Provide a map and supporting narrative of the uses of the land existing at the time of the filing of the application. If the premining use of the land was changed within 5 years before the anticipated date of beginning the proposed operations, the historic use of the land shall also be described.

The narrative of land capability and productivity must include the capability of the land before any mining to support a variety of uses, giving consideration to soil and foundation characteristics, topography, vegetative cover, and the hydrology of the area proposed to be affected by surface operations or facilities.

Describe the productivity of the area proposed to be affected by surface operations and facilities before mining, expressed as average yield of food, fiber, forage, or wood products from such lands obtained under high levels of management. The productivity shall be determined by yield data or estimates for similar sites based on current data from the U.S. Department of Agriculture, State agricultural universities, or appropriate State natural resources or agricultural agencies.

The application must state whether the proposed permit area has been previously mined. If so, provide the following information, if available: the type of mining method used; the coal seams or other mineral strata mined; the extent of coal or other minerals removed; the approximate dates of past mining; and, the uses of the land preceding mining.

The application shall provide a description of the existing land uses and land-use classifications under local law, if any, of the

<sup>2</sup> Information gained from a telephone conversation between Vicky Miller, Environmental Engineer with Plateau Mining Corp. and Priscilla Burton, Soils Reclamation Specialist with the Division of Oil Gas & Mining on 6/1/01.

proposed permit and adjacent areas.

**Analysis:**

A description of the pre-mining and post-mining land use for the adit is not provided for in the application. Chapter 4 of the operation and reclamation plan, (Land Use), does not provide a description either but does refer the reader to several sections of Chapter 3. Section 3.5-2 provides a description of the facilities for the #1 adit. Prior to the implementation of SMCRA, the area was developed and used for mining. Section 3.5-4 of the application lists the post mining land use as wildlife habitat but does not include a description of the habitat.

Plate 4-1 identifies the surface ownership for the Castle Gate facilities including the #1 adit. The surface ownership of the property where the adit is located is Plateau Mining Corporation.

**Findings:**

The information provided is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

R645-301-411.100, .130, .250, The application needs to provide the information required by these sections of the regulations.

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

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

Minimum Regulatory Requirements:

The permit application must include as part of the Resource Information, the following maps, plans and cross sections:

**Affected area boundary maps**

The boundaries of all areas proposed to be affected over the estimated total life of the underground mining activities, with a description of size, sequence, and timing of the mining of subareas for which it is anticipated that additional permits will be sought.

**Cultural resource maps**

The boundaries of any public park and locations of any cultural and historical resources listed or eligible for listing in the National Register of Historic Places. Each cemetery that is located in or within 100 feet of the proposed permit area. Any land within the proposed permit area which is within the boundaries of any units of the National System of Trails or the Wild and Scenic Rivers System, including study rivers designated under Section 5(a) of the Wild and Scenic Rivers Act. Any other relevant information required by the Division.

**Existing structures and facilities maps**

Location and dimensions of existing areas of spoil, waste, coal development waste, and noncoal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities within the proposed permit area.

**Existing surface configuration maps**

Sufficient slope measurements to adequately represent the existing land surface configuration of the area affected by surface operations and facilities, measured and recorded according to the following: each measurement shall consist of an angle of inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area to be

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**ENVIRONMENTAL RESOURCE INFORMATION**

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disturbed or, where this is impractical, at locations specified by the Division; where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances, or any other distance determined by the Division to be representative of the premining configuration of the land; and, slope measurements shall take into account natural variations in slope, to provide accurate representation of the range of natural slopes and reflect geomorphic differences of the area to be disturbed.

**Analysis:**

**Affected Area Boundary Maps**

Plate 3.5-1 identifies the areas disturbed by mining practices Archeological Site Maps. No Archeological site maps are provided for in chapter 5 of the operation and reclamation plan or the application.

**Cultural Resource Maps**

No Cultural Resource maps are provided for in chapter 5 of the operation and reclamation plan or the application.

**Existing Structures and Facilities Maps**

Plate 3.5-1 identifies the existing structures and surface facilities. However, all of the disturbance is identified as pre 1977.

**Existing Surface Configuration Maps**

Plate 3.5-2 identifies the existing surface configuration for the adit.

**Analysis:**

No Vegetation Reference Area maps are provided for in the current operation and reclamation plan or the application. Exhibit 9-1, (Area Revegetation Map), identifies the #1 Adit area by dotted marks that are not included in the legend. Apparently this is also a D2, Disturbed by mining post 1977 area. The legend includes areas that were disturbed by mining pre 1977. However, these areas are not included in the #1 Adit location as indicated on plates 3.5-1, 3.5-3, and referenced in numerous places in the MRP. The area adjacent to the Adit disturbed area is identified as "Mixed Brush". Exhibit 9-3 is also identified as an Area Revegetation Map. The current operation and reclamation plan contains several vegetation maps and an AML reference area map. However, none of the maps identify the #1 adit or a reference area for the adit.

Chapter three, page 9-2 of the reclamation plan refers to the previously mined areas as being shown on maps 3.2-1, 3.3-1, and 3.5-1. Maps 3.2-1 and 3.3-1 are not included in chapter three of the MRP.

**Findings:**

The information provided is not adequate to meet this section of the regulations. Prior to

approval, the applicant must provide the following in accordance with:

**R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731,** The application needs to include maps 3.2-1, 3.3-1, an Archeological site map, a Historical Resource map, and a map identifying the reference area for the adit. Maps 9-1 and 9-3 should be properly labeled as vegetation maps identifying what each represents. They should also indicate which portions of the disturbed area is allegedly pre 1977 mining disturbance. As well, Exhibit 3.5-1 should be updated to reflect post 1977 mining disturbances.

**OPERATION PLAN**

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# **OPERATION PLAN**

## **FISH AND WILDLIFE INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

### **Minimum Regulatory Requirements:**

#### **Protection and enhancement plan**

Each application shall include a description of how, to the extent possible using the best technology currently available, the operator will minimize disturbances and adverse impacts on fish and wildlife and related environmental values, including compliance with the Endangered Species Act, during the surface coal mining and reclamation operations and how enhancement of these resources will be achieved where practicable. This description shall apply, at a minimum, to species and habitats identified. The description shall include: protective measures that will be used during the active mining phase of operation. Such measures may include the establishment of buffer zones, the selective location and special design of haul roads and powerlines, and the monitoring of surface water quality and quantity; and, enhancement measures that will be used during the reclamation and postmining phase of operation to develop aquatic and terrestrial habitat. Such measures may include restoration of streams and other wetlands, retention of ponds and impoundments, establishment of vegetation for wildlife food and cover, and the placement of perches and nest boxes. Where the plan does not include enhancement measures, a statement shall be given explaining why enhancement is not practicable.

Each operator shall, to the extent possible using the best technology currently available: ensure that electric powerlines and other transmission facilities used for, or incidental to, underground mining activities on the permit area are designed and constructed to minimize electrocution hazards to raptors, except where the Division determines that such requirements are unnecessary; locate and operate haul and access roads so as to avoid or minimize impacts on important fish and wildlife species or other species protected by State or Federal law; design fences, overland conveyors, and other potential barriers to permit passage for large mammals except where the Division determines that such requirements are unnecessary; and, fence, cover, or use other appropriate methods to exclude wildlife from ponds which contain hazardous concentrations of toxic-forming materials.

#### **Endangered and threatened species**

No underground mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary or which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The operator shall promptly report to the Division any State- or federally-listed endangered or threatened species within the permit area of which the operator becomes aware. Upon notification, the Division shall consult with appropriate State and Federal fish and wildlife agencies and, after consultation, shall identify whether, and under what conditions, the operator may proceed.

#### **Bald and golden eagles**

No underground mining activity shall be conducted in a manner which would result in the unlawful taking of a bald or golden eagle, its nest, or any of its eggs. The operator shall promptly report to the Division any golden or bald eagle nest within the permit area of which the operator becomes aware. Upon notification, the Division shall consult with the U.S. Fish and Wildlife Service and also, where appropriate, the State fish and wildlife agency and, after consultation, shall identify whether, and under what conditions, the operator may proceed.

Nothing in these regulatory requirements shall authorize the taking of an endangered or threatened species or a bald or golden eagle, its nest, or any of its eggs in violation of the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq., or the Bald Eagle Protection Act, as amended, 16 U.S.C. 668 et seq.

#### **Wetlands and habitats of unusually high value for fish and wildlife**

The operator conducting underground mining activities shall avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Underground mining activities shall avoid disturbances to, enhance where practicable, or restore habitats of unusually high value for fish and wildlife.

### **Analysis:**

### **Protection and Enhancement Plan**

The fish and wildlife information is provided for in chapter 10 of the MRP. Section 10.2-6 states that "Restoration of disturbed areas will ultimately be achieved by natural succession of the reclaimed and stabilized mine sites. Plans for such reclamation activities are included in chapter IX." Chapter 9 section 9.4-2(1) states, "Wildlife enhancement will be created by the development of micro-topographic features such as swales and rises during regrading; and by the species specified above." The text in chapter 10 needs to include information that explains what is meant by "natural succession of the reclaimed and stabilized mine sites." The current MRP does not define what natural succession is and what it includes. The current MRP does not define "micro-topographic features." Two examples are provided; however, no information regarding size, location, and what species of wildlife these features apply to. The portion of the text that indicates that wildlife enhancement will be created by the species listed above needs to be clarified and defined. A discussion that includes the species of vegetation and the relationship to benefiting wildlife should be provided. Exhibit 3.5-3 or an individual exhibit should be provided that includes the wildlife topographic features. As noted in the Fish and Wildlife Resource Information section, the application needs to include resource information sufficient to provide for a protection and enhancement plan to ensure compliance with the Endangered Species Act of 1973.

### **Endangered and Threatened Species**

The application does not include or provide reference to listed or proposed threatened species of plants or animals or their critical habitats listed by the secretary under the Endangered Species Act. Current information regarding the status of endangered or threatened species of plants or animals or their critical habitat is available through the U. S. Fish and Wildlife Service.

### **Bald and Golden Eagles**

Neither the application nor the MRP includes information on Bald and Golden eagles that is current or specific to the #1 Adit area. Reclamation is scheduled after July 15, 2001, which would not pose a direct threat to fledglings or adult birds that may be actively utilizing nests in the area. In addition, there is a fair amount of activity adjacent to the #1 Adit site that includes automobile and railroad traffic, as well as activity from the Willow Creek wash plant and UP&L power plant. It would, therefore, seem unlikely that reclamation activities would have a negative effect on nesting birds in the area. However, the applicant needs to provide supportive information on the status of raptors in order to support such a finding.

### **Wetlands and Habitats of Unusually High Value for Fish and Wildlife**

There is an underground spring located in one of the portals that is currently flowing at approximately 2 gallons per minute. The applicant has proposed to transport the spring flow to the Price River by way of a culvert located at the lower end of the disturbed area. The current

OPERATION PLAN

application does not address how the spring water is to be transported from the portal to the culvert. The distance from the portal to the culvert location is approximately 100'. In a previous conversation with Johnny Pappas, he indicated that he might reclaim that area as riparian habitat. That being the case, a discussion should be provided to address the requirements of this section of the regulations. If that is not the case then a discussion should be provided to address how the flow will be transported down gradient from the portal to the culvert.

**Findings:**

The information provided is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-322, -301-333, -301-342, -301-358, Protection and Enhancement Plan:** The text in chapter 10 needs to include information that explains what is meant by "natural succession of the reclaimed and stabilized mine sites." The current MRP does not define what natural succession is and what it includes. The current MRP does not define "micro-topographic features." The portion of the text that indicates that wildlife enhancement will be created by the species listed above needs to be clarified and defined. A discussion that includes the species of vegetation and the relationship to benefiting wildlife should be provided. Exhibit 3.5-3 or an individual exhibit should be provided that includes the wildlife topographic features. As noted in the Fish and Wildlife Resource Information section, the application needs to include resource information sufficient to provide for a protection and enhancement plan that ensures compliance with the Endangered Species Act of 1973. **Endangered and Threatened Species:** The application needs to include or provide reference to listed or proposed threatened species of plants or animals or their critical habitats listed by the secretary under the Endangered Species Act of 1973. **Bald and Golden Eagles:** The applicant needs to provide supportive information on the current status of raptors in order to make a finding. **Wetlands and Habitats of Unusually High Value for Fish and Wildlife:** A discussion needs to be provided which addresses the manner in which the water will be transported from the spring down gradient to the culvert. The discussion should also include the development of aquatic and terrestrial habitat.

**VEGETATION**

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

**Minimum Regulatory Requirements:**

Reclamation efforts, including but not limited to backfilling, grading, topsoil replacement, and revegetation, on all land that is disturbed by surface mining or underground mining activities shall occur as contemporaneously as practicable with mining operations, except when such mining operations are conducted in accordance with a variance for concurrent surface and

underground mining activities issued under Part 785 Requirements for Permits for Special Categories of Mining, Section 785.18, Variances for delay in contemporaneous reclamation requirement in combined surface and underground mining activities.

For UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES a description of the anticipated impacts of subsidence on renewable resource lands and how such impact will be mitigated needs to be presented.

A description of how, to the extent possible, using the best technology currently available, the operator will minimize disturbances and adverse impacts. This description will include protective measures that will be used during the active mining phase of operation. Such measures may include the establishment of buffer zones, the selective location and special design of haul roads and powerlines, the monitoring of surface water quality and quantity, and through prompt establishment and maintenance of vegetation for interim stabilization of disturbed areas to minimize surface erosion.

### **Analysis:**

The requirements for this section of the regulations have been addressed in either the Vegetation Resource Information section or the Revegetation section of the Reclamation Plan.

### **Findings:**

Additional information that may be required is identified in the corresponding sections of this technical analysis.

## **SPOIL AND WASTE MATERIALS**

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

### **Minimum Regulatory Requirements:**

Disposal of noncoal mine wastes

Noncoal mine wastes including, but not limited to, grease, lubricants, paints, flammable liquids, garbage, abandoned mining machinery, lumber, and other combustible materials generated during mining activities shall be placed and stored in a controlled manner in a designated portion of the permit area. Placement and storage shall ensure that leachate and surface runoff do not degrade surface or ground water, that fires are prevented, and that the area remains stable and suitable for reclamation and revegetation compatible with the natural surroundings.

Final disposal of noncoal mine wastes shall be in a designated disposal site in the permit area or a State-approved solid waste disposal area. Disposal sites in the permit area shall be designed and constructed to ensure that leachate and drainage from the noncoal mine waste area does not degrade surface or underground water. Wastes shall be routinely compacted and covered to prevent combustion and windborne waste. When the disposal is completed, a minimum of 2 feet of soil cover shall be placed over the site, slopes stabilized, and revegetated. Operation of the disposal site shall be conducted in accordance with all local, State, and Federal requirements.

At no time shall any noncoal mine waste be deposited in a refuse pile or impounding structure, nor shall any excavation for a noncoal mine waste disposal site be located within 8 feet of any coal outcrop or coal storage area.

Any noncoal mine waste defined as "hazardous" under Section 3001 of the Resource Conservation and Recovery Act (RCRA) (Pub. L. 94-580, as amended) and 40 CFR Part 261 shall be handled in accordance with the requirements of Subtitle C of RCRA and any implementing regulations.

### **Analysis:**

OPERATION PLAN

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**Disposal of noncoal waste**

In Section 3.5 (page 10) of the MRP, the permittee states that materials such as concrete, asphalt, and steel will be used as backfill. The permittee later states that whenever possible steel will be salvaged rather than buried; however, steel that is incorporated into the concrete (rebar) will not be removed prior to burial.

The Division usually allows inert materials to be used as backfill. Since steel will rust the Division does not consider steel to be inert. While the permittee indicated that most of the steel that would be used as backfill would be incorporated into the concrete (rebar), the Division needs this matter clarified.

The permittee states in the demolition section that asphalt could be use as backfill. While the permittee does not include any asphalt demolition and disposal cost in the bond calculation the Division needs to know what asphalt, if any, will be used as backfill.

**Findings:**

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-121.200**, The permittee must clarify the statements about how steel will be used for backfill. The Division usually does not allow steel to be used as backfill; however, steel (rebar) in concrete is allowed in backfill.

**R645-301-121.200**, The permittee must clarify the statements about how asphalt will be disposed of. If no asphalt is present, then the permittee should remove reference to its disposal in the demolition section. If asphalt will be disposed of on site, then the permittee must show that asphalt can be properly used (land owner and DEQ consent etc.) as backfill.

Page 20  
C/007/004-AM01B  
July 16, 2001

**OPERATION PLAN**

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RECLAMATION PLAN

# RECLAMATION PLAN

## 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.

### Minimum Regulatory Requirements:

In general, all disturbed areas shall be restored in a timely manner to conditions that are capable of supporting: the uses they were capable of supporting before any mining; or higher or better uses.

Provide a detailed description of the proposed use, following reclamation, of the land to be affected within the proposed permit area by surface operations or facilities, including a discussion of the utility and capacity of the reclaimed land to support a variety of alternative uses, and the relationship of the proposed use to existing land-use policies and plans. This description shall explain: how the proposed postmining land use is to be achieved and the necessary support activities which may be needed to achieve the proposed land use; where a land use different from the premining land use is proposed, all materials needed for approval of the alternative use; and, the consideration given to making all of the proposed underground mining activities consistent with surface owner plans and applicable State and local land-use plans and programs.

The description shall be accompanied by a copy of the comments concerning the proposed use from the legal or equitable owner of record of the surface areas to be affected by surface operations or facilities within the proposed permit area and the State and local government agencies which would have to initiate, implement, approve, or authorize the proposed use of the land following reclamation.

Determine premining uses of land. The premining uses of land to which the postmining land use is compared shall be those uses which the land previously supported, if the land has not been previously mined and has been properly managed. The postmining land use for land that has been previously mined and not reclaimed shall be judged on the basis of the land use that existed prior to any mining; Provided that, If the land cannot be reclaimed to the land use that existed prior to any mining because of the previously mined condition, the postmining land use shall be judged on the basis of the highest and best use that can be achieved which is compatible with surrounding areas and does not require the disturbance of areas previously unaffected by mining.

Criteria for alternative postmining land uses. Higher or better uses may be approved as alternative postmining land uses after consultation with the landowner or the land management agency having jurisdiction over the lands, if the proposed uses meet the following criteria: there is a reasonable likelihood for achievement of the use; the use does not present any actual or probable hazard to public health and safety, or threat of water diminution or pollution; and , the use will not be impractical or unreasonable, inconsistent with applicable land use policies or plans, involve unreasonable delay in implementation, or cause or contribute to violation of Federal, State, or local law.

Approval of an alternative postmining land use, may be met by requesting approval through the permit revision procedures rather than requesting such approval in the original permit application. The original permit application, however, must demonstrate that the land will be returned to its premining land use capability. An application for a permit revision of this type must be submitted in accordance with the requirements of filing for a Significant Permit Revision and shall constitute a significant alternation from the mining operations contemplated by the original permit, and shall be subject to the requirements for permits, permit processing, and administrative and judicial of decisions on permits under the regulatory program.

Surface coal mining operations may be conducted under a variance from the requirement to restore disturbed areas to their approximate original contour, if the following requirements are satisfied:

- 1.) The Division grants a variance from approximate original contour restoration requirements.
- 2.) The alternative postmining land use requirements are met.
- 3.) All applicable requirements of the act and the regulatory program, other than the requirement to restore disturbed areas to their approximate original contour, are met.
- 4.) After consultation with the appropriate land use planning agencies, if any, the potential use is shown to constitute an equal or better economic or public use.
- 5.) The proposed use is designed and certified by a qualified registered professional engineer in conformance with professional standards established to assure the stability, drainage, and configuration necessary for the intended use of the site.
- 6.) After approval, where required, of the appropriate State environmental agencies, the watershed of the permit and adjacent

## RECLAMATION PLAN

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- areas is shown to be improved.
- 7.) The highwall is completely backfilled with spoil material, in a manner which results in a static factor of safety of at least 1.3, using standard geotechnical analysis.
  - 8.) Only the amount of spoil as is necessary to achieve the postmining land use, ensure the stability of spoil retained on the bench, and all spoil not retained on the bench shall be placed in accordance with all other applicable regulatory requirements.
  - 9.) The surface landowner of the permit area has knowingly requested, in writing, that a variance be granted, so as to render the land after reclamation, suitable for an industrial, commercial, residential, or public use (including recreational facilities.)
  - 10.) Federal, State, and local government agencies with an interest in the proposed land use have an adequate period in which to review and comment on the proposed use.

### Analysis:

A description of the post- mining land use for the adit is not provided for in the application. Chapter 4 of the operation and reclamation plan, (Land Use), does not provide a description either but does refer the reader to several sections of Chapter 3. Section 3.5-4 of the application lists the post mining land use as wildlife habitat but does not include a description of the habitat.

### Findings:

The information provided is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275,** The application needs to provide a description of the wildlife habitat and the information required by these sections of the regulations.

## PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

### Minimum Regulatory Requirements:

Where wetlands and habitats of unusually high value for fish and wildlife occur, the operator conducting underground mining activities shall provide a description of the measures taken to avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Designs and plans for underground mining activities shall include measures to avoid disturbances to, enhance where practicable, or restore habitats of unusually high value for fish and wildlife.

Where fish and wildlife habitat is to be a postmining land use, the plant species to be used on reclaimed areas shall be selected on the basis of the following criteria:

- 1.) Their proven nutritional value for fish or wildlife.
- 2.) Their use as cover for fish or wildlife.
- 3.) Their ability to support and enhance fish or wildlife habitat after the release of performance bonds. The selected plants shall be grouped and distributed in a manner which optimizes edge effect, cover, and other benefits to fish and wildlife.

Where cropland is to be the postmining land use, and where appropriate for wildlife- and crop-management practices, the operator shall intersperse the fields with trees, hedges, or fence rows throughout the harvested area to break up large blocks of monoculture

## RECLAMATION PLAN

and to diversify habitat types for birds and other animals.

Where residential, public service, or industrial uses are to be the postmining land use and where consistent with the approved postmining land use, the operator shall intersperse reclaimed lands with greenbelts utilizing species of grass, shrubs, and trees useful as food and cover for wildlife.

### Analysis:

The analysis of the information required in this section has been addressed under the Fish and Wildlife information section of the Operation Plan.

### Findings:

Additional information that may be required is identified in the corresponding section of this technical analysis.

## 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.

### Minimum Regulatory Requirements:

**Note:** The following requirements have been suspended insofar as they authorize any variance from approximate original contour for surface coal mining operations in any area which is not a steep slope area.

Criteria for permits incorporating variances from approximate original contour restoration requirements.

The Division may issue a permit for nonmountaintop removal mining which includes a variance from the backfilling and grading requirements to restore the disturbed areas to their approximate original contour. The permit may contain such a variance only if the Division finds, in writing, that the applicant has demonstrated, on the basis of a complete application, that the following requirements are met:

- 1.) After reclamation, the lands to be affected by the variance within the permit area will be suitable for an industrial, commercial, residential, or public postmining land use (including recreational facilities).
- 2.) The criteria for the proposed post mining land use will be met.
- 3.) The watershed of lands within the proposed permit and adjacent areas will be improved by the operations when compared with the condition of the watershed before mining or with its condition if the approximate original contour were to be restored. The watershed will be deemed improved only if: the amount of total suspended solids or other pollutants discharged to ground or surface water from the permit area will be reduced, so as to improve the public or private uses or the ecology of such water, or flood hazards within the watershed containing the permit area will be reduced by reduction of the peak flow discharge from precipitation events or thaws; the total volume of flow from the proposed permit area, during every season of the year, will not vary in a way that adversely affects the ecology of any surface water or any existing or planned use of surface or ground water; and, the appropriate State environmental agency approves the plan.
- 4.) The owner of the surface of the lands within the permit area has knowingly requested, in writing, as part of the application, that a variance be granted. The request shall be made separately from any surface owner consent given for right-of-entry and shall show an understanding that the variance could not be granted without the surface owner's request.

If a variance is granted, the requirements of the post mining land use criteria shall be included as a specific condition of the permit, and, the permit shall be specifically marked as containing a variance from approximate original contour.

A permit incorporating a variance shall be reviewed by the Division at least every 30 months following the issuance of the permit to evaluate the progress and development of the surface coal mining and reclamation operations to establish that the operator is proceeding in accordance with the terms of the variance. If the permittee demonstrates to the Division that the operations have

been, and continue to be, conducted in compliance with the terms and conditions of the permit, the review specified need not be held. The terms and conditions of a permit incorporating a variance may be modified at any time by the Division, if it determines that more stringent measures are necessary to ensure that the operations involved are conducted in compliance with the requirements of the regulatory program. The Division may grant variances only if it has promulgated specific rules to govern the granting of variances in accordance with the provisions of this section and any necessary, more stringent requirements.

### **Analysis:**

The requirements for restoring a site to the approximate original contour (AOC) are couched in the backfilling and grading regulations. The only regulation that specifically mentions AOC requirements is R645-301-553.110 that states the following:

Achieve the approximate original contour (AOC), except as provided in R645-301-553.500 through R645-301-553.540 [previously mined areas or (PMA's), continuously mined areas (CMA's), and areas subject to the AOC provisions], R645-301-553.600 through R645-301-553.612 (PMA's and CMA's), R645-302-270 (non-mountaintop removal on steep slopes), R645-302-220 (mountaintop removal mining), R645-301-553.700 (thin overburden) and R645-301-553.800 (thick overburden).

The Division's technical memo Tech-002 gives additional AOC guidelines. That guideline was also used to evaluate the Adit No. 1 for AOC compliance.

Except, as specifically exempted, all disturbed areas shall be returned to the approximate original contour. The final surface configuration shall closely resemble the general surface configuration of the land prior to mining. To evaluate compliance with this requirement, the term "surface configuration" must be clarified. Surface configuration refers to the premining and postmining topography of the mine site and surrounding area.

The term AOC does not mean that the land is restored to the original contours. Elevation should be considered as a factor in evaluation of compliance with this requirement only when a deviation between the premining and postmining elevations would result in an adverse effect on one of the reclamation performance standards. The main criteria for compliance with this regulation will be, "Does the postmining topography, excluding elevation, closely resemble the premining configuration?" The Division evaluates premining and postmining topography on slope length and angle, and whether restoring the site to the original contours would violate other rules.

In some cases, the permittee cannot restore the site to the premining contours without violating other regulations, such as slope stability and erosion. Many of the natural slopes in the area are at the angle-of-repose. By definition, when a slope is at its angle-of-repose the safety factor is 1.0. The minimum safety factor for reclaimed slopes is 1.3. If all slopes were returned to the premining conditions, the safety factor requirement could not be met.

When the natural slope has a safety factor less than 1.3, the permittee usually opts to reduce the slope angle by either extending the toe or decreasing the height. Extending the slope's

RECLAMATION PLAN

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toe may block the drainage which violates other regulations. If the permittee decreases the slope height then a cut slope will be left.

The postmining topography and cross sections for the Adit No. 1 mine are shown Exhibit 3.5-3 and Exhibit 3.5-3B respectively. The Adit No. 1 site is a preSMCRA underground site, with mining dating to 1888. Therefore, detailed maps and cross sections of the premining topography are not available. At the preSMCRA site, the Division usually only requires the permittee to reclaim with on site materials.

In the approved MRP (Section 3.5 page 10) the permittee states the following:

The disturbed area will be graded to the approximate original contour by blending spoil into the surrounding area and creating a landform, which resembles the surrounding terrain. The sandstone cliff, which exists on the north and south side of the portals, will remain exposed. No cut slopes are proposed to be left in the reclamation plan. See Table 3.5-7 for the mass balance summary.

On Exhibit 3.5-3 the permittee marked two areas labeled retained preSMCRA cut slopes. Cut slopes do not have to be fully reclaimed, because they are not highwalls (portal face up areas). The Division does not have standards or regulations that deal with retention of cut slopes. The Division does allow cut slopes to be left after reclamation if they are stable and do not substantially increase the potential for safety or environmental problems. The permittee needs to state why cut slopes will be left.

The permittee needs to describe the highwalls that are associated with the portals. The Division needs that information to make a finding that all highwalls have been reclaimed.

The AOC guidelines require that the restored drainages complement the surrounding natural drainages. The Division considers this requirement to be met if all the hydrologic regulations have been satisfied.

The AOC guidelines require that the reclaimed topography be compatible with the postmining land use, alternative postmining land use, or a variance from the AOC requirements is granted. The permittee did not ask for an AOC variance. The Division considers the compatibility with the postmining land use to be adequate if the general postmining land use requirements have been met.

**Findings:**

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-553.110**, The permittee must give the Division information on why the cut slopes cannot be fully reclaimed.

**R645-301-553.120**, The permittee must describe how the highwalls will be or have been eliminated.

## 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.

### Minimum Regulatory Requirements:

#### General

Disturbed areas shall be backfilled and graded to: 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 and to prevent slides; minimize erosion and water pollution both on and off the site; and, support the approved postmining land use.

The postmining slope may vary from the approximate original contour when approval is obtained from the Division for a variance from approximate original contour requirements, or when incomplete elimination of highwalls in previously mined areas is allowed under the regulatory requirements. Small depressions may be constructed if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation.

If it is determined by the Division that disturbance of the existing spoil or underground development waste would increase environmental harm or adversely affect the health and safety of the public, the Division may allow the existing spoil or underground development waste pile to remain in place. Accordingly, regrading of settled and revegetated fills to achieve approximate original contour at the conclusion of underground mining activities shall not be required if: the settled and revegetated fills are composed of spoil or nonacid- or nontoxic-forming underground development waste; the spoil or underground development waste is not located so as to be detrimental to the environment, to the health and safety of the public, or to the approved postmining land use; stability of the spoil or underground development waste must be demonstrated through standard geotechnical analysis to be consistent with backfilling and grading requirements for material on the solid bench (1.3 static safety factor) or excess spoil requirements for material not placed on a solid bench (1.5 static safety factor); and, the surface of the spoil or underground development waste shall be vegetated in accordance with the revegetation standards for success, and surface runoff shall be controlled in accordance with the regulatory requirements for diversions.

Spoil shall be returned to the mined-out surface area. Spoil and waste materials shall be compacted where advisable to ensure stability or to prevent leaching of toxic materials. Spoil may be placed on the area outside the mined-out surface area in nonsteep slope areas to restore the approximate original contour by blending the spoil into the surrounding terrain if the following requirements are met: all vegetative and organic materials shall be removed from the area; the topsoil on the area shall be removed, segregated, stored, and redistributed in accordance with regulatory requirements; the spoil shall be backfilled and graded on the area in accordance with the general requirements for backfilling and grading.

Disposal of coal processing waste and underground development waste in the mined-out surface area shall be in accordance with the requirements for the disposal of spoil and waste materials except that a long-term static safety factor of 1.3 shall be achieved.

Exposed coal seams, acid- and toxic-forming materials, and combustible materials exposed, used, or produced during mining shall be adequately covered with nontoxic and noncombustible materials, or treated, to control the impact on surface and ground water, to prevent sustained combustion, and to minimize adverse effects on plant growth and the approved postmining land use.

Cut-and-fill terraces may be allowed by the Division where: needed to conserve soil moisture, ensure stability, and control erosion on final-graded slopes, if the terraces are compatible with the approved postmining land use; or, specialized grading, foundation conditions, or roads are required for the approved postmining land use, in which case the final grading may include a terrace of adequate width to ensure the safety, stability, and erosion control necessary to implement the postmining land-use plan.

Preparation of final-graded surfaces shall be conducted in a manner that minimizes erosion and provides a surface for replacement of topsoil that will minimize slippage.

## RECLAMATION PLAN

### Previously mined areas

Remining operations on previously mined areas that contain a preexisting highwall shall comply with all other reclamation requirements except as provided herein. The requirement that elimination of highwalls shall not apply to remining operations where the volume of all reasonably available spoil is demonstrated in writing to the Division to be insufficient to completely backfill the reaffected or enlarged highwall. The highwall shall be eliminated to the maximum extent technically practical in accordance with the following criteria:

- 1.) All spoil generated by the remining operation and any other reasonably available spoil shall be used to backfill the area. Reasonably available spoil in the immediate vicinity of the remining operation shall be included within the permit area.
- 2.) The backfill shall be graded to a slope which is compatible with the approved postmining land use and which provides adequate drainage and long-term stability.
- 3.) Any highwall remnant shall be stable and not pose a hazard to the public health and safety or to the environment. The operator shall demonstrate, to the satisfaction of the Division, that the highwall remnant is stable.
- 4.) Spoil placed on the outslope during previous mining operations shall not be disturbed if such disturbances will cause instability of the remaining spoil or otherwise increase the hazard to the public health and safety or to the environment.

### Backfilling and grading on steep slopes

Underground mining activities on steep slopes shall be conducted so as to meet other applicable regulatory requirements and the requirements of this section. The following materials shall not be placed on the downslope: spoil; waste materials of any type; debris, including that from clearing and grubbing; abandoned or disabled equipment; land above the highwall shall not be disturbed unless the Division finds that this disturbance will facilitate compliance with the environmental protection standards and the disturbance is limited to that necessary to facilitate compliance; and, woody materials shall not be buried in the backfilled area unless the Division determines that the proposed method for placing woody material within the backfill will not deteriorate the stable condition of the backfilled area.

### Special provisions for steep slope mining

No permit shall be issued for any operations covered by steep slope mining, unless the Division finds, in writing, that in addition to meeting all other regulatory requirements, the operation will be conducted in accordance with the requirements for backfilling and grading on steep slopes. Any application for a permit for surface coal mining and reclamation operations covered by steep slope mining shall contain sufficient information to establish that the operations will be conducted in accordance with the requirements for backfilling and grading on steep slopes.

This section applies to any person who conducts or intends to conduct steep slope surface coal mining and reclamation operations, except: where an operator proposes to conduct surface coal mining and reclamation operations on flat or gently rolling terrain, leaving a plain or predominantly flat area, but on which an occasional steep slope is encountered as the mining operation proceeds; where a person obtains a permit under the provisions for mountaintop removal mining; or, to the extent that a person obtains a permit incorporating a variance from approximate original contour restoration requirements.

### Analysis:

Approximate original contour will be achieved during grading (page 3.5-12). Post mining topography is shown on Exhibit 3.5-3. Associated cross-sections are illustrated on Plate 3.5-3B. Slopes are concave in design and do not exceed 2h:1v (page 3.5-12).

Table 3.5-7 provides a mass balance summary. There is 5,052 cu yds of fill required and 4,878 cu yds of cut available. It is not likely that there will be a shortfall, since a swell factor of 1.0 was used in these calculations.

Coal waste, asphalt, concrete, and steel will be buried beneath four feet of clean fill (page 3.5-10). Other non-coal waste will be disposed of in a designated disposal site within the permit area or at a State-approved solid waste disposal facility (page 3.5-11).

The general backfilling and grading requirements are as follows:

- Disturbed areas shall be backfilled and graded to achieve the approximate original contour.
- Eliminate all highwalls, spoil piles, and depressions.
- Achieve a minimum long-term static safety factor of 1.3 and to prevent slides.
- Minimize erosion and water pollution both on and off the site.
- Support the approved postmining land use.
- Exposed coal seams, acid- and toxic-forming materials, and combustible materials exposed, used, or produced during mining shall be adequately covered with nontoxic and noncombustible materials, or treated, to control the impact on surface and ground water, to prevent sustained combustion, and to minimize adverse effects on plant growth and the approved postmining land use.

The Division addresses the AOC and highwall issues in the AOC section of this TA.

The permittee did not address the following:

- Elimination of spoil piles and depressions if any.
- Safety factor requirements for the reclaimed slopes. The permittee did state that the reclaimed slopes would be concave and not exceed a slope of 2:1. While the Division usually considers 2:1 slopes to be stable, the permittee must address this issue in the MRP.

The permittee addressed the following issues:

- The permittee stated that coal debris and acid- and/or toxic-forming material exposed or excavated during reclamation grading will be removed, if possible, and used as backfill against cut slopes, or as backfill in depressions caused by removal of facilities. These materials will be covered by a minimum of four feet of the best available, nonacid- and nontoxic-forming and noncombustible material. The requirements of R645-301-553.300 require that exposed coal seams, acid- and toxic-forming materials and combustible materials be covered with nonacid- and nontoxic-forming and noncombustible material. The permittee committed to meet those requirements. For additional information on acid- and/or toxic-forming material see the soil section of the TA.
- How the permittee will minimize erosion and water pollution is addressed in the hydrology section of the TA. The Division usually considers these requirements met if the general hydrology requirements are met.
- The postmining land use requirements are addressed in the postmining land use section of the TA.

**Findings:**

**RECLAMATION PLAN**

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The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-553.120**, The permittee must describe spoil disposal plan.

**R645-301-553.120**, The permittee must show that the reclaimed slopes will have a safety factor of at least 1.3 and the slope angles will not exceed the angle of repose.

## **TOPSOIL AND SUBSOIL**

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

### **Minimum Regulatory Requirements:**

#### Redistribution

Topsoil materials shall be redistributed in a manner that: achieves an approximately uniform, stable thickness consistent with the approved postmining land use, contours, and surface-water drainage systems; prevents excess compaction of the materials; and, protects the materials from wind and water erosion before and after seeding and planting.

Before redistribution of the material, the regarded land shall be treated if necessary to reduce potential slippage of the redistribution material and to promote root penetration. If no harm will be caused to the redistributed material and reestablished vegetation, such treatment may be conducted after such material is replaced.

The Division may choose not to require the redistribution of topsoil or topsoil substitutes on the approved postmining embankments of permanent impoundments or of roads if it determines that placement of topsoil or topsoil substitutes on such embankments is inconsistent with the requirement to use the best technology currently available to prevent sedimentation, and, such embankments will be otherwise stabilized.

Nutrients and soil amendments shall be applied to the initially redistributed material when necessary to establish the vegetative cover.

The Division may require that the B horizon, C horizon, or other underlying strata, or portions thereof, removed and segregated, stockpiled, be redistributed as subsoil in accordance with the requirements of the above if it finds that such subsoil layers are necessary to comply with the revegetation requirements.

### **Analysis:**

This pre-SMCRA site will be reclaimed using the best available material from within the disturbed area. If an erosion problem occurs at Adit No. 1 or if the regraded surface fails to support vegetation, then topsoil from the Gravel Canyon topsoil pile will be used in a six-inch deep layer over the problem area.

The ephemeral channel at the site will be covered with three inches of soil and seeded and mulched (page 3.5-15 and Section 3.5 Appendix 3.5C page 8).

### **Findings:**

Information received in the amendment is considered adequate for the purposes of this

regulation.

## 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.

### Minimum Regulatory Requirements:

Hydrologic reclamation plan

The application shall include a plan, with maps and descriptions, indicating how the relevant regulatory requirements will be met. The plan shall be specific to the local hydrologic conditions. It shall contain the steps to be taken during mining and reclamation through bond release to minimize disturbance to the hydrologic balance within the permit and adjacent areas; to prevent material damage outside the permit area; and to meet applicable Federal and State water quality laws and regulations. The plan shall include the measures to be taken to: avoid acid or toxic drainage; prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow; provide water treatment facilities when needed; and control drainage. The plan shall specifically address any potential adverse hydrologic consequences identified in the PHC determination and shall include preventive and remedial measures.

Each application shall contain descriptions, including maps and cross sections, of stream channel diversions and other diversions to be constructed within the proposed permit area to achieve compliance with the performance standards for those structures.

Postmining rehabilitation of sedimentation ponds, diversions, impoundments, and treatment facilities

Before abandoning a permit area or seeking bond release, the operator shall ensure that all temporary structures are removed and reclaimed, and that all permanent sedimentation ponds, diversions, impoundments, and treatment facilities meet the requirements of this Chapter for permanent structures, have been maintained properly and meet the requirements of the approved reclamation plan for permanent structures and impoundments. The operator shall renovate such structures if necessary to meet the requirements of this Chapter and to conform to the approved reclamation plan.

### Analysis:

#### General

This amendment is to revise the reclamation plan for Adit No. 1, Castle Gate Mine. There are three significant hydrologic changes from the previously approved Mining and Reclamation Plan, MRP. The first is to revise the two reclamation channels from a riprap-lined channel to using erosion control mat lining in those channels. The second is to revise the riprap-lined channel below the large concrete box culvert and put the flow into a corrugated plastic pipe. The third change is to remove the MRP commitment to using silt fences in the drainages adjacent to the channels during reclamation.

The operator is advised to obtain the necessary permits and landowner permission before commencing reclamation activities. These may be necessary when working on or adjacent to the railroad tracks and over the river. Of particular concern is the responsibility after reclamation for the 8 by 10 foot box culvert that will be left under the highway. The operator will need to coordinate that with the Utah Department of Transportation (UDOT).

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RECLAMATION PLAN

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There is a conflict of commitments in the amendment. Page 3.5-10 indicates, "concrete foundations will be removed to at least one foot below the grade of the reclamation topography" while the last paragraph on the page says, "the top four feet will be clean and contain minimal, if any, non-coal waste." Page 3.5-12 also discusses a four-foot fill. The confusion of whether a one-foot or four-foot depth will be used needs to be resolved.

#### **Ground-water monitoring**

There is a ground water monitoring point, BM-30, which is an underground spring believed to flow from about 200 feet inside the adit. It has been, and remains, part of the ground water monitoring program for this mine. This is not a UPDES discharge point, as determined by the Utah Division of Water Quality in 1992. The amendment does not make it explicitly clear that this point will be monitored through reclamation until bond release. This needs to be made clear. Further, the original MRP, pages 7-58 and 7-59 indicate, "Groundwater will be sampled for a period of two years after sealing of the mine unless significant changes in quality of the water occurs from previous years of data." This is not consistent with R645-301-731.214, which states, "Ground-water monitoring will proceed through mining and continue during reclamation until bond release." This, too, must be clarified.

#### **Surface-water monitoring**

There are no surface-water monitoring points related to this amendment.

#### **Acid and toxic-forming materials**

Regulations require identification and treatment of acid and toxic-forming materials, see R645-301-731.300. The amendment, page 3.5-12 indicates any such materials exposed during reclamation will be used to fill in depressions and any remaining materials will be covered by a minimum of four feet of best available material. There is a caveat that the four-foot cover may be unachievable in some areas due to limited fill material available at the site. While this commitment fulfills requirements, there is no indication that materials at the site will be tested to identify their acid/toxic characteristics. Since identification is a requirement, this too should be added to the amendment in order to fulfill the commitment to treat such materials.

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

There are no discharges into an underground mine as related to this amendment.

#### **Gravity discharges**

There will be a gravity discharge from this Adit No. 1 after reclamation is completed. According to the MRP, page 3.5-2, "The water was flowing from the spring prior to the advent

of SMCRA and the Clean Water Act, and continues to flow today.” This discharge is not a UPDES discharge point based on a determination by the Utah Division of Water Quality. It does not appear the mine has had or will have any impact on the gravity discharge from the mine.

### **Water quality standards and effluent limitations**

See Gravity Discharges above.

### **Diversions**

The design event of a 10-year, 6-hour storm was used to design the channel protection. The small drainage area, about 27 acres, results in the stream being defined as “ephemeral” according to regulations; thus paragraph 742.333 applies, which calls for that design storm. The appropriate runoff curves were used for the calculations. Appendix 3.5C details the design of the channels and calculates the design flows. There is some confusion as to which drainages in the appendix apply to the drainages shown on Exhibit 3.53A. Discussion with the consultant clarified the matter; however, the appendix and/or the exhibit need to be revised to remove the confusion.

The amendment proposes to use erosion control mat instead of a riprap-lined channel, as described in the original MRP. There is a commitment to strictly follow the manufacturer’s installation instructions. The soils in the watershed have considerable rock content of various sizes from gravel to boulder size. The channel naturally armors itself and this can be seen in the field. As such, the erosion control mat can reasonably be expected to succeed in this situation and is an acceptable change.

Regulations require the removal of all culverts as part of the Reclamation Plan. See paragraph 301-542. The amendment proposes to install a polyethylene pipe below the 10 by 8 foot concrete box culvert to convey the runoff down to the Price River. The justification is the riprap would be difficult to construct on an 80% slope and the work would involve less disturbance using the polyethylene pipe. Originally, the MRP committed to design and construction of riprap lining, including a filter blanket. Since the regulations are specific on culvert removal during reclamation, it is not possible to approve culvert installation for reclamation. Such culverts also present ongoing maintenance issues. Steep slopes are a routine part of mine reclamation in Utah. This mine, and others, has such steep drainages today. In addition, there is an old road on a gentle slope leading from the highway down to the channel below the box culvert, which can accommodate access to the site. This can be seen on Exhibit 3.5-3. The operator will need to design and install a riprap-lined channel when reclaiming below the box culvert.

As part of the culvert and stream channel design, it is worth noting that there is an existing corrugated metal culvert just east of the box culvert. It is about 36 inches in diameter and its outfall can be seen in the field. The outfall location can also be seen on Exhibit 3.5-3. It

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RECLAMATION PLAN

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is possible that culvert might more easily accommodate the spring flows and, possibly, the stream flows. The outlet is further from the Price River (250 feet versus 125 feet) and may provide a lesser slope from the outlet to the river. Although this smaller culvert is now plugged with debris and the inlet cannot be seen, it may provide a better option than the box culvert.

When comparing the original MRP Exhibit 3.5-2 to the amendment Exhibit 3.5-3, it was noted that there is a diversion ditch, designated ACD-1, which takes flows around the adit site. That ditch could not be found on the amendment map and no references were found in the text. It needs to be made clear that ACD-1 will be removed as part of the reclamation of the adit site.

#### **Stream buffer zones**

The regulations, paragraph 731.600, do not allow disturbance within 100 feet of a stream, unless the Division finds that the activity will not violate applicable laws or adversely affect water quality. The proposed reclamation activities will occur in the streambed itself and the area within 100 feet of the ephemeral stream. These activities include transporting soil, grading, roughening, mulching, and planting. All of these are an integral part of the reclamation and necessary to achieve reclamation of the area. They will be temporary during construction only. They are expected not to violate laws or adversely affect the water quality.

#### **Sediment control measures**

Regulations call for the minimization of erosion to the extent possible, including retaining sediment within the disturbed area and using methods that trap sediment. The plan calls for reclamation work to begin at the highest elevations and proceed down, making the sediment pond the last structure to be removed. There is also a commitment to use concave slopes that do not exceed a 2:1 slope. These are good construction sequences and designs, which will reduce sediment generation.

The revised plan calls for "deep gouging to a depth of 12 to 18 inches." This is the accepted standard practice in reclamation of Utah coal mines. Seeding and mulch follow the gouging. These practices are expected to lead to successful revegetation. The original plan called for silt fences to be installed all along both sides of the reclaimed channels. This is explained in the original MRP text and the original Exhibit 3.5-3. The amendment proposes to eliminate these silt fences along the stream. While the proposed construction practices will minimize sediment generation, there will still be sediment generated while vegetation is becoming established. As such, it is not advisable to entirely eliminate the silt fences. This is particularly true since the Price River is immediately adjacent to the reclamation area. The Division would; however, be amenable to a series of two or three silt fences across the channel just upstream of the box culvert under the road. These would be constructed and maintained as originally explained in the MRP.

The amendment, page 3.5-19 and 20, describes the reseeding and mulching. When a

gully deeper than 9 inches occurs, they propose to rework the ground sufficiently to fill the adjacent gully and reseed and mulch "if necessary". Experiences at other mines prompt the Division to require NOT reworking the soil. That method exposes more bare and loosened soil and actually increases erosion. Thus, the Best Technology Currently Available is to import soil to fill the gully, and definitely, reseed and mulch the bare area. To be consistent, item 7 in the list on page 3.5-18, should not be crossed out. In addition, the silt fences and straw bales should NOT be removed, until after vegetation has been fully reestablished.

There is an indication that, "Straw bales will be installed in accordance with the recommendations of Barfield, et al." There is only one reference to straw bales in that book and no installation recommendations are made. Please provide a drawing or other method of demonstrating how straw bales will be installed. There is a similar problem in that the last paragraph on page 3.5-19 refers to Fig. 3.5.4 for installation methods for silt fences. The amendment Table of Contents shows that figure will be found on page 3.5-32. The figure is not there, nor anywhere else in the document. The old Figure 3.5.4 in the original MRP shows an approved silt fence installation method.

#### **Findings:**

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-121.200**, 1) the confusion of whether a one-foot or four-foot soil depth will be used for reclamation needs to be resolved. 2) It needs to be made clear that ACD-1 will be removed as part of the reclamation of the adit site. 3) Provide a drawing or other method of demonstrating how straw bales will be installed. 4) Provide Fig. 3.5.4 installation methods for silt fences and update the Table of Contents to show its location.

**R645-301-724**, The amendment does not make it explicitly clear that BM-30 will be monitored through reclamation until bond release. This needs to be made clear. Further, the original MRP, pages 7-58 and 7-59 indicate, "Groundwater will be sampled for a period of two years after sealing of the mine unless significant changes in quality of the water occurs from previous years of data." This is not consistent with R645-301-731.214, which states, "Ground-water monitoring will proceed through mining and continue during reclamation until bond release." This must be clarified.

**R645-301-731.300**, There is no indication that materials at the site will be tested to identify their acid/toxic characteristics. Since identification is a requirement, this should be added to the amendment in order to fulfill the commitment to treat such materials.

RECLAMATION PLAN

**R645-301-742, 1)** Appendix 3.5C and/or the Exhibit 3.5-3A needs to be revised to remove the confusion regarding drainage areas. **2)** The operator will need to design and install a riprap-lined channel when reclaiming below the box culvert. **3)** The use of silt fences along the reclaimed stream cannot be completely eliminated. The Division would be amenable to a series of two or three silt fences across the channel just upstream of the box culvert under the road. These would be constructed and maintained as originally explained in the MRP. **4)** Use the Best Technology Currently Available and import soil to fill erosion gullies and definitely reseed and mulch the bare area. To be consistent, item 7 in the list on page 3.5-18 should not be crossed out. In addition, the silt fences and straw bales should NOT be removed until after vegetation has been fully re-established.

## CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

### Minimum Regulatory Requirements:

#### General

Reclamation efforts, including but not limited to backfilling, grading, topsoil replacement, and revegetation, on all areas affected by surface impacts incident to an underground coal mine shall occur as contemporaneously as practicable with mining operations, except when such mining operations are conducted in accordance with a variance for concurrent surface and underground mining activities issued under Section 785.18 of this Chapter. The Division may establish schedules that define contemporaneous reclamation.

Variations for delay in contemporaneous reclamation requirement in combined surface and underground mining activities

This section shall apply to any person or persons conducting or intending to conduct combined surface and underground mining activities where a variance is requested from the contemporaneous reclamation requirements. Any person desiring a variance under this section shall file with the Division, complete applications for both the surface mining activities and underground mining activities which are to be combined. The reclamation and operation plans for these permits shall contain appropriate narratives, maps, and plans, which: show why the proposed underground mining activities are necessary or desirable to assure maximum practical recovery of the coal; show how multiple future disturbances of surface lands or waters will be avoided; identify the specific surface areas for which a variance is sought and the Sections of the Act, this Chapter, and the regulatory program from which a variance is being sought; show how the activities will comply with the requirements for protection of underground mining and other applicable requirements of the regulatory program; show why the variance sought is necessary for the implementation of the proposed underground mining activities; provide an assessment of the adverse environmental consequences and damages, if any, that will result if the reclamation of surface mining activities is delayed; and, show how offsite storage of spoil will be conducted to comply with the requirements of the Act, and the regulatory program.

A permit incorporating a variance under this section may be issued by the Division if it first finds, in writing, upon the basis of a complete application filed in accordance with this section, that: the applicant has presented, as part of the permit application, specific, feasible plans for the proposed underground mining activities; the proposed underground mining activities are necessary or desirable to assure maximum practical recovery of the mineral resource and will avoid multiple future disturbances of surface land or waters; the applicant has satisfactorily demonstrated that the applications for the surface mining activities and underground mining activities conform to the requirements of the regulatory program and that all other permits necessary for the underground mining activities have been issued by the appropriate authority; the surface area of surface mining activities proposed for the variance has been shown by the applicant to be necessary for implementing the proposed underground mining activities; no substantial adverse environmental damage, either onsite or offsite, will result from the delay in completion of reclamation otherwise required; the operations will, insofar as a variance is authorized, be conducted in compliance with the requirements of the regulatory program; comply with the provisions for offsite storage of spoil; liability under the performance bond required will be for the duration of the

underground mining activities and until all requirements have been complied with; and, the permit for the surface mining activities contains specific conditions delineating the particular surface areas for which a variance is authorized, identifying the applicable regulatory provisions, and, providing a detailed schedule for compliance with the provisions of this section. Variances granted by permits issued under this section shall be reviewed by the Division no later than 3 years from the dates of issuance of the permit and any permit renewals.

### **Analysis:**

According to the applicant the major portions of the Castle Gate surface facilities and disturbed areas were reclaimed in 1994. The substations at Hardscrabble and Sowbelly Canyons and the disturbed area associated with the #1 Adit did not undergo reclamation at that time. Apparently, they were to be included with the reclamation of the Crandall Canyon facilities. In 1998 a timetable for reclamation of the #1 Adit was provided to the Division.

### **Findings:**

The information provided is adequate to meet this section of the regulations.

## **REVEGETATION**

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

### **Minimum Regulatory Requirements:**

Revegetation: General requirements

The permittee shall establish on regraded areas and on all other disturbed areas except water areas and surface areas of roads that are approved as part of the postmining land use, a vegetative cover that is in accordance with the approved permit and reclamation plan and that is: diverse, effective, and permanent; comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved postmining land use and approved by the Division; at least equal in extent of cover to the natural vegetation of the area; and, capable of stabilizing the soil surface from erosion.

The reestablished plant species shall: be compatible with the approved postmining land use; have the same seasonal characteristics of growth as the original vegetation; be capable of self-regeneration and plant succession; be compatible with the plant and animal species of the area; and, meet the requirements of applicable State and Federal seed, poisonous and noxious plant, and introduced species laws or regulations.

The Division may grant exception to these requirements when the species are necessary to achieve a quick-growing, temporary, stabilizing cover, and measures to establish permanent vegetation are included in the approved permit and reclamation plan.

When the Division approves a cropland postmining land use, the Division may grant exceptions to the requirements related to the original and native species of the area. Areas identified as prime farmlands must also meet those specific requirements as specified under that section.

Revegetation: Timing

Disturbed areas shall be planted during the first normal period for favorable planting conditions after replacement of the plant-growth medium. The normal period for favorable planting is that planting time generally accepted locally for the type of plant materials selected.

Revegetation: Mulching and other soil stabilizing practices

Suitable mulch and other soil stabilizing practices shall be used on all areas that have been regraded and covered by topsoil or

RECLAMATION PLAN

topsoil substitutes. The Division may waive this requirement if seasonal, soil, or slope factors result in a condition where mulch and other soil stabilizing practices are not necessary to control erosion and to promptly establish an effective vegetative cover.

Revegetation: Standards for success

Success of revegetation shall be judged on the effectiveness of the vegetation for the approved postmining land use, the extent of cover compared to the cover occurring in natural vegetation of the area, and the general requirements for Revegetation. Standards for success and statistically valid sampling techniques for measuring success shall be selected by the Division and included in an approved regulatory program.

Standards for success shall include criteria representative of unmined lands in the area being reclaimed to evaluate the appropriate vegetation parameters of ground cover, production, or stocking. Ground cover, production, or stocking shall be considered equal to the approved success standard when it is not less than 90 percent of the success standard. The sampling techniques for measuring success shall use a 90-percent statistical confidence interval (i.e., a one-sided test with a 0.10 alpha error).

Standards for success shall be applied in accordance with the approved postmining land use and, at a minimum, the following conditions:

- 1.) For areas developed for use as grazing land or pasture land, the ground cover and production of living plants on the revegetated area shall be at least equal to that of a reference area or such other success standards approved by the Division.
- 2.) For areas developed for use as cropland, crop production on the revegetated area shall be at least equal to that of a reference area or such other success standards approved by the Division.
- 3.) For areas to be developed for fish and wildlife habitat, recreation, shelter belts, or forest products, success of vegetation shall be determined on the basis of tree and shrub stocking and vegetative ground cover. Such parameters are described as follows: minimum stocking and planting arrangements shall be specified by the Division on the basis of local and regional conditions and after consultation with and approval by the State agencies responsible for the administration of forestry and wildlife programs. Consultation and approval may occur on either a programwide or a permit-specific basis; trees and shrubs that will be used in determining the success of stocking and the adequacy of the plant arrangement shall have utility for the approved postmining land use. Trees and shrubs counted in determining such success shall be healthy and have been in place for not less than two growing seasons. At the time of bond release, at least 80 percent of the trees and shrubs used to determine such success shall have been in place for 60 percent of the applicable minimum period of responsibility; and, vegetative ground cover shall not be less than that required to achieve the approved postmining land use.

For areas to be developed for industrial, commercial, or residential use less than 2 years after regrading is completed, the vegetative ground cover shall not be less than that required to control erosion.

For areas previously disturbed by mining that were not reclaimed to the requirements of the performance standards and that are remined or otherwise redisturbed by surface coal mining operations, as a minimum, the vegetative ground cover shall be not less than the ground cover existing before redisturbance and shall be adequate to control erosion.

The period of extended responsibility for successful revegetation shall begin after the last year of augmented seeding, fertilizing, irrigation, or other work, excluding husbandry practices that are approved by the Division.

In areas of more than 26.0 inches of annual average precipitation, the period of responsibility shall continue for a period of not less than five full years. Vegetation parameters identified for grazing land or pasture land and cropland shall equal or exceed the approved success standard during the growing seasons of any two years of the responsibility period, except the first year. Areas approved for the other uses shall equal or exceed the applicable success standard during the growing season of the last year of the responsibility period.

In areas of 26.0 inches or less average annual precipitation, the period of responsibility shall continue for a period of not less than 10 full years. Vegetation parameters shall equal or exceed the approved success standard for at least the last 2 consecutive years of the responsibility period.

The Division may approve selective husbandry practices, excluding augmented seeding, fertilization, or irrigation, provided it obtains prior approval from the Director as a State Program Amendment that the practices are normal husbandry practices, without extending the period of responsibility for revegetation success and bond liability, if such practices can be expected to continue as part of the postmining land use or if discontinuance of the practices after the liability period expires will not reduce the probability of permanent revegetation success. Approved practices shall be normal husbandry practices within the region for unmined lands having land uses similar to the approved postmining land use of the disturbed area, including such practices as disease, pest, and vermin control; and any pruning, reseeding, and transplanting specifically necessitated by such actions.

## **Analysis:**

### **General requirements**

As noted in the analysis of the vegetation resource information the application needs to include the other seed mixes identified in the reclamation plan.

### **Timing**

Revegetation timing is described in section 9.5-4 of chapter 9 of the MRP. Spring, (March 15 to May 15), and Fall, (October 15 until freezing conditions), are the two time frames identified for planting. However, a detailed schedule and timetable for the steps and phases of reclamation is not provided.

### **Mulching and other soil stabilizing practices**

The application suggests the addition of 1 to 1.5 tons of certified noxious weed-free straw mulch to be spread over the seeded growth media. The straw mulch will then be sprayed with a tackifier and mulch mixture at about 500 pounds per acre.

### **Standards for success**

The standards for revegetation success are described in sections 9.5-6, (1), (2) of the MRP. The current operation and reclamation plan contains several vegetation maps and an AML reference area map. However, none of the maps identify the #1 Adit or a reference area for the Adit. A representative reference area should be established in order to accurately describe the standards for revegetation success.

## **Findings:**

The information provided is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284,** The application needs to include references to the other seed mixes identified in the reclamation plan. The application needs to include a detailed schedule and timetable for the steps and phases of reclamation. The application needs to include a reference area for the #1 Adit. The reference area for the adit should be established in accordance with the vegetation guidelines established by the Division.

## RECLAMATION PLAN

### STABILIZATION OF SURFACE AREAS

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

**Minimum Regulatory Requirements:**

All exposed surface areas shall be protected and stabilized to effectively control erosion and air pollution attendant to erosion. Rills and gullies which form in areas that have been regraded and topsoiled and which either disrupt the approved postmining land use or the reestablishment of the vegetative cover, or, cause or contribute to a violation of water quality standards for receiving streams, shall be filled, regraded, or otherwise stabilized; topsoil shall be replaced; and the areas shall be reseeded or replanted.

**Analysis:**

The site will be furrowed on the contour. Two tons/acre (page 3.5-13) of hay or straw will be mechanically blown on the regraded surface. The soil surface will then be deep gouged to create water-holding basins and incorporate the straw (page 3.5-13 and 3.5-18). Seed from No. 1 in Chapter 9 will be broadcast over the site. Following the seeding, the site will receive an additional 1 to 1.5 tons per acre of straw much applied with mechanical blowers (page 3.5-14) and then will be sprayed with a hydro-mulch and tackifier at a rate of 500 lbs per acre.

Before seeding and mulching, silt fences and straw bales will be placed in the channel to control sediment (page 3.5-19). After seeding and mulching, as Appendix 3.5-D demonstrates, the amount of sediment estimated to leave the site drops dramatically from 7 Tons/acre/year to 0.2 Tons/acre/year.

An erosion control mat will be placed in the channel bottom (page 3.5-15 and Section 3.5 Appendix 3.5C page 8). The channel will be seeded and mulched as well.

The site will be inspected quarterly. Gully's greater than nine inches in depth will trigger corrective action (page 3.5-20).

**Findings:**

Information received in the amendment is considered adequate for the purposes of this regulation.

### 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.

**Minimum Regulatory Requirements:**

Each application shall contain maps, plans, and cross sections which show the reclamation activities to be conducted, the lands to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations, if the facility

## RECLAMATION PLAN

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or feature was shown and described as an existing structure.

The permit application must include as part of the reclamation plan information, the following maps, plans and cross sections:

### Affected area boundary maps

The boundaries of all areas proposed to be affected over the estimated total life of all mining activities and reclamation activities, with a description of size, sequence, and timing of phased reclamation activities and treatments. All maps and cross sections used for reclamation design purposes shall clearly show the affected and permit area boundaries in reference to the reclamation work being accomplished.

### Bonded area map

The permittee shall identify the initial and successive areas or increments for bonding on the permit application map and shall specify the bond amount to be provided for each area or increment. The bond or bonds shall cover the entire permit area, or an identified increment of land within the permit area upon which the operator will initiate and conduct surface coal mining and reclamation operations during the initial term of the permit. As surface coal mining and reclamation operations on succeeding increments are initiated and conducted within the permit area, the permittee shall file with the Division an additional bond or bonds to cover such increments. Independent increments shall be of sufficient size and configuration to provide for efficient reclamation operations should reclamation by the Division become necessary.

### Reclamation backfilling and grading maps

Contour maps and cross sections to adequately show detail and design for backfilling and grading operations during reclamation. Where possible, cross sections shall include profiles of the pre-mining, operations, and post-reclamation topography. Contour maps shall be at a suitable scale and contour interval so as to adequately detail the final surface configuration. When used in the formulation of mass balance calculations, cross sections shall be at adequate scale and intervals to support the mass balance calculations. Mass balance calculations derived from contour information must demonstrate that map scale and contour accuracy are adequate to support the methods used in such earthwork calculations. Detailed cross sections shall be provided when required to accurately depict reclamation designs which include, but are not limited to: terracing and benching, retained roads, highwall remnants, slopes requiring geotechnical analysis, and embankments of permanent impoundments.

### Reclamation facilities maps

Location of each facility that will remain on the proposed permit area as a permanent feature, after the completion of underground mining activities. Location and final disposition of each sedimentation pond, permanent water impoundment, coal processing waste bank, and coal processing water dam and embankment, disposal areas for underground development waste and excess spoil, and water treatment and air pollution control facilities within the proposed permit area to be used in conjunction with phased reclamation activities or to remain as part of reclamation.

### Final surface configuration maps

Sufficient slope measurements to adequately delineate the final surface configuration of the area affected by surface operations and facilities, measured and recorded according to the following: each measurement shall consist of an angle of inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area disturbed or, where this is impractical, at locations specified by the Division; where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances, or any other distance determined by the Division to be representative of the post-reclamation configuration of the land; and, slope measurements shall take into account variations in slope, to provide accurate representation of the range of slopes and reflect geomorphic differences of the area disturbed through reclamation activities.

### Reclamation monitoring and sampling location maps

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, subsidence, fish and wildlife, and air quality, if required, to demonstrate reclamation success.

### Reclamation surface and subsurface manmade features maps

The location of all buildings in and within 1,000 feet of the proposed permit area, with identification of the current or proposed use of the buildings at the time of final reclamation. The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area, including, but not limited to, major electric transmission lines, pipelines, fences, and agricultural drainage tile fields. Each public road located in or within 100 feet of the proposed permit area and all roads within the permit area which are to be left as part of the post-mining land use. Buildings, utility corridors, and facilities to be used in conjunction with reclamation or to remain for final reclamation.

### Reclamation treatments maps

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**RECLAMATION PLAN**

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The location and boundaries of any proposed areas for reclamation treatments including but not limited to: location, extent and depth of materials used for resoiling; location, extent and types of treatments for revegetation including soil preparation, soil amendments, mulching, seeding, variations in seed mixtures, and other revegetation treatments. Each water diversion, collection, conveyance, treatment, storage and discharge facility to be used during reclamation. *Each facility to be used to protect and enhance fish and wildlife related environmental values.* other treatments or applications which are specifically designed or required as part of phased or final reclamation activity.

**Certification Requirements.**

Cross sections, maps, and plans required to show the design, location, elevation, or horizontal or vertical extent of the land surface or of a structure or facility used to conduct mining and reclamation operations shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional land surveyor, with assistance from experts in related fields such as landscape architecture.

Each detailed design plan for an impounding structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture; include any geotechnical investigation, design, and construction requirements for the structure; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Each detailed design plan for an impounding structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments shall be certified by a qualified, registered, professional engineer; include any design and construction requirements for the structure, including any required geotechnical information; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

**Analysis:**

**Reclamation backfilling and grading maps**

Exhibit 3.5-3 and Exhibit 3.5-3B show the reclaimed topography and cross section for the Adit No. 1 mine. The information on the maps and cross sections is adequate for the Division to determine if the backfilling and grading plan is adequate.

**Final surface configuration maps**

Exhibit 3.5-3 and Exhibit 3.5-3B show the reclaimed topography and cross section for the Adit No. 1 mine. The information on the maps and cross sections is adequate for the Division to determine if the reclamation plan is adequate.

**Reclamation monitoring and sampling location maps**

Neither the current MRP nor the application contains reclamation monitoring and or sampling location maps.

**Reclamation treatments maps**

Neither the current MRP nor the application contain reclamation treatments maps.

### **Findings:**

The information provided is not adequate to meet this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731**, The reclamation plan for the #1 Adit needs to include reclamation treatments, and monitoring and sampling location maps.

## **BONDING AND INSURANCE REQUIREMENTS**

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

Minimum Regulatory Requirements:

### General

After a permit application has been approved, but before a permit is issued, the applicant shall file with the Division, on a form prescribed and furnished by the Division, a bond or bonds for performance made payable to the Division and conditioned upon the faithful performance of all the requirements of the Act, the regulatory program, the permit, and the reclamation plan.

The bond or bonds shall cover the entire permit area, or an identified increment of land within the permit area upon which the operator will initiate and conduct surface coal mining and reclamation operations during the initial term of the permit. As surface coal mining and reclamation operations on succeeding increments are initiated and conducted within the permit area, the permittee shall file with the Division an additional bond or bonds to cover such increments.

The operator shall identify the initial and successive areas or increments for bonding on the permit application map and shall specify the bond amount to be provided for each area or increment. Independent increments shall be of sufficient size and configuration to provide for efficient reclamation operations should reclamation by the Division become necessary.

An operator shall not disturb any surface areas, succeeding increments, or extend any underground shafts, tunnels, or operations prior to acceptance by the Division of the required performance bond.

The applicant shall file, with the approval of the Division, a bond or bonds under one of the following schemes to cover the bond amounts for the permit area as determined: a performance bond or bonds for the entire permit area; a cumulative bond schedule and the performance bond required for full reclamation of the initial area to be disturbed; or, an incremental-bond schedule and the performance bond required for the first increment in the schedule.

### Form of bond

The Division shall prescribe the form of the performance bond. The Division may allow for: a surety bond; a collateral bond; a self-bond; or a combination of any of these bonding methods.

Performance bond liability shall be for the duration of the surface coal mining and reclamation operation and for a period which is coincident with the operator's period of extended responsibility for successful revegetation or until achievement of the reclamation requirements of the Act, regulatory programs, and permit, whichever is later.

With the approval of the Division, a bond may be posted and approved to guarantee specific phases of reclamation within the permit area provided the sum of phase bonds posted equals or exceeds the total amount required. The scope of work to be guaranteed and the liability assumed under each phase bond shall be specified in detail.

Isolated and clearly defined portions of the permit area requiring extended liability may be separated from the original area and bonded separately with the approval of the Division. Such areas shall be limited in extent and not constitute a scattered, intermittent, or checkerboard pattern of failure. Access to the separated areas for remedial work may be included in the area under extended liability if deemed necessary by the Division.

The bond liability of the permittee shall include only those actions which he or she is obligated to take under the permit, including

## RECLAMATION PLAN

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completion of the reclamation plan, so that the land will be capable of supporting the postmining land use approved. Implementation of an alternative postmining land use which is beyond the control of the permittee, need not be covered by the bond. Bond liability for prime farmland shall be specific to include productivity requirements.

### Determination of bond amount

The amount of the bond required for each bonded area shall: be determined by the Division; depend upon the requirements of the approved permit and reclamation plan; reflect the probable difficulty of reclamation, giving consideration to such factors as topography, geology, hydrology, and revegetation potential; and, be based on, but not limited to, the estimated cost submitted by the permit applicant.

The amount of the bond shall be sufficient to assure the completion of the reclamation plan if the work has to be performed by the Division in the event of forfeiture, and in no case shall the total bond initially posted for the entire area under 1 permit be less than \$10,000.

An operator's financial responsibility for repairing material damage resulting from subsidence may be satisfied by the liability insurance policy required in this section.

### Terms and conditions for liability insurance

The Division shall require the applicant to submit as part of its permit application a certificate issued by an insurance company authorized to do business in the United States certifying that the applicant has a public liability insurance policy in force for the surface coal mining and reclamation operations for which the permit is sought. Such policy shall provide for personal injury and property damage protection in an amount adequate to compensate any persons injured or property damaged as a result of the surface coal mining and reclamation operations, including the use of explosives, and who are entitled to compensation under the applicable provisions of State law. Minimum insurance coverage for bodily injury and property damage shall be \$300,000 for each occurrence and \$500,000 aggregate.

The policy shall be maintained in full force during the life of the permit or any renewal thereof and the liability period necessary to complete all reclamation operations under this Chapter.

The policy shall include a rider requiring that the insurer notify the Division whenever substantive changes are made in the policy including any termination or failure to renew.

The Division may accept from the applicant, in lieu of a certificate for a public liability insurance policy, satisfactory evidence from the applicant that it satisfies applicable State self-insurance requirements approved as part of the regulatory program and the requirements of this section.

## Analysis:

### Determination of bond amount

The direct reclamation costs are usually divided into 1) demolition and disposal, 2) earthwork, and 3) revegetation. The Division reviewed the costs and found the demolition and revegetation cost estimates to be adequate because:

- The permittee listed the structures that need to be demolished along with their size and material type.
- The permittee stated how the debris would be disposed.

The Division reviewed the earthwork and revegetation costs and found them to be deficient for the following reasons:

- The permittee is not consistent with the time used for some earthwork items. For example, on rough grading the permittee states that rental period for the excavator

is 0.3 months; the time operating the excavator is 40 hours and then uses a *Means* productivity amount for the labor times. The permittee states that there are 21 workdays in a month and that the equipment will be operated 10 hours per day (210 hour per month.) The number of work hours in 0.3 months is 63 hours; however, the permittee uses 40 hours to calculate operating costs. The Means productivity calculations used to calculate labor costs are based on an output of 1,280 cubic yards per day. The amount of material that needs to be excavated is 2440 cubic yards which means that the hours used for labor cost is 15.3 hours.

- The permittee is not consistent with the amount of time needed for the foreman and support equipment. According to the timetable, the earthwork should be done in 3 weeks; however, the cost estimates list one month for those items.
- The permittee did not include separate costs for applying mulch after seeding.

#### **Terms and conditions for liability insurance**

The permittee does not need to adjust the insurance amounts for this project.

#### **Findings:**

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

**R645-301-830.120, R645-301-830.130 and R645-301-121.200,** The permittee must provide the following information: 1) the time needed to complete excavating and grading, 2) the time support personnel are needed, and 3) the additional costs for applying mulch after seeding and chemical or physical anchors.