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

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

January 30, 1997

John Pappas
Sr. Environmental Engineer
P.O. Drawer PMC
Price, UT 84501

Re: Sowbelly Gulch No. 5 Mine - Phase I Bond Release, Castle Gate Mine, Amax Coal Company, ACT/007/004-96K, Folders #3 and #4, Carbon County, Utah

Dear Mr. Pappas:

Phase I bond release for the Sowbelly Gulch No. 5 Mine at the Castle Gate Mine is approved in the amount of \$400,775. Attached is the decision supporting this approval.

If you have any questions, please call Pamela Grubaugh-Littig.

Yours very truly,

A handwritten signature in black ink, appearing to read 'James W. Carter', written over a large, loopy flourish.

James W. Carter
Director

Enclosure

cc: Dennis Winterringer - OSM, WRCC
Mary Ann Wright (w/o)
Pamela Grubaugh-Littig (w/o)
Daron Haddock (w/o)
Joe Helfrich (w/o)
Paul Baker (w/o)
PFO



PHASE I BOND RELEASE
CHRONOLOGY
SOWBELLY GULCH NO.5 MIN
CASTLE GATE MINE
ACT/007/004

September 23, 1996	Phase I bond release application received with request for \$462,433.
October 8, 15, 22, and 29, 1996	Public notice of Phase I bond release for Sowbelly Gulch No. 5 Mine in the <u>Sun Advocate</u> .
October 18, 1996	Blackhawk Coal Company, landowner, sends letter to Division stating that there are no objections to the Phase I bond release at Sowbelly Gulch No. 5 Mine.
October 22, 1996	Phase I bond release inspection conducted.
November 29, 1996	Division decision document prepared with Technical Analysis. Letter sent to OSM for concurrence on bond release.
December 23, 1996	OSM letter to Division about bond amount (from \$462,433 to \$400,775) and minor changes in findings.
December 27, 1996 and January 2, 1997	Division changes made in findings and faxed to OSM.
January 27, 1997	Division confirms OSM concurrence by telephone.
January 30, 1997	Phase I bond release approved at Sowbelly Gulch No. 5 Mine in the amount of \$400,775.



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

cc: Pam

Michael O. Leavitt
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James W. Carter
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January 2, 1997

TO: Daron Haddock, Permit Supervisor DRH
FROM: Wayne H. Western, Senior Reclamation Specialist w+h
RE: Phase I Bond Release Sowbelly Canyon, Amax Coal Company, Castle Gate Mine, ACT/007/004, Folder #2, Carbon County, Utah

Synopsis:

On October 22, 1996, representatives from DOGM, OSM and the operator visited Sowbelly Canyon. The purpose of the inspection was to determine if the operator had met the minimum requirements for Phase I bond inspection. Upon completion of the inspection DOGM found that the Operator had met the requirements for Phase I bond release.

Impoundments:

Analysis:

There are no permanent impoundments at the site. Some depressions were left for water retention, minimize erosion and to assist revegetation. Such structures are allowed to be retained under R645-301-552.100.

Findings:

Since there are no impoundments on the site this issue is not applicable.

Small Depressions or Livestock Water Facilities:

Analysis:

There are no livestock watering facilities at the site. However, several small depressions were left to retain water and enhance revegetation. The depressions meet the requirements of R645-301-552.100 and therefore may be retained.

Findings:

The operator has met the minimum requirements for retaining small depressions.

Postmining Land Use Facilities Appear To Be Functional and Capable of Supporting the Intended Post Mining or Alternative Post Mining Land Use Criteria

Analysis:

No facilities were left on the site.

Findings:

This criterion is not applicable.

Remaining Highwalls Meet Highwall Retention Criteria

Analysis:

There are exposed highwalls at the site. All highwalls have been completely backfilled and reclaimed.

Findings:

This criterion is not applicable to this site.

Disturbed Areas Tie In Smoothly With Adjacent Undisturbed Areas

Analysis:

The disturbed area was backfilled and graded so that it blends in with the undisturbed area. In a few areas the boundary is marked by a short cut slope. The cut slopes were left because there was not enough material to completely backfill the site or that additional fill would cause the slopes to become unstable or that the drainage would be filled in. The cut slopes are no more than a few feet high and blend in the general topography.

Findings:

The Operator has met the minimum requirements.

Cut Slope and Steep Slope Areas Remaining Appear Stable and in Accordance with AOC Requirements

Analysis:

The permittee proposed to leave some cut slopes because there was either not enough reasonable available spoil or the slope stability requirements could not be met. The Division has reviewed the permittee's backfill and grading plan and determined that there was insufficient slope material to eliminate all cut slopes. When the permittee was doing reclamation the inspectors routinely visited the site and observed the amount of spoil material that was excavated. Neither the permittee nor the Division noticed any additional source of spoil material during earthwork activities.

The natural slope angle for most of the slopes in and around the disturbed area is the angle of repose. The safety factor for most slopes that are constructed at their angle of repose is 1. To increase the safety factor the slope angle must be reduced. The only way to effectively reduce the slope angle is to place more material on the slopes. The Division will not require the permittee to place additional material on the slopes since none is reasonably available.

Most of the natural slopes in the area consist of bedrock covered by a few feet of soil. If slope failure were to occur, it would most likely be minor sluffing. The bedrock would prohibit deep-seated rotational failure.

The cut slopes are similar to naturally occurring ledges in the area. The topography of the reclaimed area is similar to that of the surrounding landscape. The Division has determined that the permittee has met the requirements to restore the area to the approximate original contours.

Findings:

The operator has met the minimum requirements.

Surface Devoid of Sink Holes or Cracks

Analysis:

During the inspection the DOGM staff and OSM representatives walked over most of the sites. The area appears to be stable. No cracks or sinkholes were observed during the inspection.

Mining ceased several years ago. There are only a few small areas that have mine workings beneath them. If those workings were going to subside, they most likely would have by now and the surface features associated with subsidence would have appeared. Most of the backfilling and grade were done in the summer of 1995. If the soil was to settle in a way that would cause surface cracks or sinkholes it would have done so by now. Soil

Page 4
ACT/007/004
Phase I Bond

has had time to settle. It is not anticipated that much more soil settling will occur. Based on field observation the Division has determined the area to be stable.

Findings:

The operator has met the minimum regulatory requirements.

Mine Openings, Wells and Other Boreholes Backfilled, Sealed or Cased as Required

Analysis:

The mine portals have been properly sealed and backfilled. The seals consisted of cinder blocks located 25 feet from the opening. The portals have been backfilled from the surface to the seals and four feet of material has been placed over each portal.

Findings:

The operator has met the minimum regulatory requirements.

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State of Utah
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December 27, 1996

TO: Daron Haddock, Permit Supervisor

FROM: Steven M. Johnson, Reclamation Hydrologist *SMJ*

RE: Sowbelly As-Built, Castle Gate Mine, Amax Coal Company, ACT/007/004 Phase I, Folder #2, Carbon County, Utah

SYNOPSIS

Amax Coal Company completed regrading and seeding reclamation in the fall of 1995 for the Sowbelly Canyon permit area. They have requested Phase I bond release and have submitted as-builts for the regrading, sediment control and diversion in the canyon. This replaces the October 23, 1996, memorandum under the same title, including additional findings.

On October 22, 1996, the Division and a representative from OSM joined Johnny Pappas in a Phase I inspection of Sowbelly Canyon. This inspection began at 10:00 a.m. and lasted until 12:00 noon. Grading and establishment of the drainage and sediment control systems were the major components of the inspection.

This memorandum provides the analysis of hydrology from the as-builts and the inspection in determining if release of Phase I bond is appropriate.

ANALYSIS

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: R645-301-760

Analysis:

Section 3.2-5(4) covers the reclamation alternate sediment control measures that will be implemented in the reclamation of this canyon. This section was permitted prior to reclamation activities in 1995. Section 3.2-5(4) refers to Appendix 3.2I for sediment control as-builts. Appendix 3.2I shows USLE calculations that demonstrate that the alternate sediment

control measures are adequate to treat reclaimed areas. First, Amax Coal says that the amount of sediment from the undisturbed area is greater than the disturbed areas; therefore, the sediment is controlled on the reclaimed areas. Second, Amax Coal says that an analysis which uses predisturbed assumptions on the disturbed areas results in only a slightly lower sediment production. Finally, the data shows that sediment production per acre is less from the reclaimed areas than the sediment production from undisturbed areas.

Section 3.2-10 discusses the reclamation as-builts. This section discusses the reclamation activities performed in 1995. This section also describes the use of mulch as sediment in the reclaimed areas.

Appendix 3.2G is the reclamation as-built, hydrology calculations. In this section the channel configurations are shown. All channels are shown to be built to design and certified by a professional engineer, except SBRD-8. This channel was only slightly modified in order to leave a more natural, stable channel; therefore the engineer certified that the channel was stable and capable of conveying the required storm runoff, rather than certifying the designs.

During the summer of 1996, the reclamation channels withstood several thunderstorms including one storm that produced nearly one inch of rainfall. There is some evidence that flow was conveyed in some of the channels but there were no signs of channel destabilization. Flow was minimal in the channels to the point that two automated samplers in the main channel (one upstream portions of the reclamation area, one downstream of the reclamation area) collected no data.

Sediment control is currently met by surface roughening and vegetation. Vegetation is not at a level that is in itself adequate for sediment control but when combined with the surface roughening sediment control and runoff control is adequate. Further, the roughening has enhanced the potential for vegetation which will continue to act as long term sediment control.

The groundwater table is deep below the surface and is not readily effected by the surface. Further, the materials left on the surface will produce little leachate that will cause negative effects to the quality of the groundwater. Though some of the material is high in sodium, it has been buried at least four feet below the surface which will moderate the amount of leachate that reaches the aquifer. Finally, this aquifer has minimal economic value so slightly increased dissolved solids will not bring a need for remediation.

All mine opening have been adequately sealed to avoid discharges into the mine workings.

Findings:

The reclamation hydrologic designs for Sowbelly Canyon are complete and field

Page 3
ACT/007/004 Phase I
December 27, 1996

inspection shows that the ditches are stable. Sediment control is adequate in surface roughening and vegetation. No surface water quality impacts are anticipated but in the case that increase sediment loads are discovered remediation is expected to be inexpensive and effective.

Reclamation of Sowbelly Canyon has not and is not expected to cause groundwater pollution. The Division expects that remedial work will be very unlikely.

Water monitoring will continue for at least a ten year period. This monitoring will likely show any changes in water quality caused by the reclamation of Sowbelly Canyon.

RECOMMENDATION

The hydrologic design and construction in Sowbelly Canyon have produced stable channels. Sediment control will be met in the short through roughening and vegetation, and long terms by vegetation.

CC: Pam Grubaugh-Littig
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IN REPLY REFER TO:

United States Department of the Interior

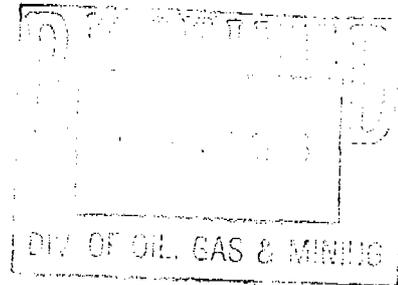
OFFICE OF SURFACE MINING

Reclamation and Enforcement

1999 Broadway, Suite 3320

Denver, Colorado 80202-5733

December 23, 1996



Pamela Grubaugh-Littig,
Permit Supervisor
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

*Copy Aaron PAM
ACT/003/004*

Dear Ms. Grubaugh-Littig:

This is a response to your November 29, 1996, letter request for *#2* concurrence on the phase I bond release for the Amax Coal Company, Castle Gate Mine, Sowbelly Gulch No. 5 Mine.

The Castle Gate Mine contains Federal land, but none occurs on the disturbed acreage within Sowbelly Gulch. Therefore, no concurrence by a Federal surface managing agency is needed. In accordance with Federal lands provisions of the Federal regulations at 30 CFR 740.15(d)(3) and article IX, section B of the Federal - State Federal lands cooperative agreement, the Office of Surface Mining Reclamation and Enforcement (OSM) concurs with the proposed bond release so long as Utah, as discussed below, adjusts the bond release amount and makes two additional written findings.

The decision document enclosed with your letter indicates that the total bond for the mine is \$770,721 and that the permittee requests a 60 percent-phase I bond release amounting to \$462,433. By recent telephone conversation during which we discussed the bond release amount, you agreed that \$400,775, rather than \$462,433, should be released. This adjustment is needed because only 18.2 acres of the 21 total disturbed acres have been backfilled and graded; 2.8 disturbed acres associated with the electrical substation and a part of the access road remain to be backfilled and graded.

The Utah rule at R645-301-880.210, which pertains to bond release inspections, indicates that the Division of Oil, Gas and Mining will evaluate whether pollution of surface and subsurface water is occurring, the probability of future occurrence of such pollution, and the estimated cost of abating such pollution. The findings part of the decision document and the "Hydrologic Information" section of the Technical Analysis do not address these evaluations. Prior to the bond release, OSM requests that Utah make a written finding in accordance with this rule that surface and subsurface water pollution is not occurring.

The Utah rule at R645-301-553.610 allows a highwall on a continuously mined area to not be completely eliminated if the permittee demonstrates in writing to the Division that it has, to the maximum extent technically practical, used all reasonably available spoil to backfill the highwall. The "Engineering" section of the Technical Analysis indicates that the "as-builts [for the mine] meet all of the requirements of the R645-301-500 regulations * * * for backfilling and grading along with highwall elimination." It also states that "[s]ome portions of the highwall remain because there is insufficient fill material to reclaim them." In addition to these general findings, OSM requests that prior to the bond release Utah make a specific written finding in accordance with the rule that the permittee has to the maximum extent technically practical used all reasonably available spoil to backfill the highwall on the mine.

If you have any questions on this letter, please call me at (303) 844-1440.

Sincerely,

A handwritten signature in cursive script that reads "Dennis Winterringer".

Dennis Winterringer

Senior Environmental
Protection Specialist

OFFICE OF SURFACE MINING RECLAMATION ENFORCEMENT (OSM)
PHASE I BOND RELEASE INSPECTION REPORT FOR THE
CASTLE GATE MINE, SOWBELLY CANYON (NO. 5 MINE)

Date: October 22, 1996

Permit: Amax Coal Company, ACT/007/004 - 96K

Federal coal leases: U-25484, U-25485, U-058184, U-019524, SL-029093-046653,
and SL-071737

Operator: Plateau Mining Company

Inspection participants:

Office of Surface Mining Reclamation and Enforcement - Dennis Winterringer

Utah Division of Oil, Gas and Mining (DOG M) - Paul Baker, Bob Davidson, Pamela Grubaugh-Littig, Randy Harden, Steve Johnson, and Wayne Western

Operator - Johnny Pappas

Inspection summary:

Per the attached October 8, 1996, letter request from DOGM, I participated in the phase I bond release inspection for this mine.

No Federal surface managing agency participated in the inspection because none of the mine disturbances in Sowbelly Canyon are on Federal land.

As set forth in Utah's rule at R645-301-880.310, the purpose of the inspection was to determine whether the operator had successfully backfilled and graded the disturbed area. The applicable backfilling and grading performance standards are in Utah's rules at R645-301-553. The mine operation plan indicates that the operator commenced operations prior to May 3, 1978, and continued operations thereafter. Therefore, the backfilling and grading requirements for continuously mined areas at R645-301-553.500 apply. Specifically, R645-301-553.610 allows highwalls to be incompletely eliminated if the operator demonstrates in writing to DOGM that it has, "to the maximum extent technically practical", used all "reasonably available spoil" in the permit area to backfill the highwall. Utah, does not in its rules or in its approximate original contour policy directive (Tech-002) define these terms.

During the inspection, the participants discussed the differentiation Utah makes between highwalls and "cut-slopes." As discussed in its directive, Utah considers highwalls to be the cut areas immediately adjacent to the entries underground mines; "cut-slopes" are cut areas for roads, pad facilities, and other surface facilities related to

underground coal mining. Because Utah does not in its backfilling and grading rules use the term "cut-slope," there are no specific backfilling and grading performance standards for cut-slopes. Utah indicated that it interprets its program as follows. For post-May 3, 1978, cut-slopes, operators must backfill and grade them to approximate original contour. For pre-May 3, 1978, cut-slopes that are continuously used, operators must only backfill them to the maximum extent technically practical using all reasonably available spoil.

According to the mine operation plan, the highwall for the No. 5 mine portal, the highwall for the No. 5 fan portal, and the cut-slopes on the site were all created prior to May 3, 1978, and were used continuously thereafter. Therefore, under Utah's interpretation of its program, all have to be backfilled and graded to the maximum extent technically practical using all reasonably available spoil.

All of the participants walked the entire site and inspected the backfilling and grading. With the exception of the electrical power substation near the entrance to the disturbed area, all of the surface facilities had been removed, and all of the disturbed areas in the canyon had been backfilled and graded, topsoiled, and planted.

The highwall for the No. 5 fan portal had been completely eliminated. The highwall for the No. 5 mine portal had been completely eliminated with the exception of a short horizontal stretch where a few vertical feet of the highwall remained. DOGM indicated that this area remained unbackfilled because there was not reasonably available spoil to do so; because of the need to keep the backfilled slope relatively moderate (no greater than a 2h:1v slope) so as to keep the regraded surface erosionally stable and conducive to revegetation establishment; and because of the need to construct a nonerosive drainage pattern that was compatible with the reconstructed drainageway that runs the entire length of the disturbed area in the canyon.

All of the cut-slopes had been graded and backfilled to a certain extent. Some had been completely eliminated, and others had varying horizontal and vertical stretches where the vertical cuts had not been completely eliminated. In not requiring the operator to completely eliminate the cut-slopes, DOGM had applied the same criteria discussed in the preceding highwall paragraph.

The approved postmining land use for the reclaimed area is wildlife habitat. In accordance with Utah's rule at R645-301-552.100, small depressions may be constructed on a reclaimed landscape if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist vegetation. With the intent of satisfying these criteria, the operator had created over the majority of the regraded area a continuously bumpy landform with 2 to 3-foot depressions.

None of the participants identified any toxic or acid-forming materials (such as coal) on the regraded land surface.

As the result of this inspection, I did not recommend that Utah require the operator to

conduct additional backfilling and grading operations on the site.

Dennis Winterringer
Senior Environmental Protection Specialist
Denver Field Division
Western Regional Coordinating Center



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

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355 West North Temple
3 Triad Center, Suite 350
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November 29, 1996

Dennis Winterringer
Denver Field Division
Office of Surface Mining
Reclamation and Enforcement
Western Regional Coordinating Center
1999 Broadway, Suite 3320
Denver, Colorado 880202-5733

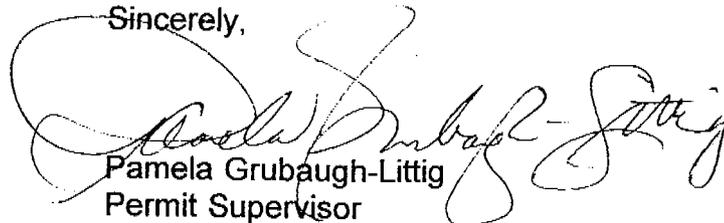
Re: Sowbelly Gulch No. 5 Mine, Phase I Bond Release, Castle Gate Mine, Amax Coal Company, Folder #2, Carbon County, Utah

Dear Mr. Winterringer:

I am enclosing the Decision Document for the Phase I Bond Release for the Sowbelly Gulch No. 5 Mine (findings, technical analysis and affidavit of publication). The Division recommends release of \$462,433. Your concurrence is requested.

If you have any questions, please call me.

Sincerely,



Pamela Grubaugh-Littig
Permit Supervisor

Enclosure

cc: Daron Haddock (w/o)
Joe Helfrich (w/o)
Paul Baker



Sowbelly Gulch No. 5 Mine
Phase I Bond Release
Amax Coal Company
Castle Gate Mine
ACT/007/004-96D and 96K
Carbon County, Utah

Summary

Amax Coal Company completed backfilling, grading, seeding and mulching on about 18.2 acres of the Sowbelly Gulch disturbed area in the fall of 1995. On February 8, 1996, the Division received as-built drawings for the reclamation and a completely revised Section 3.2 in the mining and reclamation plan for this area of the Castle Gate Mine.

A Phase I Bond Release application for the Sowbelly Gulch No. 5 Mine was received on September 23, 1996. The original surety bond posted for the Castle Gate Mine is \$6,757,451 of which \$770,721 is designated for the Sowbelly Gulch or portion of the bond and 60% of the bond or \$462,433.

The Phase I bond release inspection was conducted on October 22, 1996 with OSM (Dennis Winterringer), the Division (Paul Baker, Bob Davidson, Randy Harden, Steve Johnson, Wayne Western, and Pamela Grubaugh-Littig and company representative (Johnny Pappas) in attendance. The public notice was published on October 8, 15, 22 and 29, 1996 in the Sun Advocate.

Analysis

The Division may grant Phase I bond release after an operator has satisfactorily completed backfilling and grading and established drainage controls. However, R645-301-880.210 requires the Division to make an evaluation of, among other factors, the degree of difficulty to complete any remaining reclamation. Backfilling and grading necessarily affect the potential for revegetation success and achieving the postmining land use. The pre- and postmining land uses are wildlife and grazing.

Sowbelly Gulch was originally reclaimed in 1993-1994, but in the fall of 1995, the operator reworked about two-thirds of the area. Originally, the operator had installed contour furrows to trap moisture, but reworked areas were gouged. The gouges vary but are approximately one to two feet deep and about four to six feet across. This method of water harvesting is considered superior to contour furrowing in this instance. It is anticipated these gouges will trap water and thus increase the

amount of soil moisture and the ability for plants to establish and survive. Gouging combined with the other treatments the permittee used are the best revegetation methods known to the Division for this area.

Seeding was done in the fall of 1993, 1994 and 1995 using the seed mixtures specified in the plan. Transplants were planted along the stream channel in the spring of 1996. Species used for transplanting were chokecherries, serviceberries, curleaf mountain mahogany, Wood's rose, and elderberries. About 1200 seedlings were planted along the length of the channel.

Slopes created in the grading process are not extremely steep, but some very steep cut slopes were not regraded. As much as possible, these slopes were seeded, but it is not anticipated that much vegetation will become established on them.

About 8% of the reclaimed area, about 1.5 acres, was left as cut slopes. The total regraded area is about 18.2 acres. The revegetation reference areas are abandoned mines in the Spring Canyon area. Considering the reclamation methods used in all of these areas, it is anticipated that there will be at least as much vegetation in the Sowbelly disturbed area as at the abandoned mine reference areas. Assuming, however, there is no vegetation on the steep cut slopes, the overall amount of vegetation in the reclaimed area would be reduced by 8%. If vegetation in the rest of the reclaimed area was as much as in the reference areas, the overall amount of vegetation would be 92% of the reference areas. This would meet the revegetation success standards because the success standards consider the reclaimed area to be equal to the standard when it is within 90% of the standard with 90% confidence.

Vegetation should be adequate to control erosion on regraded areas assuming the cover will be the same as at nearby abandoned mines and that vegetation is controlling erosion in these areas. The ungraded cut slopes have been in place for many years and should be stable according to information presented in the mining and reclamation plan.

The mining and reclamation plan says the diversity index used to compare reference and reclaimed areas will be used to show revegetation success for the parameters of diversity, seasonal characteristics, permanence, and utility for the postmining land use. The seed mix used should result in diversity at least as great as in the reference areas.

The remaining cut slopes are probably not useful for either a grazing or wildlife postmining land use. The Bureau of Land Management considers any slopes steeper

Page 3
Sowbelly Gulch No.5 Mine
Phase I Bond Release

than 2h:1v to be unusable for grazing, so the cut slopes that were left are not suitable for this use. Division personnel have seen deer on some of the cut slopes, but it is unlikely big game animals would use vegetation on the cuts for forage or cover.

Although the cut slopes are probably not particularly useful for the postmining land use, they are not extensive and would not keep any animals from gaining access to surrounding areas. The cuts resemble adjacent, undisturbed areas which also have very steep areas that produce little forage or cover for wildlife or livestock and may not be entirely accessible.

Findings:

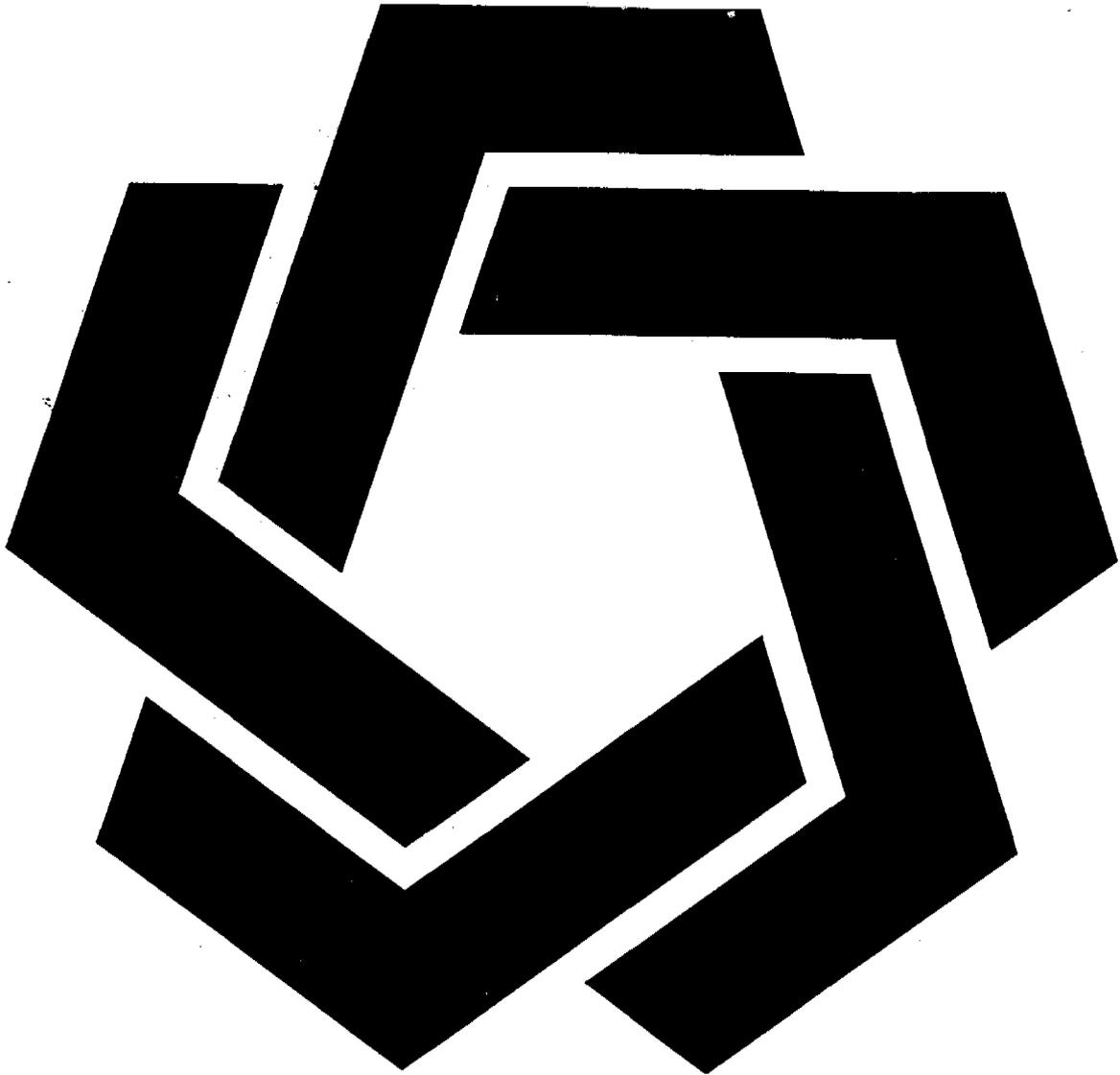
The permittee has met the backfilling and grading requirements for the postmining land use in the Sowbelly Gulch area. In addition, the permittee is likely to achieve successful revegetation if there is adequate moisture. The grading, soil surface preparation, and other reclamation methods used are the best of which the Division is aware for this area .

Although some steep cut slopes remain, they are similar to cliffs in undisturbed areas and should not adversely affect the postmining land use. There should be adequate vegetation to achieve revegetation success standards. Although the steep slopes will not produce much forage, they do not restrict movements by wildlife or livestock any more than cliffs in undisturbed areas.

Phase I Bond Release Recommendation

The permittee has completed backfilling and grading in Sowbelly Gulch in a manner that fulfills the requirements for the postmining land uses and makes it likely that revegetation efforts will succeed. Therefore, it is recommended that \$462,433 be released.

State of Utah
Division of Oil, Gas and Mining
Utah Coal Regulatory Program



Analysis and Findings
Castle Gate Mine
Sowbelly Gulch Reclamation As-Builts
ACT/007/004 - 96D
September 12, 1996

TECHNICAL ANALYSIS

INTRODUCTION

Amax Coal Company completed backfilling, grading, seeding and mulching on about 18.2 acres of the Sowbelly Gulch disturbed area in the fall of 1995. On February 8, 1996, the Division received as-built drawings for the reclamation and a completely revised Section 3.2 of the mining and reclamation plan. They have also requested Phase I bond release, but the submittal was not a formal Phase I bond release application.

The Sowbelly site and the No.5 Portal are rehabilitated portions of the old Spring Canyon Coal Company No. 5 Mine. The No. 5 Mine is accessed through Sowbelly Canyon which lies approximately four miles west-northwest of Helper, Utah. Approximately 21 acres were affected by mining-related surface operations and included disturbance prior to 1977. Most of the affected area was used for storage and personnel access through Portal No. 5 which continued until the end of 1988.

Phase I of reclamation as identified in the mining and reclamation plan, removal of the structures, is complete except that the substation remains. Phase II reclamation was completed in 1995.

Amax has corrected the deficiencies noted in the original submittal, but they need to submit a formal Phase I bond release application. The application needs to include copies of letters sent to adjoining property owners, local governmental bodies, planning agencies, sewage and water treatment authorities, and water companies in the locality in which the coal mining and reclamation operation took place, notifying them of the intention to seek release from the bond. Within 30 days after an application for bond release has been filed with the Division, the operator must submit a copy of an advertisement placed at least once a week for four successive weeks in a newspaper of general circulation in the locality of the coal mining and reclamation operations. The advertisement will be considered part of any bond release application and will contain the permittee's name, permit number and approval date, notification of the precise location of the land affected, the number of acres, the type and amount of the bond filed and the portion sought to be released, the type and appropriate dates of reclamation work performed, a description of the results achieved as they relate to the operator's approved reclamation plan and the name and address of the Division to which written comments, objections, or requests for public hearings and informal conferences on the specific bond release may be submitted pursuant to R645-301-880.600 and R645-301-880.800.

Upon receipt of the bond release application, the Division will, within 30 days, or as soon thereafter as weather conditions permit, conduct an inspection and evaluation of the reclamation

TECHNICAL ANALYSIS

Last revised - November 29, 1996

work involved. The evaluation will consider, among other factors, the degree of difficulty to complete any remaining reclamation, whether pollution of surface and subsurface water is occurring, the probability of future occurrence of such pollution and the estimated cost of abating such pollution. The surface owner, agent or lessee will be given notice of such inspection and may participate with the Division in making the bond release inspection. The Division may arrange with the permittee to allow access to the permit area, upon request of any person with an interest in bond release, for the purpose of gathering information relevant to the proceeding.

ENVIRONMENTAL RESOURCE INFORMATION SOILS RESOURCE INFORMATION

Regulatory Reference: R645-301-411, -301-233.

Analysis:

The 21 acres in Sowbelly Canyon were disturbed by mining prior to the enactment of SMCRA. No topsoil or soil resource material were salvaged from the site. The existing disturbed and undisturbed soils at the site were used for reclamation as topsoil and substitute soil material. The existing soil resource materials were evaluated using DOGM's guidelines for topsoil and overburden. The soil sampling, analyses, and disposal activities were performed as part of the 1995 reclamation activities.

Nine sites were sampled from the disturbed area - five soil pits (SB-1 thru SB-5), two trenches (T-1 and T-2), plus two surface-grab samples (SBG-1 and SBG-2). A total of 14 samples were collected from various depths in four of the pits and from the two surface locations. There were 10 overburden and 4 coal debris samples. Pit SB-2 was not sampled, nor were the top 20 inches of pit SB-4. The two trenches were not sampled or logged in detail, but were inspected for the presence of any coal debris. Although the soil pits' soil profiles were adequately described in Appendix 3.2 (see February 7, 1996, EarthFax memo to Johnny Pappas), the **original soil survey field notes for the pits were not included.**

The distribution of vegetation within the disturbed area boundary was highly variable. The soil pits' locations were chosen to determine what inherent soil properties were responsible for poor vegetative cover. The soil properties were remarkably similar while the percentage of vegetative cover was markedly different between SB-1, good vegetation cover, and SB-2 and SB-3, poor vegetation cover. Excessive hardness of the indurate soils in SB-2 and SB-3 were most likely the contributing factor for the differential vegetation growth.

TECHNICAL ANALYSIS

Last revised - November 29, 1996

Coal samples collected at the surface at SBG-1 and SBG-2 were not acidic or toxic whereas coal sampled from SB-4 is mildly acidic having a marginal pH of 5.7, with an acid-base potential of -11.2 tons of CaCO_3 /1000 tons of material. The coal and soil sampled from SB-5 had elevated SAR values. Additionally, the soil below the coal in SB-5 exhibited elevated sodic and EC values.

Findings:

This portion of the proposal is considered complete and accurate.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: R645-301-232, -301-233, -301-234, -301-242, -301-243.

Analysis:

To rectify poor soil quality issues, reclamation activities included:

- The soils in the area of test pits SB-2 and SB-3 were entirely redisturbed and loosened to alleviate apparent poor vegetation establishment. This area was treated by reroughening of the soils through deep gouging and incorporating 2 tons/acre of hay mulch into the soil during the gouging process. This treatment was followed by reseeding and then mulching with straw at a rate of 1 ton/acre. The straw was lightly crimped into the soil surface.
- Coal material that was present in the area of SBG-1 and SBG-2 was removed and placed in Pond 017 and used as backfill over the No. 5 fan portal. The pond and fan portal were then backfilled with approximately 2 feet of locally available soil media.
- Soil pit SB-4 was located in a topographically low area. The coal found in this location was at a depth of 20 to 27 inches below the ground surface. To achieve proper reclamation surface grade, the low area was backfilled with locally derived fill material and covered with between four and six feet of soil material.

TECHNICAL ANALYSIS

Last revised - November 29, 1996

- The sodic soils identified in SB-5 were removed as they were encountered during the reconstruction of SBRD-4B and placed in Pond 017. After the channel was at grade, the channel slopes and adjacent areas were covered by approximately three feet of soil material generated from the removal of the Pond 017 embankment.

Findings:

This portion of the proposal is considered complete and accurate.

REVEGETATION SUCCESS STANDARDS

Regulatory Reference: R645-301-350

The Division may grant Phase I bond release after an operator has satisfactorily completed backfilling and grading and established drainage controls. However, R645-301-880.210 requires the Division to make an evaluation of, among other factors, the degree of difficulty to complete any remaining reclamation. Backfilling and grading necessarily affect the potential for revegetation success and achieving the postmining land use. The pre- and postmining land uses are wildlife and grazing.

Sowbelly Gulch was originally reclaimed in 1993-1994, but in the fall of 1995, the operator reworked about two-thirds of the area. Originally, the operator had installed contour furrows to trap moisture, but reworked areas were gouged. The gouges vary but are approximately one to two feet deep and about four to six feet across. This method of water harvesting is considered superior to contour furrowing in this instance. It is anticipated these gouges will trap water and thus increase the amount of soil moisture and the ability for plants to establish and survive. Gouging combined with other treatments the permittee used are the best revegetation methods known to the Division for this area. If weather cooperates, revegetation should be successful.

Seeding was done in the fall of 1995 using the seed mixtures specified in the plan. Transplants were planted along the stream channel in the spring of 1996. Species used were chokecherries, serviceberries, curlleaf mountain mahogany, Wood's rose, and elderberries. About 1200 seedlings were planted along the length of the channel.

Slopes created in the grading process are not extremely steep, but some very steep cut slopes were not regraded. As much as possible, these slopes were seeded, but it is not anticipated that much vegetation will become established on them.

TECHNICAL ANALYSIS

Last revised - November 29, 1996

About 8% of the reclaimed area, about 1.5 acres, was left as cut slopes. The total regraded area is about 18.2 acres. The revegetation reference areas are abandoned mines in the Spring Canyon area. Considering the reclamation methods used in all of these areas, it is anticipated that there will be at least as much vegetation in the Sowbelly disturbed area as at the abandoned mine reference areas. Assuming, however, there is no vegetation on the steep cut slopes, the overall amount of vegetation in the reclaimed area would be reduced by 8%. If vegetation in the rest of the reclaimed area was as much as in the reference areas, the overall amount of vegetation would be 92% of the reference areas. This would meet the revegetation success standards because the success standards consider the reclaimed area to be equal to the standard when it is within 90% of the standard with 90% confidence.

Vegetation should be adequate to control erosion on regraded areas assuming the cover will be the same as at nearby abandoned mines and that vegetation is controlling erosion in these areas. The ungraded cut slopes have been in place for many years and should be stable according to information presented in the Mining and Reclamation Plan.

The Mining and Reclamation Plan says the diversity index used to compare reference and reclaimed areas will be used to show revegetation success for the parameters of diversity, seasonal characteristics, permanence, and utility for the postmining land use. The seed mix used should result in diversity at least as great as in the reference areas.

The remaining cut slopes are probably not useful for either a grazing or wildlife postmining land use. The Bureau of Land Management considers any slopes steeper than 2h:1v to be unusable for grazing, so the cut slopes that were left are not suitable for this use. Division personnel have seen deer on some of the cut slopes, but it is unlikely big game animals would use vegetation on the cuts for much forage or cover.

Although the cut slopes are probably not particularly useful for the postmining land use, they are not extensive and would not keep any animals from gaining access to surrounding areas. As discussed in the Mining and Reclamation Plan, the cuts are similar to cliffs in adjacent areas that also produce little forage or cover and may not be entirely accessible.

Findings:

The permittee has met the backfilling and grading requirements for the postmining land use in the Sowbelly Gulch area. In addition, the permittee is likely to achieve successful revegetation if there is adequate moisture. The grading, soil surface preparation, and other reclamation methods used are the best of which the Division is aware for this area.

TECHNICAL ANALYSIS

Last revised - November 29, 1996

Although some steep cut slopes remain, they are similar to cliffs in undisturbed areas and should not adversely affect the postmining land use. There should be adequate vegetation to achieve revegetation success standards. Although the steep slopes will not produce much forage, they do not restrict movements by wildlife or livestock any more than cliffs in undisturbed areas.

ENGINEERING

Regulatory Reference: R645-301-500

Analysis:

The Division has reviewed the as-built drawings for Sowbelly Canyon. Based on the information submitted by the Permittee, the Division has determined that the as-builts meet all of the requirements of the R645-301-500 regulations. Specifically the Division has determined that the as-builts meet all of the requirements for backfilling and grading along with highwall elimination.

The site was disturbed before 1977. Some portions of the highwall remain because there is insufficient fill material to reclaim them. The Division gave approval for the Permittee to leave some highwall remnants exposed.

The Division did not field check the as-builts. Field checks will be done prior to bond release.

Findings:

The as-built drawings of the reclamation in Sowbelly Gulch meet regulatory requirements. They should be field checked before the Division grants bond release. ✓

TECHNICAL ANALYSIS

Last revised - November 29, 1996

HYDROLOGIC INFORMATION

Regulatory Reference: R645-301-760

Analysis:

Section 3.2-5(4) covers the reclamation alternate sediment control measures that will be implemented in the reclamation of this canyon. This section was permitted prior to reclamation activities in 1995. Section 3.2-5(4) refers to Appendix 3.2I for sediment control as-builts. Appendix 3.2I shows USLE calculations that demonstrate that the alternate sediment control measures are adequate to treat reclaimed areas. First, Amax Coal says that the amount of sediment from the undisturbed area is greater than the disturbed areas; therefore, the sediment is controlled on the reclaimed areas. Second, Amax Coal says that an analysis which uses predisturbed assumptions on the disturbed areas results in only a slightly lower sediment production. Finally, the data shows that sediment production per acre is less from the reclaimed areas than the sediment production from undisturbed areas.

Section 3.2-10 discusses the reclamation as-builts. This section discusses the reclamation activities performed in 1995. This section also describes the use of mulch as sediment in the reclaimed areas.

Appendix 3.2G is the reclamation as-built, hydrology calculations. In this section the channel configurations are shown. All channels are shown to be built to design and certified by a professional engineer, except SBRD-8. This channel was only slightly modified in order to leave a more natural, stable channel; therefore the engineer certified that the channel was stable and capable of conveying the required storm runoff, rather than certifying the designs.

Findings:

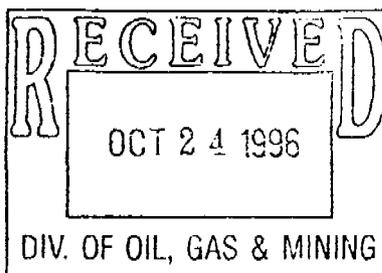
This section is complete and accurate and should be approved as part of the reclamation plan.

American Electric
1 Riverside Plaza
Columbus, OH 43215-2373
614 223 1000
614 223 1687 (Telecopier)

Writer's Direct Dial No.
(614) 223-1696



AMERICAN
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POWER



October 18, 1996

Pamela Grubaugh-Littig
Permit Supervisor
State of Utah, Dept. of Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

John F. DiLorenzo, Jr.
Vice President, Secretary
and Associate General Counsel

Earl Goldhammer
Tax Counsel

D. Michael Miller
Chief Counsel - Power Generation
and Director of Litigation

John B. Shinnock
Chief Counsel - Energy Delivery

Edward J. Brady
Thomas S. Ashford
Daniel W. Kemp
John M. Adams, Jr.
Assistant General Counsel

Michael R. Luis
Assistant Tax Counsel

Marvin I. Resnik
Kevin F. Duffy
James R. Bacha
Senior Rate Counsel

F. Mitchell Dutton
Rate Counsel

Kenneth E. McDonough
Real Estate Counsel

Kevin D. Mack
Timothy A. King
Barbara A. Belville
Ann B. Graf
Thomas G. Berkemeyer
Senior Attorneys

Jay E. Jadwin
Joseph F. LaFleur
David C. House
Attorneys

Subject: Phase I Bond Release, AMAX Coal Company,
Sowbelly Gulch Mine No. 5 Mine Area of Castle Gate Mine,
ACT/007/004 -96K, Folder #2, Carbon County, UT.

*File ACT/007/004
Copy Paul and Paul*

Dear Ms. Grubaugh-Littig:

In response to your letter of October 8, 1996, advising that AMAX has applied for a Phase I bond release at the subject mine, please be advised that Blackhawk Coal Company has no objections to the proposal.

Sincerely yours,

Kenneth E. McDonough

Kenneth E. McDonough

cc: Johnny Pappas, Sr. Environmental Engineer, Cyprus Plateu Mining Corp.

KM/LT961018.100

AEP - AMERICA'S ENERGY PARTNERSM

STATE OF UTAH)

SS.

County of Carbon,)

I, Kevin Ashby, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (Four) consecutive issues, and that the first publication was on the 8th day of October, 1996 and that the last publication of such notice was in the issue of such newspaper dated the 29th day of October, 1996.

Kevin Ashby

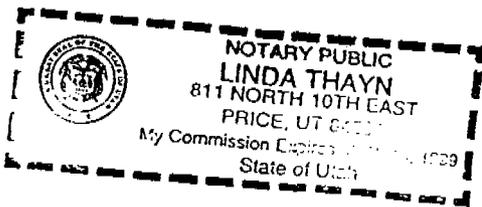
Kevin Ashby - Publisher

Subscribed and sworn to before me this 29th day of October, 1996.

Linda Thayne

Notary Public My commission expires January 10, 1999 Residing at Price, Utah

Publication fee, \$548.16



PUBLIC NOTICE
Application for Phase I Bond Release
Sowbelly Gulch No. 5 Mine
Amax Coal Company
Castle Gate Mine
Permit #ACT/007/004, Approved 12/24/94
Carbon County, Utah

AMAX Coal Co. has completed Phase I of the approved reclamation plan for the Sowbelly Gulch No. 5 Mine area of the Castle Gate Mine. This is based on the completion of the backfilling and grading and drainage control on the bonded area.

The original minesite reclamation was completed in the fall of 1994. Subsequent reclamation improvements were completed in the fall of 1995. Reclamation was performed on a total of 21.0 disturbed acres.

In accordance with the provisions of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that AMAX Coal Co. is applying for partial release of the performance bond posted for this operation.

The original surety bond posted for the Castle Gate Mine is \$6,757,451.00 of which \$770,721.00 is designated for the Sowbelly Gulch No. 5 Mine reclamation. AMAX Coal Co. is seeking release of 60% of the Sowbelly Gulch portion of the bond, or \$462,433.00. All earthwork has been completed on this site, except for the removal of an electrical substation and access road. Reclamation of this area will be completed when transmission of power from the sub-station is no longer necessary. Costs for this reclamation are not included in this bond release request.

The Sowbelly Gulch No. 5 Mine is included in the Castle Gate Mine Permit Area. The following are legal descriptions of the Castle Gate Permit Area:

- Township 12 South, Range 9 East, SLBM, Utah
- Section 22: Portions SE 1/4, SW 1/4, and SW 1/4 SE 1/4
- Section 26: All, except E 1/2, E 1/2
- Section 27: All
- Section 28: All
- Section 29: All, except N 1/2, NW 1/4, and NW 1/4 NE 1/4
- Section 30: All, except N 1/2, N 1/2
- Section 31: All
- Section 32: All
- Section 33: All
- Section 34: All
- Section 35: Portions of N 1/2, W 1/2, SW 1/4, and SE 1/4, SE 1/4, S 1/4, NW 1/4, and portions of SW 1/4 and NE 1/4
- Section 36: All

- Township 13 South, Range 9 East, SLBM, Utah
- Section 1: Portion of NW 1/4, NW 1/4

- Township 13 South, Range 9 East, SLBM, Utah
- Section 4: NW 1/4 SW 1/4, SW 1/4 SW 1/4
- Section 9: NW 1/4 NW 1/4

The Utah Division of Oil, Gas and Mining will now evaluate the proposal to determine whether it meets all of the criteria of the Permanent Program Performance Standards according to the requirements of the Utah Coal Mining Rules.

Upon completion of the evaluation, a decision will be made as to approval or disapproval of the application. The reclamation plan is available for public review at: Division of Oil, Gas and Mining, 1691 West North Temple, Suite 1210, Salt Lake City, Utah 84114-5801, and at the Carbon County Courthouse, Price, Utah 84501.

Written comments, objections and requests for public hearing or informal conference on this proposal may be addressed to Mr. Jim W. Carter, Director, Utah Division of Oil, Gas and Mining, P.O. Box 145801, Salt Lake City, Utah 84114-5801.

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