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

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February 15, 2001

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

Re Approval of Phase I Bond Release, Castle Gate Holding Company, Castle Gate Mine, C/007/004-BR00B, Outgoing File

Dear Mr. Pappas:

Phase I Bond Release for the Hardscrabble Canyon Area is approved, effective February 14, 2001 in the amount of $733,000. Castle Gate Holding Company is now authorized to rider the bonds to the amount of $1,071,000.

The Office of Surface Mining concurred with this decision on January 5, 2001 and the Division issued a conditional approval on January 25, 2001, pending a submittal of a bond release area map. A stamped incorporated copy of the Bond Release Area Map is enclosed for your copy of the Mining and Reclamation Plan. The revised Decision Document is also attached for your information.

If you have any questions, please call Pamela Grubaugh-Littig at (801) 538-5268.

Sincerely,

for Lowell P. Braxton
Director

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cc: Price Field Office
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also cc: Joe Wilcox, OSM
Richard Manus, BLM
Mark Page, Water Rights w/o
Dave Ariotti DEQ w/o
Derris Jones DWR w/o

State of Utah

Utah Oil Gas and Mining

Coal Regulatory Program

DECISION DOCUMENT
Phase I Bond Release
Castle Gate Mine
C/007/004-BR00B1
February 9, 2001

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ADMINISTRATIVE OVERVIEW

Castle Gate Holding Company
Castle Gate Mine
Phase I Bond Release
C/007/004
Carbon County, Utah

February 9, 2001

EXECUTIVE SUMMARY

The Hardscrabble Canyon portion of the Castle Gate Mine was reclaimed in 1984 and 1985 and 1993 through 1999. The substation was not reclaimed because it may eventually be used for power transmission. The road through the disturbed area was altered but left in place for the postmining land use. Phase I bond release was apparently given for the Goose Island refuse pile area in 1985, but the exact date is not clear. On May 22, 2000, the Division approved the as-built designs for the areas reclaimed in 1993 through 1999.

Phase I bond release application is for 27.7 acres in Hardscrabble Canyon. The bonded or disturbed area in this canyon is 39 acres. Actual disturbance is 36.76 acres and 2.24 acres accounts for a buffer zone of five feet around the circumference of the site between the limit of reclamation and the actual disturbed area boundary. Less than a half acre is associated with the substation which has not been reclaimed, 8.79 acres of the Goose Island refuse pile has had prior Phase I bond release, and the road though the site is 1.21 acres. The bonded or disturbed area for the entire Castle Gate Mine complex is 63 acres.

The bond release application consists of a detailed cover letter, a copy of the proposed newspaper advertisement, proof of publication for the newspaper advertisement, and copies of letters to local government agencies and owners of adjacent lands. The applicant is relying on the already-approved as-built designs for most of the information needed for the bond release.

The Division received no public comments about the bond release. The bond release inspection was held September 20, 2000, with representatives of the Division and the applicant in attendance. The Office of Surface Mining, Reclamation and Enforcement did not attend the bond release inspection because their inspector had participated in a complete inspection in September 1999 and was familiar with the site.

Based on the bond release findings in this document, the Division finds that Castle Gate Holding Company has met the Phase I reclamation requirements for areas in application at the Hardscrabble Canyon in accordance with the Act, the regulatory program, and the approved reclamation plan.

BACKGROUND

The Castle Gate Mine Complex is located approximately 10 miles north of Price, Utah, in the Wasatch Plateau coal fields in Carbon County. The disturbed areas are in Hardscrabble Canyon, Sowbelly Gulch, and at Adit No. 1 in Price Canyon.

Intensive mining has occurred in Hardscrabble Canyon since the 1880's, when Teacum Pratt opened the first operation for house coal. Consolidated mining activities began in 1971, conducted by the Braztah Corporation, which in turn became the Price River Coal Company on December 1, 1979. The coal preparation plant at Castle Gate (now permitted as a Willow Creek Mine facility) began operating in January of 1979, and the plant in Hardscrabble Canyon was dismantled and removed at that time. Coal transportation from the canyon thereafter was by underground conveyor directly to the Castle Gate Coal preparation plant through Adit No. 1 in Price Canyon. The remnants of the preparation plant operation in Hardscrabble Canyon are the large quantities of coal waste materials and refuse which remained in the canyon and had to be covered during reclamation.

No significant operational alterations occurred to the site since 1977, except installation of drainage controls. There are approximately 39 disturbed acres in Hardscrabble Canyon. Castle Gate Coal remodeled the bathhouse and warehouse in 1986. At the north end of the affected area, refuse from the old preparation plant was placed at the intersection of two tributaries to the main ephemeral stream, blocking their flow paths. This area, known as Goose Island, was reclaimed in 1984. The canyon containing Portal No. 4 runs west from the main canyon. Portal No. 4 was used as an underground access with coal transported by conveyor to a coal loading station at the canyon mouth. Near the mouth and just north of the No. 4 Mine Canyon was a fan portal. The fan portal was in a depression, some 15' below grade.

Just south of the No. 4 Mine Canyon and on the west side of the Hardscrabble Canyon Creek was a bathhouse. The location of the old prep plant was in the main canyon opposite the mouth of the Portal No. 4 canyon. The area adjacent to the old preparation facilities was affected by the spillage of coal or refuse during various phases of the haulage and preparation operations.

South of the old preparation facilities, and 700 feet south of the No. 4 bathhouse, was a warehouse. This warehouse was remodeled to include office space within the existing structure. Above and to the west of the warehouse, is a gully containing the "Dog Flat" storage area. This area was revegetated in 1987 but was regraded in 1996 to reestablish the natural drainage (Appendix A, Site Photos, Fig 1).

Sixteen hundred feet further south from the warehouse and on the east side of the access road was Portal No. 3. Portal No. 3 was located on a bench above the valley floor along with an associated change house and other miscellaneous buildings. The base of the bench is sandstone and the surface is a mixture of silt, sand and gravel. Above the portal was a sandstone cut that is near vertical. To provide safe access from the bottom of the canyon floor to the top of the sandstone bench and the bathhouses, a 60-foot tall enclosed stairway was constructed during 1986.

Across from Portal No. 3, west of the main valley, is a small canyon previously used for an explosives storage area. Several old portals exist in this canyon. This canyon was converted to a 30-car improved parking lot.

Along the length of the main valley floor, portions of the stream channel were affected by surface operations. Prelaw operations apparently discharged process water and fines from the coal washing operations in the preparation plant and, in places, coal waste had been pushed into the channel, sometimes completely blocking flow. The main diversion channel was reconstructed during the summer of 1986.

The initial permit was issued to the Price River Coal Company on December 24, 1984. Castle Gate Coal Company acquired the right to mine the western reserves and obtained a permit transfer on May 30, 1986. On May 25, 1991, the Division approved the permit transfer from Castle Gate Coal Company to Amax Coal Company. On July 2, 1996, the Castle Gate permit was transferred from Amax Coal Company to Amax Coal Holding Company which changed its name to Amax Coal Company on August 5, 1996. The permit was transferred to the current permittee, Castle Gate Holding Company, on September 11, 1998.

In May 1995, the Division received an application from Cyprus Plateau Mining Corporation to permit the eastern coal reserves and a portion of the Castle Gate Mine as the new Willow Creek Mine. In April 1996, the Willow Creek Mine was permitted, and its permit area overlapped with that of the Castle Gate Mine. In June of 1997, the Castle Gate and Willow Creek Mines were split apart which left the Castle Gate Mine with the Sowbelly Gulch, Hardscrabble Canyon, and Adit No. 1 areas. The Schoolhouse Canyon refuse area, the Castle Gate Wash Plant, Crandall Canyon, the Gravel Canyon topsoil storage area, and a refuse removal area on a site previously reclaimed by the Abandoned Mine Lands Reclamation program were all transferred to the Willow Creek Mine. The current mine permit area includes 7619 acres of which 63 acres are disturbed.

Reclamation grading started in the Sowbelly Gulch portion of the disturbed area in 1993 and continued through 1995. Phase I bond release at Sowbelly was approved on January 31, 1997 (excluding a substation). The Adit No. 1 area is yet to be reclaimed.

In Hardscrabble Canyon, the Goose Island refuse area was graded and seeded in 1984. Transplants were planted in 1985, and Phase I bond release was given later in 1985. Limited regrading was done in this area in 1999 (Appendix A, Site Photos, Fig 2).

The canyon containing the portal for the No. 4 Mine was graded and seeded in 1993. In 1995, additional work was done in this canyon to cover the coal seam and portal and to improve the channel. Demolition of the buildings in the rest of the canyon began in 1995, and reclamation grading started in 1996. This continued through 1999 with additional areas being graded, seeded, and planted each year. The substation in Hardscrabble Canyon was not reclaimed because it may be needed in the future to transfer power to the Crandall Canyon area of the Willow Creek Mine.

In 1997, AMAX Coal Company, Castle Gate Holding Company's predecessor, received an Earth Day Award from the Board of Oil, Gas, and Mining for "outstanding final reclamation and site restoration"(Appendix A). The company was cited for enhancing the postmining land use by restoring the canyon to a more natural configuration and paying particular attention to wildlife habitat (Appendix A, Site Photos, Fig 3) while providing more stable water flow channels and better downstream water quality.

CHRONOLOGY FOR PHASE I BOND RELEASE

May 11, 2000	Division approval of as-built maps for incorporation into the permit.
June 29, 2000	CGHC sends letters to local governments, and property owners of proposed bond release.
July 3, 2000	CGHC submits Phase I bond release application.
July 13, 20, 27, and August 3, 2000	Phase I bond release published in the Sun Advocate.
August 4, 2000	Division sends letters of invitation to SITLA, BLM, OSM, and other agencies notice of bond release inspection to be held September 20, 2000.
September 2, 2000	End of public comment period. No comments received.
September 20, 2000	Phase I bond release inspection. In attendance: Johnny Pappas, CGHC Vicki Miller, CGHC Johnny Green, CGHC Robert Davidson, DOGM Joe Helfrich, DOGM Paul Baker, DOGM Susan White, DOGM Wayne Western, DOGM
December , 2000	BLM concurrence letter (date to be inserted when received)

ANALYSIS AND FINDINGS FOR PHASE I BOND RELEASE

ADMINISTRATIVE ANALYSIS

Regulatory Reference: R645-301-880 - 880.330

The application for Phase I bond release for the Hardscrabble Canyon portion of the Castle Gate Mine was made on July 3, 2000. Phase I notification was published in the Price Sun Advocate on July 13, 20, 27 and August 3, 2000. The comment period ended and there were no comments.

Letters were sent to: American Electric Power Service Corporation, Carbon County Road Dept., Carbon County Planner and Zoning Commission, Mr. Gary Harwood, and BLM.. Invitations to the bond release inspection on September 20, 2000 were sent by the Division on August 24, 2000.

In attendance at the September 20, 2000 bond release inspection were:

Division:	Bob Davidson, Wayne Western, Joe Helfrich, Paul Baker, and Susan White.
Castle Gate Holding Company:	Johnny Pappas, Vicki Miller, and Johnny Green.

The entire reclaimed area of Hardscrabble Canyon was observed during this inspection. No problems were identified during this bond release inspection. See Appendix A, *Phase I Bond Release Inspection,* dated November 22 2000.

ADMINISTRATIVE FINDINGS

Castle Gate Holding Company has met the minimum requirements for Phase I bond release for the Hardscrabble Mine portion of the Castle Gate Mine. See: 1) application for Phase I Bond Release, 2) notification letters to landowners, local governmental bodies, planning agencies concerning the bond release, 3) publication of Phase I Bond release for four consecutive weeks with no resulting public comments, and 4) Phase I Bond Release inspection report.

TECHNICAL ANALYSIS

Regulatory Reference: R645-301-880 - 880.310

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 pre- and postmining land uses are wildlife habitat and grazing.

The main access road in Hardscrabble Canyon has been approved to be left as part of the postmining land use. The Division inspected the site on July 28, 2000, and found the road to be properly maintained.

Beginning at the gate, 0.2 miles of the road is in the Carbon County road system. From this point up, the road is on land owned by the permittee (Appendix A, Site Photos, Fig 4). The road is used by a local rancher, Boyd Marsing, to trail his livestock to the top of the plateau where he leases grazing rights from Lee Diamanti and the Bureau of Land Management.

The mining and reclamation plan contains information and letters documenting this ownership and use. The plan has a letter from the Bureau of Land Management stating the road complies with the land use plan. The county would be expected to maintain the portion of the road considered a public road, and in a letter dated October 22, 1996, the permittee, which is also the land owner, commits to continue maintenance of the rest of the road.

A 75 foot section of rock wall was retained in the area of the upper bath house (Appendix A, Site Photos, Fig 5 & 6). The rock wall is similar to other rock walls found in Carbon County that were constructed around the turn of the 20th century. The rock wall is considered an enhancement to the postmining land use. The people of Carbon County are very proud of their mining heritage and do not want all traces of coal mining remove from these sites. The wall will help remind those who pass through Hardscrabble Canyon of that heritage.

The substation will be left in place until power from the site is no longer needed. The substation is not considered part of the postmining land use. The substation could potentially be used for the Willow Creek Mine, and the Division recommends the applicant consider transferring it into the permit area for this mine.

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this 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, -301-270, -301-271, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732,

-301-733, -301-764.

Analysis:

On April 21, 2000, the Division field checked the certified as-built maps and cross sections for Hardscrabble Canyon. After the field inspection, the Division compared the as-built maps and cross sections with the reclamation plan. The Division found the site conditions met the requirement of the coal rules and permit conditions. On May 11, 2000, the Division approved the as-built drawings for Hardscrabble Canyon and incorporated them into the mining and reclamation plan.

One issue the Division looked at while reviewing the as-built drawings was compliance with the approximate original contour (AOC) requirements. The Division found that the site met the AOC requirements because the reclaimed drainages complement the undisturbed drainages and the topography blends into the surround areas.

However, the site was not restored to the original surface configuration. Some premining slopes had safety factors of less than 1.3 so those slopes had to be reclaimed with gentler slopes that would meet the 1.3 safety factor requirements. A road was also left as part of the postmining land use.

On April 14, 1997, the Division made findings about the highwalls at Hardscrabble Canyon. The Division approved variances for the portal highwalls at the No. 3 and No. 4 mines in Hardscrabble Canyon and for the shaft highwall at the No. 5 mine in Sowbelly Gulch. The Division inspected those areas and found that the backfilling and grading were done according to the approved reclamation plan. Therefore, the Division finds that all highwalls have been reclaimed according to standards for previously mined areas.

The Division approved the AOC variances in 1992. The variances and the justification for them are in Randy Harden's memo dated July 1, 1992. The specific conditions for the variances are:

- Variance for AOC for Preexisting Highwalls shall include only those areas that have been identified in the plan and approved by the Division and are as follows:
    - The location and the extent of highwalls delineated on Exhibit 3.3-2, as the No. 3 portal highwall, and the No. 4 portal highwall and the No. 5 mine return air shaft highwall.
- The terms and conditions of this permit may be modified at any time by the Division, if it determines that more stringent measures are necessary to ensure that the operations involved are conducted in compliance with the requirements of the State Program.

The Division reviewed the backfilling and grading maps and found that the only highwall remnants left are in the locations specified in the variance. The Division has reviewed the backfilling and grading plan and monitored the site since earthwork activities were completed in 1996. The Division found that the site is stable and requires no additional work.

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this section of the regulations.

Backfilling And Grading

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

Analysis:

General

On April 21, 2000, the Division field checked the certified as-built maps and cross sections for Hardscrabble Canyon. After the field inspection the Division compared the as-built maps and cross sections with the reclamation plan. The Division found the site conditions met the requirement of the coal rules and permit conditions. On May 11, 2000, the Division approved the as-built drawings for Hardscrabble Canyon and incorporated them into the mining and reclamation plan.

One issue the Division looked at while reviewing the as-built drawings was compliance with the backfilling and grading requirements. The Division found that the site met all the backfilling and grading requirements because:

- The site meets the AOC requirements
- All spoil piles have been reclaimed
- All highwalls have been reclaimed to standards for previously mined areas
- The slopes meet or exceed a safety factor of 1.3 and are stable
- No spoil piles are on the site
- All coal mine waste has been properly disposed
- All coal seams and acid and toxic forming materials have been covered
- No terraces were constructed on the reclaimed slopes
- The slopes minimize erosion

Previously mined areas

The permittee reclaimed all highwalls to standards for previously mined areas. This is discussed in greater detail in the section of this analysis discussing approximate original contour restoration.

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this 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:

All mine openings have been sealed according to the requirements of the approved reclamation plan. References are made to the mine being sealed on pages 3.3-26 and 3.3-39 of the mining and reclamation plan. It is not certain whether Division personnel were present when the portals were being sealed, but Division inspectors have, as far as possible, examined the seals after they were installed. It appears they were put in according to the designs in the plan. During the bond release inspection, Division representatives saw no evidence of openings at the portals.

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this section of the regulations.

Topsoil And Subsoil

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

Analysis:

Hardscrabble Canyon was disturbed by mining prior to the enactment of SMCRA, therefore, no salvaged topsoil was available for reclamation. During reclamation, the existing soils and overburden materials at the site were identified and used as substitute topsoil with final soil placement depth averaging 24 inches. The natural rock content of these substitute soils was retained and incorporated into the reclaimed surface. After placement of the substitute soils, the surface was deep gouged and roughened.

Portions of the previously reclaimed Goose Island refuse area were re-disturbed in the fall of 1999 to increase soil cover depth and to improve a drainage channel. Surface roughening techniques included deep gouging the newly place soils.

Several erosion control measures have been implemented with recent reclamation efforts to help reduce soil loss from the reclaimed slopes. These include the following:

- Ripping of the re-graded surface prior to placement of growth media
- Incorporation of hay into the growth media
- Deep gouging of the growth media
- Seeding and establishing vegetation
- Addition of surface mulch (straw) following seeding
- 7. Anchoring the mulch with wood fiber hydromulch and tackifier.

Reclamation slopes are concave with natural rock outcrops retained in several areas. The operator used existing, reasonably-available material on-site to backfill the highwall and cut slopes. However, upper areas of the highwall and selected cut slopes remain that blended into the natural environment. On reclaimed cut slopes and other reclaimed areas, deep gouging techniques for surface roughening were used.

Coal debris, coal refuse and any acid- and/or toxic-forming material exposed or excavated during reclamation grading were removed and used as backfill against the highwall, cut slopes, and excavated trenches, and then covered with four feet of overburden material and substitute soils. Within the approved MRP (mining and reclamation plan), analytical appendix 3.3M, section 4.0 Analytical Results, coal samples where shown to be single grained with a loamy sand to sandy loam texture. Because of the water limiting conditions of coal and coal-waste material, vegetation regeneration would have been severely restricted if the coal material had not been buried under four feet of soil.

Substitute Topsoil Evaluation

The mining and reclamation plan contains environmental resource information concerning sources of substitute topsoil. Studies were performed to assess these materials for reclamation purposes. Both the 1990 and 1995 soil investigations were conducted to evaluate the physical and chemical characteristics of the soil materials according to the Division's guidelines for topsoil and overburden[1]. In addition, the 1995 soil investigation was conducted to locate areas of buried coal debris that would likely be encountered during reclamation. Descriptions of the soils and coal debris were made using trenches, soil pits and soil borings.

During reclamation, additional sources of substitute soils were located and approved for reclamation use. Within the area of the old scalehouse, high saline-sodic soils were encountered. Mitigating efforts were employed to utilize these soils during reclamation. The higher salt affected soils were buried under deeper fills and lesser salt affected soils. Mitigating efforts included incorporating hay into the upper layers of soil to help improve aeration and water holding capacity.

An area near the place where the scalehouse once was appears to have less vegetation than surrounding areas (Appendix A, Site Photos, Fig 7), but it is probably not enough less to be

[1]Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

a significant problem. Nevertheless, because this area contains the substitute soils with high SAR values, the Division sampled soils in this small area on August 29, 2000. Field observations were made and the soil sample was tested for pH, EC, Ca, Mg, and SAR:

- The soil is hard and very difficult to penetrate and break up with a spade. When finally disturbed with the spade, the soil has no structure and sifts like loose flour. There is plenty of larger rock with a greater abundance of gravel within the soil matrix.

- Random samples were taken from a dozen locations within this area and a composite soil sample was mixed into a gallon sized sample.

- Results of soil testing after air drying, sieving through an 18 mesh sieve, and preparing a saturation soil paste and extract:

Saturation %	39 %
pH	7.9
EC	5.14 mmhos/cm
Ca	25 meq/L
Mg	21 meq/L
Na (by difference)	5.5 meq/L
SAR	1.1

Chemical testing shows no problems with respect to total salt or sodium. However, the soil physical properties may be limiting because the soil has no structure and sets up to a very hard consistency. This area was used for both equipment staging during reclamation work and to screen soil to recover riprap. Most likely, this soil is what was left over after screening soil to collect riprap rock. During screening, the soil's structure and coherency would have been completely destroyed.

Compared to the entire site, this area of reduced vegetation growth is relatively small (about 5000 square feet), so the Division believes it likely the site as a whole will eventually be able to meet revegetation requirements. Soil structure will probably improve with time.

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this section of the regulations.

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 roads in the disturbed area have been reclaimed or modified according to the approved reclamation plan. The main canyon road is scheduled to be retained as part of the post mining land use plan.

Retention

The main canyon road will be retained as part of the postmining land use plan. The road is classified as a primary road and meets the design standards. Division representatives found the road to be in good repair when they visited the site on July 28, 2000, and during the bond release inspection on September 20, 2000.

The land use section of this review discusses road maintenance, use, and ownership.

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this section of the regulations.

Hydrologic Information

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

Analysis:

Ground-water monitoring

No ground-water monitoring wells exist in the vicinity of the Hardscrabble area of disturbance. Data was collected at down-dip wells B-41 and B-42 from 1980 through 1983. These wells are located approximately 12,000 ft NW and 10,000 ft NNW respectively, and are located too far away to adequately monitor the site. In the absence of ground-water monitoring, the evaluation of the reclamation, subsurface pollution, and the probability of future subsurface pollution is speculative. The documented reclamation practices used at the site indicate there should not be any potential subsurface pollution.

Surface-water monitoring

A total of two surface-water monitoring sites exist in Hardscrabble Canyon. Sites B-12 and B-11 are located upstream and downstream of the surface disturbance area, respectively. Although these two sites have been monitored regularly since 1980 and 1977 respectively, site B-12 has never recorded any flow and site B-11 has documented flow only ten times. The highest flow was recorded in May 1978 at 44.88 gpm. Since reconstruction of the stream channel in 1996, no flows have been documented. It was observed that a majority of the flows were recorded while the mine was active, indicating ephemeral flow that was recorded while personnel was available on site. As an example, in 1978, flow was documented six times from March through October.

A thorough inspection of the Hardscrabble site on November 21, 2000, indicated very little flow has occurred in the main channel and its tributaries since reclamation (Appendix A, Site Photos, Fig 8). Significant deep-gouging exists on all reclaimed areas which retains moisture and reduces surface erosion. All operational culverts, temporary berms and diversions and silt fences have been removed. The design standards set for the reconstruction of Hardscrabble Creek have been met. One straw-bale dike still remains immediately downstream of site B-11 at the southern end of the property. The dike is still fully-functional, and showed very little retention of sediment since its installment in 1996.

Discharges into an underground mine

No discharges into underground mines will occur on the site.

Gravity discharges

No gravity discharges will occur.

Water quality standards and effluent limitations

The sediment ponds have been reclaimed and no further UPDES monitoring is required. Due to the ephemeral nature of the stream in Hardscrabble Creek, no water quality data has been collected at site B-11 since October 1980 and never at site B-12. Although Total Suspended Solids does not appear to be a problem at the site, a water quality sample to check other parameters would be beneficial. To collect a water sample, a concerted effort needs to be made to collect a sample immediately following any substantial storm event, or at least document the effort prior to final bond release.

Diversions

On April 21, 2000, the Division field checked the certified as-built maps and cross sections for Hardscrabble Canyon. The Division specifically reviewed the as-built channels with the approved plan and the field conditions. The Division found that the channels were constructed according to the approved design or to stricter standards.

The design standards for the channels are as follows:

- The shape of the reclaimed channels for natural drainages (HCRD 1 to 11) was designed to approximate the natural upstream channel. The reclaimed channels have a trapezoid shape with 3H:1V sides. Reclaimed channels with the sole purpose of diverting runoff from road R-1 were designed with a triangular cross section and slide slope of 1.5H:1V.

- Peak discharge rates used to determine channel capacities for the main canyon channels were based on 100-year 6-hour events. Peak discharge for the remaining channels was based on a 10-year 6-hour event. These are the designs in the plan, but the permittee actually constructed the channels for larger precipitation events. The main channel was constructed to safely pass the flow for a 100-year, 24-hour storm, and the other channels were built to withstand the flow from a 10-year, 24-hour event.

All culverts across the road were removed and replaced by swales.

Due to site conditions and the desire to avoid redisturbance of a significant portion of Hardscrabble Canyon the sediment ponds were removed during Phase II grading. The alternative sediment control measures were installed during reclamation.

After the April field inspection, the Division compared the as-built maps and cross sections with the reclamation plan. The Division found the site conditions met the requirement of the coal rules and permit conditions. On May 11, 2000, the Division approved the as-built drawings for Hardscrabble Canyon and incorporated them into the MRP.

During the bond release inspection, Division personnel examined how the drainage control structures are functioning. There is little sign of water flowing in most of the channels. There is a tendency for some sediment to accumulate in the swales across the road, and this will need to be part of the road maintenance.

Siltation structures

All siltation structures have been removed. The primary sediment controls are vegetation, surface roughening, and mulch, but there are straw bales in the main channel to catch any sediment that might be generated.

Sedimentation ponds

All sediment ponds have been removed.

Other treatment facilities

There are no other treatment facilities; sediment and erosion control are provided by vegetation, mulch, surface roughening, and straw bales in the channel.

Exemptions for siltation structures

No areas are exempt from sediment control requirements.

Discharge structures

No discharge structures exist on the site.

Impoundments

No impoundments exist on the site.

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this section of the regulations. With the available hydrologic information, the evaluation determined there is minimal probability of current or future occurrence of hydrologic pollution. The site currently meets the requirements for Phase I bond reduction, but prior to final bond release every effort needs to be made to collect surface-water samples from sites B-11 and B-12. An automatic sampling device or regular visits during and immediately following substantial storm events may be necessary.

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:

Standards for Success

As part of the bond release inspection, the Division is required to evaluate the difficulty to complete any remaining reclamation. Although there are a few problem areas, the Division feels the probability of future revegetation success is high.

Most of the area under consideration for Phase I bond release was seeded or planted in 1996-1999, but the canyon with the No. 4 Mine was seeded in 1993 and 1995. Vegetation has been developing in much of the area for at least a few years, so the Division has had the opportunity to make judgments whether it appears vegetation establishment will be successful. However, there is no quantitative data at this time.

Most of the soils in Hardscrabble Canyon were gouged to decrease the amount of runoff and sedimentation and increase water retention and plant growth. This technique has been used successfully at other sites, and so far it appears to be promoting good vegetation establishment and growth at this site. The site has numerous shrubs and forbs in addition to the traditionally more-easily-established grasses, and this has created a fairly diverse landscape.

There are some cuts and highwalls, especially in the No. 4 Mine area, that were not fully backfilled. Relative to the entire site, these areas are small. Typically, little vegetation becomes established in areas like this, but because other areas of the mine end up being flatter, these other areas have more vegetation. This increased plant growth in other areas tends to make up for the limited amount of growth on the cuts and highwalls.

Vegetation is not yet well established in areas redisturbed in the fall of 1999. One of these is at the upper end of HCRD-6, and there is almost no vegetation in this small area (about 1000 square feet). Because the area had to be redisturbed, there is more coal on the surface than in most of the rest of the reclaimed area. The soil appears to have a high shale content, and it may be necessary to reseed this area at some time in the future.

There is an area near the old scalehouse where the vegetation does not look as dense or healthy as it does in other areas. As discussed in the "Topsoil and Subsoil" section of his review, the Division believes this may be caused by a soil structure problem that may resolve itself.

Despite the small problem areas, the Division considers the probability of revegetation success to be high. The applicant used more soil cover than originally planned, covered refuse materials at least four feet deep, bought seed from reputable dealers, and used the best mulching and surface preparation techniques of which the Division is aware. Plant growth has reflected the care taken in reclamation, and there is no reason to believe this will not continue.

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this section of the regulations. Considering the reclamation methods used and the results to date, the Division considers the probability of revegetation success to be high.

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

Several maps show the affected surface boundaries for the Hardscrabble surface disturbance. Exhibit 3.3-19 shows the disturbed area boundaries.

Bonded area map

Several maps show the affected bond areas boundaries for the Hardscrabble area. Exhibit 3.3-19 shows the disturbed area boundaries that are considered to be the bond area. Exhibit 3.3-23, Hardscrabble Canyon As-Built Reclamation Topography, Treatment and Bond Release Phase Map, received February 8, 2001 show areas of phased bond release and dates received. The map also indicated the dates of seeding.

Reclamation backfilling and grading maps

The backfilling and grading maps have been field checked and incorporated into the MRP. The Division found the maps to be accurate and met all the requirements of this section.

Reclamation facilities maps

Exhibit 3.3-19 shows the existing substation and the main canyon road. The existing substation will remain until power from the site is no longer needed. The road will be retained as part of the postmining land use.

Final surface configuration maps

Exhibit 3.3-19, Exhibit 3.3-20A and Exhibit 3.3-20B show the final surface configuration. The maps have been field checked by the Division and incorporated into the MRP.

Reclamation surface and subsurface manmade features maps

Exhibit 3.3-19 shows the reclaimed surface manmade feature, which is the main canyon road. See the mine maps for subsurface features on the site.

Findings:

The information provided meets the requirements for Phase I bond release.

Bonding and Insurance Requirements

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

Analysis:

Determination of bond amount

Phase I bond release is for backfilling, grading and topsoil placement. Those activities have been completed except for the reclamation of the electrical substation and the road. Reclamation of the substation will be completed when transmission from the site is no longer needed.

While the Division has approved retention of the road for the postmining land use, the Division needs to keep adequate bond to reclaim the road if necessary.

The current bond for the Hardscrabble Canyon area is $1,305,000 (in 2000 dollars), and the permittee has requested that $783,000 be released after Phase I bond release has been approved. This would leave $522,000 for the Hardscrabble area.

Regulation R645-301-880.310 allows the Division to release up to 60% of the bond for the *applicable area* in Phase I bond release. The Division needs to retain $83,100 for reclamation of the road and substation which leaves $1,221,900 from which to reduce the bond. Reducing this amount by 60% leaves $488,760. The cost for road and substation reclamation is added to this figure which makes $571,860 (or $572,000 rounded to the nearest $1000) for the required remaining bond amount. The amount release would be $733,000.

Phase II bond release is for successful revegetation. At the beginning of Phase II there must be enough bond to ensure that the Division could revegetate the site. The Division calculated the revegetation costs to be $235,000 in 2010 dollars. The new bond amount ensures the Division would have adequate money to reclaim the road and substation and to revegetate the entire area. The total bond for the entire Castle Gate Mine would be $1,071,000.

Table 1. Summary of bond amounts for the Castle Gate Mine.

	Sowbelly	Hardscrabble	Adit No. 1	Total
Acres	21	39	3	63
Current Bond Amount	$369,946	$1,305,000	$129,054	$1,804,000
Amount Proposed for Release		($733,000)		($733,000)
Bond remaining for Substation and road Reclamation	$78,000	$83,100		
Revegetation Cost	$155,000	$235,000		
Bond Amount remaining	$369,946	$572,000	$129,054	$1,071,000

Findings:

The applicant has complied with the requirements of the mining and reclamation plan and this section of the regulations.

APPENDIX A

Affidavit of Publication Notice

Earth Day Award, dated 1997

Site Photos

Bond Release Inspection Report

BLM Concurrence Letter (to be inserted when received)

AFFIDAVIT OF PUBLICATION

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 13th day of July 2000, and that the last publication of such notice was in the issue of such newspaper dated the 3rd day of August, 2000.

Kevin Ashby

Kevin Ashby - Publisher

Subscribed and sworn to before me this 3rd day of August, 2000.

Linda Thayn

Notary Public My commission expires January 10, 2003 Residing at Price, Utah

Publication fee, $ 580.00

LINDA THAYN
NOTARY PUBLIC • STATE of UTAH
845 EAST MAIN
PRICE, UTAH 84501
COMM. EXP. 1-10-2003

PUBLIC NOTICE

Application for Phase I Bond Release
Hardscrabble Canyon No. 3 and No. 4 Mines
Castle Gate Holding Company
Castle Gate Mine
Permit ACT/007/004, Approved 12/24/99
Carbon County, Utah

Castle Gate Holding Company, 999 Corporate Blvd., Linthicum Heights, MD 21090, has completed Phase 1 of the approved reclamation plan for Hardscrabble Canyon No. 3 and No. 4 Mine areas of the Castle Gate Mine. This is based on the completion of the backfilling and grading and drainage control on the bonded area.

The reclamation of the Castle Gate No. 4 Mine area was completed in 1995. The reclamation of the Castle Gate No. 3 Mine - Main Canyon was completed in 1999. The No. 4 Mine reclamation area was approximately 7.25 acres. The No. 3 Mine reclamation area was approximately 20.43 acres. Resulting in a total of 27.68 acres of reclaimed area.

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 Castle Gate Holding Company is applying for partial release of the performance bond posted for this operation.

The original surety bond posted for the Castle Gate Mine is $1,804,000 of which $1,305,000 is designated for the Hardscrabble Canyon No. 3 and No. 4 Mine reclamation. Castle Gate Holding Company is seeking release of 60% of the Hardscrabble Canyon portion of the bond, or $783,000. All earthwork has been completed on site, except for the removal of an electrical substation. Reclamation of this area will be completed when transmission of power from the substation is no longer necessary. A permanent access road has been constructed through the site as per the approved reclamation plan.

The Hardscrabble Canyon area is located on the Standardville, Utah, U.S. Geological Survey 7.5 minute quadrangle map. The minesites are located in Hardscrabble Canyon, approximately 4 miles northwest of Helper, Utah. Reclamation work was performed on approximately 27.68 acres of disturbed and affected area located on the following described lands:

Township 13 South, Range 9 East, SLB&M, Utah

Section 3: SE1/4 SW1/4
Section 10: NW1/4 NW1/4, NE1/4 NW1/4, SE1/4 NW1/4, NW1/4 NE1/4, SW1/4 NE1/4, SE1/4 NE1/4

The Utah Division of Oil, Gas and Mining will now evaluate the proposal to determine whether it meets all 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, 1594 West North Temple, Suite 1210, Salt Lake City, Utah 84114-5801, and at the Price Field Office, 451 East 400 North, Price, Utah 84501.

Written comments, objections and requests for public hearing or information conference on this proposal may be addressed to:

Mr. Lowell P. Braxton, Director
Utah Division of Oil, Gas and Mining
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Closing date for submission of such comments, objections and requests for public hearing or information conference on this proposal must be submitted by September 2, 2000.

Published in the Sun Advocate July 13, 20, 27 and August 3, 2000.

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

1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

March 3, 1997

Amax Coal Company
Attn: Mr. Johnny Pappas
P.O. Drawer PMC
Price, UT 84501

Dear Mr. Pappas:

Thank you for your nomination for the Board of Oil, Gas and Mining's 1997 Earth Day Awards. I am pleased to inform you that your nomination has been selected as one of the finalists to be considered for this year's awards.

The Board would like you to make a presentation at its March 26, 1997 hearing to explain the details of the project nomination. The presentation may be in any form you desire, but we would encourage a highly visible presentation that may include slides, video, charts or other media. For more information concerning the presentation, or to make arrangements for equipment needed for your presentation, please contact Jim Springer at (801) 538-5324.

The Board will select their Earth Day Award winners from those making presentations in March. The awards themselves will be presented during the Board's regular meeting scheduled on April 23, 1997.

Again, congratulations on your selection as a finalist and good luck.

Very truly yours,

James W. Carter
Director

dr
cc: Lowell Braxton
Mary Ann Wright
Jim Springer
R. J. Firth
Board of Oil, Gas and Mining

1997
UTAH BOARD OF OIL, GAS AND MINING
EARTH DAY AWARDS

Nomination Form

Nominee Information

Company Name Amax Coal Company

Address P. O. Drawer PMC

City, State, Zip Price, Utah 84501

Contact Person Johnny Pappas

Phone 801-637-2875

Site Name Castle Gate Mine, Hardscrabble Canyon

Location Hardscrabble Canyon northwest of Helper, Utah

Activity and Category (Please check one activity and one category)

Activity

____ Oil & Gas
____ Minerals
_X_ Coal

Category

____ Environmental improvement to an active mine site, drilling or recovery site, or field
____ Outstanding results following applications of innovative environmental technology
_X_ Outstanding final reclamation or site restoration
____ Other

Nominated By

Name Paul Baker

Address Division of Oil, Gas and Mining, 1594 West North Temple

City, State, Zip Salt Lake City, Utah 84114

Phone 801-538-5261

Nomination Summary (attach additional sheets, photos, etc., as necessary)

Amax Coal Company has gone far beyond regulatory requirements in its reclamation of Hardscrabble Canyon. Although the reclamation is not yet complete, the specific methods used and extra effort are deserving of recognition.

Amax originally had an approved reclamation plan that minimally satisfied regulatory requirements. Recognizing that this plan met regulatory requirements but that reclamation might fail, Amax had the foresight to completely change a plan that had only been approved about two years earlier.

This was done at considerable expense since it included sampling coal refuse and soil in several locations and at several depths and reworking the engineering drawings in accordance with these results.

Hardscrabble Canyon is in critical deer and elk winter range, so revegetation with proper species is very important. During the winter, one can always find elk and deer sign within the disturbed area with numerous animals peering down from the slopes above the mine. Amax has done everything in its power to assure successful revegetation.

The canyon has had coal mining operations since the late 1800's. Among these operations were several mines, a coal cleaning plant, bathhouses, offices, a warehouse, and truck loading facilities. In addition to the refuse pile at the upper end of the canyon, coal refuse was in large areas almost throughout the canyon. Notably, a side canyon called "Dog Flat" had been filled up to about fifty feet deep with refuse, and one of the sediment ponds was partly incised in coal waste with nearly all of one embankment constructed of refuse.

Dog Flat was a large flat area with a very steep drop to the main part of Hardscrabble Canyon. The original approved plan was to leave the refuse in Dog Flat, but Amax decided reclamation would be much better if the canyon was restored to a more natural configuration. About 15,000 cubic yards of refuse was pulled out of the canyon and graded into other parts of Hardscrabble Canyon. This exposed a natural rock outcrop that blends very well with the surrounding area. Also, the Division expects the drainage control system to function much better with the channel sloping down gradually rather than having it flat with a very steep drop at the end.

The site was disturbed before 1977, so no topsoil was salvaged or available for reclamation. Initial soil investigations identified enough substitute topsoil to cover the entire area with an average of nine inches of soil. However, Amax, the contractor (Minchey Digging), and the Division worked together to identify and test additional substitute topsoil so the average depth of coverage will be about two feet. The contractor dug several pits to find this material, and Amax was willing to pay for soil tests to ensure the material was suitable. Some soil was found to have very high salt concentrations, so it was buried at least four feet deep. The contractor will be moving approximately 30,000 cubic yards of soil material in addition to the 20,270 cubic yards of soil discussed in the plan.

Rather than wrapping the site with hundreds of feet of silt fence, Amax has chosen to use structure-free sediment control measures. Amax is having the area gouged with numerous (about 2-3000 per acre) basins about two feet wide, four feet long, and two feet deep. Past experience has shown these to be more effective at controlling sediment and promoting vegetation establishment than any other method of which the Division is aware.

The site is being mulched with a combination of straw mulch and hydromulch to help reduce erosion. In addition to the erosion control this provides, this combination of mulching treatments was shown to have the best revegetation in test plots at another mine in Utah.

Because the site was disturbed before 1977, there was no consideration for how highwalls and cuts were located and whether it would be feasible to reclaim them. Even though it has been impossible to completely backfill all highwalls and cut slopes, Amax and the contractor have done superb work to make the remaining cuts and highwalls look more natural. Large rocks have been placed at the bottom of two of these areas, and they look like natural rockfalls. This enhances the appearance, improves vegetation establishment in the immediate area, and creates wildlife habitat. In one side

canyon, Amax made numerous rock piles that are being used by small animals.

Within the disturbed area, there are some areas with native vegetation and a few areas with nearly full-grown cottonwoods that were apparently planted along the channel. The permittee and contractor have altered the original grading plans in order to leave as many of these areas as possible.

The regulations require the operator to establish a channel capable of conveying the runoff from a 100-year, 6-hour precipitation event. Instead, Amax decided to build a channel capable of carrying the flow from a 100-year, 24-hour storm at an additional cost of about $26,000. However, Amax feels the long-term benefits outweigh the additional costs. In addition, the channel was extended farther up the canyon than called for in the original designs. This was done to better link two sections of the channel but resulted in having to move a few extra thousand cubic yards of coal waste.

Hardscrabble Canyon is a model for how pre-law sites in Utah should be reclaimed. Amax has spent more money than anticipated for this project, but the costs should be repaid in lower maintenance and better revegetation of the site. The postmining land uses of wildlife habitat and grazing will be enhanced while providing more stable channels and better downstream water quality.

Return by January 31, 1997 to: Earth Day Awards, Division of Oil, Gas and Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, Utah, 84114-5801. Phone (801) 538-5327 Fax (801) 359-3940

Site Photos

Figure 1. The Dog Flat storage area was filled with coal processing waste prior to reclamation.

Figure 2. Recent re-working of channel in Goose Island.

Figure 3. Cottonwood trees retained by careful grading.

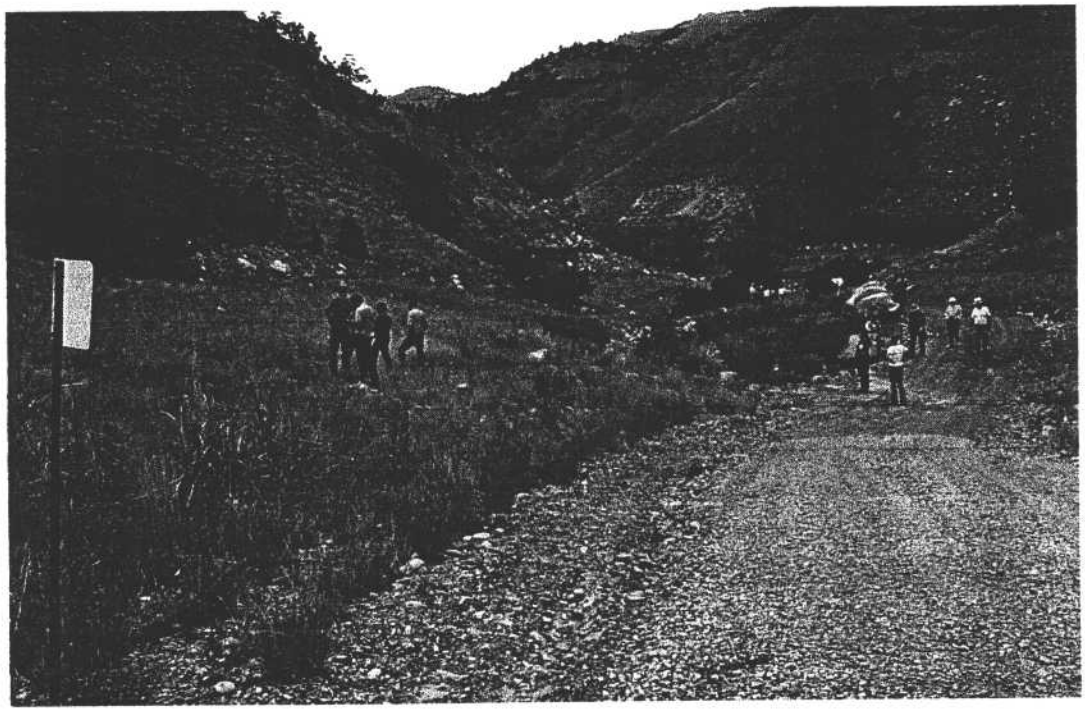

Figure 4. Road retained for postmining land use through main canyon.

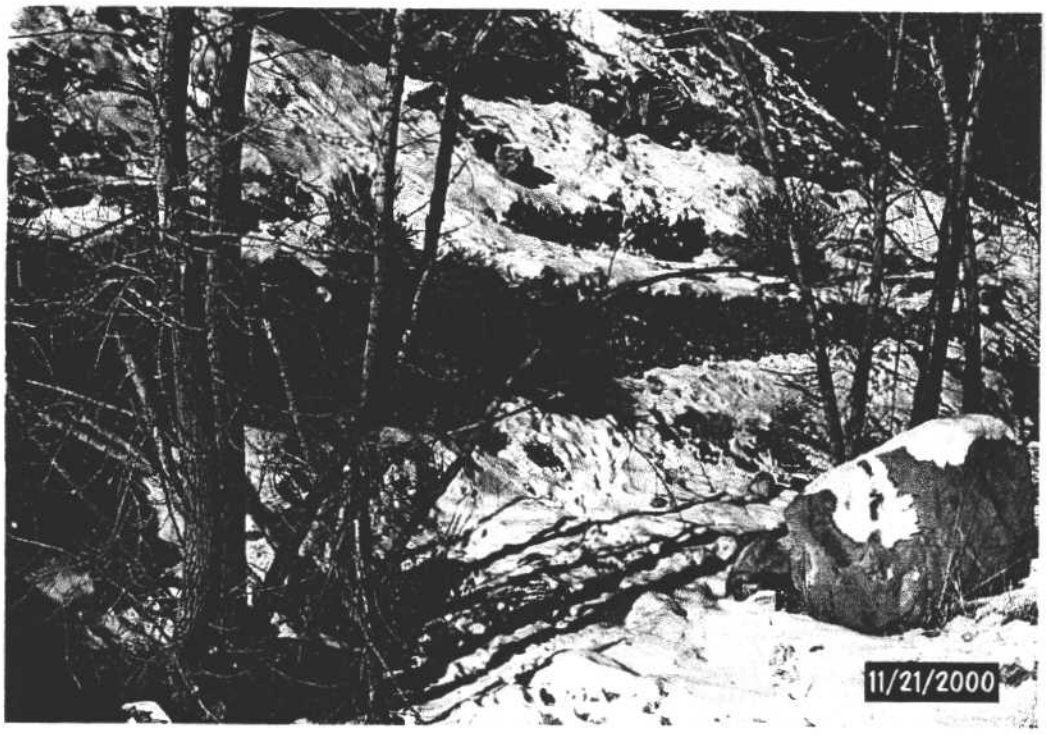

Figure 5. 75 feet of stone wall was retained in reclamation.

Figure 6. The stone wall is typical of work done in the early 1900's.

Figure 7. Area with reduced vegetation near former location of scalehouse.

Figure 8. Intermittent drainage through main canyon has had only minor flows.

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

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

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PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
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801-538-7223 (TDD)

November 22, 2000

To: Internal File

Thru: Susan M. White, Acting Permit Supervisor

From: Paul Baker, Reclamation Biologist
Joe C. Helfrich, Inspector
Wayne W. Western, Reclamation Engineer

Re: Phase I Bond Release Inspection, Castle Gate Holding Company, Castle Gate Mine, C/007/004-BR00B

Other Attendees: Susan White and Robert Davidson (DOGM); Johnny Pappas, Vicky Miller, and Johnny Greene (Castle Gate Holding Company)

Date & Time: September 20, 2000, 10:00 AM to 1:00 PM

PURPOSE:

This was a Phase I bond release inspection for the Hardscrabble Canyon area. Backfilling and grading were completed in December 1999. The Goose Island refuse pile area was originally reclaimed in 1984 and given Phase I bond release in 1985, but because of problems with the channel and erosion on the outslope, the operator regraded a portion of this area in 1999.

OBSERVATIONS:

The backfilling and grading and channel construction were previously compared with the mining and reclamation plan with no problems found. The operator reclaimed the channels to higher standards than those found in the regulations or the mining and reclamation plan, so the channels should be very stable. Only evidence of minor flows was observed in portions of the channels. The main channel is considered an intermittent channel because the drainage area is more than 640 acres. The other drainages are ephemeral. These items meet the requirements for Phase I bond release.

The operator tried to cover all coal waste with at least four feet of the best available fill. There is an area on the sandstone ledge near the top of HCRD-6 where the operator tried to backfill as far up as possible against the cut and highwall. In 1999 some cracks appeared in this

fill and it appeared it was not stable. The operator uncovered some of the refuse being stored in this area and moved it to a disposal pit at the base of the cliffs below the ledge. In uncovering the refuse, some refuse was mixed with the fill that is being used for soil. As a result, there is some coal waste on the surface in the area of the upper part of HCRD-6. This could potentially present some problems for revegetation and erosion control. No toxicity problems have been identified in the coal waste, and in most areas there is enough soil that vegetation should become established.

In the area where the scalehouse once stood is an area with less vegetation than surrounding areas. Soil tests did not show problems with salt or sodium contents, but it is possible there are some problems with physical characteristics, particularly the structure. The area is not large enough and the vegetation is not reduced enough that it should cause problems for overall revegetation success. If the problem is truly related to the soil structure, it will probably remediate itself over time.

The operator retained a 75 foot section of stone wall from the old mine site. This stone wall provides historical flavor and blends nicely into the surrounding reclaimed area. In this same area the operator has retained about 55 large cottonwood trees through careful grading. Several mature Gambel oak clumps were retained further up the canyon.

The Best Management Practice (BMP), extreme surface roughening with hay amendment and straw mulch, is very successful in this canyon in controlling erosion, reducing soil compaction, and promoting vegetation establishment. This BMP is the primary sediment control method for the site. Vegetation establishment is noticeably less in areas reclaimed prior to the use of this technique.

In the canyon with the No. 4 Mine, we found one live dyer's woad plant. The operator has been trying for several years to eradicate this noxious weed from the mine site and has almost succeeded.

RECOMMENDATIONS/CONCLUSIONS:

The site meets the requirements for Phase I bond release. Backfilling and grading have been done in accordance with the mining and reclamation plan and the R645 regulations.

There are a few areas where there could be revegetation or erosion control problems, but these are relatively small and are expected to stabilize naturally. The Division inspectors should be aware of these areas, check them periodically, and notify other Division staff of any problems found.

Vegetation on the majority of the site has progressed very well, and the Division considers the probability of reclamation success to be high.

sm
cc: Johnny Pappas, Castle Gate
Johnny Greene, Castle Gate
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