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

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OK

July 30, 2003

Mike Glasson, Environmental Coordinator  
Andalex Resources, Inc.  
6750 Airport Road  
P. O. Box 902  
Price, Utah 84501

Re: Stockpile Expansion, Andalex Resources Inc., Wildcat Loadout. C/007/0033-AM03A,  
Task #1381, Outgoing File

Dear Mr. Glasson:

This amendment has been reviewed by Division staff and found to be deficient (A Technical Analysis is provided for your review). Please respond by October 31, 2003 to continue review of this application or your application will be denied if a response is not received within the 90-day timeframe.

If you would like to set up a meeting to discuss this, or have any other questions please call Priscilla Burton at (801) 538-5288 or myself at (801) 538-5268.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Pamela Grubaugh-Littig'.

Pamela Grubaugh-Littig  
Permit Supervisor

an  
Enclosure  
cc: Price Field Office  
O:\007033.WCL\FINAL\DEFAM03A1381.DOC

# State of Utah



## Utah Oil Gas and Mining

### Coal Regulatory Program

Wildcat Loadout  
Stockpile Area  
C/007/033-AM03A  
Task ID #1381  
Technical Analysis  
July 28, 2003



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## TECHNICAL ANALYSIS

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# TECHNICAL ANALYSIS

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

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

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

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

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

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**TECHNICAL ANALYSIS**

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## INTRODUCTION

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# INTRODUCTION

The site of the Wildcat Loadout is found on the "Standardville" U.S. Geological Survey 7.5 minute quadrangle map in Township 13 South, Range 9 East, Section 33 (see also Figure 1, Chapter I). The site is located three miles west of highway 6 on the Consumer's Road, within a BLM Right of Way granted in 1992. Andalex has held the permit for the Wildcat Loadout since 1985. The permit area covers 91 acres of which 63.7 acres are within the disturbed area boundary (Exhibit A of the Permit). Of these disturbed acres, 36.1 acres are pre-SMCRA (Chap III, Section G, Part 3, pg 46 and Appendix B). The facility was originally designed to handle the loading and crushing of 1.5 million tons per year (Chap I, Part B, page 3). The rolling twelve month production throughput in January 2002 was 3.8 million tons (email communication from Marv Maxell, Bureau of Air Quality, July 2003).

Plans were received May 12, 2003 to expand the West Ridge "A2,B" coal stockpile on the southeast side of the haul road PR-5 between sediment ponds A and B, adding 0.92 acres of disturbance within the previously established disturbed area boundary. The "A2,B" pile is dedicated to the storage of coal from the West Ridge Mine as shown on Plate 1, Wildcat Loadout Surface Facilities. The stockpile expansion will be fed by a grasshopper conveyor and ultimately have the height of 40 feet (Field Visit February 28, 2003).

ASCAs currently provide sediment control for the area that will be affected. The expanded pile will report to Sedimentation Pond B. Calculations and plans for enlarging Pond B to a volume of 0.464 acre-feet are requested.

Currently it is estimated that 419,823 cubic ft of topsoil (15,549 CY) is stored in four stockpiles A, B, E & F (MRP, pg 80). At a replacement depth of six inches, the 56-acre site has a deficit of 30,000 cu yds of soil, (page 51 of the MRP). The Carbon County soil survey classifies the undisturbed soils in the Wildcat area as Map Unit 52, Hernandez family 3-8% slopes. Harvesting these deep soils could alleviate the deficit. The plan proposes stripping topsoil to a depth of 24 inches within the 0.9 acre additional disturbed area. This would provide 3,000 cu yds of topsoil that would be placed on Topsoil Stockpile A, immediately adjacent to the expansion area. The Division has requested salvage of an additional depth (thirty inches) of subsoil to be used as substitute topsoil. In addition, the Division has requested relocation of Topsoil Pile A upwind from the coal stockpiles.

Coal fines have accumulated on the surface of the expansion area to a (maximum) depth of seven inches. Coal fines will be removed from the topsoil prior to salvage and placed in the refuse pile located on the western perimeter of the site, immediately north of topsoil storage areas E and B.

## INTRODUCTION

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The January 2000 Air Quality Permit requires that the maximum area dedicated to storage piles is 16.5 acres. The application should verify the current acreage devoted to stockpiles at the site and include aggressive measures to avoid deposition of coal fines outside the disturbed area.

Techniques used to reclaim the site were stipulated on the 1989 permit. Consequently, spoil test plots were installed in 1989 and topsoil test plots were installed in 1994. Results from these test plots lead the Division to request that the Permittee coordinate with the Division to develop an alternative interim reclamation plan for the topsoil and subsoil salvaged from the 0.92 acres, including the seed mix, timing of seeding and soil preparation. (Rainfall patterns at the site (Table III-1 page 31 of the MRP) indicate that seeding could be accomplished between the months of August through February.)

**SUMMARY OF DEFICIENCIES**

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**SUMMARY OF DEFICIENCIES**

The Technical analysis of the proposed permit changes cannot be completed at this time. Additional information is requested of the permittee to address deficiencies in the proposal. A summary of deficiencies is provided below. Additional comments and concerns may also be found within the analysis and findings made in this Draft Technical Analysis. Upon finalization of this review, any deficiencies will be evaluated for compliance with the regulatory requirements. Such deficiencies may be conditioned to the requirements of the permit issued by the division, result in denial of the proposed permit changes, or may result in other executive or enforcement action and deemed necessary by the Division at that time to achieve compliance with the Utah Coal Regulatory Program.

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

***Regulations***

- R645-301-264.500**, The permittee’s designation or use of “Plate 1” to describe two different maps could cause confusion in the future. Another designation for the Plate submitted as part of 03A should be made for clarification purposes, or the permittee should submit a “revised” copy of the currently approved Plate 1, as it exists within the MRP showing the revision to the stockpile storage area. .... 25
- R645-301-830**, The Permittee must give the Division detailed reclamation cost estimates for reclaiming the addition 0.92 acres. .... 43
- R645-302-263 and 645-301-422**, (1) The application must account for the existing acreage of storage piles on site and if the acreage is in exceedence of the Item 15 of the Air Quality Approval Order, the application must include correspondence with the Executive Secretary of the Utah Air Quality Board concerning the existing and proposed acreage of the site dedicated to storage piles. .... 27
- R645-302-263 and R645-301-113.300**, The application must include a listing of all violations received within the last three years prior to the date of this application by Andalex Resources and affiliated companies. .... 12

**SUMMARY OF DEFICIENCIES**

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**R645-302-263 and R645-301-121.100**, (1) Please revise or remove the statement on page 62 of Section 5.2 concerning the fugitive dust accumulations east of the main stockpile and “the nine year history of Wildcat.” (2) Update Table of Contents with new Appendices. (3) Update Chapter IV, Part A, Sections 1 - 5 with current information. (4) Update Chapter IV, Part F, Section 3 with current information on acreage with topsoil removed. (5) Revised Plate 1 must clearly show the location of the topsoil substitute revegetation test plot areas as described in Chapter IV, Part F, Section 3, page 81. (6) Update the information presented in Volume I, Part IV, Section V, Item 5 of the MRP. (7) Update information in the MRP regarding the current capacity of the facility in tons per year (Chap I, Part B, page 3). (8) Exhibit A of the Permit describes the bonded area as the surface disturbed area of 63.7 acres (Exhibit A is dated March 6, 1995), however Chap I, Part B, page 1 and Chap III, Section G, Part 3, pg 46 indicates that 56.1 acres are disturbed. Please provide the most accurate information on the disturbed area in the narrative and Plates of the MRP. .... 14

**R645-302-263 and R645-301-121.200**, (1) Instructions on the C1 C2 form indicate that page 63 should be replaced, however, the information on the new page 63 does not replace the information on the existing page 63, please renumber the new pages accordingly. (2) Show on a map the areas of contemporaneous reclamation described in the permit application in Chap IV, Part F, Section 3, page 80 and 82. (3) Please clarify the apparent contradiction stated in Chapter IV, Part F, Section 3, page 80-A and 80-B concerning the treatments applied to the ground surface after transferring topsoil piles to a new location in 1994. i.e. Was there any interim reclamation of the ground surface? (4) Update page xviii of the table of contents to reflect the correct number of plates. (5) The Permittee must address the following editing corrections in Chapter III Appendix F: Page 50 of the MRP states no TE species, which is inconsistent with the TE species listed in Appendix F, such as the golden eagle (pg. 97); Appendix F (e.g., pages 92 and 98) refers the reader to Appendix A for a list of protected species that inhabit the project area – Appendix A is the Archeology Report; The text on pages 100-102 does not flow from page to page. (6) The Permittee must clarify disturbed boundary lines among all maps. e.g., Plates 1, 16, and 22. (7) The Permittee must clarify the discrepancy of the survey date(s) for the 1989 growth site/medium test-plot study (pgs. 51 and Appendix N cover page). (8) The Permittee must include a cover sheet with the 1997 follow-up survey, conducted by Mt Nebo Scientific that clearly states that the plot descriptions are incorrect. Furthermore, any reference in the MRP to this survey must also include a disclaimer. (9) The Permittee must clarify that the seed mix listed on page 80A was used only as a test-interim seed mix. (10) The Permittee must either obtain Division approval or remove the statement from the MRP concerning application of water following seeding. .... 15

**R645-302-263 and R645-301-131**, Update the list of consultants provided in Volume I, Chapter VI, Section A of the MRP. .... 15

**R645-302-263 and R645-301-231.400**, The submittal should include a revision of the text and plates where topsoil stockpiles are described including cross-sections of the topsoil piles as constructed (Plate 13) and Chapter IV page 80, page 80A, and 80B. .... 32

**SUMMARY OF DEFICIENCIES**

**R645-302-263 and R645-301-232.500**, (1) The application should indicate that subsoil from twenty four to fifty four inches below the surface will be separately salvaged and stockpiled for use as substitute topsoil during final reclamation. (2) If further information is available concerning the evaluation of the spoil test plots from the 1993 Annual Report, please provide said information to the Division by including it in Appendix N of the MRP..... 32

**R645-302-263 and R645-301-234.220**, Topsoil Pile A should be relocated to the vicinity of Topsoil Pile E to avoid contamination by fugitive dust from the coal stockpiles located to the northwest..... 32

**R645-302-263 and R645-301-243**, The use of nitrogen fertilizer should be omitted from the reclamation timetable on page 84 of the MRP..... 40

**R645-302-263 and R645-301-321.100, 321-200, -322.230**, (1)The Permittee must select a new reference area. The Division will work with the Permittee to select new reference area that has not been previously affected by operations. The Permittee must conduct a vegetation survey of the new reference area. (2) The Permittee must conduct productivity estimation of the new reference area. .... 21

**R645-302-263 and R645-301-322.210**, The Permittee must assess the possibility of specific habitat for TE species (Carbon county) within and adjacent to the permit area as well as the new reference area. The Permittee must conduct occurrence surveys for animal and plant TE species that have representative habitats within the assessment area. .... 22

**R645-302-263 and R645-301-331**, Please verify whether the disturbed areas where topsoil was removed were drill seeded with the mixture specified on page 88..... 32

**R645-302-263 and R645-301-341.300**, The Permittee must coordinate with the Division to develop an alternative interim reclamation plan for the topsoil and subsoil salvaged from the 0.92 acres including the seed mix, timing of seeding and soil preparation. .... 39

**R645-302-263 and R645-301-353.120**, The Permittee must omit the following non-native species from the interim and final seed mixes: crested wheatgrass, Russian wildrye, forage kochia, alfalfa, and yellow sweetclover as well as reduce seed rate of whitestem rabbitbrush. The Permittee must present the seed mix lists in table format, which include botanical and common names, pure live seed per foot, pure live seed per acre, total pure live seed per foot, total pure live seed per acre. .... 41

**R645-302-263 and R645-301-356.100**, The permittee must relocate the vegetation reference area to an area that has not been or will not be impacted by fugitive coal fines. .... 42

**R645-302-263 and R645-301-711.300**, The Permittee needs to recalculate peak runoff to Pond B for the larger drainage area..... 35

**SUMMARY OF DEFICIENCIES**

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- R645-302-263, 264.220 and R645-301-711.300, 733.100, 741**, The Permittee needs to submit plans for enlarging Pond B to a volume of 0.464 acre-feet. .... 35
- R645-302-264.300 and R645-301-731.311**, (1) Include in the application the quantity of coal preparation waste stored on site in the coal preparation storage area and in fills. (2) Provide in Appendix D the refuse analyses referenced on page 147-G-1 of Section 1.2, Part O of Chapter IV. (3) Provide the annual leachate analysis and the acid/base accounting analysis of the coal referenced on page 23, Section 1.2-5, Part C of Chapter III. .... 33
- R645-302-264.300**, Indicate in the application what material will be used to create the fill necessary for the foundation of the expansion area. .... 34
- R645-302-264.700**, The application should include aggressive measures to avoid wind and water deposition of coal fines outside the disturbed area. .... 27

**SPECIAL CATEGORIES**

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**REQUIREMENTS FOR PERMITS FOR SPECIAL  
CATEGORIES OF MINING**

**COAL PREPARATION PLANTS NOT LOCATED WITHIN THE PERMIT  
AREA OF A MINE**

Regulatory Reference: 30 CFR Sec. 785.21, 827; R645-302-110, R645-302-260, et seq.

**Analysis:**

As outlined in the subsequent sections of this technical analysis, the application was reviewed under the Utah Rules for Coal Processing Plants Not Located Within the Permit Area of a Mine, R645-**302-260**. All provisions of R645-300 and R645-301 apply to this category of mining unless otherwise specified under R645-302.

**Findings:**

As discussed in this Technical Analysis, the information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. The Division's Findings are outlined under the R645-301 headings that follow.

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**SPECIAL CATEGORIES**

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## GENERAL CONTENTS

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# GENERAL CONTENTS

## IDENTIFICATION OF INTERESTS

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645-301-112

### **Analysis:**

The proposal to expand the coal stockpile area designated as “A2,B” at the Wildcat rail loading facility has been submitted by the permittee, Andalex Resources, Inc.

All ownership and control information contained in the report filed with the Utah Department of Commerce lists Andalex Resources, Inc. as a Corporation authorized to conduct business in the State of Utah. Chapter 1, page 7-A of the mining and reclamation plan delineates the corporate personnel as of March 1996. Analysis of the AVS system (during the mid-term review) versus Chapter 1, page 7-A of the mining and reclamation plan indicates that no changes have been made in Corporate personnel.

### **Findings:**

This section has met the minimum regulatory requirements based upon current information in the Mining and Reclamation Plan.

## VIOLATION INFORMATION

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645-300-132; R645-301-113

### **Analysis:**

Appendix B contains a list of six violations that were incurred by Andalex in the years preceeding the original MRP application, 1984 – 1987. Chapter II, Section B, item 3 (page 9, incorporated effective April 26, 1999) indicates that there were no additional violations incurred prior to the April 26, 1999 date. Rule R645-301-113.300 requires that a list of all violations incurred during the three years preceeding the date of application is submitted with the application. Alternatively, the Permittee may restate in this application that Appendix B contains a listing of all violations received within the last three years prior to the date of this application by Andalex Resources and affiliated companies.

## GENERAL CONTENTS

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### **Findings:**

The information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. Prior to approval, the Permittee must provide the following, in accordance with:

**R645-302-263 and R645-301-113.300**, The application must include a listing of all violations received within the last three years prior to the date of this application by Andalex Resources and affiliated companies.

### **RIGHT OF ENTRY**

Regulatory Reference: 30 CFR 778.15; R645-301-114

#### **Analysis:**

The proposed amendment to expand the stockpile storage area is within the currently approved disturbed area for the Wildcat site, on federal land managed by the Bureau of Land Management.

The surface lease agreement with the Utah Railway has been in place since 1981 (Appendix B). The U.S. Department of the Interior, Bureau of Land Management Right of Way Agreement has been in effect since 1982 (Chapter II, Section C and Appendix B). The Agreement with Beaver Creek Coal Co. has been in effect since 1988 (Appendix B).

#### **Findings:**

The minimum Right of Entry requirements of the Regulations have been established.

### **LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS**

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

#### **Analysis:**

The proposed amendment to expand the stockpile storage area is within the currently approved disturbed area for the Wildcat site (Plate 1).

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## GENERAL CONTENTS

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### **Findings:**

The minimum requirements for Legal Description and Status of Unsuitability Claims are addressed in the MRP Chapter II, Sections C and D.

### **PERMIT TERM**

Regulatory References: 30 CFR 778.17; R645-301-116.

### **Analysis:**

The mining permit for the Wildcat Loadout Facility was issued to Andalex Resources Inc. in May 1999 for a period of five years. The current permit expires May 5, 2004.

Effective May 1994, Exhibit A of the permit described a surface disturbance of 63.7 acres.

### **Findings:**

Andalex Resources Inc. holds a valid State of Utah mining permit that expires May 5, 2004.

### **PERMIT APPLICATION FORMAT AND CONTENTS**

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

### **Analysis:**

The application indicates on page 63 of Section 5.2 that “This area has been lightly covered by wind-carried coal fines over the nine year history of Wildcat.” This statement is outdated. Wildcat has been in operations for 18 years. The covering of coal fines accumulating to the east of the main stockpile has been measured to be approximately three inches deep and does not qualify as “lightly covered” any longer.

Air Quality information is presented in Volume I, Part IV, Section V of the MRP. Item 5 indicates that the loadout is not required to have a PSD Air Quality Permit. This statement is outdated and should be corrected.

## GENERAL CONTENTS

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The boundary lines for the disturbed area do not match among certain maps in the MRP, e.g., Plates 1, 16, and 22. The Permittee must clarify disturbed boundary lines among all maps.

The Permittee must clarify the discrepancy of the survey date(s) for the 1989 growth site/medium test-plot study (Chapter III pgs. 51 and Appendix N cover page). (See Vegetation section of Operations for more details).

The Permittee must include a cover sheet with the 1997 follow-up survey, conducted by Mt Nebo Scientific that clearly states that the plot descriptions are incorrect. Furthermore, any reference in the MRP to this survey must also include a disclaimer. (See Vegetation section of Operations for more details).

Other areas of the application and MRP needing correction and clarification are itemized in the deficiencies below.

### Findings:

The information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. Prior to approval, the Permittee must provide the following, in accordance with:

**R645-302-263 and R645-301-121.100**, (1) Please revise or remove the statement on page 62 of Section 5.2 concerning the fugitive dust accumulations east of the main stockpile and “the nine year history of Wildcat.” (2) Update Table of Contents with new Appendices. (3) Update Chapter IV, Part A, Sections 1 - 5 with current information. (4) Update Chapter IV, Part F, Section 3 with current information on acreage with topsoil removed. (5) Revised Plate 1 must clearly show the location of the topsoil substitute revegetation test plot areas as described in Chapter IV, Part F, Section 3, page 81. (6) Update the information presented in Volume I, Part IV, Section V, Item 5 of the MRP. (7) Update information in the MRP regarding the current capacity of the facility in tons per year (Chap I, Part B, page 3). (8) Exhibit A of the Permit describes the bonded area as the surface disturbed area of 63.7 acres (Exhibit A is dated March 6, 1995), however Chap I, Part B, page 1 and Chap III, Section G, Part 3, pg 46 indicates that 56.1 acres are disturbed. Please provide the most accurate information on the disturbed area in the narrative and Plates of the MRP.

**R645-302-263 and R645-301-121.200**, (1) Instructions on the C1 C2 form indicate that page 63 should be replaced, however, the information on the new page 63 does not replace the information on the existing page 63, please renumber the new pages accordingly. (2) Show on a map the areas of contemporaneous reclamation

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## GENERAL CONTENTS

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described in the permit application in Chap IV, Part F, Section 3, page 80 and 82. (3) Please clarify the apparent contradiction stated in Chapter IV, Part F, Section 3, page 80-A and 80-B concerning the treatments applied to the ground surface after transferring topsoil piles to a new location in 1994. i.e. Was there any interim reclamation of the ground surface? (4) Update page xviii of the table of contents to reflect the correct number of plates. (5) The Permittee must address the following editing corrections in Chapter III Appendix F: Page 50 of the MRP states no TE species, which is inconsistent with the TE species listed in Appendix F, such as the golden eagle (pg. 97); Appendix F (e.g., pages 92 and 98) refers the reader to Appendix A for a list of protected species that inhabit the project area – Appendix A is the Archeology Report; The text on pages 100-102 does not flow from page to page. (6) The Permittee must clarify disturbed boundary lines among all maps. e.g., Plates 1, 16, and 22. (7) The Permittee must clarify the discrepancy of the survey date(s) for the 1989 growth site/medium test-plot study (pgs. 51 and Appendix N cover page). (8) The Permittee must include a cover sheet with the 1997 follow-up survey, conducted by Mt Nebo Scientific that clearly states that the plot descriptions are incorrect. Furthermore, any reference in the MRP to this survey must also include a disclaimer. (9) The Permittee must clarify that the seed mix listed on page 80A was used only as a test-interim seed mix. (10) The Permittee must either obtain Division approval or remove the statement from the MRP concerning application of water following seeding.

## REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

### **Analysis:**

Consultants are listed in Volume I, Chapter VI, Section A of the MRP. The soil survey was conducted by Mr. James Nyenhuis, an ARCPACS certified soil scientist.

### **Findings:**

The information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. Prior to approval, the Permittee must provide the following, in accordance with:

**R645-302-263 and R645-301-131**, Update the list of consultants provided in Volume I, Chapter VI, Section A of the MRP.

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**GENERAL CONTENTS**

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**ENVIRONMENTAL RESOURCES 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.

### **GENERAL**

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

#### **Analysis:**

The Wildcat loadout is located on the Masuk member of the Upper Cretaceous Mancos Shale (Chap III, Part D, Item 2, page 26). There are no principal surface water courses found within one-quarter mile of the permit area, and no perennial streams within one mile of the permit area.

A small ephemeral drainage known as Garley Canyon runs south of the permit area and eventually drains into the Price River, approximately three and one-half miles southeast of the permit area (Chap III, Part D, Item 1.3-2.2, page 25). Treated runoff from the permit area flows into the Garley Canyon drainage. The drainage pattern of the area is shown on Figure III-2 and Plate 15.

#### **Findings:**

The information provided meets the minimum General Environmental Resource Information requirements of the Regulations.

### **PERMIT AREA**

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

#### **Analysis:**

The permit area covers 91 acres of which 63.7 acres are within the disturbed area boundary (Exhibit A of the Permit). Of these disturbed acres, 36.1 acres are pre-SMCRA (Chap III, Section G, Part 3, pg 46). The proposed amendment to expand the West Ridge "A2,B" coal stockpile on the southeast side of the haul road PR-5 between sediment ponds A and B, adds 0.92 acres of disturbance that is already within the currently approved disturbed area boundary for the Wildcat site. The site is on federal land managed by the Bureau of Land Management.

**Findings:**

The information provided meets the requirements of the Permit Area Regulations.

**CLIMATOLOGICAL RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.18; R645-301-724.

**Analysis:**

Climatological information is provided in Volume 1, Chapter III, Section F of the MRP.

Temperatures at the site are 3 – 5 degrees cooler than in Price, Utah which is 1,500 ft lower in elevation than the mine site. The frost-free period lasts about five months from early May to early October (Chapter III, Sec F., Part 3.2, page 36). Rainfall patterns at the site (Table III-1 page 31 of the MRP) indicate that the time for seeding could be extended from mid-August through late December (too allow time for seed stratification during the winter months).

The timing of topsoil regrading and seeding in the reclamation schedule described in Chapter IV, Part F, Section 1.1, page 73, may be revised based on this climatological information (see discussion in Operations - Revegetation section of this TA).

**Findings:**

The information provided meets the minimum requirements for Climatological Information.

**HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION**

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

**Analysis:**

The Permittee states the mine received archeological clearance (pg. 15). Supporting documentation is found in Appendix B, Item #11 and #14.

Appendix A contains the following related documentation:

- Letter to BLM from LaMar Lindsay, Division of State History (1 pg.).
- BLM Summary Report of Inspection for Cultural Resources (1 pg.).

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- 1:7000' map of the area surveyed.
- Letter to LaMar Lindsay from Lorraine Dobra, contracted surveyor (2 pgs.).

The cover letter to Blain Miller (BLM) from DSH (1981) states there was one artifact located on the Wildcat permit area. It also states that Lorraine Dobra was the lead surveyor and that her vita accompanied the summary report (vita is not in the MRP). The Summary Report is a form stating survey coordinates, acres surveyed (85), number of sites found (0), actual/potential national register properties affected (none), and recommendations (no mitigation). The letter to DSH from Ms. Dobra (1981) states that Jim Kirkman assisted Ms. Dobra with the survey. The letter also describes the overall landscape and soil type of the area. Ms. Dobra reports that there was one artifact located on permit area. This artifact was a metate fragment of medium grained yellow sandstone pecked on the used surface. The surveyors also located another artifact outside the permit area. This artifact was a mano of fine-grained red sandstone. Ms. Dobra recommended providing clearance for cultural resources.

The Permittee also states that the area is of little paleontological importance (Central Utah Environmental Impact Statement) and is not near or in the vicinity of a park.

### **Findings:**

Information provided in the application is considered adequate to meet the minimum Historic and Archeological Resource Information section of the Environmental Resource Information regulations.

## VEGETATION RESOURCE INFORMATION

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

### **Analysis:**

Appendix I contains the 1988 Vegetation Resource Information survey for the current reference area conducted by Nicolas van Pelt. This surveyor examined the following:

- Site condition and features.
- Cover.
- Shrub density.
- Shrub height.

van Pelt's survey was thorough of the reference area, but was not comprehensive. The survey did not include a full examination of proposed permit area or areas affected by surface operations. This survey also did not include estimations of productivity.

van Pelt (1988) comments that the reference area was unaffected by mining operations (pg. 2), in fair to good condition (pg. 4), *slightly covered with coal fines* (pg. 3), and no signs of long-term composition change (pg. 4). The primary species listed by van Pelt include sagebrush and Indian ricegrass. The secondary species include galleta, winterfat, pricklypear, low rabbitbrush, downy brome, and needle and thread. There were no biologic crusts observed (pg. 3).

The Division examined the far southeast corner of the permit area on February 26 and July 2, 2003. Visual inspection of the area revealed that the site is in extremely poor condition. The mature sagebrush to the east of the coal stockpile are dead or dying. There are a few younger sagebrush plants present. Without official age analysis, these younger sagebrush may be the seedlings van Pelt refers to fifteen years ago (pg. 4). There is a considerable amount of cover from curing cheatgrass as well as a thick layer of cheatgrass thatch. There are other weedy plants presents in high numbers, e.g., tumbleweed. There are a few plants of globemallow and Indian ricegrass. This area contains no cryptogamic soil.

The current reference area is mostly covered with coal fines. The depth of the coal fines varies from slightly to deeply covering the soil surface. This variation may be related to water and wind dispersal.

Visual inspection by the Division (2003) of the reference area suggests that the area has changed in composition and condition from the survey conducted in 1988. The Permittee must select a new reference area because of the poor condition of the current reference area. The Division will work with the Permittee to select new reference area that has not been previously affected by operations. The Permittee must conduct a vegetation survey of the new reference area to provide thorough and updated baseline. The measurements must include all parameters listed in the DOGM Vegetation Information Guidelines including productivity (R645-301-321.100, R645-301-321.200).

The Permittee has verbally proposed a site for a new reference area that is northeast of operations and southwest of the county road. The proposed reference area is in better condition and contains greater numbers of species and plants compared to the current site. Although the proposed site is in visually better condition, it still has patches of ground that are slightly covered with coal fines. Because there is no apparent reason other than coal fines accounting for the degradation of the current reference area, the Permittee must select a reference area that has not been or will not be affected by operations.

### **Findings:**

Information provided in the application is not considered adequate to meet the minimum Vegetation Resource Information section of the Environmental Resource Information regulations. Prior to approval of this amendment, the Permittee must act in accordance with the

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## ENVIRONMENTAL RESOURCES INFORMATION

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finding(s) below. In advance, the Permittee must also address the Division's concerns noted above prior to the 12-acre expansion amendment.

**R645-302-263 and R645-301-321.100, 321-200, -322.230,** (1)The Permittee must select a new reference area. The Division will work with the Permittee to select new reference area that has not been previously affected by operations. The Permittee must conduct a vegetation survey of the new reference area. (2) The Permittee must conduct productivity estimation of the new reference area.

## FISH AND WILDLIFE RESOURCE INFORMATION

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

### Analysis:

Appendix F provides a wildlife resources overview of the area, but this overview is not accompanied with a date or author's name. The Appendix states that, in the Wasatch Plateau, there are 364 wildlife species with 168 species likely to occur at the coal loadout area. Furthermore, that 98% of the 168 species or their habitats are protected at some point in time (pg. 92) throughout a year.

The Permittee provides little information concerning threatened, endangered (TE), or state protected animal and plant species. Appendices F and I briefly mention TE of the area, but they do not meet the TE survey requirement. The MRP states that there are no known TE species according to UDWR (pg. 50); however, there is no accompanying date, author's name, or supporting data.

Although Appendix F overview is apparently comprehensive for animal species, there is no indication of an actual survey or ground-truthing. The Permittee must assess the possibility of specific habitat for TE species (Carbon county) within and adjacent to the permit area as well as the new reference area. The Permittee must provide the assessment in table format that includes animal and plant species name and habitat requirements. Include thorough explanations why there are no habitats for TE species that do not have representative habitats within the assessment area. That is, do not simply state "there is no habitat", instead, state that there are no cliffs or vegetation within the area that is required for breeding and foraging by species "x". The Permittee must conduct occurrence surveys for animal and plant TE species that have representative habitats within the assessment area. The Permittee should consult with the Division prior to TE surveys. (R645-301-322.210).

The Permittee must address the following editing corrections in Appendix F: (See R645-301-121.200 in Permit Application Format and Contents)

- Page 50 of the MRP states no TE species, which is inconsistent with the TE species listed in Appendix F, such as the golden eagle (pg. 97).
- Appendix F (e.g., pages 92 and 98) directs the reader to Appendix A for a list of protected species that inhabit the project area – Appendix A is the Archeology Report.
- The text on pages 100-102 does not flow from page to page.

### **Findings:**

Information provided in the application is not considered adequate to meet the minimum Fish and Wildlife Resource Information section of the Environmental Resource Information regulations. Prior to approval, the Permittee must act in accordance with the finding listed below and R645-301-121.200 in General Contents.

**R645-302-263 and R645-301-322.210**, The Permittee must assess the possibility of specific habitat for TE species (Carbon county) within and adjacent to the permit area as well as the new reference area. The Permittee must conduct occurrence surveys for animal and plant TE species that have representative habitats within the assessment area.

## **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:**

Soil Resources are described in Chapter III, Part I of the MRP. Appendix D contains the Soil Survey information for the site as well as the topsoil mass balance and soil chemistry information. Plate 13 summarizes topsoil storage.

The Carbon County soil survey classifies the undisturbed soils in the Wildcat area as Map Unit 52, Hernandez family 3-8% slopes. These deep soils could supply a lot more than six or twelve inches of topsoil.

The Wildcat soil was described twenty years ago by Earl Jensen, retired soil scientist with the NRCS. (The location for his pit is generally given as the intersection of the Gordon Creek road and Utah Railroad.) He classified the soil as fine loamy mixed mesic Ustollic Calciorthis with a map unit name of Abra loam. He indicated that there was 60 inches of available topsoil. He also indicated that there was a layer of calcium carbonate accumulation from 9 – 12 inches. And that adjacent soils did not have this layer of accumulation. The Abra loam is an official series name on the NRCS soil survey web site <http://wwwsoils.usda.gov> go

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into classification and official series descriptions, view by series names. The NRCS changed the classification of this series to fine loamy, superactive, mesic, Ustic Haplocalcid. The “superactive” designation pertains to the ratio of the electrical conductivity and the percent clay. There can be a calcic horizon in the soil.

The 1988 SCS soil survey for Carbon County maps the soils of the site as the Hernandez Series (Map Unit 55) and classifies the soils as fine-loamy, mixed, superactive, mesic Ustic Haplocalcid (similar to the Abra loam, described above). This is a deep soil that is capable of high production if an adequate amount of water is supplied.

The submittal provides an Addendum to Appendix D containing soil survey information for the acre expansion area. The survey was conducted by Mt. Nebo Scientific under the direction of Mr. James Nyenhuis, an ARCPACS certified soil scientist. Mr. Nyenhuis was on site March 13, 2003 to survey and map the soils eastward to the County Road. The survey confirms the Hernandez soil identification. Mr. Nyenhuis recommends salvage of the surface twenty four inches as the best available material based on texture and nutrient content, but describes the entire profile (to 54 inches) as suitable growth material.

Substitute topsoil has also been evaluated in four fill slopes of the site through the use of test plots described in Appendix N. These plots were installed in 1989 and last evaluated in 1993, with limited success.

The site currently has a deficit of 30,000 cu yds of topsoil for a minimal coverage of six inches. There is no provision for the four foot of cover required for the quantity of coal preparation waste on site. This expansion could be an effective way to eliminate the deficit in topsoil resources.

### **Findings:**

The information provided meets the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

## **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.

### **Analysis:**

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

The boundary lines for the disturbed area do not match among certain maps in the MRP, e.g., Plates 1, 16, and 22. The Permittee must clarify disturbed boundary lines among all maps.

(See item #6 written under deficiency R645-302-263 and R645-301-121.200, Permit Application Format and Contents).

**Findings:**

Information provided in the application is not considered adequate to meet the minimum Maps, Plans, and Cross Section Resource Information section of the Environmental Resource Information regulations. Prior to approval of this amendment, The Permittee must clarify disturbed boundary lines among all maps. (See item #6 written under deficiency R645-302-263 and R645-301-121.200, Permit Application Format and Contents).

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## MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

### Analysis:

Amendment 03A is proposing to increase the stockpile storage acreage of the West Ridge “A2, B” pile by 0.92 acres. This will require reducing the acreage of ASCA #3 by 0.80 acres and the acreage of ASCA #4 by 0.12 acres respectively. Both areas utilize straw bales and vegetation as the method of treatment. The permittee has submitted a revised Plate 1, which is the surface facilities map for the Wildcat Loadout. The stockpile area expansion is highlighted in bright yellow. Plate 1 was P.E. certified by Mr. Dan Guy of Blackhawk Engineering, Inc. on May 8, 2003.

Plate 1 also depicts the road that provides vehicular access about the perimeter of the proposed stockpile expansion. The Plate 1 that has been submitted as part of amendment 03A does not show the level of detail that the currently approved Plate 1, as it exists within the mining and reclamation plan, and which was last updated on March 27, 2002 shows. The approved Plate 1 classifies and designates each road within the Wildcat permit area.

### Findings:

The information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. Prior to approval, the Permittee must provide the following, in accordance with:

**R645-301-264.500**, The permittee’s designation or use of “Plate 1” to describe two different maps could cause confusion in the future. Another designation for the Plate submitted as part of 03A should be made for clarification purposes, or the permittee should submit a “revised” copy of the currently approved Plate 1, as it exists within the MRP showing the revision to the stockpile storage area.

## AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

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### Analysis:

Air Quality information is presented in Volume I, Part IV, Section V of the MRP. Item 1 indicates that the permit area is in a Class II air quality area. The Air Quality Approval Order (AO) dated January 5, 2000 was included with this application. The AO allows a total throughput of 5,000,000 tons per rolling twelve month period.

Among other things, the AO requires water or chemical treatments on unpaved roads to be kept moist at all times unless the weather is freezing. The AO places a 0.21 mile limit on the length of the haul road and a speed of 5 mph.

The AO requires covered conveyors. The AO requires that water sprays or chemical dust sprays are used on all unpaved operational areas that are used by mobile equipment, as well as truck unloading stations and all screens. The moisture content of the material passing through a #40 sieve is to be maintained at 4% by weight.

The AO requires that the maximum area dedicated to storage piles is 16.5 acres. Storage piles will be watered as dry conditions warrant, and chemical stabilization of the storage pile. Visible emissions from all points shall not exceed 20% opacity.

The Permittee should provide the acreage of storage piles currently in existence at the Wildcat Loadout as shown on the existing Plate 1 with this submittal.

The MRP indicates in Volume I, Part IV, Section V, Item 5 that the project does not require a PSD Air Quality Permit because of the definition of major source.

The Division's imperative is to promote coal mining in an environmental responsible manner. Therefore, the Division requests that the plan includes measures for reducing fugitive coal fine particles outside the permit area.

The measures currently employed at the Wildcat Loadout have not limited, to the extent possible, the impact of coal fine fallout to the disturbed area. The application should

1. reevaluate the remedies applied to control fugitive dust,
2. revise the remedies to include more aggressive measures to avoid deposition of coal fines outside the existing permit area and
3. ensure that the requirements of the Air Quality Approval Order dated January 2000 are enforced.

Plans for a more substantial expansion referred to in the cover letter accompanying this amendment must include implementation of fugitive dust control strategies such as construction

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of permanent wind breaks upwind and downwind from coal stockpiles and/or containment of stockpiles.

### Findings:

The information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. Prior to approval, the Permittee must provide the following, in accordance with:

**R645-302-263 and 645-301-422**, (1) The application must account for the existing acreage of storage piles on site and if the acreage is in exceedence of the Item 15 of the Air Quality Approval Order, the application must include correspondence with the Executive Secretary of the Utah Air Quality Board concerning the existing and proposed acreage of the site dedicated to storage piles.

**R645-302-264.700**, The application should include aggressive measures to avoid wind and water deposition of coal fines outside the disturbed area.

## FISH AND WILDLIFE INFORMATION

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

### Analysis:

#### Protection and Enhancement Plan

The Wildcat Loadout surface property belongs to the Bureau of Land Management. Previous surveys and reports assign the mine site and neighboring lands as critical winter range for deer (Wildlife Enhancement Project, Appendix E; Chris Colt, DWR).

Surveyors examined the area for habitat and the possible effects of mining operations on wildlife. Nicholas van Pelt (1988; Appendix I) reports that this area supports prairie dogs as well as grazing from wildlife and domestic animal. The depth of the coal fines at that time was slight (pg. 2). This surveyor tallied many sage seedlings and rated this area in good to fair condition.

In 1999, Paul Baker (OGM) and Chris Colt (DWR) examined the area for possible effects of mining operations on the winter range for deer. Their observations show that the average coal fine depth increased from slight (1988) to 1.3 inches within the disturbed area east of the existing coal stockpile. These surveyors also noted that the area south of operations had no coal fines and supported markedly more sagebrush and snakeweed compared to the area east of operations. This observation of sagebrush growing in nonaffected areas seems to agree with the van Pelt

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report. Baker and Colt also observed that the area east of operations supports markedly more winterfat and warm season grasses than the area south of operations.

Coal fines may impact deer winter range for a number of reasons. Coal fines are much darker than native soils, so comparatively fines:

- Absorb more solar radiation.
- Experience higher surface temperatures.
- Accelerate the rate of snowmelt.
- Accelerate the rate of evapotranspiration (loss of water from soil and plants).

Higher soil temperatures favor germination and growth of warm season compared to cool season plants. The grasses documented by Baker and Colt were blue grama and galleta, which are both warm season grasses. Although these low growing grasses provide forage, they may not be available to deer under minimal snow cover.

Low retention of snow cover and high rate of water loss in areas covered with fines may create drought conditions early in the growth season. Low water availability may negatively affect sagebrush more than winterfat because sagebrush is less drought tolerant than winterfat. Drought conditions may explain the decreased germination rate and persistence of sagebrush in coal-fine affected areas (Baker and Colt).

Patrick Collins and James Nyenhuis surveyed coal fine depth within the proposed 0.92 acre stockpile expansion in March 2003. These surveyors divided the site into five transects 30 feet apart and each transect into 15 sampling sites 15 feet apart. The results show that the average coal fine depth had increased from 1.3 inches (1999) to 3 inches. The coal fine depth ranged from 1.19 to 3.2 inches. This range, however, was not correlated to the proximity of transects to the existing coal stockpile.

In summary, coal fine depth east of the existing coal stockpile increased from slightly covering the ground in 1988 to an average of 3 inches in 2003. The 0.92 acre area of expansion falls within the existing disturbed area boundary. The 0.92 acre expansion will advance the coal stockpile 165 feet closer to the permit area boundary. Issues of coal fine deposition are of importance to the critical value habitat. Aggressive measures to control the deposition of coal fines should be utilized at all times.

### **Findings:**

Information provided in the application is considered adequate to meet the minimum Fish and Wildlife Information section of the Operation Plan regulations. A related deficiency for the control of coal fine particles has been written under R645-302-264.700, Air Quality.

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### TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

#### Analysis:

##### Topsoil Removal and Storage

Topsoil handling is described in Chapter IV, Part F., Section 3. This application revises Chapter IV, Part A, Section 5.2 (page 62) to indicate that the area of expansion will be scraped to a depth of 2-6 inches from the site to remove the coal fines. The topsoil beneath the coal fines will be salvaged to a depth of 24 inches. The twenty-four inch salvage depth is based upon the consultant's recommendation that although the entire profile is suitable material for salvage, the top twenty-four inches has the better texture (loam) and higher nitrogen content than the subsoil

The Division agrees with the salvage of the top twenty-four inches of topsoil, but will require the remaining thirty inches of subsoil is salvaged and stockpiled separately for use as substitute topsoil during final reclamation (see discussion below under **topsoil substitutes and supplements**). In previous expansions, refuse was used as fill to create a foundation for the stockpile. Information on the foundation to be constructed for this expansion is requested under Spoil and Waste Materials.

Coal fines or fugitive dust accumulating on the soils may be from any one of the six existing stockpiles on site that contain coal from Genwal and West Ridge Mines. The acid/toxic forming characteristics of the coal processing waste (refuse) were not found as cited in Chapter IV, Part O, Section 1.1 Coal Processing Waste and Chapter III, Part C, Section 1.2 – 5 and Appendix D. A request for further information on the chemical characteristics of the coal stored on site was made under Operations Plan/Spoil and Waste Materials in this TA.

The submittal includes an Addendum to Appendix D which is the soil survey conducted under the direction of Mr. James Nyenhuis for Mt. Nebo Scientific in March 2003.

Currently it is estimated that 419,823 cubic ft of topsoil (15,549 CY) is stored in five stockpiles A through E (MRP, pg 80). Only four stockpiles were noted on Plates 1 & 2. The stockpiles shown on the plates are A, B, E, & F. Chapter IV, Part F, Section 3, page 80 describes transfer of topsoil piles B, C, and D to the west side of Wildcat for protection against wind blown coal fines (in 1994). The MRP indicates that transferred topsoil was seeded with the species noted on page 80A and that areas where the topsoil was removed was drill seeded with the mixture specified on page 88. The topsoil was reseeded in 1989 and 1990 (1989 Correspondence folders, memo from Henry Sauer dated April 25, 1989 and January 23, 1990) using a modified interim mix (memo from Lynn Kunzler dated November 17, 1989).

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The submittal should include a revision of the text and plates where topsoil stockpiles are described in Chapter III, including cross-sections of the topsoil piles as constructed (Plate 13) and Chapter IV page 80, page 80A, and 80B. These pages contain several inaccuracies including a steeply sloped 2v:1h shape of pile (page 80A).

Topsoil B was recently reseeded in December 2002. Topsoil A was recently reseeded in June 2002 (see inspection reports). Topsoil B used to have test plots on its surface. The test plots were installed in 1994 as described in Chapter III, Part I, Section 1, page 52 and Chapter IV, Part F, Section 5.3, page 86 of the MRP. Mr. Glasson provided the Division with a copy of the 1997 evaluation of these test plots (incoming folder 3/11/03).

The existing stockpiles are located on the west, south and north perimeters of the disturbed area. The prevailing winds are from west to east. Topsoil piles E and B are upwind of the site. Topsoil Pile A is immediately adjacent to the proposed expansion area and would be affected by fugitive dust from the coal stockpile located on the northwest of the pile.

To avoid contamination of Topsoil Pile A, the Division recommends that this topsoil pile be relocated to the vicinity of Topsoil Pile E. Reclamation techniques used on the reconstructed topsoil pile should include gouging, mulching, seeding, and netting. Rainfall patterns at the site (Table III-1 page 31 of the MRP) indicate that seeding could be accomplished between the months of August through February. The Division would appreciate being notified prior to seeding of this pile.

### **Topsoil Substitutes and Supplements**

Stipulation UMC 817.22-(1)-(HS) of the 1989 Technical Analysis required the Permittee to establish test plots to determine the suitability of the fill as substitute topsoil. The Permittee chose established four plots in 1989 for this purpose. The information in the files and the MRP reveals the following:

- Four spoil plots were selected within the disturbed area: A, B, C, D (see Plate 1 of MRP).
- Spoil samples from the four plots were analyzed by Utah State University Plant & Water Analysis Lab in December 1988, analyses were received by the Division on February 15, 1989 (Incoming File).
- Spoil plots were ripped to a depth of six inches and 1 Ton/acre alfalfa hay was incorporated to the same depth (MRP Appendix D). This tilling and mulching with straw was confirmed by Division Inspection Reports dated November 2, 1989 and December 19, 1989.

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- Spoil plots may have been left rough with pitting (MRP, Appendix D) and may have been fertilized with 40 lbs K<sub>2</sub>O; 60 lbs P<sub>2</sub>O<sub>5</sub>; and 60 lbs N (as Urea: ½ in Fall of 1989 and ½ in Spring of 1990 (MRP, Appendix D).
- Spoil plots were hand broadcast with a **modified** interim seed mix (December 19, 1989b Inspection Report). The approved modification was to delete Needle and Thread Grass and all shrub species and to include *Elymus cinereus* Basin Wildrye (3 lbs/acre) and *Agropyron trachycaulum* Slender wheatgrass (2.5 lbs/ac) (Lynn Kunzler, Memo to file dated November 17, 1989). [The unmodified mix is described in Appendix N pg. 15).
- The MRP describes in Appendix D a monitoring program for the spoil plots. The plots were to have been monitored in years 1, 2, 3, 5, 9, and 10.
- Spoil plots were surveyed in 1991, two years after seeding, by Patrick Collins (Appendix N). No further monitoring has been conducted.

The 1991 survey report (Appendix N) shows that all the plots were weedy and many of the seeded species were not present or present in significant numbers. The percent cover ranged from 41% to 52%. The most dominant species was *Kochia scoparia*, which is considered a noxious weed in four states – including Colorado. Plot B showed the most positive result with 30% of its 52% cover attributed to the seeded grasses. Plot B is near the substation, east of the railroad tracks. The Division briefly examined Plot B during a field visit (January 30, 2003) and the plot is still dominated by grasses (species unidentified).

1988 samples of the spoils that were taken in six inch depth increments shed some light on the success of spoil plot B vegetation. Spoil plot B soils are loam in texture with pH values between 8.0 and 8.3, Electrical Conductivity values between 3.3 mmhos/cm decreasing to 0.9 mmhos/cm in the profile; and Sodium Adsorption Ratio (SAR) values from 1.3 falling to 0.4 within the profile. Spoil Plot B had the most desirable characteristics of the spoils sampled. Although spoil Plot A soils were also low in SAR, they were more sandy and would have had less water holding ability in the drought years after the seeding, mentioned in Mr. Collins 1991 survey. Spoil Plots D and E are both loam texture, but have EC values increasing down the profile to a high value of 4.0 mmhos/cm for spoil D and 3.0 for spoil E. The SAR values for spoil plots D & E are correspondingly high (from 2.8 to 6.6 for spoil D and from 1.6 to 8.5 for spoil E). Spoil plots A, D, & E may have failed to produce desirable vegetation due to the reclamation techniques employed.

The MRP states (page 51) that follow-up surveys were conducted in 1992 and 1993, but there were no other related surveys provided in the MRP or on file with the Division. (It is possible that the Division and the Permittee agreed no further vegetation sampling on the plots was required because of the obvious failure of the spoil plots to support vegetation. What actually transpired is difficult to know, since all 1993 folders for the mine, including the annual report are missing from the Division files.) At a minimum, the Permittee must clarify that the

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survey included in Appendix N was conducted in 1991, two years after seeding. (pgs. 51 and Appendix N cover page). (See R645-301-121.200 in Permit Application Format and Contents).

The MRP also states that if the results of the 1993 survey of the spoil plots indicated the spoil was suitable as a topsoil substitute, then the Permittee would **not** initiate a new test plots in the fall of 1993 (pg 51, last paragraph). Some parameters to be tested were the use of native, local seed, different fertilizing techniques (including no fertilizer) and different seed bed preparation.

The information available to date on the suitability of the spoil as a topsoil substitute suggests that spoil plot B is the most suitable substitute topsoil. (This is a 1,600 square foot area.) The Division will not rule out the use of the other spoil locations as supplemental cover material, but at this time the Division will require that prior to the 0.92 acre expansion the soils are salvaged from zero to twenty-four inches as topsoil, and the remaining thirty inches of subsoil is salvaged and stockpiled separately for use as substitute topsoil during final reclamation.

### **Findings:**

The information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. Prior to approval, the Permittee must provide the following, in accordance with:

**R645-302-263 and R645-301-231.400**, The submittal should include a revision of the text and plates where topsoil stockpiles are described including cross-sections of the topsoil piles as constructed (Plate 13) and Chapter IV page 80, page 80A, and 80B.

**R645-302-263 and R645-301-232.500**, (1) The application should indicate that subsoil from twenty four to fifty four inches below the surface will be separately salvaged and stockpiled for use as substitute topsoil during final reclamation. (2) If further information is available concerning the evaluation of the spoil test plots from the 1993 Annual Report, please provide said information to the Division by including it in Appendix N of the MRP.

**R645-302-263 and R645-301-234.220**, Topsoil Pile A should be relocated to the vicinity of Topsoil Pile E to avoid contamination by fugitive dust from the coal stockpiles located to the northwest.

**R645-302-263 and R645-301-331**, Please verify whether the disturbed areas where topsoil was removed were drill seeded with the mixture specified on page 88.

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### 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.

#### Analysis:

##### Coal Mine Waste

The coal processing waste (refuse) was sampled once in 1993 as described in Chapter IV, Part O, Section 1.1 Coal Processing Waste and Chapter III, Part C, Section 1.2 – 5, page 23. However, refuse analyses could not be found in Appendix D, but the December 1993 leachate analysis was found in the 1994 Annual Report. The MRP indicates that there will be annual leachate sampling as well as an acid/base accounting analysis of the coal stored at the site. These annual leachate analyses and the acid/base accounting analysis were not found in the MRP or with the annual reports.

##### Refuse Piles

Plate 1 indicates a storage location for coal preparation waste material. The quantity of material stored in this location was not found in the MRP. Refuse material has been used as fill to create a foundation for the areas of previous expansion as noted on page 147-G-1A (Chapter IV, Part O, Section 1.2). The quantity of refuse used as fill was not found in the MRP.

What material will be used to create the foundation necessary for the current expansion?

#### Findings:

The information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. Prior to approval, the Permittee must provide the following, in accordance with:

**R645-302-264.300 and R645-301-731.311**, (1) Include in the application the quantity of coal preparation waste stored on site in the coal preparation storage area and in fills. (2) Provide in Appendix D the refuse analyses referenced on page 147-G-1 of Section 1.2, Part O of Chapter IV. (3) Provide the annual leachate analysis and the acid/base accounting analysis of the coal referenced on page 23, Section 1.2-5, Part C of Chapter III.

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**R645-302-264.300**, Indicate in the application what material will be used to create the foundation of the expansion area.

## HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

### Analysis:

#### Sediment Control Measures

Part of the area that is now treated by ASCAs will report to Sedimentation Pond B. The area of ASCA 3 will be reduced by 0.80 acre and that of ASCA 4 by 0.12 acre (Table IV-15).

#### Siltation Structures: Sedimentation Ponds

Runoff to Pond B from the expanded area was recalculated by the Permittee using the SCS-TR55 method. The Division used code STORM (from OSMRE) to check the values, and obtained a reasonable match for runoff volumes.

The Permittee determined Peak Flow using a chart from a standard reference source (page 95). Peak flow is directly proportional to the drainage area, and the peak flow values given in Tables IV-2 and -3 have not been recalculated using the larger area reporting to Pond B.

Sediment yield has been determined using the Universal Soil Loss Equation (USLE), developed by the SCS/NRCS. Calculated Sediment Yield for the enlarged Pond B drainage is 0.008 acre-feet/yr and 0.025 acre-feet/3-yrs (Table IV-4).

The Required Volume for Pond B will be 0.304 acre-feet (revised Table IV-6). The cover letter states that Pond B is adequate to contain the additional runoff; however, the Actual Pond Volume as only 0.310 acre-feet (current Table IV-6). Revised Table IV-6 indicates Pond B will be enlarged to an Actual Pond Volume of 0.464 acre-feet, leaving 0.160 acre-feet Excess Capacity. The proposal does not indicate how Pond B will be enlarged.

### Findings:

The information provided does not meet the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. Prior to approval, the Permittee must provide the following, in accordance with:

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**R645-302-263 and R645-301-711.300**, The Permittee needs to recalculate peak runoff to Pond B for the larger drainage area.

**R645-302-263, 264.220 and R645-301-711.300, 733.100, 741**, The Permittee needs to submit plans for enlarging Pond B to a volume of 0.464 acre-feet.

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

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

### **Analysis:**

#### **Mining Facilities Maps**

The permittee has submitted two map revisions as part of the information for the coal stockpile area expansion; Plate 1, Wildcat Loadout Surface Facilities, and Plate 2, Wildcat Loadout, Surface Facilities Topography (Water shed & Drainage). The maps are P.E. certified by Mr. Dan Guy on May 8th and 9th, 2003, respectively. Plate 1 shows the stockpile expansion, which is highlighted in yellow. Plate 2 also depicts the stockpile expansion area (delineated as part of the watershed reporting to sediment pond "B"). The ditch reporting runoff from the watershed to sediment pond "B" is designated as ditch "B-15". Plate 2, ASCA Areas Legend shows the adjusted acreages for ASCA areas 3 and 4 accordingly. The treatments utilized to treat these reduced acreages has not changed.

### **Findings:**

The minimum regulatory requirements as they relate to mining facilities maps have been met.

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**GENERAL REQUIREMENTS**

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

**Analysis:**

Reclamation techniques are being investigated at the site. A topsoil test plot study was installed on Topsoil Pile B in 1994 to address the questions of which reclamation treatments provide the most favorable condition for seed germination and plant growth on topsoil. The materials and methods included the following:

- Four plots were selected on topsoil stockpile B: 1, 2, 3, 4.
- All plots were gouged, mulched with alfalfa, and seeded with test-interim seed mix.
- The seed was spread by hand and not raked or covered.
- Four plot treatments were: (pg. 52)

	<b>PLOT 1</b>	<b>PLOT 2</b>	<b>PLOT 3</b>	<b>PLOT 4</b>
Incorporated alfalfa	NO	NO	YES 3-4 Ton/acre	YES 1 Ton/acre
1.5 Ton/acre straw	YES	NO	NO	YES
1.5 Ton/acre excelsior 1-sided netting	NO	YES	NO	NO
Biodegradable netting	YES	YES	NO	YES
Irrigate	YES	YES	NO	NO

The seed mix contains aggressive native and non-native species (pg. 80A). The Division assisted the Permittee in the species selection of this mix. The goal was to determine if a more aggressive species mix might germinate and grow with more success than less aggressive species mixes previously planted at the Wildcat Loadout site. The mix contains: crested wheatgrass, Russian wildrye, western wheatgrass, Indian ricegrass, thickspike wheatgrass, forage kochia, fourwing saltbush, shadscale, Gordon Creek Wyoming sagebrush, and Castle Valley Gardner saltbush (pg. 80A).

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The 1997 follow-up survey report (DOGM Incoming File 2003) states that Patrick Collins did not conduct the study and could not substantiate the treatments at the time of the survey (pg. 1). The consultant assigned test plots numbers 1-4 (from north to south), but treatment definitions are scrambled from the treatments described on page 52 of the MRP. The Permittee must include a cover sheet with the 1997 follow-up survey that clearly states that the plot descriptions are incorrect. The reference on page 51 in the MRP to this survey must also include a disclaimer. (See R645-301-121.200 in Permit Application Format and Contents).

To prevent confusion over future test plot design, the Division recommends limiting the number of treatments and careful labeling of treatment locations as well as documenting the treatment plots in the MRP using a diagram. Test plots should be designed and implemented by a consultant familiar with experimental design in consultation with the Division (R645-301-132).

Although differences among treatments are impossible to conclude because the plot descriptions in the MRP are different than those evaluated, the overall result shows the following:

- Percent cover ranged from 41% to 52% with no marked difference among the treatments.
- Seeded *Kochia prostrata* and *Agropyron cristatum* accounted for a higher percent cover than other seeded or weedy species.
- *Kochia scoparia* and *Malcomia africana* were the dominant invader forb species.
- Woody plant density ranged from 1,118 to 57,514 plants per acre.

The range of percentage that *Kochia prostrata* and *Agropyron cristatum* contributed to total cover was 19-50% and 33-53%, respectively. Other species planted in 1994 that were observed in the 1997 Collins report were: *Elymus junceus* (1-8%), *Pascopyrum smithii* (0-10%), and *Elymus lanceolatus* (0-8%). The zero values for two of the grass were found in plot 1. Two of the five species that germinated and grew are natives. Clearly, the introduced species *Kochia* and crested wheatgrass contributed the most to the percent of live cover. None of shrub species were observed in 1997. The four test sites were not considered particularly weedy.

It is difficult to explain why there was no marked difference among the treatments. A wet spring followed planting of the test plots, making the availability of water possibly the most important treatment (Susan White, personal communication, 2003). Installation of a rain gauge at the site would allow direct measurement of precipitation and enable the Permittee and Division to quantify this variable. Furthermore, not knowing the cultural practises actually used by the Permittee makes it difficult to determine if the native species would have been more successful under proper treatment control. The Division offers a suggestion for a native seed mix in the RECLAMATION/Revegetation Section of this TA. If the Permittee follows proper timing and application of this seed mix, then a follow-up survey may support the use of a native species mix.

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The results of the 1997 survey are inconclusive. The Division suggests re-evaluating the reclamation treatments applied to date and implementing new techniques on the interim reclamation of the topsoil and subsoil salvaged from the 0.92 acres. The MRP provides some suggestions for changes to reclamation treatments on page 52 (first paragraph) including: varying seed bed preparation, using locally collected seed, eliminating fertilization.

Some ideas the Division would like to promote are limiting hay or straw mulch to 1 Ton/ac, the use of native hay, employing wood-fiber hydromulch, evaluating the interim seed mix species, supplementing this mix with the locally collected seed, broadening the timing of seeding from late summer through late winter and eliminating fertilizer. The Division provides suggestions for an interim seed mix in the RECLAMATION/Revegetation Section of this TA. The Division would also recommend the Permittee consult with the U.S.D.A. Forest Service Rocky Mountain Research Station Shrub Sciences Laboratory as they have conducted studies on vegetation establishment in the Consumer's Canyon area.

The seed mix listed on page 80A was originally intended as a test mix and not as the approved interim seed mix. The Division previously requested the Permittee to clarify page 80A (correspondence 1994 file; July 29, 1994). The Permittee must clarify that the seed mix listed on page 80A was used only as a test-interim seed mix. Page 80A also states that "water will be applied immediately after seeding". The correspondence file notes that the Permittee has not received approval for the application of water. The Permittee must either obtain Division approval or remove the statement from the MRP. (See R645-301-121.200 in Permit Application Format and Contents)

The Division and the Permittee must agree upon the seed mix, timing of seeding and treatments to be applied (R645-301-341.300) for interim reclamation of the topsoil and subsoil piles.

### **Findings:**

Information provided in the application is not considered adequate to meet the minimum Vegetation section of the Operation Plan regulations. Prior to approval, the Permittee must act in accordance with the findings listed below and R645-301-121.200 in Permit Application Format and Contents.

**R645-302-263 and R645-301-341.300**, The Permittee must coordinate with the Division to develop an alternative interim reclamation plan for the topsoil and subsoil salvaged from the 0.92 acres including the seed mix, timing of seeding and soil preparation.

## TOPSOIL AND SUBSOIL

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

### Analysis:

#### Redistribution

The Division does not agree with application of nitrogen fertilizer as described in the reclamation table (page 84 of the MRP). The table details a nitrogen fertilizer application in April, which is 5-6 months prior to seeding. Many nitrogen fertilizers are mobile and would quickly percolate through the soil stratum before plants become established. The Division discourages the use of nitrogen fertilizer, and has noted that nitrogen fertilization encourages weedy species in The Practical Guide to Reclamation in Utah, DOGM, 2000, available on the web at [www.utah.gov](http://www.utah.gov)

### Findings:

Information provided in the application is not considered adequate to meet the minimum Reclamation Topsoil/Subsoil requirements of the Regulations. Prior to approval, the Permittee must act in accordance with the following:

**R645-302-263 and R645-301-243**, The use of nitrogen fertilizer should be omitted from the reclamation timetable on page 84 of the MRP.

## 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.

### Analysis:

#### General Requirements

The Permittee must omit the following non-native species from the interim and final seed mixes: crested wheatgrass, Russian wildrye, forage kochia, alfalfa, and yellow sweetclover as well as reduce seed rate of whitestem rabbitbrush (R645-301-353.120).

The Division recommends a new interim seed mix with the following species:

- Indian ricegrass *Achnatherum hymenoides*
- Galleta *Hilaria jamesii*

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- Needle and thread *Stipa comata*
- Bottlebrush squirreltail *Elymus elymoides*
- Thickspike wheatgrass *Elymus lanceolatus* ssp. *Psammophilus*
  
- Lewis flax *Linum lewisii*
- Gooseberry-leaf globemallow *Sphaeralcea grossulariaefolia*
- Sagebrush *Artemisia tridentata wyomingensis* var. Gordon Creek
- Winterfat *Krascheninnikova lanata*
- Low rabbitbrush *Chrysothamnus viscidiflorus*
- Fourwing saltbrush *Atriplex canescens*

The Permittee must present the seed mix lists in table format, which include botanical and common names, pure live seed per foot, pure live seed per acre, total pure live seed per foot, total pure live seed per acre. Plan for the total pure live seed per square foot to be greater than or equal to 100 PLS/sq. ft. Currently, the table provide seed rates in pounds per acre. These values do not provide the Division with the necessary information to determine if the rates are adequate for stabilization.

### **Revegetation: Standards For Success**

The expansion of the coal stockpile designated as West Ridge “A2, B” will bring the potential for the impact of wind borne coal fines at least 165 feet closer the vegetation reference area. The reference area is located approximately four hundred feet ESE of the proposed expansion and has already been impacted by fines from the current stockpile. The current and future coal fine-related impact to the reference area will most likely affect the revegetation success requirements. The degradation of the existing plants and change in plant composition is negatively affecting the success standard.

### **Findings:**

Information provided in the application is not considered adequate to meet the minimum Reclamation Vegetation Requirements of the Regulations. Prior to approval, the Permittee must act in accordance with the following:

**R645-302-263 and R645-301-353.120**, The Permittee must omit the following non-native species from the interim and final seed mixes: crested wheatgrass, Russian wildrye, forage kochia, alfalfa, and yellow sweetclover as well as reduce seed rate of whitestem rabbitbrush. The Permittee must present the seed mix lists in table format, which include botanical and common names, pure live seed per foot, pure live seed per acre, total pure live seed per foot, total pure live seed per acre.

**R645-302-263 and R645-301-356.100**, The permittee must relocate the vegetation reference area to an area that has not been or will not be impacted by fugitive coal fines.

## **STABILIZATION OF SURFACE AREAS**

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

### **Analysis:**

Chapter IV, Part F, Section 5.5 indicates that the redistributed topsoil will be disced and drill seeded. Section 5.6 describes the use of either straw mulch or hydromulch to stabilize the regraded soil. Straw mulch would be crimped using dozers. Plate 10, Reclamation profiles indicates that the reclaimed site will gently slope from west to east at a grade between 20h:1v (cross-section C) to 26h:1v (cross-section D).

These techniques were not very successfully used on the spoil plots. Based on the arid conditions, and the success of gouging on the 1994 topsoil testplots, the Division recommends that the Permittee consider replacing the discing/crimping/drill-seeding with treatments such as gouging, hydroseeding and hydromulching, but will not require a change in the final reclamation plan at this time.

### **Findings:**

Information provided in the application adequate to meet the minimum Reclamation Stabilization of Surface Areas requirements of the Regulations.

## **BONDING AND INSURANCE REQUIREMENTS**

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

### **Analysis:**

#### **General**

Exhibit A of permit describes the bonded area as the surface disturbed area of 63.7 acres. (Exhibit A is dated March 6, 1995).

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### **Form of Bond**

A surety bond in the amount of \$813,795 was filed with the Division, at the time of permit renewal (Exhibit B of the 1999 Permit). A copy of the original 1982 bonding agreement (Exhibit B of the Permit) is found in Appendix B.

Chapter III, Section F, Item 2 provides reclamation cost estimates and bonding information. This information was last revised in 1994. The largest percentage of the total dollars bonded is being spent on structure removal and the second largest expenditure will be for regrading and topsoil redistribution. The regrading and topsoil redistribution estimates were based upon quotations received from contractors pertaining to costs per square yard for moving material. (Chapter IV, Section F, Item 2.2, page 77).

The Division needs the Permittee to include bond calculations for the expansion project. The updated calculations are needed to keep the bond estimate accurate.

### **Findings:**

Information provided in the application is not considered adequate to meet the minimum Bonding and Insurance requirements of the Regulations. Prior to approval, the Permittee must act in accordance with the following:

**R645-301-830**, The Permittee must give the Division detailed reclamation cost estimates for reclaiming the addition 0.92 acres.

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**CHIA**

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## **CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)**

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

### **Analysis:**

The CHIA was prepared in 1989. This amendment does not require an update of the CHIA.

Surface-water flow in the drainages is intermittent, the result of storm runoff or snowmelt. The few samples obtained from these infrequent, sporadic flows have contained TSS over 1,000 mg/L and TDS generally under 600 mg/L.

DMRs indicate that the sedimentation ponds have never discharged. A 1993 acid-base potential and leachate test of coal and refuse has not indicated reason to be concerned about contamination in runoff from the site. Annual testing has not been conducted at the site as described in the MRP (see deficiency written under R645-302-264.300 and R645-301-731.311).

The MRP and CHIA mention a spring at the alluvium - Mancos Shale contact in Garley Canyon, roughly a half-mile southwest of the Wildcat Loadout and 1,400 feet outside the CIA. The location of this spring is shown on Figure III-2 in the MRP. Recharge is probably from adjacent alluvial terraces. Reported flow was approximately 5 gpm. Andalex holds a water right on the spring, the water potentially to be for dust suppression at the Wildcat Loadout. Water quality has not been routinely monitored, but the quality was analyzed for the water-right application: TDS was 7,850 mg/L, total alkalinity was 322 mg/L, and sulfate and sodium were the main ionic constituents.

In the Wildcat Loadout permit area, two boreholes were drilled down to 60 feet and found no ground water. No part of the Wildcat Loadout disturbed area drains to Garley Canyon. Because of the spring's location relative to the CIA, to the disturbed area, and to the coal pile and Pond B in particular, no impact to the spring is expected from this modification of the loadout, or from loadout operations in general.

### **Findings:**

The current CHIA is adequate to determine if there will be material damage to the hydrologic balance outside the permit area.