State of Utah

Utah Oil Gas and Mining

Coal Regulatory Program

Centennial Project
C/007/0019
Technical Analysis
April 4, 2008

File in:
☐ Confidential
☐ Shelf
☒ Expandable
Refer to Record No 0007 Date 04082008
In C/007/0019, 2008, Outgoing
For additional information

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TECHNICAL ANALYSIS DESCRIPTION

The Division ensures that coal mining and reclamation operations in the State of Utah are consistent with the Coal Mining Reclamation Act of 1979 (Utah Code Annotated 40-10) and the Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87). The Utah R645 Coal Mining Rules are the procedures to implement the Act. The Division reviews each permit or application for permit change, renewal, transfer, assignment, or sale of permit right for conformance to the R645-Coal Mining Rules. The Applicant/Permittee must comply with all the minimum regulatory requirements as established by the R645 Coal Mining Rules.

The regulatory requirements for obtaining a Utah Coal Mining Permit are included in the section headings of the Technical Analysis (TA) for reference. A complete and current copy of the coal rules can be found at http://ogm.utah.gov

The Division writes a TA as part of the review process. The TA is organized into section headings following the organization of the R645-Coal Mining Rules. The Division analyzes each section and writes findings to indicate whether or not the application is in compliance with the requirements of that section of the R645-Coal Mining Rules.

GENERAL CONTENTS

IDENTIFICATION OF INTERESTS

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

Analysis:

Andalex Resources Inc. and AMCA Coal Leasing, Inc own the Centennial Mine permit area leases. UEI assumed ownership of Andalex Resources, Inc. in the late summer 2006. Dave Shaver is the Resident Agent. On the March 28, 2008, the Centennial Mine (a.k.a. Tower Mine, Centennial Project, Aberdeen Mine) was closed indefinitely due to safety problems.

Section 112 of the MRP describes Andalex Resources, Inc. as a Delaware corporation which is a wholly owned subsidiary of UtahAmerican Energy Inc. (UEI), which in turn is a wholly owned subsidiary of Murray Energy Corp and which is owned 100% by Murray Energy Holdings. Figure 1 of Appendix 1 Part 1 clarifies the ownership family tree for Murray Energy Holdings. All employer ID numbers are on Figure 1. Company officers and addresses are listed in the Sections of Appendix 1, Part 1.

App 1, Part 2 Current and Previous Coal Mining Permits lists five Utah mining companies and 14 others across the nation, with fifty-three different permits listed. [04042008]

A review of Figure 1-1, as contained in the approved mining and reclamation plan for the Centennial Mine, indicates that the coal ownership in Section1, 31, and 36 where the degasification wells are being proposed is by the United States of America (USA).

Five degasification wells were drilled in 2005: (GVH #1, 3, 4, 5, & 6). Four additional holes were drilled in 2006 (GVH#5A, 7, 8, and 9). Sites GVH 5B, 7A, and 8A were approved in the fall of 2006. All existing gob vent holes are located within the permit boundary on privately held surface in T. 12 S., R. 11 E. in Sections 1, 31, and 36 (Sec. 110). Locations are shown on Figure 1-1 of Appendix X. The well sites, the underground mining panels and the surface ownership are illustrated on Figure 1-1.

Volume 1, Section 112.700, page 14, states that the U.S. Department of Labor, Mine Safety and Health Administration has issued three identification numbers relative to the Centennial Project; these are:

1. MSHA No. 42-01474 for the Pinnacle Mine,
2. MSHA No. 42-01750 for the Apex Mine, and
3. MSHA No. 42-02028 for the Aberdeen Mine.

Findings:

The submitted information meets the minimum regulatory requirements of this section.

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 1 Part 3 of the MRP provides a listing of violation information that is current as of February 2008. [04042008]

Findings:

The information provided adequately addresses the minimum requirements of the General Contents – Violation Information section of the regulations.

RIGHT OF ENTRY

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

Analysis:

Appendix J of the MRP contains approvals of lease agreements and other approved activities. Documentation showing approval to enter the Mathis Tract Fee Lease was provided for inclusion into Appendix J. Documentation showing the right of entry for UTU-79975 Federal Lease is provided in Appendix J.

The Permittee has a signed right of entry agreement to access the GOV #1, GOV #2, GOV #5 and GOV #6 hole locations. David R. and Mildred Cave, et al, and Mathis Land Company are the surface ownership in Sections 1, 31, and 36. See Figure 1-1 of the submitted application

Degas Volume 1, Section 112.600 and Volume 1 Section 112.800 Interest in Contiguous Lands indicates that Andalex Resources, Inc., does have interest in existing unleased Federal coal reserves.

Findings:

The Permittee met the minimum requirements of this section of the regulations.

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:

Appendix J provides lease documents. Appendix R provides surface owner consent for severed surface and mineral estates.

R645-301-114 provides a detailed description of each lease and a succinct permit area legal description. Section R645-301-111 describes the total lease acreage by ownership type, but Figure 1-2 illustrates the permit area and provides the most succinct itemization of the permit area by ownership as follows:

1,080.00 fee coal
1.5 private easement
5,435.88 federal coal
11.45 Bureau of Land Management (BLM) surface R.O.W.
6,528.83 TOTAL Permit Area Acres

According to information provided under R645-301-114, Andalex Resources, Inc., in a sublease agreement with AMCA Coal Leasing, Inc., currently holds all of the private and federal coal leases in the permit area. The acreage of each lease is described in Section R645-301-114. The permit area shown on Figure 1-2 and Plate 4 Centennial Project Leases. [04042008]

The surface disturbed area shown on Plate 5 is located in T 13 S, R 11 E Section 18 and T 13 S, R 12 E, Section 7 on surface owned by Zion Securities Corp, the United States, administered by the Bureau of Land Management and by David Cave (Sections R645-301-111 page 1-3 and 112 and Plates 1 & 2). The 1.5 acres owned by David Cave are described in Item 14) of Section R645-301-114. Names and addresses of each surface and subsurface owner of property contiguous to the permit area is shown on Plates 2 and 3. [04042008]

The degasification wells are described in Appendix X of the MRP. The wells are located in T 12 S R 11 E Section 31 and in T 13 S, R 10 E Section 1 and in T 12 S, R 10 E Section 36 along the lengths of longwall panels#6, #7, and #8. Figure 1-1 of Appendix X indicates surface ownership of the well sites. Mineral rights (gas) are held by the surface owners. [04192007]

Surface landowner agreements in Degas Volume Appendix X-4-2 confirm landowner notification and agreement to surface drilling of the gob vent holes.

Table1-1, Degas Well Locations, Pine Canyon, Utah Quadrangle, Salt Lake Meridian as depicted on Page 1-1 of the submittal provides the legal description for methane degasification wells. Figure1-1, depicts the proposed well locations as they relate to the permit boundary. . The well locations exist within the area that has been permitted for coal extraction. There are no lands designated unsuitable within the permit area.

Findings:

The information submitted adequately addresses the minimum requirements of the General Contents – Legal Description and Status of Unsuitability Claims section of the regulations.

PERMIT TERM

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

Analysis:

The current State of Utah mining permit issued by the Division of Oil, Gas and Mining was renewed on January 4, 2007 (signed copy 2007/Incoming/0011.pdf), and remains in effect until January, 2012. On the March 28, 2008, the Centennial Mine (a.k.a. Tower Mine, Centennial Project, Aberdeen Mine) was closed indefinitely due to safety problems. [04042008]

Findings:

The minimum regulatory requirements have been met.

PUBLIC NOTICE AND COMMENT

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

Analysis:

Inclusion of the Mathis/ Summit Creek modification area of 1010.23 acres is considered a significant revision to the current approved mine permit area of 5507.32 acres. The net change from the significant revision constitutes an 18.3 percent increase to the permit. [03242006]

Findings:

The requirements of this regulation have been addressed.

FILING FEE

Regulatory Reference: 30 CFR 777.17; R645-301-118.

Analysis:

The proposal to drill the methane de-gasification wells is not a permit application, but is an amendment to the currently approved mining and reclamation plan.

Findings:

This requirement is not relative to this permit amendment.

PERMIT APPLICATION FORMAT AND CONTENTS

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

Analysis:

The Mine and Reclamation Plan (MRP) meets the requirements of R645-301-121.100 or R645-301-121.200 for the Biology Chapter or Archeology Section because the Permittee presents current, clear, or concise information. [03242006]

Findings:

Information provided in the plan meets the minimum Permit Application Format and Contents in General Contents requirements of the regulations. [03242006]

MAPS AND PLANS

Regulatory Reference: 30 CFR 777.14; R645-301-140.

Analysis:

The Permitted has provided several maps, including Plate 2, showing the total permit area after the Mathis/ Summit Creek modification area is added. Plate XXX shows the Mathis fee area (380 acres) and the Summit Creek Federal Lease Tract, UTU-79975, (630.23 acres).

Table1-1, Degas Well Locations, Pine Canyon, Utah Quadrangle, Salt Lake Meridian as depicted on Page 1-1 of the submittal provides the legal description for methane degasification wells GVH #1,GHV #2, GVH #5, and GVH #6. Figure1-1, included with the submittal depicts

the proposed well locations as they relate to the permit boundary for the Aberdeen Mine. Therefore, the need for the applicant to address that the permit area is within an area designated as unsuitable for mining is unnecessary. The well locations exist within the area that has been permitted for coal extraction.

Findings:

The information provided adequately addresses the minimum requirements of the General Contents – Maps and Plans section of the regulations.

ENVIRONMENTAL RESOURCE INFORMATION

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

PERMIT AREA

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

Analysis:

The Permittee met the requirements of this section of the R645 – Rules. Those rules require that the Permittee to describe and identify the lands subject to surface coal mining operations over the estimated life of those operations and the size, sequence, and timing of the sub-areas for which it is anticipated that individual permits for mining will be sought.

The Permittee showed permit area and adjacent lands on Maps 1-1. The Permittee included a legal description of the permit area with subdivisions for federal, State and fee acreages in the text of the MRP. The Permittee referred to some areas as proposed area in amendment.

Findings:

The information provided in the proposed amendment is considered adequate to meet the requirements of this section.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

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

Analysis:

The MRP meets R645-301-411 regulations pertaining to historic resources. The MRP (see Confidential Files in Division PIC room after June 2006) includes an evaluation of historic resources that focus on the permit area in Deadman Canyon (1976). Historic and Archeological resource information is provided for on page 4-1 of the MRP. Additional information is included on pages 4-2, 3, and 4 and Appendix C of the approved MRP.

Since the 92-acre parcel is located 2,600 feet above the current mine workings and is an extension of the current mine workings there should be no impacts to the surface land resources.

For the 2005 GOB hole project, Senco-Phenix states that cultural resources are unlikely to be discovered within the project area. The area is currently under snow, therefore, the

Permittee cannot conduct a Class III survey. SHPO considered the project and recommended that Permittee conduct a monitoring evaluation in the summer (2005) for the holes drilled in April 2005. The Permittee will conduct a Class III survey for additional holes planned for summer of 2005 and will also conduct the monitoring evaluation for the holes drilled in April 2005.

For the 2006 GOB hole project, Senco-Phenix conducted a Class III survey for holes 5A, 7, 8, and 9. The results showed that there were no historic resources within the project area. The Division defined the "area of potential effect" as the proposed degas well sites and the 800-foot access road extension. The Division evaluated the survey information and made a finding of "*no historic properties affected*" for this project. There is current correspondence with SHPO for this project. [03242006]

Findings:

The information provided in the application and approved MRP adequately addresses the minimum requirements of the Historic and Archeological Resource Information section of the regulations.

CLIMATOLOGICAL RESOURCE INFORMATION

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

Analysis:

Climatological information is provided in Section 724.400 of the current MRP and further discussed in Appendix L.

Findings:

Climatological information in the current MRP is sufficient to meet the requirements of the Coal Mining Rules.

VEGETATION RESOURCE INFORMATION

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

Analysis:

The MRP meets R645-301-321 because there is adequate information of plant communities observed within the permit area. The MRP contains supporting documents on

vegetation for permit area. Volume 1 (Chap. 3) provides a brief discussion of plant communities within the permit and adjacent area, which is supported by community vegetation maps (Vol. 4, Plates 19, 19A, and 20). The plant communities within the permit area include: sagebrush-grass, conifer, quaking aspen, oak brush, mountain brush, and pinyon-juniper. Volume 2 contains vegetation surveys for the main mine facilities and adjacent areas (App. M) and for the left fork fan project (App. V).

The amendment also includes vegetation analysis needed for assessing reclamation potential and success as well as productivity values for the surface area affected by mining operations.

Text changes for the IBC include page 3-1of the Biology section of the application. The vegetation map is identified as plate 19A. The vegetation communities for the mine plan area include Mountain –Brush, Desert-Shrub, Pinyon-Juniper Woodland, Sagebrush-Grass, Conifer-Aspen, and Minor streamside vegetative types that cover the entire mine plan area. The vegetation community for this IBC is predominately Sagebrush-Grass and Aspen.

The application includes a list of possible threatened, endangered and candidate plant species identified in the U. S. Fish and Wildlife Service current listing for Carbon County as appendix M.

For the spring 2005 GOB hole project, the Permittee provides minimal vegetation information. Plate 19A (Vol. 4) illustrates the community types for the project sites. The Permittee provides productivity values, ecological site descriptions (ESD), and determinations that the sites are fair to better condition as estimated from ESD (NRCS). The Permittee agreed to use reference areas as the standard of success.

Dr. Patrick Collin conducted a vegetation survey for the 2005/2006 GOB hole project during the summer of 2005. The report includes analysis of the drill hole and reference area sites, as well as, includes pictures taken at identifiable and repeatable photo locations of the project sites prior to disturbance (except 1, 3, 5, and 6). The report also includes community descriptions of the hole sites. [03242006]

Findings:

The information provided adequately addresses the minimum requirements of the Vegetation Resource Information section of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

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

Analysis:

The MRP meets R645-301-322 because there is discussion, supporting documentation, and maps on fish and wildlife resource for the permit and adjacent areas. There is information to design the protection and enhancement plan. The MRP provides narrative, supporting documentation, or maps.

The Fish and Wildlife resource information is addressed in Vol. 1, Chap. 3 and in Vol. 2, App. A, D and M of the application.

Volume 2, Appendix A is a DWR report (1981) for the Centennial mine that provides mitigation recommendations, habitat resources, and species specifics on vertebrates, aquatics, birds, that may inhabit the permit area. It also provides the "Vertebrate Species of Southeastern Utah" report and a recommended plant species list. Volume 2, Appendix D provides an old and undated raptor analysis and the 2004 raptor survey. Volume 4, Plate 34 (May 2002) and Plate 34 (August 2004).

The vegetation map is identified as plate 19A. A portion of the Right Fork of Summit Creek is included in the proposed IBC. The wildlife distribution map is identified as plate 34. The map depicts the location of raptor nests at that point in time. A current raptor inventory is included in the application as appendix D. The Mule Deer, Elk and Sage Grouse ranges are identified on plate 34 and are included in the legend.

Ungulates

For the GOB hole project, DWR does not consider that traffic or construction will impact the ungulates.

Fish or other aquatics

For the GOB hole project, the Division has no concerns that the project will impact aquatic species because the sites do not include stream channels.

Migratory Birds, Game Birds, and Raptors

The Permittee will relocate the raptor data to the confidential files as of June 2005. There are 22-raptor nests within the permit and adjacent areas.

There are sage-grouse leks in the "Park" area near and north of the GOB hole project.

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL/PLANT SPECIES

The MRP meets R645-301-322 because there is discussion, supporting documentation, or maps on TES species that could occur within or adjacent to the permit area. The Permittee provides a current TES species list for Carbon County.

The Division, in consultation with USFWS and Utah Heritage Group (DWR), does not consider that the GOB hole project will impact TES species or their habitat. The USFWS was concerned about possible bald eagles in the area. DWR, however, did not report of any occurrence data for TES species within a 2.5-mile radius of the drilling sites located within T12S, R11E, S31.

Mexican Spotted Owl (MSO)

Mel Coonrod (EIS) provided documentation stating that the models and other criteria do not support that there is suitable habitat for MSO within the GOB hole area in the Mathis lease. The Utah Heritage Group supports that there are no known observations of MSO within the project area.

Plants

The MRP provides a letter from Patrick Collins stating that he considered there is little probability that there are federally listed TE species within or near the holes drilled in spring 2005. Dr. Collins conducted a survey for GOB 4 and for 5A, 7, 8, and 9 (2006) and did not observe TES species. [03242006]

Findings:

The information provided adequately addresses the minimum requirements of the Fish and Wildlife Resource Information section of the regulations.

SOILS RESOURCE INFORMATION

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

Analysis:

The MRP meets the requirements of R645-301-220, because the Permittee provides a description of the pre-mining or pre-existing soil resources. Fig. 1-1 shows proposed and alternate locations for GVH drill sites 10 through 17. These GVH holes will be approximately 800 ft. apart along the length of the mine panel. Bruce Chessler, Soil Scientist, surveyed the area

in 2006. The soil survey and information in the application meets the requirements for Division approval of these gob vent holes. [05112007]

The gob vent holes are located within the permit boundary on privately held surface at the intersection of Township 12 and 13 South and Range 10 and 11 East (Sec 110 and Fig. 1-1).. The terrain is shown on the Deadman Canyon 7.5 minute Quadrangle map. Carbon County Soil Survey information indicates that vent holes fall within Map Units 7 (Beje – Trag Complex), 63 (Midfork Family – Podo Association), 117 (Trag - Beje – Senchert complex) and 105 (Senchert family-Senchert complex). Attachment 2-1 provides Order 3 level information from the 1988 Carbon County Soil Survey and the site-specific Order 1 description. Laboratory analysis of the representative pedons is found in Attachment 2-1. The information provided in the application meets the requirements for baseline soil survey, description, laboratory analysis, and productivity information. [03242006]

The degas wells are located on the tops of ridges, on concave slopes, at the bottoms of draws, at elevations of 8,200 ft. to 8500 ft. The variability in terrain translates to variability in soil genesis. The surveys describe each location in detail. Some have well-developed, dark colored, base-rich topsoil horizons. Some have no developed topsoil at all. Vegetation includes snowberry, sagebrush, rabbitbrush, flax, grasses, vetch, lupin, quaken aspen. Site-specific Order 1 descriptions and laboratory analysis of the representative pedons is found in Attachment 2-1 and 2-2. The information provided in the application meets the requirements for baseline soil survey, description, laboratory analysis, and productivity information. [04252007]

The NRCS projects that in a normal year production from such High Mountain Range sites is between 1,200 and 1,500-lbs/ac dry weight. In a favorable year the productivity would be expected to increase to 2,000-lbs/ac dry wt. Attachment 3-1 provides more specific information for the gob vent hole productivity. [03242006]

Findings:

Information provided meets the requirements of Environmental Resources – Soils.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

The site is undeveloped rangeland at an elevation of 8,500 ft., with no developed water resources. There is no prime farmland at this location.

Findings:

The Division finds that there is no prime farmland at the location of the gob vent holes.

LAND-USE RESOURCE INFORMATION

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

Analysis:

The Land Use resource information is provided for on page 4-1 of the application. The 93.32 acre parcel is located 2,600 feet above the current mine workings. As such impacts to the surface land resources should be negligible.

The area is currently used for grazing, recreation and wildlife. Section 645-301-411.110 on page 4-1 indicates that Deadman, Straight and Hoffman Canyons would fall into three categories: 1) fish and wildlife habitat, 2) recreation lands and 3) range lands. According to the application the land has also historically been used for coal mining. By the early 1900's the majority of the Book Cliffs coal field had been prospected. Knight –Ideal, Zion, Olsen, and Sutton were mines that produced coal from the Gilson and Aberdeen coal seams. An additional prospect in the Sunnyside seam produced 1,400 tons of coal in 1964.

Findings:

The information provided adequately addresses the minimum requirements of the Land-Use Resource Information section of the regulations.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

The Information in Appendix L of the MRP meets the requirements of R645-302-321.100, because it states that there are no alluvial deposits for a radius of two miles around the Tower Mine. The high-elevation, plateau where the degasification holes have been bored, does not meet the requirements for an Alluvial Valley Floor. [03242006]

Findings:

Alluvial Valley Floor information is sufficient to meet the minimum requirements of the Coal Mining Rules.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

The Centennial Project is located in the Book Cliffs, northeast of Price Utah (Figure 6). The surface geology is shown in Plate 21. The exposed surface over the proposed leases is the Flagstaff Limestone. The permit expansion will provide access to develop two new sets of longwall panels. The panels will run east to west and have an over burden thickness of 2600 feet to 3100 feet (Plate 29). The dip of the formations is approximately 12 degrees, North 25 East.

The applicant has complied with this regulation by submitting information describing geological setting within and adjacent to the permit area. In Chapters 5 and 6 the applicant describes the geological history including the stratigraphy and structure, and how it relates to mining. The applicant describes the mature of the formations surrounding the coal sections. Drill hole logs and information was used to accumulate the information. The Permittee used this information to make a Probable Hydrologic Consequences (PHC) determination for the mine.

Findings:

The information provided adequately addresses the minimum requirements of the Environmental Resource Information - Geologic Resource Information section of the regulations.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Sampling and Analysis

Sampling and analysis are discussed in Section 723 and Appendix L of the MRP. [03242006]

Baseline Information

Section 724 of the MRP references Appendix L for most baseline information. Appendix L includes a Surface and Ground Water Hydrologic Inventory plus PHC Determinations for the Graves Lease, the 240-acre IBC, and the Summit Creek and North Mathis leases. Figures 4 and 5 in Appendix L show the locations of the surface-water bodies and existing or pending water rights. Appendix L includes Surface and Ground Water Inventories.

Baseline Cumulative Impact Area Information

The current Book Cliffs I CHIA (September 3, 2004) covers the gob gas vent holes and adjacent areas. The Division used hydrologic and geologic information in the MRP in making the CHIA determination.

Modeling

No ground water or surface water modeling was conducted in support of the gob gas vent holes submittal.

Probable Hydrologic Consequences Determination

Mayo and Associates prepared a PHC determination for the Mathis / Summit Creek IBC, and a PHC determination was prepared by Petersen Hydrologic, Inc. that specifically addresses the Summit Creek and North Mathis LBA tracts: both PHCs are in Appendix L, along with a PHC determination for the Graves Lease. Appendix X, Section 728 addresses the probable hydrologic consequences of construction and reclamation operations at the gob gas vent hole sites. Mitigation measures associated with the vent sites are discussed generally in Appendix X, Section 728 and in detail in Section 730 of the MRP.

The PHC determinations are consistent with other findings along the Book Cliffs escarpment and Wasatch Plateau. Adverse impacts to the hydrologic balance in the area are extremely unlikely based on the combination of the following: 1) extensive cover (2,600 – 3,000 ft.); 2) extensive barrier walls between panels; 3) shallow ground-water systems and surface-water flows responding rapidly to climate and season; and 4) deep ground-water systems that are not in hydraulic communication with shallow recharge sources or shallow ground-water systems. The Division agrees with this assessment.

Using local streams and springs the PHC illustrates the shallow ground-water systems and surface-water flows respond rapidly to climate conditions and season. Specific R645-301 regulations that were addressed in the PHC include -728.200 (water quality and quantity), -728.310 (adverse impacts to hydrologic balance), -728.310 (acid- or toxic-forming materials), -

728.331 (sediment yields), -728.333 (stream flow alteration), -728.334 (ground-water and surface-water availability), and -728.350 (affects to State-appropriated water).

The Permittee acknowledges the requirement to replace State-appropriated water supplies that have been diminished, contaminated, or interrupted in Appendix L of the MRP. (see further discussion below under OPERATION PLAN - HYDROLOGIC INFORMATION - *Water Rights and Replacement).*

Chapter 6 of the MRP states that no acid – or toxic-forming materials have been identified in the soils or strata of the Centennial Project. Appendix X, Section 623 of the MRP states that no acid- or toxic-forming materials will originate from the gob gas vent hole sites. Additional information on acid- or toxic-forming materials is located in Appendix E of the MRP.

Appendix X Sections 728.100 and 728.300 describe the potential impacts associated with the installation and operation of the gob gas vent holes. Potential impacts on surface and ground waters include contamination from materials associated with the drilling of the wells. The Permittee committed to utilizing absorbent materials in order to contain leaked fuels, greases and other oils produced during the gob gas vent hole installations, as well as to not store hydrocarbon products at the well sites.

Appendix X, Section 728.300 describes the process whereby upon drilling a well or gob gas vent hole, the casing is grouted upon completion, thereby sealing the aquifers to prevent any groundwater from migrating down the outside of the casing and potentially impacting the underlying groundwater. The grout will be used to mitigate potential impacts to the groundwater as a result of drilling operations. [03242006]

Findings:

The information provided adequately addresses the minimum requirements of the Hydrologic Resources Information section of the State regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

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

Analysis:

Affected Area Boundary Maps

The permit area for the West Ridge Mine was show on Plate 1-1, Location Map.

Archeological Site Maps[Sheila Mo25]

The MRP meets R645-301-411.141 because there are archeological maps showing known resource locations within the permit area. These maps are in the Confidential Files (Division PIC room after June 2006). [03242006]

Existing Surface Configuration Maps

Plate 5-1 showed the premining disturbance area.

Map 1-1, Location Map showed the surface topography for the entire permit area. The map was at a scale of 1:24,000, which was adequate to show the premining surface topography for areas with no surface disturbance.

Surface topography features at the gob gas vent holes and adjacent areas are shown in Figure 1-1 in Appendix X. [03242006]

Mine Workings Maps

Plates 25 and 29 show the most recent mine layout including the modification to the permit area of the Fee property in Section 36 and the Federal Lease UTU 79975.

There were four mineable seams in the Centennial Project:

1. The Pinnacle Mine, Gilson Coal Seam, Plate 28.
2. The Aberdeen Mine, Aberdeen Coal Seam, Plate 29.
3. The Apex Mine, Lower Sunnyside Coal Seam, Plate 26
4. The Centennial Seam, the Permittee accesses that seam thought the Pinnacle Mine. See Plate 27.

Coal Resource and Geologic Information Maps

Plate 21 in the text section identifies the general regional geology. The geology resource information is provided in Chapter 6. Additional geologic information is found in Appendix L.

Monitoring and Sampling Location Maps

Figure 6 in Appendix L and Figure IV-II (both in the MRP) show the location of surface-water and ground-water-monitoring stations. [03242006]

Permit Area Boundary Maps

The Permittee shows on Plate 1 and all other maps the permit area boundaries.

Surface and Subsurface Ownership Maps

Plate 2, Centennial Project Surface Ownership Map and Plate 3, Centennial Mineral Ownership Map showed the surface and subsurface ownerships.

Subsurface Water Resource Maps

Figures 4 and 5 in Appendix L show the locations of the ground-water bodies and water rights.

Surface Water Resource Maps

Figures 4 and 5 of Appendix L show the locations of the surface water bodies and water rights. [03242006]

Vegetation Reference Area Maps

The vegetation reference area maps will not be affected by the addition of the Mathis/Summit Creek IBC. They are included in the current MRP.

The Permittee will use reference areas for the standard of success for the GOB hole project. The MRP includes a map that details the locations of the reference areas (Appendix X, Figure 1-1 and Attachment 3-1). [03242006]

Well Maps

Figure 6 identifies the wells and drill holes on and adjacent to the permit area.

Locations of the two water-monitoring wells are shown on Figure 4 in Appendix L.

According to Section 622.400 of the MRP, this rule does not apply to the Centennial Project, presumably because there are no oil or gas wells in the area.

Findings:

Maps, Plans, and Cross Sections of Resource Information are sufficient to meet the requirements of the R645 Coal Rules.

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

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

Analysis:

The Permittee has added 93.32 acres as an Incidental Boundary Change to the Aberdeen Mine. Andalex Resources needed to add the IBC to accommodate a new longwall panel setup. The IBC would not significantly change the mine plan. There are no surface facilities associated with the IBC.

In recent permitting actions, the Permittee has applied for and the Division approved an application for methane de-gasification wells. The purpose of the wells is to enhance the venting/dilution capability of the mines ventilation system, such that dangerous levels of methane gas are not allowed to accumulate within the gob area (area where the coal seam has been extracted and the roof has been allowed to cave) and/or the bleeder entries.

Findings:

The information provided adequately addresses the minimum requirements of the Operation Plan – Mining Operations and Facilities section of the regulations.

EXISTING STRUCTURES:

Regulatory Reference: 30 CFR 784.12; R645-301-526.

Analysis:

There are no existing structures associated with the IBC that could be affected by mining.

The proposal to construct the methane degasification wells will occur in an area well outside of the disturbance created by the main mine facilities. There are no known dwellings, public buildings, schools, churches, or community buildings within 1,000 feet of the pre-determined well locations. No blasting will be done during the construction / reclamation process of the wells.

Findings:

The information provided adequately addresses the minimum requirements of the Operation Plan – Existing Structures section of the regulations.

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES [Sheila Mo37]

Regulatory Reference: 30 CFR784.17; R645-301-411.

Analysis:

The MRP meets the requirements of R645-301-411.144 because the Permittee identifies parks or historic resources that mining operations may adversely affect. The Permittee provides an adequate protection plan. [03242006]

Findings:

Information provided in the plan meet the minimum Operations - Protection of Public Parks and Historic Places requirements of the regulations. [03242006]

RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: 30 CFR 784.18; R645-301-521, -301-526.

Analysis:

There are no public roads associated with the IBC and no roads will need to be relocated.

There are no public roads that will be relocated or used for access to GOV #1, GOV #2, GOV #5 and GOV #6.

Findings:

The information provided adequately addresses the minimum requirements of the Operation Plan – Relocation or Use of Public Roads section of the regulations.

AIR POLLUTION CONTROL PLAN

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

Analysis:

Appendix 1 Part 4 contains the 1996 Air Quality Approval Order (AO) DAQE-997-96 and subsequent communication with the Utah Division of Air Quality on November 18, 2003, describing a decrease in emissions from the site. [04042008]

The Gob Vent Amendment X commits to watering of private surface access roads(see Chapter 4, page 4-3, section 424, Fugitive Dust Control Plan). The application of water will be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition unless the weather is below freezing.

Findings:

The submitted information meets the minimum regulatory requirements of this section.

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

The Permittee met the minimum requirements for this section of the R645 – Rules. Those rules require that underground mining activities shall be conducted so as to maximize the utilization and conservation of the coal, while utilizing the best technology currently available to maintain environmental integrity, so that re-affecting the land in the future through surface coal mining operations is minimized. The Division relies upon the BLM and SITLA for technical information about coal recovery. That information is usually contained in the resource recovery and protection plan. The Division reviewed that information and found the Permittee was in compliance.

Type and Method of Mining Operations

The permittee will be conducting longwall mining operations in the Mathis/ Summit Creek modification area Plates 25 and 29. Coal will be removed using a combination of continuous miners and longwall equipment. Barrier pillars will be larger to support the lithostatic pressures. The mining plans show that Andalex Resources, Inc. is mining at depths that are uncommon for underground mines. The coal mined in the Mathis/Summit Creek modification area show that Andalex is maximizing coal recovery.

Findings:

The information provided adequately addresses the minimum requirements of the Operation Plan – Coal Recovery section of the regulations.

SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

Analysis:

Renewable Resources Survey

The Permittee identified grazing and wildlife habitat as renewable resource in and around the permit area.

Subsidence Control Plan

In the event the survey showed that such structures or renewable resource lands existed, and that subsidence could cause material damage or diminution of value or foreseeable use of the land, or if the Division determined that such damage or diminution could occur, the application must have included a subsidence control plan that contained the following information:

- A description of the method of coal removal, such as longwall mining, room-and-pillar removal, hydraulic mining, or other extraction methods, including the size, sequence, and timing for the development of underground workings.

  The Permittee proposed to use longwall mining when possible and room-and-pillar mining for development work and to recover coal in areas not conducive to longwall mining.

- A map of underground workings which described the location and extent of areas in which planned-subsidence mining methods will be used and which includes all areas where measures will be taken to prevent or minimize subsidence and subsidence related damage and where appropriate, to correct subsidence-related material damage.

- A description of the physical conditions, such as depth of cover, seam thickness, and lithology, which affect the likelihood or extent of subsidence and subsidence-related damage. That description was given in Section R645-301-525 of the MRP.

- A description of monitoring, if any, needed to determine the commencement and degree of subsidence so that, when appropriate, other measures can be taken to prevent, reduce, or correct material damage.

  Subsidence monitoring for panels developed after 2002 consisted of two-subsidence survey station per panel as well as an annual visual inspection. Because the Permittee has not yet detected subsidence, the limited subsidence survey monument program was determined by the Division to be effective.

- Except for those areas where planned subsidence is projected to be used, a detailed description of the subsidence control measures that will be taken to prevent or minimize subsidence and subsidence-related damage, including, but not limited to: backstowing or backfilling of voids; leaving support pillars of coal; leaving areas in which no coal is removed, including a description of the overlying area to be protected by leaving the coal in place; and, taking measures on the surface to prevent material damage or lessening of the value or reasonably foreseeable use of the surface.

  The Permittee planed to use full extraction mining methods as much as possible. They will not use any methods other than limiting extraction to prevent subsidence.

- A description of the anticipated effects of planned subsidence, if any.

  The Permittee does not anticipate that subsidence would occur. If subsidence did occur, the most likely effects would be minor cracks and ground lowering.

- A description of the measures to be taken to mitigate or remedy any subsidence-related material damage to, or diminution in value or reasonably foreseeable use of the land, or structures or facilities to the extent required under State law.

  The Permittee committed to repair or replace any damage to State appropriated water.

- Other information specified by the Division as necessary to demonstrate the operation will be conducted in accordance with the performance standards for subsidence control. The does not need any additional information.

Performance Standards For Subsidence Control

The Permittee is required to keep all performance standards associated with subsidence. Specific activities that may not occur include:

- Underground mining activities shall not be conducted beneath or adjacent to: public buildings and facilities; churches, schools, and hospitals.

- Impoundments with a storage capacity of 20 acre-feet or more or bodies of water with a volume of 20 acre-feet or more, unless the subsidence control plan demonstrates that subsidence will not cause material damage to, or reduce the reasonably foreseeable use of, such features or facilities.

- If the Division determines that it is necessary in order to minimize the potential for material damage to the features or facilities described above or to any aquifer or body of water that serves as a significant water source for any public water supply system, it may limit the percentage of coal extracted under or adjacent thereto.

Notification

The Permittee is required to notify at least 6 months before mining, or within that period if approved by the Division, all owners and occupants of surface property and structures above the underground workings. The notification shall include, at a minimum, identification of specific areas in which mining will take place, dates that specific areas will be undermined, and the location or locations where the operator's subsidence control plan may be examined.

Findings:

The information provided adequately addresses the minimum requirements of the Operation Plan – Subsidence Control Plan section of the State regulations.

FISH AND WILDLIFE INFORMATION

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

Analysis:

GENERAL WILDLIFE

The MRP meets R645-301-333, R645-301-342, and R645-301-358 because the Permittee plans to use the best technology available to minimize impacting wildlife and its critical habitat.

Protection and Enhancement Plan

For the IBC amendment (2004/5), the protection and enhancement plan is addressed in appendix A of the approved MRP. The application states that "the Mathis/Summit Creek Incidental Boundary Change is simply an extension of our underground mine workings under roughly 2,600 to 3,000 feet of cover. Therefore there should be no effect to the surface biology of the area. The application also includes a commitment to develop a mitigation plan with the Division of Wildlife Resources should problems occur.

For the GOB hole project, the Permittee plans to access the drill hole sites using a dirt road starting near the mine facilities area. This choice will avoid any impact that construction and operations would have on sage grouse on the "Park".

The Permittee will conduct fly-over raptor surveys during the years the GOB hole project is active (Appendix X, Sec. 322.200). Currently, the Division has no concerns that the project will impact nesting raptors or their nests because there are no nests within a 0.5-mile buffer zone of GOB hole sites within the Mathis lease. [03242006]

Endangered and Threatened Species

For the IBC amendment (2004/5), the application includes a list, (appendix M), of possible threatened, endangered and candidate plant and wildlife species identified in the U. S. Fish and Wildlife Service current listing for Carbon County. There are no threatened or endangered plant species known for the area according to information from Bob Thompson of the Forest Service and the Division of Wildlife Resources survey. Of the 10 species listed for Carbon County, only one, the bald eagle, could potentially occur in the permit area. However, the occurrence is most likely to be migration through the area rather than nesting or roosting. Most threatened or endangered species that could occur in Carbon County occur at lower elevations than the mine and have no habitat in the proposed permit area expansion.

For the IBC amendment (2004/5), in addition to the species discussed in the application, there is also a potential to affect the threatened and endangered fish of the upper Colorado River basin through surface water depletion. The mine has potential, through water depletions; of adversely affecting four listed threatened and endangered fish species of the upper Colorado River drainage. The Fish and Wildlife Service requires mitigation when water depletions exceed 100 acre-feet annually. According to the information in the application 47.61acre feet/year net gain of water are provided to the upper Colorado River basin. Calculations are provided in table III-12.

Bald and Golden Eagles

Bald Eagles do not nest in the area. They could possibly be seen migrating through the area during the winter months.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife

There are no known wetlands within the proposed IBC or within the GOB sites in the Mathis lease area. [03242006]

Findings:

The information provided adequately addresses the minimum requirements of the Operation Plan – Fish and Wildlife Information section of the regulations.

TOPSOIL AND SUBSOIL

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

Analysis:

The MRP meets the requirements of R645-301-230, because the Permittee provides a soil salvage and storage plan. [03242006]

Topsoil Removal and Storage

Gob Hole Vent Amendment X

Table 2 of Attachment 2-1 provides a listing of the range of thickness of the topsoils at the gob vent sites #5 through #9. Table 3 in Appendix 2-2 provides the average topsoil depth for GVH sites 11 – 17. These latter sites are not uniform in topsoil availability. Of note are sites 12 and 15B which have thin soils and only six inches of topsoil available for salvage. The soil survey does note that substitute topsoil is available at sites 13A, 14 and 15A, to make up any deficit. [05112007]

The plan indicates that a qualified person will be on site to ensure that the surface topsoil will be salvaged and placed in a topsoil stockpile. For most sites, the surface topsoil (18 inches) will be removed and stockpiled. A six-inch subsoil layer may be removed and utilized in berms surrounding the site and the topsoil stockpiles. Thus, up to a total of 24 inches of surface soil will be stockpiled at each gob hole vent site: for every acre, according to depth of the surface horizon (see Table 3 in Appendix 2-2 for 2007 construction). Appendix X, Table 2-1 provides estimated topsoil volumes. Approximately 2400 yds^3 will be stored in a stockpile and 30 yds^3

in berms. Topsoil will be removed in a single layer using a dozer. Topsoil stockpile dimensions are provided in Appendix X, Table 2-2. [05112007]

Appendix X, Section 231.400 describes the temporary stockpiling of topsoil at 1h:1v slopes During the contemporaneous reclamation of the drill pad described in Section 242.100, the stockpile will be reduced to a 2h:1v slope until the degas wells are decommissioned and reclaimed. Soil stockpiled at 2h:1v will be seeded with the grasses listed in the reclamation seed mix (p-3-21, MRP). Soil storage in berms, as described in Section 232.500, will surround the pile and the perimeter of the site. The site will be fenced.

At the time of salvage, soils will be sampled for the parameters described in Section 243 to provide baseline information and to determine whether nutritive amendments are required at the time of reclamation.

Mud pit development will require further excavation as described in Section 231. Should bedrock be encountered before 15 ft, then multiple pits will be developed on the site or a portable mud pit will be employed.

Main Mine Facilities

Five topsoil piles are shown on Plate 6 "As Constructed Surface Facilities Deadman Canyon." They are topsoil piles A, C, F, G, and J. An additional topsoil stockpile is located in the left fork and is shown on Plate LF-1. These stockpiles may have been seeded with the mix described on page 3-21 of the Mining and Reclamation Plan (MRP), but most of the stockpiles have been in existence since 1986 and the seed mix may have been altered since then.

The topsoil stockpiled in Deadman Canyon totals 365,330 cu yds (MRP, pg 2-4). The quality of the material is described in Appendix M. An additional volume of substitute topsoil is identified on the outslopes of the Apex truck loadout (1,700 cu yds) and the outslope of the shop warehouse complex (5,240 cu yds). The total topsoil and substitute topsoil stored to reclaim the 34.2 acre disturbed area in Deadman Canyon is therefore 372,270 cu yds. This will cover the disturbed area with 6 inches at final reclamation.

Topsoil piles A (by the Administration office) and F (opposite the Apex Mine) were well vegetated, although they had been grazed so there were few seed heads on the grasses. Both of these topsoil stockpiles are at the base of west facing slopes. Some of the plants identified on topsoil pile A were Louisiana sage, sagebrush, wheat grass, woods rose and rabbit brush. Plants were not identified on topsoil pile F as a large bull was standing on the topsoil pile. It was noted however, that topsoil stockpile F has been somewhat impacted by coal fines from the conveyor exiting the Apex Mine; in the ditch at the base of stockpile F the coal fines were over 6 inches deep. The Apex Mine has been shut down since 1994 and no further accumulations of coal fines are expected.

The topsoil piles on the east facing side of Deadman canyon are C, G, and J. None of these piles are well vegetated. Topsoil pile G is actually the embankment of an unused pond. Weeds such as halogeton and curlycup gumweed dominate the surface of topsoil pile G and provide some vegetative cover. Straw bales have been allowed to deteriorate around this stockpile after it was determined that the vegetative cover was adequate to prevent erosion (see MRP, Appendix V).

The lack of growth on the piles C and J is probably due to the steep slope (angle of repose) and the lack of gouging of the surface for water harvesting. In contrast, the ditches around piles C and J are well vegetated. The possibility for lessening the slope of topsoil pile C by spreading the soil out around the power pole was discussed with Mr. Glasson. Topsoil pile C is 8 ft high and contains 6,829.55 cu ft (Plate 37).

The ditches of topsoil pile J were crowded with mature sagebrush (about 4 ft high), penstamen and some grasses were noted growing at the base of the pile, and a prickly pear cactus was growing on the slope of the pile, but most of the pile is unvegetated and stands at the angle of repose. Grasses and penstamen at the base of this steep pile had been grazed. The volume of stockpile J is established as 94,500 cu yds on page 2-4 of the MRP. However, no cross sections or survey of Topsoil pile J could be found in the plan. The cross sections or survey for topsoil pile J should be provided to the Division.

Unfortunately, there is no room for reducing the slope of topsoil pile J that is at the mouth of a side canyon at the edge of the Aberdeen truck loop. This truck loop will become the only active loading area of the mine in the near future as Summit Creek Lease areas are accessed through the Aberdeen Mine and plans are to decommission the Pinnacle Mine. The Division and Permittee should work towards getting vegetation established on piles C and J.

Substitute topsoil on the outslope of the Apex Loadout is covered by about three inches of coal fines. Some plants identified growing on the substitute topsoil were bitterbrush, rabbitbrush, snowberry, and various grasses. The substitute topsoil vegetation had also been grazed heavily. Again, there should be no further deposition of coal fines at this location because of the Apex Mine closure.

The substitute topsoil pile on the shop slope has not been impacted by coal fines. Some of the plants noted on this slope were various grasses, a vetch, woods rose, rabbitbrush, service berry, flax, spurge, and gumweed.

Page 2-3 and Plate 6 of the MRP both indicate that these substitute topsoil piles were sampled, and the results would be added to the MRP. The analytical results from the sampling could not be found. The Permittee should include the results of the sampling of the substitute topsoil into the MRP.

The topsoil stockpile in the left hand fork of Deadman's Canyon had been gouged and had a very low profile. (MRP, Appendix W provides the soil information and estimates 750 cu yds salvaged from the 0.24 ac disturbance. This should provide 1 ft 10 inches of topsoil over the 0.24 acre disturbed area). The left fork topsoil pile is well vegetated. Some plants identified growing on this stockpile were sagebrush, wild rye, and a blue-stemmed grass. [03242006]

Findings:

The information provided meets the requirements of R645-301-230 for topsoil and subsoil salvage.

VEGETATION

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

Analysis:

The MRP meets R645-301-330, R645-301-331, and R645-301-332 because the Permittee provided measures to disturb the smallest area possible and to apply interim reclamation practices when applicable.

Vegetation should not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

For the GOB hole project (April 2005), the Permittee plans to revegetate topsoil piles with an interim seed mix. The Permittee will use the adjusted final seed mix for the contemporaneous and final reclamation of the drill sites.

Findings:

The information provided in the current MRP adequately addresses the minimum requirements of the Operation Plan - Vegetation section of the regulations.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

Analysis:

No new roads are proposed with the addition of the IBC. No additional information is required.

Road Classification System

The privately owned access roads will remain in place after the venting phase of the wells is completed. Each of the road lengths that will be constructed to access the sites has been classified as "ancillary". Each will be reclaimed upon the final reclamation of the well site.

Pages 5-1, 5-2, and 5-5 were revised. Pages 5-5a and 5-5b were added. Pages 5-5, 5-5a, and 5-5b contain a name and description for each road as required under R645-301-527.200 – 210. This information was submitted as a response to the deficiencies in Task ID #2359 (Revised Appendix X and Gob Vent Holes #5A, #7, #8, and #9). The appropriate information has been included into the application with references that identify the road systems that are now depicted on Figure 1-1. [03242006]

Figure 5-5, Typical Road Cross Sections depicted the basic design that will be used to construct the roadway lengths that are necessary to access the methane well pads. A roadway width of sixteen feet will be cut/filled for the distance necessary to access each well site. Figure 5-5 is P.E. certified by Mr. Dan Guy, Utah registered professional engineer.

Plans and Drawings

The application contained a typical road cross section for the length of access which requires construction, Figure 5-5. The drawing depicted an access roadway width of sixteen feet. The drawing is P.E. certified by Mr. Dan Guy, Utah registered professional engineer.

Primary Road Certification

The Permittee's classified the roadway lengths that require construction for the wells as primary. These roads will have surface constructed of compacted native subsoil material. The road was depicted on Figure 5-1, (general). The roadway length that is developed to access each well pad location will be reclaimed upon the completion of the methane venting process.

Findings:

The information provided meets the minimum regulatory requirements of this section.

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:

The IBC will not alter the existing spoil and waste materials program.

Appendix Q of the MRP indicates that the Wildcat Loadout (007/0033) will be the location for disposal of waste from the Centennial Mine site.

Disposal Of Noncoal Mine Wastes

All noncoal waste generated by the well drilling activities will be disposed of in the same manner as waste generated at the main mine facilities area.

There will be no noncoal waste disposal at the proposed well sites.

All non-coal mine waste from the gob gas vent holes will be disposed of at an approved landfill (Appendix X, Section.747).

Coal Mine Waste

Chapter 6, Geology, page 6-2, Section 625, (Task ID #2161) states, "A sampling waiver is not requested at this time for the well sites". Section 624.300, page 6-2 also states "no test borings or drill cores are planned at the well sites". Therefore, none of the coal seam will be extracted for analysis. The wells will be permitted as a mining related activity under the R645 coal rules, and not as a minor coal exploration application.

No coal-mine waste will be generated at the Gob Gas Vent Hole sites (Appendix X, Section 746.400). The Coal Mining Rules are not clear about the status of cuttings from boreholes, but based on precedents from exploration drilling, these cuttings do not need to be treated as coal-mine waste. When the mud pits are reclaimed, the borehole cuttings will be mixed with subsoils excavated from the pits. The mixture will be placed in the pits and covered with up to 4 feet of subsoil and the same thickness of topsoil as the rest of the site (Appendix X, Sections 242.100 and 252.300, 528 and 553.200). [03242006]

Refuse Piles

There will be no refuse piles at the Gob Gas Vent Hole sites (Appendix X, Section 746.200).

Impounding Structures

No permanent impoundments will exist at the Gob Gas Vent Hole sites (Appendix X, Section 733.200).

Return of Coal Processing Waste to Abandoned Underground Workings

No coal processing waste will be generated at the Gob Gas Vent Hole sites (Appendix X, Section 746.400).

Excess Spoil

There will be no excess spoil or coal mine waste generated at the Gob Gas Vent Hole sites (Appendix X, Section 754).

Findings:

The minimum regulatory requirements of this section have been addressed.

EXISTING STRUCTURES:

Regulatory Reference: 30 CFR 784.12; R645-301-526.

Analysis:

The proposal to construct the methane degasification wells will occur in an area well outside of the disturbance created by the main mine facilities. There are no known dwellings, public buildings, schools, churches, or community buildings within 1,000 feet of the proposed well locations. There is no indication that blasting will be done during the construction / reclamation process of the well sites.

Findings:

There are no known structures in the area of the methane well development sites.

AIR POLLUTION CONTROL PLAN

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

Analysis:

The Permittee committed to watering of the access roads (both the private surface roads as well as the portions to be constructed). See Chapter 4, Section 424, Fugitive Dust Control Plan, Task ID #2161. The application of water will be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition unless it is below freezing.

Findings:

The submitted information meets the minimum regulatory requirements of this section.

SUPPORT FACILITIES AND UTILITY INSTALLATIONS

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

Analysis:

The proposed methane vent wells are intended to enhance the mine ventilation system, allowing additional venting and dilution capability for the combustible mine gases that are inherent in the coal seam, the gob area, and the adjacent strata. Thus, they are a support facility.

Chapter 5, page 5-5, Section 526.200 Utility and Support Facilities of the submittal addresses this requirement. According to that information, no utilities will be installed at the well sites. A portable methane-exhausting unit will be installed, and the operation of that machine will be initiated with portable propane bottles. Upon start up, the device will be switched over to operate from the methane concentrations venting from the well, and thus, will be self-sufficient.

Findings:

The information provided meets the minimum regulatory requirements of this section.

SIGNS AND MARKERS

Regulatory Reference: 30 CFR Sec. 817.11; R645-301-521.

Analysis:

Chapter 5, Section 521.200, Signs and Markers of the MRP addressed this requirement of the R645 coal rules. The Permittee committed to install a mine and permit identification sign at each well site that is developed. The identification sign will contain the following information: mine name, company name, company address, and telephone number, MSHA identification number, and the permanent program identification number.

The Permittee committed to install disturbed area perimeter markers to identify all acreage to be affected before beginning mining activities.

Stream buffer zone signs will not be required at the proposed well site.

Topsoil storage signs will be placed on all topsoil stockpiles.

All signs and markers will be maintained until no longer needed, generally until all Phase III bond release requirements have been met.

Findings:

The information provided meets the minimum regulatory requirements of this section.

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:

General

As Andalex Resources mine more of their coal reserves, the mine expands northward. The strata overlying the coal mining seam becomes increasingly thicker. Mining has crossed the ridge of the Book Cliffs separating the drainage in Emma Park from the tributaries that flow south to lower Price River drainage.

The Gob Gas Vent Hole submittal included general well site plans that incorporate design criteria for the control of drainage (Appendix X, Section 741). Ground water encountered during drilling will be sealed off by drilling-mud and cemented casing; if necessary, it will be treated using silt fence or straw bales or hauled off-site for disposal at a licensed facility (Appendix X, Sections 728.300 and 751). To protect the hydrologic balance, construction, maintenance, and reclamation operations, the Permittee commits to handle earth materials and runoff in a manner that prevents, to the extent possible, additional contributions of suspended solids to stream flow outside the permit are, and otherwise prevent water pollution. (Appendix X, Sections 728.300 and 731.100).

Groundwater Monitoring

No springs or seeps were sampled during the 2001 and 2003 surveys, which illustrates the dry conditions currently being experienced in the region. This is indicative of the shallow ground-water systems and surface-water flows responding rapidly to climate and season. During

wet climatic conditions, ground water naturally discharges from the Flagstaff and North Horn Formation in the area, although in small quantities for short periods of time. Seeps and springs in the area show rapid response to both season and climate, suggesting short flow paths and shallow circulation depths. This is illustrated by the lack of data for the majority of water monitoring sites in the area. Due to dry conditions, the little moisture that is received is critical to livestock and wildlife. Numerous water rights exist on stock ponds that are fed by springs or streams. Monitoring site 31-1, a stock pond has been added to the water-monitoring program to document any loss of water in the event subsidence does occur in the area.

A total of two (2) additional springs are proposed for monitoring as part of the current amendment. Spring B261 has a total of five (5) samples collected from 1996 through 2001. Spring B362 has only one (1) sample (May 2001) collected from 1997 through 2002. The existing water quality information for springs B261 and B362 has been submitted electronically to the Division database.

Locations for ground-water monitoring sites B261, B351, B352, and B362 are shown on Figure 6 and Figure IV-11. Descriptions, monitoring protocols, and parameters in Tables "a", "b", and "c" are for the two new springs, B362 and B261, only. This information for other springs is already in the current plan. [08/18/2005]

No additional water monitoring will be conducted at the gob gas vent hole sites (Appendix X, Section 731.200).

Surface Water Monitoring

During sampling in both 2001 and 2003 no springs, seeps, or streams were found to be flowing, likely demonstrating the current drought conditions and the ephemeral nature of the streams in the area. Of the four (4) proposed additional surface water monitoring sites, two (AC-1 and SC-1) are new sites with no baseline data provided. It will be a few years before these two sites provide any useful information. Stream site B263 has been monitored since 1996 and has a total of 10 samples collected from 5/96 – 10/02. The existing data from site B263 has been input into the Division electronic database as requested. Pond 31-1 has an associated water right. The pond will be monitored for the presence or absence of water and also document any inflow or outflow from the pond.

No additional water monitoring will be conducted at the gob gas vent hole sites (Appendix X, Section 731.200).

It is not expected that any of the springs or streams in the headwaters of Summit Creek will be impacted by mining because of the extensive overburden in the Mathis/ Summit Creek modification area. The strata overlying the Aberdeen Coal Seam, the only seam proposed for

mining in that area ranges from 2600 feet to 3100 feet. No impacts should affect the water resources in Emma Park. Figures 5 and 6 identify surface water monitoring sites.

Acid- and Toxic-Forming Materials and Underground Development Waste

The discussion of acid- or toxic-forming materials; hydrocarbon products; leaks of fuels, greases, and other oils from drilling equipment; and the disposal of absorbent materials used for the collection of leaked fuels, greases, and other oils is in Appendix X, Sections 728.300 and 731.300.

No acid- or toxic-forming materials are anticipated at the gob gas vent hole sites. No acid- or toxic-forming materials have been identified in the soils or strata of the Centennial Project. Hydrocarbon products will not be stored at the well sites; however, fuels, greases, and other oils may leak from equipment during drilling operations. Absorbent materials will be used for the collection of leaked fuels, greases, and other oils. The saturated absorbent materials will be disposed of at an appropriate landfill facility (Appendix X, Sections 728.300 and 731.300). [03242006]

Transfer of Wells

No wells have been transferred and no transfer is anticipated (Section 731.400 of the MRP).

Temporary Casing and Sealing of Wells

Appendix X, Section 542.700 of the MRP states that all openings will be sealed in accordance with Federal and State Regulations. The casings will be plugged at the bottom to hold concrete, and lean concrete mixture will be poured into the casing until the concrete is within five feet of the surface. At that time, the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before final reclamation is completed. [03242006]

Discharges Into An Underground Mine

There will be no discharge to underground workings from the gob gas vent holes (Appendix X, Sections 731.500 and 728.300).

Water-Quality Standards And Effluent Limitations

Page 7-2 of the proposal has been modified to accurately reflect the number of UPDES sites under the permit as four (4). Figure IV-II has also been modified to reflect the correct information.

Treatment of runoff and water encountered during drilling of the gob gas vent holes is covered in Appendix X, Section 751. The water will be treated using silt fences and/or straw bales prior to leaving a site. If it becomes necessary, water encountered during drilling would be pumped into a tank and hauled from the site for disposal at a licensed facility (Appendix X, Section 751). [03242006]

Diversions: General

No diversion ditches will be constructed as part of the drilling or operational phases of the gob gas vent holes, including along the roads leading to them (Appendix X, Sections 742.300 and 732.400).

Diversions: Miscellaneous Flows

A berm at the top of cut slopes will divert runoff around the drilling pad (Appendix X, Section 731.100). [03242006]

Stream Buffer Zones

None of the gob gas vent hole drilling sites are adjacent to a stream; therefore a stream buffer zone is not necessary (Appendix X, Section731.600).

Sediment Control Measures

Designs and sediment control measures formulated to prevent additional contributions of sediment to stream flow or to runoff outside the well sites, minimize erosion to the extent possible, and otherwise prevent water pollution are in Appendix X, Sections 732 and 742.

Hydrologic calculations of runoff volume and peak flows from the gob gas vent holes are contained in Attachment 7-1. The calculations were performed utilizing a 10-year 24-hour precipitation event of 1.82". Section R645-301-512.240 in the MRP discusses further criteria used in the hydrologic calculations.

Sediment yields in the well permit areas are minimized by disturbing the smallest practicable area during the construction of the well site and contemporaneously reclaiming areas suitable for such reclamation (Appendix X, Section 532). The drilling sites for the gob gas vent holes will not have sedimentation ponds (Appendix X, Section 732.200). Sediment control methods will include silt fences, berms, and straw bales to reduce runoff and trap sediment. Sediment control measures will be located, maintained, constructed and reclaimed according to plans and designs presented in Appendix X, Sections 732, 742, and 760.

Siltation structures will be installed before the topsoil is removed from the gob gas vent hole sites. Construction activities will not occur during major precipitation events (Appendix X, Section 742). Sites will be graded to ensure that storm runoff flows towards berms surrounding the drill pad. Berms and silt fences will direct runoff to the low points of the pad, where runoff will be treated by silt fences or straw bales. A berm at the top of cut slopes will divert runoff around the drilling pad. Berms at the top of fill slopes will direct runoff from the pad to silt fences or straw bales, and berms and silt fences will be installed at the toe of fill slopes. After drilling, the pad will be reduced in size and re-graded to direct storm runoff towards silt fences or straw bales. Silt fences and straw bales will be periodically inspected, and accumulated sediment will be removed as needed to maintain functionality and piled on the pad to be used for fill during final reclamation of the well site (Appendix X, Section 731.100).

Chapter 5 of the revised Appendix X contains pad design figures depicting the typical sedimentation structures that will be utilized during the installation of the gob vent holes (Figures 5-1, 5-2, and 5-3). In addition, as-constructed drawings have been submitted for gob vent holes GVH-1, GVH-3, GVH-4,

Minimization of the disturbed area for the gob gas vent holes is discussed in Appendix X, Section 532. Sediment control measures - their location, maintenance, construction, and reclamation and plans and designs are presented in Appendix X, Sections 732, 742, and 760. Drawings that show typical berm and silt fence installation are provided at the end of Chapter 7 of Appendix X. Grading of the Gob Gas Vent Hole pads and installation of berms, silt fences, and straw bales dikes is covered in Appendix X, Section 731.100. [03242006]

Siltation Structures: General

Location, maintenance, construction, and reclamation of siltation structures at the gob gas vent holes will be done according to plans and designs presented in Sections 732, 742, and 763 of Appendix X (Appendix X, Section 752.100).

Siltation Structures: Sedimentation Ponds

The drilling sites for the gob gas vent holes will not have sedimentation ponds (Appendix X, Section 732.200).

Siltation Structures: Exemptions

The Permittee has not requested any exemptions from the requirements of this section of the Coal Mining Rules.

Discharge Structures

No discharge structures have been planned or designed for the gob gas vent holes project (Appendix X, Section 734). [03242006]

Impoundments

No impoundments, temporary or permanent, will exist at the gob gas vent hole sites (Appendix X, Sections 733.200, 743, and 753).

Road Drainage

No diversion ditches will be constructed as part of the drilling or operational phases for the gob gas vent holes, including along the roads leading to the pads. Where needed on roads accessing the drill sites, water bars and silt fences will be constructed to divert water away from the drill pad and control sediment. Eighteen to twenty-four inch culverts will be installed on the existing private access road up Deadman Canyon and left in place at the owner's request (Appendix X, Sections 742.300 and 732.400).

Newly constructed roads will be designed slightly sloping towards the pad area with a berm on the downhill side in order to facilitate the containment and treatment of sediment-laden runoff. [03242006]

Water Rights and Replacement

The PHC determinations by Mayo and Associates and by Peterson Hydrologic in Appendix L acknowledge the requirement to replace State-appropriated water supplies that have been diminished, contaminated, or interrupted. Section R645-301-535 contains a commitment that should it be shown mining related activities have adversely affected state –appropriated water supplies, the Permittee will attempt to repair or restore the affected water supply; specific repair and restoration methods are outlined. If the supply cannot be restored, the loss may be mitigated by replacement of equivalent water rights from those held by the Permittee. [08/18/2005]

Findings:

The information provided adequately addresses the minimum requirements of the Operation Plan – Hydrologic Information section of the State regulations.

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:

Affected Area Maps

The Permittee showed the affected area on Map 5-4B, Mining Projections (Extended Reserves.)

Mining Facilities Maps

Proposed locations for the gob gas vent holes are shown on Figure 1-1 of Appendix X. In addition, Chapter 5 of Appendix X contains pad design figures depicting the typical sedimentation structures that will be utilized during the installation of the gob vent holes. As-constructed drawings have been submitted for gob vent holes GVH-1, GVH-3, GVH-4, GVH-5 and GVH-6. [03242006]

Monitoring and Sampling Location Maps

On Plate 21 – Surface Geology, has been modified to include the strike and dip numbers on the map.

Figure 5 - Surface and Ground Water Rights of the Vaughn Hansen Associates report has been modified to reflect the proper naming convention 'Water Rights Number'.

Figure IV-11 has been modified to include the following: 1) the IBC has been correctly identified as the Mathis/Summit Creek IBC; 2) the symbol designation of streams and springs/wells has been included; and 3) all four (4) UPDES sites have been identified. This adequately addresses earlier deficiencies.

Affected Area Maps

Plate I has been modified to include the new permit boundary with the addition of the IBC area. Plates 21, 22, 25, 29, 34, and Figures 4, 5, and 6 have been modified to include the proposed IBC in the permit boundary. This adequately addresses earlier cited deficiencies.

Certification Requirements

Dan Guy, a registered professional engineer, certified Plate 29. The Permittee has met the certification requirements.

Mining Facilities Maps

The methane well submittal included three maps/drawings for the wells including:

1) A plan view drawing, which depicts the "venting phase" of the pad area, showing a portion of the acreage that has been contemporaneously reclaimed.
2) A typical cross section for each well pad, depicting the pre-disturbed and final reclamation surface configuration, as well as the Operational surface configuration.
3) A plan view of the "approximate" drilling layout for each of the proposed well sites showing the drill hole location and the mud pit. The plan view shows the various methods to control and treat intercepted precipitation, including sloping the pad(s), and the installation of berms and silt fences.

All three figures for each of the three proposed wells are P.E. certified by Mr. Dan Guy, Utah registered professional engineer.

Mine Workings Maps

Map 5-4A, Mining Projections, showed the location of the development mining associated with Task ID #2172.

Findings:

The information provided adequately addresses the minimum requirements of the Operation Plan – Maps, Plans, and Cross Sections of Mining Operations section of the State regulations.

RECLAMATION PLAN

GENERAL REQUIREMENTS

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

Analysis:

Mathis/Summit Creek Modification

According to information supplied in the MRP, there should be no surface disturbance will take place on the Mathis/Summit Creek modification. No disturbance as a result of mining activities is expected to occur. The Permittee is relying on the exceptional thickness of overburden covering the Mathis/Summit Creek modification area to prevent subsidence impacts to surface features. Overburden thickness at the Mathis/Summit Creek areas is 2600 feet to 3100 feet. The Permittee will be mining a coal seam with a thickness that ranges from 6 to 10 feet thick. Given the great ratio of overburden to coal ratio, the Permittee contends that cracking and caving of strata and will only impart impacts to the lower strata. Upper units of the overburden should not sustain any alteration from mining.

IBC Modification

For the IBC amendment (2004/5), since there are no surface facilities associated with the addition of 93.32 acres within the proposed IBC; no changes to the engineering portion of the reclamation plan are needed. The reclamation plan will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

Gob Vent Modification

For the GOB hole project (April 2005), the plan includes to remove all structures, recontour the site to approximate premining contours, rip the soil, and replace salvaged/stored topsoil. The reclamation plan does not include irrigation.

Upon completion of the drilling activities, all machinery will be removed and the mud pits backfilled and compacted. The area of the pad not needed for the venting process will be reclaimed by returning it to approximate original contour. An exhaust blower will be set up to create a low pressure area across the well head, allowing the combustible mine gases to vent to the atmosphere. This will remain at the site for the length of the life of the well.

Upon completion of the venting phase, the blower and wellhead will be removed and the well casing will be plugged to the maximum depth possible, up to an elevation five feet below the surface. The casing will then be cut off, and final reclamation activities will then commence, returning the remaining disturbed area to approximate original contour.

Revegetation activities will commence; the only remaining equipment will be the disturbed area perimeter fence, and the permittee identification sign.

Findings:

The information provided adequately addresses the minimum requirements of the Reclamation Plan – General Requirements section of the regulations.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

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

Analysis:

The Permittee made the following commitment relative to approximate original contour; "the well site will be returned to its approximate original contour after reclamation is completed. The well sites are flat so achieving AOC would be easy.

Sediment controls will consist of gouging the surface to create depressions and mounds that store and impede the movement of water. As vegetation becomes established on the reclaimed surface, erosion potential will be further minimized.

Findings:

The submitted information meets the minimum regulatory requirements of this section.

BACKFILLING AND GRADING

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

Analysis:

General

The wells are located on flat areas. The reclamation plan calls for the areas to be returned to the approximate original surface configuration. The site will not have any highwalls or spoil.

Previously Mined Areas

The area has not been mined previously; the requirements of this section are not applicable to the methane well submittal.

Findings:

The information submitted meets the minimum regulatory requirements of this section.

POSTMINING LAND USES

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

Analysis:

The reclamation plan will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

Findings:

The information provided in the current MRP is adequately addresses the minimum requirements of the Reclamation Plan – Post-mining Land Uses section 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:

Reclamation of the methane vent wells is addressed in Chapter 5; section 540 Reclamation Plan, Section 550, Reclamation Design Criteria and Plans, and Section 560, Performance Standards.

Section 541.100, Commitment indicates, "Upon permanent cessation of methane venting, Andalex Resources, Inc., will permanently reclaim all affected areas in accordance with the R645 regulations and this reclamation plan."

The sealing of wells involved the minimum regulatory requirements associated with R645-301-765. All openings will be sealed in accordance with Federal and State Regulations. The casings will be plugged at the bottom to hold concrete. A lean concrete mixture will be poured into the casing until the concrete is within five (5) feet of the surface. At that time, the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before the final reclamation is completed.

Findings:

The Permittee meet the minimum regulatory requirements.

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

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

Analysis:

The MRP meets R645-301-342 and R645-301-358 because the Permittee provides enhancement and protection measures during the reclamation phase of operations. [03242006]

The reclamation plan will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity. The protection and enhancement plan is addressed in appendix A of the approved MRP. The application states that "the Mathis/Summit Creek Incidental Boundary Change is simply an extension of our underground mine workings under roughly 2,600 to 3,000 feet of cover. Therefore, there should be no effect to the surface Biology of the area. The application also includes a commitment to develop a mitigation plan with the Division of Wildlife Resources should problems occur.

For the GOB hole project (April 2005), the Permittee provided enhancement and protection measures that includes reseeding the drill sites with a seed mix that is suitable for fish and wildlife habitat.

Findings:

The information provided adequately addresses the minimum requirements of the Reclamation Plan – Protection of Fish, Wildlife, and Related Environmental Values section of the regulations.

TOPSOIL AND SUBSOIL

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

Analysis:

The MRP meets the soil redistribution requirements of R645-301-240, because the Permittee provides a soil redistribution plan in Section R645-301-240. [03242006]

Redistribution

Gob Vent Holes Amendment X

Section 341.200 indicates an 18 – 24 inch depth of ripping over the regraded site followed by topsoil replacement for contemporaneous and final reclamation (Section 242) Appendix X, Table 2-3 Indicates replacement depth and is based upon pre-disturbance conditions. The topsoil will be left roughened in preparation of seeding.

The mud pits will be filled with a mixture of cuttings and subsoil. The cuttings will be covered with a minimum of four feet of soil. The drilling method is by air and will produce little volume of liquid, however, foam will be used. (MSDS sheets on the foam are provided in Appendix X-1.)

Findings:

The information provided meets the requirements for topsoil and subsoil replacement.

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

A general reclamation plan for the Gob Gas Vent Hole sites is presented in Sections 540 and 550 of Appendix X. Sealing of the boreholes is described in Appendix X, Section 542.700. The natural drainage patterns will be restored (Appendix X, Section 762). All siltation structures will be maintained until removed in accordance with the approved reclamation plan (Appendix X, Section 763.100). When a siltation structure is removed, the land on which the siltation structure was located will be regraded and revegetated in accordance with the reclamation plan in Section 540 (Appendix X, Section 763.200).

All siltation structures will be maintained until removed in accordance with the approved reclamation plan (Appendix X, Section 763.100). When a siltation structure is removed, the land on which the siltation structure was located will be regraded and revegetated in accordance with the reclamation plan presented in Section 540 (Appendix X, Section 763.200).

The Permittee commits to take care to guard against erosion during and after application of topsoil and to employ the necessary measures to ensure the stability on graded slopes. Erosion control measures will include silt fences, berms, seeding, straw bales, soil roughening, and mulching of the soils (Appendix X, Section 231.300).

No structures will remain at the gob gas vent hole sites. These sites will be returned to approximate original contour, but gouging the surface will create depressions and mounds to store and impede the movement of water. As vegetation becomes established on the reclaimed surface, erosion potential will be further minimized (Appendix X, Section 553.100). [03242006]

Permanent Casing and Sealing of Wells

All openings will be sealed in accordance with Federal and State Regulations. The casings will be plugged at the bottom to hold concrete and a lean concrete mixture will be poured into the casing until the concrete is within five feet of the surface. At that time, the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before final reclamation is completed (Appendix X, Section 542.700). [03242006]

Restoring the Natural Drainage Patterns

The natural drainage patterns will be restored after degasification is completed (Appendix X, Section 762.100). [03242006]

Removal of Siltation Structures

When a siltation structure is removed, the land on which the siltation structure was located will be regraded and revegetated in accordance with the reclamation plan presented in Section 540 (Appendix X, Section 763.200). [03242006]

Gob Vent Holes Amendment X

The drilling method is by air and will produce little volume of liquid; however, foam will be used. MSDS sheets on the foam are provided in Appendix X-1. The information indicates that appropriate measures (mud pit, berms) are being taken to ensure that the components of the drilling fluid are contained.

Findings:

Information on the Hydrologic Reclamation Plan for the gob gas vent holes is sufficient to meet the requirements of the R645 Coal Rules.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

Reclamation

All road construction and improvements needed to access GOV #1 were done as part of an emergency order. Under the emergency order, the Permittee is not required to reclaim any sections of the road that were upgraded or constructed.

Any road construction or improvement needed to access GOV #2, GOV #5 and GOV #6 but not needed to access GOV #1 must be reclaimed.

Findings:

The information provided in the current MRP adequately addresses the minimum requirements of the Reclamation Plan – Road Systems and Other Transportation Facilities section of the regulations.

CONTEMPORANEOUS RECLAMATION

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

Analysis:

Appendix X, Table 1-2 itemizes 4.87 acres of existing degas well disturbance, down from the original 8.39 acres. The reduction in disturbed area reflects the contemporaneous reclamation work completed to date. The "As-Constructed" drawings for GVH 1, 3, 4, 5, 5A, and 7, 7A, and 8A are provided in Figures 5-7 through 5-16. [05112007] .

The timetable for contemporaneous reclamation of gob vent hole sites is provided in Figure 5-6. Mud pits will be dried and cuttings will be mixed with excavated soils. The mixture of cuttings will be covered with four feet of soil, including the 18 inches of topsoil (Section 231.100). Section 341.200 describes the methods of surface reclamation. [05112007]

Findings:

The information provided in the current MRP adequately addresses the minimum requirements of the Reclamation Plan – Contemporaneous Reclamation section of the regulations.

REVEGETATION

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

Analysis:

Revegetation: General Requirements

The MRP meets R645-301-353 through R645-301-356 because the Permittee provided a reclamation plan and discussion of how the reclamation measures will meet the performance standards.

Revegetation will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

For the GOB hole project, the Permittee plans to use seed and apply mulch. The seed mixes for interim and final reclamation are not the same. The interim seed mix will include a blend of native grasses. For final reclamation, the Permittee will use the final seed mix. The Permittee will apply wood fiber mulch at 2,000 pounds per acre. The Permittee will use the

"reference area method" for measuring the standard of success. The NRCS will assign range site Ecological Site Descriptions and productivity values for the drill sites. [03242006]

Revegetation: Timing

Timing will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

Revegetation: Mulching and Other Soil Stabilizing Practices

These practices will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

Revegetation: Standards For Success

Standards for success will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

Findings:

The information provided in the current MRP adequately addresses the minimum requirements of the Reclamation Plan - Revegetation section 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 is shown on Figure 1-1.

Bonded Area Map

The bonded area for each well is depicted on Figure 5-1.

Final Surface Configuration Maps

The final surface configuration for the GOV #1, GOV #2, GOV #5 and GOV #6 are shown on Figure 5-1.

Reclamation Monitoring And Sampling Location Maps

Reclamation monitoring and sampling location maps will not be affected by the addition of the Mathis/Summit IBC and the installation of gob gas vent holes. [03242006]

Reclamation Treatments Maps

Reclamation treatment maps will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

Revegetation and Restoration of Soil Productivity

Revegetation and restoration of soil productivity will not be affected by the addition of the Mathis/Summit IBC. There is no surface disturbance associated with this permitting activity.

Findings:

The information provided in the current MRP adequately addresses the minimum requirements of the Reclamation Plan – Maps, Plans, and Cross Sections of Reclamation Operations section of the regulations.

STABILIZATION OF SURFACE AREAS

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

Analysis:

The MRP meets R645-301-244, because the Permittee provides a soil stabilization plan in Sec. 234.200, Section 242, Sec. 527.100, and Section 244.300. [03242006]

The topsoil stockpile will be left in a roughened state and seeded with the grasses found in the seed mix (Sec. 234.200). The seed mix on page 3-21 of the MRP lists great basin wildrye, bluebunch wheatgrass, slender wheatgrass, mountain brome (Bromus inermis), Indian ricegrass, and Sandberg bluegrass. According to the Carbon Co. Soil Survey, the above list of grasses parallels the grass species that are prevalent in soils map units 105 and 117.

For contemporaneous and final reclamation areas, the site will be roughened and the complete mix of grasses, forbes, and woody species given on page 3-21 of the MRP will be

applied. The Permittee will apply wood fiber mulch at 2,000 pounds per acre to all reclaimed areas.

If the grasses listed on page 3-21 of the MRP seed mix are not available, then the Permittee could substitute from the following list derived from the Carbon County Soil Survey for Map Unit 117:

-Stipa (including Letterman needlegrass (Stipa lettermanii), needle and thread grass (Stipa comata), Columbia needlegrass (Stipa columbiana)
-Koeleria cristata or Prairie junegrass
-Festuca thurberi or thurber fescue
-Elymus glaucus or blue wildrye)

Outslopes of gob vent access roads will be protected with vegetation and silt fences (Section 242 and Section 527.100). Rills and gullies will be repaired as described in section 244.300.

Findings:

The information provided in the application meets the requirements of R645-301-244 for soil stabilization.

BONDING AND INSURANCE REQUIREMENTS

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

Analysis:

Determination of Bond Amount

The Division determined in May 2005, that the reclamation cost for the Centennial Project would be $1,172,000 in 2009 dollars.

The Reclamation Surety Bond for ANDALEX Resources, Inc's. (ARI) Centennial Project, C/007/019 was replaced with a Letter of Credit (LOC) # CIS40 5956 for $91,161.00 issued by the Fifth Third Bank, Cincinnati, Ohio (2007/Incoming/0004.pdf and 0006.pdf).

Findings:

The information provided adequately addresses the minimum requirements of the Reclamation Plan – Bonding and Insurance Requirements section of the regulations.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)

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

Analysis:

The current Book Cliffs I CHIA (August 17, 1225) analyses the cumulative hydrologic impacts for the Centennial Project and recent amendments to the permit area. Recent modifications to the permit include the Mathis Fee Tract / Summit Creek Federal Lease significant revision, the Gob Gas Vent Drill Holes, and tracts the Mathis and Summit Creek IBC's. The Division has made revisions to the CHIA to identify these changes.

Findings:

A finding is not necessary.

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