

September 13, 2004

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

Re: Conditional Approval of Gravel Canyon Topsoil Stockpile Reclamation,  
Willow Creek Mine, Plateau Mining Corporation, C/007/0038, Task ID  
#2024, Outgoing File

Dear Mr. Pappas:

The three design options described in the Gravel Canyon Topsoil Stockpile Reclamation plan are conditionally approved upon receipt of five clean copies prepared for incorporation. Please submit these copies by September 24, 2004. Once we receive these copies, final approval will be granted, at which time you may proceed with your plans.

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

From recent discussions (field visit, 9/01/04), we understand that Option B is the most likely reclamation plan to be followed.

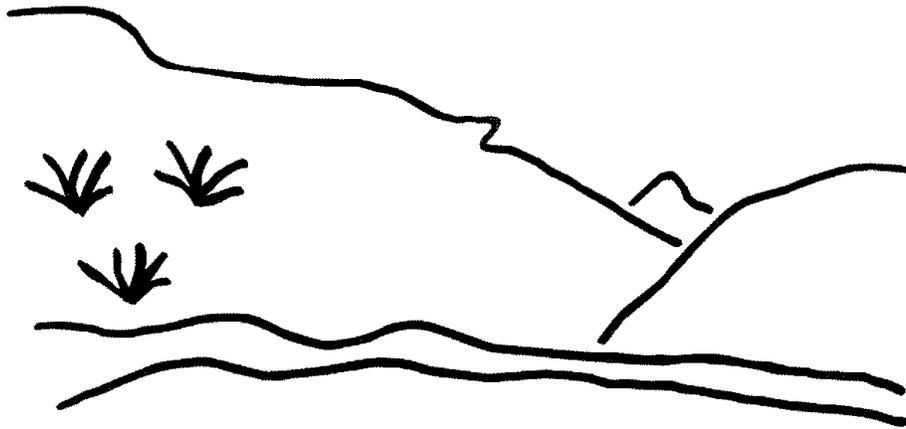
If you have any questions, please call me at (801) 538-5268 or Priscilla Burton at (801) 538-5288.

Sincerely,

Pamela Grubaugh-Littig  
Permit Supervisor

PWB/sm  
Enclosure  
cc Price Field Office  
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# State of Utah



## Utah Oil Gas and Mining

### Coal Regulatory Program

Willow Creek Mine  
Gravel Canyon Topsoil Stockpile Reclamation  
Permit #C/007/0038, Task ID #2024  
Technical Analysis  
September 8, 2004



## TABLE OF CONTENTS

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<b>INTRODUCTION</b> .....	<b>3</b>
<b>ENVIRONMENTAL RESOURCE INFORMATION</b> .....	<b>5</b>
SOILS RESOURCE INFORMATION.....	5
<b>RECLAMATION PLAN</b> .....	<b>7</b>
APPROXIMATE ORIGINAL CONTOUR RESTORATION.....	7
BACKFILLING AND GRADING.....	7
General.....	8
TOPSOIL AND SUBSOIL.....	8
Redistribution.....	8
MINE OPENINGS.....	9
HYDROLOGIC INFORMATION.....	9
Hydrologic Reclamation Plan.....	9
STABILIZATION OF SURFACE AREAS.....	10
<b>MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS</b> .....	<b>11</b>
Affected Area Boundary Maps.....	11
Bonded Area Map.....	11
Reclamation Backfilling And Grading Maps.....	11
Reclamation Facilities Maps.....	12
Final Surface Configuration Maps.....	12
Reclamation Monitoring And Sampling Location Maps.....	12
Certification Requirements.....	12
<b>BONDING AND INSURANCE REQUIREMENTS</b> .....	<b>12</b>
Determination of Bond Amount.....	12

## TABLE OF CONTENTS

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## TECHNICAL ANALYSIS

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# TECHNICAL ANALYSIS

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

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

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

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

Not every topic or regulatory requirement is discussed in this TA. Only those sections are analyzed that pertain to the particular permitting action, in this case the revision of the Gravel Canyon Topsoil Stockpile Reclamation, Task 2024 (previously reviewed as Task 1962). Those sections that are not discussed in this document are generally considered to be in compliance. Previously completed TA's for the Willow Creek Mine, would be the source of "findings" for any section not discussed herein.

Page 2  
C/007/0038  
Task ID #2024  
September 8, 2004

**TECHNICAL ANALYSIS**

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## INTRODUCTION

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## INTRODUCTION

The Division previously reviewed task 1962, an application from Plateau Mining Corporation providing three design options for the reclamation of the five acre Gravel Canyon topsoil storage area and associated intermittent stream channel. (received June 17, 2004) Additional information received on August 30, 2004 is the subject of this review.

The Gravel Canyon storage site held 107,639 CY of soil (Table 4.2-1).

Table 3.6-6 presents the reclamation mass balance for three options:

- Option A = net cut of 97,093 cu yds, 10,546 cu yds remain.
- Option B = net cut of 64,977 cu yds, 42,662 cu yds remain.
- Option C = net cut of 37,078 cu yds, 70,000 cu yds remain.

During a site visit on September 1, 2004, Mr. Pappas indicated that the most likely option to be pursued would be Option B. The graded soil remaining will be gouged and seeded. Two composite samples will be taken of the regraded surface before seeding.

The stream channel will be filled with soil and seeded (Appendix 3.6B).

Page 4  
C/007/0038  
Task ID #2024  
September 8, 2004

## **INTRODUCTION**

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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.

### **SOILS RESOURCE INFORMATION**

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

#### **Analysis:**

Soils information for the Gravel Canyon storage area is described in MRP volume 13, sec 8.4-2(4) and volume 11, sec 3.6. The five-acre Gravel Canyon site was previously disturbed for road construction materials. Native soils were lost. Its use as a topsoil storage area began in 1983 (Section 3.6-1). Operational contours are shown on Exhibit 3.6-2. The reclamation plan described in the MRP for the Gravel Canyon Mine site entails removing 97,000 cu yds of stored topsoil from Gravel Canyon (v. 11, sec 3.6, Table 3.6-6 and Figure 3.6-5). To date, more than 37,000 CY of topsoil have been removed from Gravel Canyon and placed in Schoolhouse Canyon, or against the Willow Creek Mine pad highwall (cover letter with the application dated June 10, 2004 and field visit 9/01/04).

Exhibit 3.6-3 (v. 11) illustrates the approved reclamation contours for the site, assuming 97,000 cu yds are cut for use as topsoil. However, current designs for gravel canyon envision less than 97,000 cu yds being removed from the site (Sec 3.6-4). Exhibit 3.6-4 illustrates the reclamation contours and cross-sections for Options B and C being proposed that would leave more soil material in the canyon.

The soil was sampled in 2003 for the purposes of channel filter design and classified as clayey sand with gravel (SC): 30% gravel, 30% sand, 40% silt and clay (Appendix 3.6B).

Two samples will be taken of the soils remaining after excavation of the topsoil. The samples will be analyzed for pH, EC, SAR, texture, nitrate-N, available phosphorous and extractable potassium. The analysis will be placed in Appendix 3M. (Section 3.6-4(1), page 3.6-5) This sampling will provide information on the characteristics of the soils remaining after excavation of the topsoil. The plan does not call for fertilizer and none is suggested at this time.

#### **Findings:**

The information provided meets the requirements of the Regulations.

Page 6

C/007/0038

Task ID #2024

September 8, 2004

**ENVIRONMENTAL RESOURCE INFORMATION**

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## RECLAMATION PLAN

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# RECLAMATION PLAN

## APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

### **Analysis:**

The requirements to achieve approximate original contour restoration are couched in the general backfilling and grading requirements. Because there are no highwalls or other direct mining operations associated with the site, the main criterion that the Division used to evaluate the AOC requirements was would the site blend into the surrounding area.

At present the topography on cross section A-A' Exhibit 3.6-4 is a concave mound, which is a manmade feature. Under Scenerio B and C, the mound would be replaced with a V shaped valley. Canyons in the area have V shaped valley, therefore the reclaimed site would blend into the surrounding areas.

The approved reclamation plan called for the site to be returned to a V shaped valley. While the reclaimed site under Scenerio B and C may not be as steep as the approved design, the Division believes that all designs will blend into the surrounding areas.

The other requirements for achieving AOC involve hydrology and postmining land use. The hydrology issues were discussed in other sections of the TA. The postmining land use will not change.

### **Findings:**

The information in the amendment is adequate to meet the minimum requirements of this section of the regulations.

## BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

**Analysis:**

**General**

The approved plan was to remove 97,000 CY of topsoil/growth medium from the stockpile area. PMC later estimated that from 37,000 CY to 97,000 CY of material would be removed. PMC proposed three scenarios: Scenario A is the approved plan to remove 97,000 CY, Scenario B is to remove 65,000 CY and Scenario C is to remove 37,000 CY. PMC committed to supplying the Division with certified as built drawing.

The Division's main concern with backfilling a grading was slope stability. Under the approved plan, the site would be restored to a stable condition. Under Scenario B and C, the site would be restored to a gentler slope.

The Division discussed the AOC requirements in the AOC section of the TA. There were no settled and revegetated fills, excess spoil or underground development waste at the site. Therefore, PMC was not required to show compliance for those issues.

Because the AOC and stability requirements were met, the Division found that the backfilling and grading requirements were satisfied.

**Findings:**

The information in the amendment is adequate to meet the minimum requirements of this section of the regulations.

**TOPSOIL AND SUBSOIL**

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

**Analysis:**

**Redistribution**

The five acre Gravel Canyon storage site held 107,639 CY of soil (Table 4.2-1). To date approximately 37,000 CY of topsoil have been removed from Gravel Canyon and placed in Schoolhouse Canyon (cover letter with the application dated June 10, 2004).

Table 3.6-6 presents the reclamation mass balance for three options:

## RECLAMATION PLAN

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- Option A = net cut of 97,093 cu yds, 10,546 cu yds remain.
- Option B = net cut of 64,977 cu yds, 42,662 cu yds remain.
- Option C = net cut of 37,078 cu yds, 70,000 cu yds remain.

The graded soil remaining will be gouged and seeded (Section 3.6-4).

The channel will be filled with soil and seeded (Appendix 3.6B).

### **Findings:**

The information provided meets the requirements of the Regulations.

## **MINE OPENINGS**

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

### **Analysis:**

There are no mine openings associated with the Gravel Canyon area.

### **Findings:**

The information in the amendment is adequate to meet the minimum requirements of this section of the regulations.

## **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

### **Analysis:**

#### **Hydrologic Reclamation Plan**

There will be one reclamation channel for the Gravel Canyon Topsoil Pile (CGRD-1). The Permittee does not propose any changes to the channel design if final reclamation results in option "B" or "C." Since the channel in Gravel Canyon is ephemeral, the Permittee designed the reclamation channel to safely pass a 10-year 6-hour storm with a minimum freeboard of 1 foot.

The 10-year 6-hour storm for this area is 1.4 inches. The channel will be 3-feet wide at the bottom and 1.5-feet deep with 3:1 side slopes. The  $D_{50}$  riprap size is 4 inches. If the Permittee does not remove any further material from the pile, and therefore implements option "C," the channel will end in an appropriately sized pre-SMCRA undisturbed diversion channel.

The amendment presents a detailed filter blanket and riprap design in appendix 3.6B. The filter blanket will be a 6-inch thick layer of UDOT 1" base mix; the Permittee will not use a synthetic fabric at all.

The Permittee plans several measures to control sediment during reclamation, including:

- Placement/redistribution of topsoil,
- Mulching,
- Deep gouging,
- Seeding, and
- Tackifying.

The Permittee performed Modified Universal Soil Loss Equation (MUSLE) calculations, which show that pre-mining conditions would have yielded 24.2 tons/acre/yr of sediment, while the site will yield just 0.14 tons/acre/yr immediately post-reclamation and 20.7 tons/acre/yr long-term post-reclamation.

### **Findings:**

Information provided in the application is adequate to meet the minimum Hydrologic Reclamation Plan requirements of the regulations.

## **STABILIZATION OF SURFACE AREAS**

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

### **Analysis:**

Two tons/acre of certified noxious-weed-free-hay will be gouged into the soil surface. Following seeding an additional 1 to 1.5 tons/acre of certified noxious-weed-free-straw will be applied to the surface and sprayed with a tackifier and mulch mixture at a rate of 0.25 tons/acre (section 3.6-4(1), pg 3.6-6).

Gullies greater than nine inches in depth will be filled as necessary to establish vegetation (sec 3.6-4(3), pg 3.6-13).

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## RECLAMATION PLAN

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Appendix 3.6C presents the RUSLE calculations for sediment yield, indicating that pre-mining conditions would yield 24.2 tons/acre/yr and after vegetation establishment that yield is reduced to 20.7 tons/acre/yr.

### **Findings:**

The information provided meets the requirements of the Regulations.

## **MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

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

### **Analysis:**

#### **Affected Area Boundary Maps**

The affected area will not change because of the modification to the reclamation plan for Gravel Canyon.

#### **Bonded Area Map**

The bonded area will not change because of the modification to the reclamation plan for Gravel Canyon.

#### **Reclamation Backfilling And Grading Maps**

Exhibits 3.4-10 and 3.4-10a provide cross sections and Exhibit 3.4-12 provides station locations for the profile of Gravel Canyon drainage under reclamation Option A.

Exhibits 3.4-10 and 3.4-10a provide cross sections and Exhibit 3.4-12 provides station locations for the profile of the Gravel Canyon drainage under reclamation Option A.

Exhibit 3.6-4 (revised 08/23/04) illustrates the reclamation contours and cross-sections for Options B and C being proposed that would leave more soil material in the canyon. This exhibit presents cross-sections, and profiles of the proposed drainage configurations. Mr. Layne Jensen, a P.E. registered in the State of Utah prepared the map and certified it properly.

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

### **Reclamation Facilities Maps**

No facilities were associated with the reclamation of the Gravel Canyon site.

### **Final Surface Configuration Maps**

Exhibit 3.6-4 shows Scenario B and C for the reclamation of Gravel Canyon. Scenario A is shown in Exhibits 3.4-10 and 3.4-10a of the MRP. Exhibit 3.4-12 provides station locations for the profile of Gravel Canyon drainage under reclamation Option A.

### **Reclamation Monitoring And Sampling Location Maps**

The Permittee indicated in a letter dated March 19, 2004 to Daron Haddock that an as-built topography map will be created from aerial photography of Gravel Canyon and the Willow Creek Mine site. Soil sampling locations should be indicated on the As-Built to document the sampling effort.

### **Certification Requirements.**

Layne Jensen certified the revised reclamation maps for Gravel Canyon. He is a registered profession engineer.

### **Findings:**

The information provided meets the requirements of the Regulations.

## **BONDING AND INSURANCE REQUIREMENTS**

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

### **Analysis:**

#### **Determination of Bond Amount**

Current bond held for the Willow Creek site is \$7,866,000.00. The reclamation cost estimates for this bond were based on the worst-case scenario, which for Gravel Canyon would

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**RECLAMATION PLAN**

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be Scenario A. Under Scenario A 97,000 CY of material would be hauled from the site. Under Scenario B and C, less material would be removed. If less material is removed, the reclamation costs will either remain the same or decrease. Therefore, the Division does not consider that an increase to the bond amount is needed to cover Scenario B and C.

**Findings:**

The information in the amendment is adequate to meet the minimum requirements of this section of the regulations.