

**CASTLE  
GATE  
COAL COMPANY**

A Subsidiary of  
AMAX Coal Industries, Inc.

**RECEIVED**  
JUN 23 1989DIVISION OF  
OIL, GAS & MINING

June 22, 1989

Dianne Nielson, Director  
Division of Oil, Gas & Mining  
355 West North Temple  
III Triad Center, Suite 250  
Salt Lake City, UT 84108-1203

Dear Dr. Nielson:

Pursuant to UMC 771.21b(2), Renewal of Valid Permits, Castle Gate Coal Company requests a renewal of Permit 007/004. This request is being made in advance of the 120 day requirement of the regulation because of an agreement between your staff and Castle Gate Coal Company. Castle Gate Coal Company agreed to apply for the permit renewal by July 1, 1989.

Two copies of the updated permit titled "Castle Gate Coal Co. Permit Renewal Term, December 24, 1989, to December 24, 1994" are enclosed with this letter. Please remove and destroy the other information sent to the Division two years ago for the midterm permit review. This will eliminate confusion with the old document as the staff reviews the renewal. Castle Gate would like the white binders returned for future use.

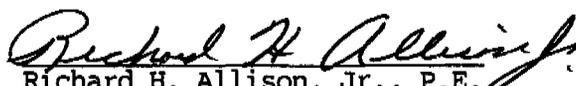
As a part of the renewal process, Castle Gate Coal Co. also agreed to address the two letters dated November 29, 1988, and December 8, 1988, in which a determination of completeness was written. Attached are Castle Gate Coal Co. responses to the staff comments.

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Dianne Nielson  
June 22, 1989  
Page Two

In the future, please direct all correspondence to Mr. James Buck who will be the contact person for Castle Gate Coal Company. His address is 251 North Illinois Street, P.O. Box 6106, Indianapolis, IN 46206-6106.

Sincerely,

  
Richard H. Allison, Jr., P.E.  
Project Supervisor

RHA:dbw

cc: Steve Youngbauer  
Jim Buck  
DOGM File  
Chrono

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Castle Gate Coal Company  
Responses to DOGM Determination of  
Completeness Review Dated November 28, 1989

UMC 771.23 Permit Applications - General Requirements For Format and  
Contents - MD

The operator is not in compliance with this section. Information presented in the mining and Reclamation Plan (MRP) is not current and references cited in the text are inconsistent in each section reviewed by the Division. The MRP basically needs to be reorganized and updated to present the required current information in a clear and concise manner. In its present condition, the reviewer can locate specific information only by a trial and error methodology. A thorough technical analysis is not practical at this time because of the MRP's general state of disorder. The following deficiencies must be corrected:

1. Narratives must be updated and corrected to provide a consistent and accurate description of the current operational facilities. Inconsistencies were found in various structural design descriptions which referred to the same structures as both proposed and existing.

Response: When the previous operator, Price River Coal Co., applied for the mining permit, many of the structures were being submitted for approval prior to being constructed. Thus the terminology of "proposed" was used. Castle Gate Coal Co. has edited the permit to clarify which structures have been built and which structures such as those in Crandall Canyon were not.

2. The tables of contents presented are not accurate. These must be updated to reference the correct page numbers for the listed sections.

Response: The page numbers have been corrected.

3. References made to tables, figures, exhibits, etc. in the text are frequently inaccurate. These must be checked and updated.

Response: The tables figures and exhibits have been checked and updated.

4. A detailed regulation subsection by subsection cross section must be submitted.

Response: A detailed cross reference is shown in the Index in Volume I.

UMC 782.18 Personal Injury and Property Damage Insurance Information

-JRH

1. Castle Gate has provided insurance under a "claims made" basis. To date, the Division has not determined or provided a sufficient policy to accept "claims made" insurance. Further the certification of liability insurance provided by the operator expired on 4/1/87. The operator is not considered to be in compliance with the requirements of this section. Insurance has not been provided as mandated in the regulations and has not been presented in the form as required by the Division. By submitting the information requested in a letter to all operators regarding liability insurance, the operator should be able to come into compliance with the requirements of this section.

Response: Castle Gate Coal Co. has submitted to the Division on an annual basis a certificate of insurance as required by UMC 782.18. The certificate applies to all Castle Gate Coal Co. operations. Additionally, the DOGM inspector has reviewed Castle Gate Coal Co. records quarterly and found the certificate of insurance up to date.

UMC 783.16 Surface Water Information - MD

1. Water quality data sheets submitted in the MRP are of such poor general quality that they are illegible. These must be replaced with copies that clearly present the data in a legible form.

Response: Castle Gate Coal Co. contacted the consultant who obtained the water quality data. The consultant sent the original ledger copies from which the new copies in the permit were made. These new copies are as legible as can be reproduced.

UMC 783.19 Vegetation Information - LK

1. Productivity data (i.e., a report from the Soil Conservation Service) for the Barn Canyon Grass-Sage reference area needs to be provided.

Response: Castle Gate Coal has requested a productivity study from the Price Soil Conservation Office.

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2. Page 8 references vegetation maps with scales of 1" = 1000' (permit area), 1" = 400' (Hardscrabble & Sowbelly Canyons, Crandall Canyon, and Castle Gate Prep Plant disturbed areas) and 1" = 100' (Crandall Canyon Leach Field). These maps were originally prepared by Mariah Associates and with the exception of the 1" = 100' map (which is only the leach field area in Crandall Canyon) have not been provided and must be submitted. (Please note, page 20 of Chapter 9 Section 3.1 states that larger scale maps are available). The map (9-1) in the plan (scale 1" = 2000') is not adequate. Please submit a map at scale 1" = 500').

Response: Exhibit 9-1 has been enlarged to a 1" to 1000' scale. This is the largest scale to which the map can be reproduced. The following maps were added of the disturbed areas.

Exhibit 9-2 Sowbelly and Hardscrabble Canyons  
Exhibit 9-3 Castle Gate  
Exhibit 9-4 Crandall Canyon  
Exhibit 9-5 Leach Field Area

3. The previous review noted that Chapter 9 was difficult to follow due to several references regarding the Eastern Reserves that were retained by the parent company. Discussions relating to reference areas for the Eastern Reserves (i.e. Dry Canyon, Willow Creek, etc.), still need to be removed.

Response: The references to Dry Canyon, Willow Creek were removed where possible. The Division must understand that the text in the MRP is the Mariah Report which is the baseline study for the MRP and cannot be edited to remove the noted areas.

#### UMC 783.22 Land Use Information - LK

1. Chapter 4, Land Use, Land Status and Post-Mining Land Use, does not contain information regarding type(s) of past mining, extent of mining, seams mined and approximate dates of past mining. After much searching, this information was found in Chapter 5, Historical and Cultural Resources. Therefore, pursuant to UMC 771.23(b), please provide a reference to this information under an appropriate title in Chapter 4 or move this information from Chapter 5 to Chapter 4.

Response: Section 4.4 has been added to Chapter IV which refers to Page 1 in Chapter V.

UMC 783.24(c) General Requirements - DD

1. The MRP should contain a schedule of the planned mining sequence for each seam. This information should be illustrated (in years) as blocked out areas on mining maps. The mine plan should also reflect the type of mining planned for each area (UMC 784.20(a)).

Response: Exhibits 3-2 through 3-9 show the mineable seams. Table 3.1-1 states which mining methods will be used. Exhibit 2-1 shows the 5 year mining plan for this permit term as agreed to in the January, 1989, meeting.

UMC 783.25(e) Cross Sections, Maps and Plans - DD

1. Larger scale mine maps should be submitted that show more detail of active, inactive and planned mining areas. Maps should be legible and have a minimum scale of 1 inch = 500 feet. The information requested under UMC 783.24(c) can be placed on this map for convenience (also see UMC 771.23(e)).

Response: The active mine map is at 1" = 400' scale. All other maps are at 1" to 2000' as agreed in the January meeting.

2. The geologic map (Exhibit 6-1) should show all coal outcrops and portray the attitude (strike and dip) to the formations on the property.

Response: UMC 783.25 requires the operator to locate the coal to be mined within the proposed permit area. At the present time, Castle Gate Coal only will mine the sub-3 seam. The sub-3 coal seam outcrop is shown on Exhibit 6-2. Exhibit 6-1 shows strike and dip.

3. The mine plan should contain a map(s) showing abandoned or old underground mine workings adjacent to or within the permit area.

Response: Exhibits 6-3 thru 6-11 show abandoned underground workings adjacent to or within the permit area.

4. All maps should be reviewed and updated to ensure that all legends portray the symbols that appear on the maps, and that the symbols that appear on the maps appear in the legend. Maps should be of sufficient size to make symbols legible. As an example, Exhibit 6-2 needs a legend, should identify the type of drill holes and should be of better quality to show contour lines.

Response: Exhibit 6-2 has a legend which shows symbols. The size and quality of map was determined to be marginal but acceptable at the January meeting.

UMC 783.24-25 Maps: General Requirements, Cross Sections, Maps, and Plans - JRH

In general, the maps and drawings provided by the operator are not sufficiently detailed or referenced to show the detail required for permit review and approval. With regard to this section, the following list applies.

Items needed:

1. A permit area boundary map showing a clear delineation of the permit area, and permitted acreage:

Response: Map 1-1 shows permit boundary and total acres in permit.

2. The boundaries of all areas proposed to be affected (disturbed) over the estimated total life of the mining activities.

Response: Map 1-1 shows areas to be disturbed over the total life of the mine.

3. The size, sequence and timing of the mining subareas for which additional permits will be sought;

Response: No additional permits are contemplated at this time.

4. The location of all buildings in and within 1,000 feet of the permit area with identification of the current use of the buildings;

Response: The location of buildings is on Exhibit 1-1.

5. The location of surface and subsurface man made features within, passing through, or passing over the permit area, including but not limited to, major power transmission lines, pipelines, gas lines, etc;

Response: See Exhibit 3-22.

6. The locations and boundaries of any proposed reference areas for determining the success of revegetation;

Response: See Exhibits 9-1, 9-2, 9-3, 9-4, 9-5.

7. The location of water supply intakes for current users of surface waters flowing into, out of, and within a hydrologic area defined by the Division (between the water treatment plant and Helper City), and those surface waters which will receive discharges from affected areas in the permit area;

Response: See Exhibit 3-22.

8. Each public road located in or within 100 feet of the permit area; the boundaries of any public park and locations of any cultural or historical resources listed or eligible for listing in the National Register of Historic Places and known archeological sites within the permit area or adjacent areas; each public or private cemetery or Indian burial ground located in or within 100 feet of the permit area;

Response: See Exhibit 5-1

9. Reclamation drawings should be enlarged to sufficiently show detail of different reclamation treatments, including but not limited to slope and contour, disturbed area acreage, delineation of soils and vegetation treatments, identification of structures, mine openings, and other surface facilities, and appropriate cross sections in order to determine cut and fill requirements for reclamation.

Response: Additional cross sections were taken in Sowbelly Gulch, Hardscrabble Canyon and Castle Gate. These sections are shown on Exhibits 3.2-5 thru 3.2-8, 3.3-8A, 3.4-12, 3.7-9A.

The existing post-mining reclamation drawings are a 1" = 200' scale. These maps show disturbed area boundary, delineation of vegetation treatments. The regulation does not require post-mining contours.

#### UMC 783.25 Cross-Sections, Maps, and Plans - MD

1. Page 262 of the MRP states that the operational surface water quality monitoring program will consist of eight sample stations depicted on Exhibit 7-3. UMC 783.25 (b) requires that the elevations and locations of monitoring stations be shown on the appropriate maps. This information is not discernible from Exhibit 7-3 because contours are not legible in most of the map. Furthermore, the map scale is too small to adequately determine individual sub-watershed physiographic parameters necessary for design calculations. The operator must submit a revised map which clearly identifies all water quality monitoring stations and their elevations, and in which contour lines are clearly shown for the entire map area. In addition, all permit area maps shall be of scale 1:6000 or larger and all map labels shall be legible.

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Response: Exhibit 7-3 was modified to show elevations of monitoring points. Additionally a new base map was used to show contour elevations.

2. Maps of existing sediment ponds do not contain sufficient elevation contours or surface areas to determine the configuration of the surrounding land surface and/or in some instances pond capacity. Each map must include measurements extending at least 100 feet beyond the disturbed area perimeter to allow determination of the surrounding land slope and configuration. Surface elevation contours of the surrounding areas must be depicted at no greater than a 5 ft. interval. Contours of the actual pond structures should be at one or two foot intervals. Some maps in the MRP do not depict level contours of the pond structure. Pond capacity can not be determined accurately from these representations. All maps must consist of level contours for a single given elevation. Pond cross-sections and plan views must depict the entire spillway structure, including energy dissipation structures, with dimensions for width or diameter, length, height, side slopes, and bed slope. Maps of the pond structures and surrounding areas must be of scale 1 inch = 10 feet or greater.

Response: The January, 1989, meeting concluded that Castle Gate Coal needed to provide additional pond cross sections and a profile of discharge. Additional cross sections were taken of the ponds and are shown in Exhibit Section 11. The regulations do not require contours of sediment ponds. The January meeting also concluded that the map scales are adequate.

3. Disturbed area boundaries should be clearly delineated on maps of each watershed at a scale appropriate for the design (minimum scale 1" = 100'). Sediment control structures such as berms, straw bale dikes, and sediment fences should be clearly depicted on the appropriate disturbed area maps.

Response: The January meeting concluded that the existing map scales are adequate. A new contour map of Crandall Canyon will be provided in the permit renewal as soon as the consultant has the map available for distribution. Sediment control structures are shown on the existing drawings.

#### UMC 784.12 Operation Plan: Existing Structures - JRH

As outlined in UMC 700.11 part (e), each structure used in conjunction with, or to facilitate underground coal mining activities shall comply with the requirements of Subchapter K of the underground coal mining regulations. Additionally those existing structures which do not meet the design requirements of Subchapter K must at least meet the performance standards of Subchapter K. Those facilities such as

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sediment ponds, embankments, cut slopes, pads, highwalls, roads and other facilities used in conjunction with mining operations must all be proven to conform to these performance standards and be included in the disturbed area for the operations. In the event that the structure or facility fails to meet the performance standard, it must be reconstructed to meet the design and performance standards of Subchapter K.

Items needed:

1. Those areas affected by previous mining operations and used in conjunction with current underground coal mining facilities are to be included in the disturbed areas. The maps and plans should clearly delineate the disturbed areas and include their respective acreages on the drawings.

Response: Exhibits 1-1, 3.2-1A, 3.2-1B, 3.4-1 depict areas previously disturbed by mining. Exhibit 3.3-1A was modified to show areas previously disturbed by mining.

2. In the case of sediment pond embankments and slopes exceeding the limits provided in the regulations in Subchapter K, the operator shall be required to justify the existing structures or provide designs and a timetable for the modifications of these structures. Demonstration of stability may be accomplished in some cases by the performance of the structure in the past with a commitment to maintain and monitor those embankments and slopes throughout the permit term. In some cases however, it may be necessary to provide geotechnical information in order to satisfy the requirements of this section.

Response: In the January meeting DGM decided that side slopes which exceeded the requirements of the regulations but have been stable since construction would be justification for leaving steep slopes. A statement was made on Exhibits 11.6, 11.9A, 11.9B which documents the stability of the side slopes.

UMC 784.13 Reclamation Plan: General Requirements - JRH

Maps and plans regarding the backfilling and grading of the site do not clearly depict the reclamation contours, final slopes and the extent to which cuts and highwalls are to be backfilled. Pads and roads shown on the reclamation plan appear to be essentially identical to their existing contours.

Items needed:

1. Under part (b) (3) of this section, a plan for backfilling, soil stabilization, compacting and grading, with contour maps or cross sections that show the anticipated final surface configuration must be provided as part of the reclamation plan.

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Response: Cross sections which depict the final reclamation grading were added to the plan for the renewal. See Exhibits 3.2-5 thru 3.2-8, 3.3-8, 3.4-5, 3.7-9.

2. Some cross sections of the facilities are provided by the operator for the final surface plot plan of the areas to be reclaimed. However, no calculations could be found referencing the cross sections for earthwork calculations. These calculations are required for backfilling and grading design for reclamation and determination of the bond amount.

Response: Cross sections were taken in Sowbelly, Hardscrabble and Castle Gate. The cross sections of the reclamation are shown on Exhibits 3.2-5 thru 3.2-8, 3.3-8A, 3.4-12, 3.7-9A. The DOGM in the January meeting decided that no additional calculations would be needed from Castle Gate Coal on earth work if additional cross section were supplied.

3. Maps used to show the final reclamation of the facilities are not clear. The disturbed areas on the drawings need to be outlined in a manner which will clearly show the disturbed area boundaries. Each map should also delineate and indicate the number of acres relevant to that specific area. To further complicate the site conditions, numerous abandoned mine sites and facilities are within and adjacent to the permit area. The operator must clearly delineate and identify these facilities so that they may be determined to be outside of the operator's disturbed area. The operator shall also indicate the dates of disturbances and the date of their last use as part of mining operations.

Response: Exhibits 3.2-3, 3.3-3, 3.4-3 and 3.7-9 show postmining land uses and final reclamation. Abandoned mine sites are shown on Exhibit 3-1. The regulation cited does not require dates of disturbances.

4. In some cases, facilities used by the previous permittee must still be included in the disturbed areas even though the current operator has had no activity in those areas. This determination will be made in accordance with the conditions of the permit transfer to Castle Gate Coal.

Response: Castle Gate Coal is not aware of any conditions placed on the permit transfer.

5. Maps or cross sections should also indicate final reclamation slopes, noting maximum slopes to be left upon final reclamation. In those areas where final slopes exceed 2h:lv, the operator needs to justify the final configuration for the earthwork and provide sufficient design calculations to ensure long term stability of the slopes. Contour maps or cross

sections should also include slope detail 100 feet beyond the disturbed area for reference to the adjacent area.

Response: Exhibits 3.2-5 thru 3.2-8, 3.3-8, 3.4-12, 3.7-9A show cross sections which indicate reclamation slopes.

UMC 784.13 Reclamation Plan: General Requirements - MD

1. Detailed timetables of the reclamation operational sequence relative to the start of reclamation activities should be submitted for each disturbed area. Channel reclamation should be included in addition to the activities listed on the operator's submitted reclamation timetable.

Response: A detailed timetable is included in the reclamation section for each disturbed area. See Sections 3.3-5, 3.4-5, 3.5-5, 3.7-5(5), in the MRP.

UMC 784.13 Reclamation Plan: General Requirements - JSL

1. The April 25, 1988, response refers to page 53 of Chapter IX that was amended to include a commitment to reduce compaction. Page 53 of Chapter IX was not included in the April 28, 1988, submittal. A commitment to reduce compaction must be included in the MRP.

Response: A statement to reduce compaction was added to the reclamation section for each disturbed area.

UMC 784.13(b) Revegetation Plan - LK

1. The schedule for revegetation (Chapter 9, page 72) is not acceptable in that it does not identify each major step in reclamation (i.e., backfilling and grading, topsoil replacement, seedbed preparation, seeding, mulching, planting, etc. as required by UMC 784.13(b)(1) and (b)(5)(i)), and the proposed timing is not during the normal period for favorable planting as required by UMC 817.113(a). Please provide an appropriate schedule for revegetation identifying the approximate dates and time frames for each major step in reclamation (refer to the Division's Draft Revegetation Guidelines to aid in developing an acceptable schedule).

Response: A section has been added to each disturbed area description which narrates each major step in reclamation. A schedule of reclamation was also added to the narrative of each disturbed area described in Chapter III.

UMC 784.14 Reclamation Plan: Hydrologic Balance - MD

1. The operator must submit a detailed description of measures to be implemented after cessation of mining activities to protect the quantity and quality of surface and ground waters in each area. This description should include detailed designs for any diversions to be constructed and any alternative sediment control measures to be implemented as part of the final reclamation process. The locations of these structures must be included on an appropriate map of the post-mining land configuration, which shows the reclaimed surface contours and any permanent structures in detail.

Response: This is a general statement which lacks specificity. Sections of Chapter III and Chapter VII describe the measures to be implemented after cessation of mining to protect the hydrologic balance. Cross Sections are shown in sections of Chapter III which show the reclaimed surface.

2. The water quality monitoring plan described in Section 7.5 of the MRP commits to sampling on a quarterly basis on designated dates. There is no reference to the duration of the monitoring program, however. The operator should commit to continuing the operational monitoring program for two years after all reclamation activities have ceased, (at which time a post-mining monitoring plan may be implemented). The following additional constituents should be added to the list of surface water analyses in Section 7.5-1:

Dissolved Oxygen (perennial streams only)  
Total Hardness (as CaCO<sub>3</sub>)  
Acidity  
Carbonate  
Total Manganese  
Cation-Anion Balance

Response: Castle Gate has added the above parameters to the sampling program and a statement to continue the sampling for two years after reclamation.

3. Section 7.5-2 of the MRP states that analyses for ground water will be identical to the proposed surface water constituents. The operator should add the following constituents to the list of groundwater analyses:

Total Hardness (as CaCO<sub>3</sub>)  
Carbonate  
Manganese

Response: These parameters will be checked by Castle Gate.

4. Groundwater constituents should be analyzed in dissolved form while surface water constituents should be analyzed in both dissolved and total forms.

Response: Castle Gate will inform the lab of these requirements.

5. Section 7.5-2, page 262 states that groundwater sampling will occur at five stations located on Exhibit 7-3. Only four stations are located on this exhibit for groundwater monitoring. This discrepancy should be corrected. Detailed sampling procedure descriptions for surface, groundwater (both wells and springs), and in-mine analysis must be included in the text.

Response: There are four groundwater sampling stations. A statement has been added to the text in Chapter VII Section 7.5-2 which states Castle Gate will follow procedures outlined in division policy.

UMC 784.19 Underground Development Waste - JRH

1. The operator must identify the temporary and permanent locations for disposal of excess spoils and mine development waste throughout the permit areas.

Response: There is one location within the disturbed area boundary which contains mine development waste, which was deposited after May 3, 1977; The Crandall Canyon shaft development. This area is discussed in Chapter III Section 3.7.

2. Conflicts arise in the consultant's reports and in the text of the reclamation plan regarding design and stability analysis of waste disposal facilities. Even in the reference provided by the operator to the initial review, a conflict in the amount of cover material is indicated. These conflicts must be removed and the plan brought up to date in Chapter 3 to show the existing and proposed modification to all waste facilities within the permit area.

Response: Castle Gate can find no conflicts in the consultants reports on stability analysis done by consultants for the refuse pile at Castle Gate. The reclamation plan in Chapter III states that six inches of cover material will be placed over the refuse because of the materials non-toxicity. Castle Gate has also committed in Section 3.4 to taking soil samples of the refuse prior to the spreading of the cover material.

3. The plan does not address the requirements for monitoring embankments for stability and piezometric surface. Although these plans have been implemented and are ongoing, the operator still needs to provide details of the methodology, location and frequency of monitoring the refuse pile for stability.

Response: This regulation does not require the submission of a monitoring plan for stability or piezometric surface.

4. Quarterly reports are required by the Division for the inspection and condition of the refuse embankment. This reporting information is also required by MSHA for the facility. UMC regulations require that the reports be sent to the Division and a copy of the reports be maintained on file at the mine office. The Division does not have these reports in the Salt Lake office. However, the operator may propose that the copies maintained onsite are sufficient to meet the requirements of the Division if a commitment is made to notify the Division of any adverse or hazardous conditions found during inspection or operation of the facility, an submittal of the quarterly reports is made with the Annual Report. This proposal would have to be made by the operator and approved by the Division in order to waive the reporting requirements of the regulations.

Items needed:

5. Additional information in the text of the reclamation and operation plans regarding the location of both temporary and permanent storage and disposal areas for all types of waste material, including but not limited to:

- a. Excess spoil and mine development waste.

Response: Castle Gate Coal keeps copies of the refuse pile inspection report at the mine site for the Divisions inspection pursuant to UMC 817.82(a)(3). The regulations do not require the refuse pile inspection report to be sent to the Division. Excess spoil and mine development waste are addressed in Sections 3.4 and 3.7.

- b. Coal processing waste.

Response: See Section 3.4.

- c. Coal waste.

Response: See Section 3.4.

d. Non coal waste.

Response: Non coal waste is not covered by this regulation. Castle Gate Coal Co. uses a contractor to haul non coal waste to the Carbon County Solid Waste Disposal Area.

e. Hazardous and toxic waste materials.

f. Liquid waste materials.

Response: The regulation cited contains nothing about hazardous and toxic waste materials. Castle Gate is in compliance with the Federal RCRA regulations.

6. The regulations require that all types of waste materials be described as to their location, amount, disposition and treatment. The plan should address these requirements.

Response: Non coal waste is not disposed of on the permit area. Waste oil is picked-up by a contractor for disposal. Solid waste is disposed of by a contractor in the Carbon County Land Fill.

7. The MRP needs a comprehensive maintenance and monitoring plan for waste storage facilities, especially those meeting the criteria under MSHA regulations.

Response: The regulation cited does not require a comprehensive plan for maintenance and monitoring waste storage facilities. Inspections on the refuse pile are made quarterly. A paragraph has been added to Section 3.4 of the MRP which describes the maintenance of the refuse pile.

8. Maps and plans should be provided which clearly designate and indicate the location and extent of the storage facilities for waste materials, including other ancillary facilities required to achieve compliance with the regulations. Such ancillary facilities would include, roads, culverts, undisturbed diversions, and topsoil stock-piles. Borrow material locations, pre- and post-reclamation configuration of the facilities, and suitable cross sections indicating the location and the disposition of the waste and cover material sufficient to determine the amount of material or mass balance for the reclamation of the proposed facility, should also be shown.

Response: Waste is temporarily stored in Crandall Canyon, Hardscrabble Canyon and Castle Gate. The locations are shown on Exhibits 3.3-1A, 3.4-1, 3.7-1.

9. Specific treatment for all types of waste materials encountered, and a commitment to operate, maintain and dispose of all waste materials in accordance with local, state and federal regulations.

Response: Paragraph 3.1-8(3)1d states that Castle Gate will dispose of all non coal waste in accordance with all local, state and federal regulations.

UMC 784.20 Subsidence Control Plan - DD

1. Figure 3.1-1 is illegible. The subsidence control plan is based on the data in this table. Without clarification of this table the subsidence control plan cannot be verified.

Response: Figure 3.1-1 was retyped and is now legible.

UMC 784.22 Diversions - MD

1. Designs for each diversion within the permit area must be submitted demonstrating that compliance with UMC 817.42-187.44. Diversion cross-sections submitted in the plan are not adequate to determine design dimensions. Map cross-sections are not of a large enough scale and cross-section worksheets are not legible. Designs shall incorporate calculations for riprap and energy dissipators for each diversion or a demonstration (with calculations) that these measures are not necessary.

Response: The diversion cross sections were redrafted to be more legible. The Division concluded in the January meeting that if the cross section work sheets are legible, then there is no need for additional cross sections. Diversion designs are shown in:

Table 3.2-4 and Figures 3.2-3 thru 3.2-8  
Table 3.3-5 and Figures 3.4-1 thru 3.4-9  
Section 3.7 Page 24 for Crandall diversion  
Chapter 7 documents the methodology

2. Culvert design calculations could not be found for some areas of the mine operation. Culvert designs must be included in the MRP for all culverts in the permit area, demonstrating that existing culverts are adequate to safely convey the design storm runoff.

Response: Culvert designs are shown in

Figure 3,2-9, 3.2-18  
Table 3.3-6  
Figures 3.3-6 thru 3.3-12

Table 3.4-6  
Figures 3.4-10 thru 3.4-15  
Table 3.7-1

The operator must include complete information on inputs used to calculate design peak flows for all areas (disturbed and undisturbed), including:

1. Watershed maps of each area. These maps should delineate sub-watershed areas used in calculating peak flows and differentiate between disturbed and undisturbed areas. Maps shall be of scale 1:6000 or greater and depict structural and or topographic watershed boundaries and contour intervals of 10 feet or less.

Response: Watersheds are delineated on Exhibits 3.2-1A, 3.3-4A, 3.4-2, 3.5-1, 3.7-2, 7-3, 7-3A.

2. Curve number determinations for each area. Assumptions for areas other than Hardscrabble Canyon could not be found in the MRP. These must be presented for each watershed or sub-watershed with references to soil and vegetation information contained in the MRP.

Response: The Division concluded in the January meeting that the existing information in the permit for curve number determinations is adequate.

3. Precipitation and time of concentration values (including assumptions and calculations for each watershed area. These are included in Table 7-12 of the MRP for undisturbed areas. However, no values for disturbed area inputs could be found.

Response: A statement was added to Section 7.2-2(3) which states that all the sediment ponds were designed with a time of concentration of 5 minutes.

4. Referenced calculation assumptions and methodologies for peak flow calculations in all areas.

Response: Chapter VII describes the method for runoff calculations beginning in Section 7.2-2.

UMC 784.23 Operation Plan: Maps and Plans - JRH

In some instances, the operator has not provided maps, plans and cross sections in the MRP which are required. Drawings of sufficient detail to show the underground coal mining activities to be conducted, the lands to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations are not provided.

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The following shall be shown for the proposed permit area:

1. Buildings, utility corridors, and facilities to be used;  
Response: See Exhibit 3-22.
2. The areas of land to be affected within the proposed permit area, according to the sequence of mining and reclamation;  
Response: See Exhibit 1-1.
3. Each area of land for which a performance bond or other equivalent guarantee will be posted under Subchapter J of this Chapter;  
Response: See Exhibit 1-1 and as described in Exhibit A in Chapter II.
4. Each coal storage, cleaning, and loading area;  
Response: See Exhibit 3.4-1.
5. Each topsoil, spoil, coal preparation waste, underground development waste, and noncoal waste storage area;  
Response: See Exhibit 1-1, 3.4-1, 3.8-1.
6. Each water diversion, collection, conveyance, treatment, storage, and discharge facility to be used;  
Response: See Exhibits 3.2-2, 3.2-4, 3.3-1A, 3.4-2, 3.5-1, 3.7-7, 3.8-1, 11-1 thru 11-12.
7. Each source of waste and each waste disposal facility relating to coal processing or pollution control;  
Response: See Exhibit 3.4-1 Appendix 3.4A.
8. Each facility to be used to protect and enhance fish and wildlife related environmental values;  
Response: See Exhibits 3.2-2, 3.3-3, 3.4-3, 3.6-3, 3.7-9.
9. Each explosive storage and handling facility;  
Response: See Exhibit 3.3-1A.
10. Location of each sedimentation pond, permanent water impoundment, coal processing waste bank, and coal processing waste dam and embankment, in accordance with UMC 784 and disposal areas for underground development waste and excess spoil, in accordance with UMC 784;

rha/0516a

Response: See Exhibits 3.2-2, 3.2-4, 3.3-1A, 3.4-2, 3.5-1, 3.7-7, 3.8-1, 11-1 thru 11-12.

11. Each profile, at cross sections specified by the Division of anticipated final surface configuration to be achieved for the affected areas:

Response: Additional cross sections were taken by Castle Gate Coal and shown on Exhibits 3.2-5 and 3.2-8.

12. Location of each water and subsidence monitoring point;

Response: See Exhibit 7-3 and 3-21A.

13. Location of each facility that will remain on the proposed permit area as a permanent feature, after the completion of underground mining activities.

Response: No facilities are to remain.

14. Maps and plans presented in the MRP showing the operations and the facilities must include the disturbed area boundaries for reference. The boundaries should also include those areas in which proposed facilities are scheduled for construction as well as borrow areas which may be required for reclamation. Primarily, this information needs to be provided on the operational plans to ensure that the operator is conducting mining activities within the approved permit areas. These boundaries should coincide with perimeter markers and other boundary requirements as provided in the approved mining and reclamation plans.

In accordance with UMC 784.13(b), the operator's drawings should include sufficient details for:

1. Backfilling, compacting and grading, with contour maps that show the final anticipated surface of the proposed permit area;

Response: See Chapter VIII. The regulations do not require post mining contour maps. Cross sections are included in the MRP. See Exhibits 3.2-5 thru 3.2-8, 3.3-8A, 3.4-12, 3.7-9A, 3.7-9B, 3.7-9C.

2. A plan for the removal, storage and redistribution of topsoil, subsoil, and other materials to meet the requirements of UMC 817.21-25;

Response: See Chapter VIII, Section 8.3.

3. A description including appropriate cross sections and maps of the measures to be used to seal or manage mine openings, and to plug, case or manage exploration holes or other boreholes, wells and other openings within the permit area in accordance with UMC 817.13-15.

Response: See Figures 3.1-3, 3.1-4 and 3.9-3.

4. Cross sections should be of sufficient number and scale so as to determine the amount of earthwork required on the site, maximum slopes to remain upon reclamation, any retention of highwalls from portals or other cut slopes, and suitability of the reclaimed slopes in achieving approximate original contour requirements.

Response: At the January meeting between the Division and Castle Gate Coal, the Division decided not to require earthwork calculations. Castle Gate Coal agreed to provide additional cross sections which show maximum slopes, cuts and fills. See response to 784.12(b)1 for Exhibit numbers.

#### UMC 800 Bond and Insurance Requirements - JRH

1. The operator has provided breakdowns of the reclamation activities for the plan. However, until such time as the plan can be determined complete and technically adequate, a detailed review of the reclamation cost estimate can not be accomplished by the Division. Due to changes in the reclamation plan of the site due to transfer and dividing of the approved operation with American Electric Power (AEP), the operator is considered to have sufficient bond at this time. Depending on the final solution of reclamation plans and procedures contained in the MRP, the operator's bond will most likely be reduced.

The Division has received from the operator, a request to reduce the bond in accordance with those cost estimates, provided in a submittal to the Division on September 29, 1987. This determination will be made in conjunction with the permit renewal.

Bonding Calculations do not include the following information:

2. A map as specified under UMC 784.23(b)(3) specifying each area of land for which bond will be posted under Subchapter J of the regulations.

Response: Castle Gate Coal Co. did not change the reclamation plan. Only the small Willow Creek storage area was not acquired by Castle Gate Coal Co. A map which shows each area of land which bond has been posted is shown on Exhibit 1-1.

3. Mass balance calculations showing backfilling and grading requirements for distribution and disposal of excess spoil and mine development waste, backfilling to meet AOC requirements, subsoil, topsoil and substitute topsoil distribution and quantities for each sub area of the permit.

Response: At the January meeting the Division decided that mass balance calculations were not necessary but additional cross sections were needed to show final reclamation configurations. Castle Gate Coal has furnished additional cross sections. Mine development waste is discussed in Section 3.7-3. No backfill is required for prelaw sites except to meet land use requirements. Each disturbed area has a reclamation plan - See Sections 3.2-5, 3.3-4(a), 3.4-4, 3.5-4, 3.7-5, 3.8-5, 3.9-4 in MRP.

4. Calculations for determination of quantities, equipment selection and productivity used in determining the bond amount.

Response: See Chapter III Section 3.1-10, 3.8-5, 3.9-4, 3.10-4.

5. Determination of Phase I and Phase II reclamation activities including a map showing those facilities to be constructed and/or removed during each phase of reclamation.

Response: The Division is not clear as to what constitutes "Phase I and Phase II reclamation activities". Castle Gate Coal reclamation plans are described in Sections 3.2-5, 3.3-4(1), 3-4-4, 3.5-4, 3.7-5, 3.8-5, 3.9-4.

6. Costs associated with reclamation were not included in the cost estimate. These costs include but are not limited to the construction of permanent channel reclamation, sediment pond removal, soil sampling and analysis, and water monitoring costs.

Response: See Chapter III Sections 3.1-10, 3.8-5, 3.9-4, 3.10-4 for bonding calculations.

UMC 817.22(e) Topsoil: Removal - JSL

1. To date the Division has not received any alternative re-soil material sample results. Samples were to be taken by late summer of 1984. The analysis must be submitted to the Division.

rha/0516a

Response: Castle Gate Coal will take alternative resoiling samples prior to reclamation of prelaw sites in Hardscrabble, Sowbelly, and Castle Gate areas. The reclamation plans were rewritten to reflect this commitment for each disturbed area.

2. The April 28, 1988, submittal fails to redefine the specific parameters for all re-soiling material analysis. The submittal refers to Section 3.4-4(1). This section defines the parameters required for the waste material disposed in Schoolhouse Canyon. The applicant must analyze all potential re-soiling material for the following parameters: pH, USDA textural class, electrical conductivity, sodium absorption ratio, boron, selenium, percent rock fragments, percent calcium carbonate, saturation percentage, available phosphorus and potassium.

Response: This omission has been corrected. Each disturbed area now has a commitment for sampling and testing parameters for resoiling material analysis.

UMC 817.24 Topsoil: Redistribution - JSL

1. The applicant's commitment to redistribute six inches of soil over the waste material is not adequate. As stated previously in Section 3.4-4(1) of the MRP, a redistribution depth of 1.5 feet of non-toxic material will be placed over the waste at Schoolhouse Canyon prior to distributing six inches of re-soiling materials for a total depth of two feet. Unless the requested soil analysis data or other information proves otherwise, the operator must commit to this plan.

Response: See Section 3.4-4. Castle Gate will take soil samples prior to distribution of soil and analyze them for the toxicity as stated in Section 3.4-4. This is per the decision made by the Division in the January meeting.

Castle Gate Coal Company's  
Response to the DOGM  
Reclamation Plan Review Dated December 8, 1988

Sowbelly Canyon  
Castle Gate Coal Company  
Castle Gate Complex  
ACT/007/004

UMC 783.24-25 Maps: General Requirements, Cross Sections, Maps, and  
Plans - JRH

1. Numerous abandoned mine sites and facilities are within and adjacent to the permit area. The operator must clearly delineate and identify these facilities so that they may be determined to be outside of the operator's disturbed area. The operator shall also indicate the dates of disturbances and the date of their last use as part of mining operations. In some cases, facilities which were used by the previous permittee must still be included in the disturbed areas even though the current operator has had no activity in those areas. This determination will be made in accordance with the conditions of the permit transfer to Castle Gate Coal Company.

Response: The disturbed area boundary is clearly delineated on the Exhibit 3.2-1A areas previously disturbed by mining are shown on Exhibit 3.2-1A and 3.2-1B. Castle Gate Coal Company is not aware of any unaddressed permit conditions or a determination which must be made in accordance with the permit transfer.

2. The operator has only delineated those areas of the previously disturbed areas which are the flat surface portions of the pads and roads. Cut slopes, highwalls and outslopes of these facilities have been excluded from the disturbed area boundary. The operator must incorporate into the disturbed area boundaries, all portions of those prior mining facilities which are used in conjunction with and associated with current mining activities. Those pads and roads currently in use by the operator could not exist without the cut slopes and embankments associated with them and must be incorporated into the permit area. In order to more completely resolve this matter, it is recommended that the operator and the Division inspect the site and delineate the disturbed area boundaries in accordance with these requirements. Upon delineation of the disturbed area boundaries in the field, the operator shall be required to submit revised drawings showing the correct surface disturbed areas in which the operator is liable.

Response: In February, 1989, the Division staff made an inspection of the Sowbelly Gulch disturbed area and verified the boundary. Based on that inspection, Castle Gate Coal Company provided additional cross sections of Sowbelly which show the final reclamation configuration.

3. The operator needs to provide identification as to the date and the use of those areas and facilities within the permit area which have been incorporated into the underground mining activities. This identification shall be in accordance with UMC 771.23. Those areas affected by previous mining operations and used in conjunction with current underground coal mining facilities are to be included in the disturbed areas.

Response: UMC 771.23 does not require dates of facilities which are incorporated into the permit area. All the disturbed areas with the exception of Crandall Canyon were disturbed prior to August 3, 1977, and is so stated in narratives which describe each disturbed area in the MRP.

4. The operator needs to provide the location of all buildings in and within 1,000 feet of the permit area with identification of the current use of the buildings.

Response: See Exhibit 1-1 and 3.4-1.

5. The operator needs to provide the location of surface and subsurface man made features within, passing through, or passing over the permit area, including but not limited to, major power transmission lines, pipelines, gas lines, etc.

Response: See Exhibit 3-21B.

6. Maps and plans presented in the MRP showing the operations and the facilities must include the disturbed area boundaries for reference. The boundaries should also include those areas in which proposed facilities are scheduled for construction as well as borrow areas which may be required for reclamation. Primarily, this information needs to be provided on the operational plans to ensure that the operator is conducting mining activities within the approved permit areas of the plan. These boundaries should coincide with perimeter markers and other boundary requirements as provided in the approved mining and reclamation plans.

Response: The disturbed area boundaries are shown on Exhibits 1-1, 3.2-1A. No additional disturbed area is planned for the next 5 years. The disturbed areas shown on the plans correspond with the perimeter markers.

7. Maps used to show the final reclamation of the facilities are not clear. The drawings need to clearly show the disturbed area boundaries. Each map should also delineate and indicate the number of acres relevant to that specific area and specific reclamation treatment (seed mix, topsoil coverage, borrow area, etc.). Those facilities to be left as part of the post mining land use should also be clearly identified on the drawings.

Response. Reclamation plans are explained in Sections 3.2-5. No facilities are planned to be left as a post mining facility.

8. Maps and plans regarding the backfilling and grading of the site do not clearly depict the reclamation contours, final slopes and the extent to which cuts and highwalls are to be backfilled.

Response: See Exhibits 3.2-5 thru 3.2-8.

9. Pads and roads shown on the reclamation plan appear to be essentially identical to their existing contours. A plan for backfilling, soil stabilization, compacting and grading with contour maps or cross sections that show the anticipated final surface configuration must be provided as part of the reclamation plan.

Response: See Exhibits 3.2-5 thru 3.2-8. Reclamation plans are explained in Section 3.2-5.

10. Cross sections of the facilities are not provided or referenced by the operator for the final surface plot plan of the areas to be reclaimed. No calculations could be found referencing the cross sections for earthwork calculations. These calculations are required for backfilling and grading design for reclamation and determination of the required bond amount.

Response: The January, 1989, meeting with the Division concluded that additional earthwork calculations were not necessary. Castle Gate Coal Co. agreed to provide additional cross sections of the disturbed areas which show final reclamation slopes. These cross sections have been provided in Exhibits 3.2-5 thru 3.2-8.

11. Maps or cross sections should also indicate final reclamation slopes, particularly noting the maximum slopes to be left upon final reclamation. In those areas where final slopes exceed 2h:1v, the operator needs to justify the final configuration for the earthwork and provide sufficient design calculations to ensure long term stability of the slopes. The maps and cross sections should extend at least 100 feet beyond the disturbed area to indicate the aspect and the slope of the adjacent areas.

Response: See Exhibits 3.2-5 thru 3.2-8. No final reclamation slopes within the disturbed area boundary will exceed 2:1.

12. Reclamation drawings must be enlarged to sufficiently show detail of different reclamation treatments, including but not limited to slope and contour, disturbed area acreage, delineation of soils and vegetation treatments, identification of structures, mine openings, and other surface facilities, and appropriate cross sections in order to determine cut and fill requirements for reclamation. These drawings should be typically set at a scale of 1"=40', and a two foot contour interval used to locate and identify the facilities and determine the amount of earthwork required for reclamation.

Response: The Division concluded that the map scales of the existing Exhibits are adequate.

13. An attempt was made on the drawings to identify the locations of the various seed mixes to be used in conjunction with the reclamation. No definition of their respective acreages were found on the drawing, nor was the total disturbed area acreage included on the map.

Response: See reclamation plans in Sections 3.2-5.

14. No grid, coordinates or references were found on some of the drawings to specify the location of the map with respect to the permit area or other topographic boundaries or features.

Response: The regulation cited does not require grid coordinates on all maps. At the January meeting, the Division concluded the existing maps are adequate.

15. Contour intervals of 100 feet are not suitable for reclamation design as currently shown on those drawings presented by the operator for reclamation of the facilities. Cross sections are not found or referenced on the drawings which show the final configuration of the area as it is to be reclaimed. No detailed plans for the closure of the mine openings or sufficient cross sections could be found to ensure highwall reduction at the site.

Response: Castle Gate Coal has added Exhibits 3.2-5 thru 3.2-8 which show the final configuration of the area.

UMC 783.25 Cross Sections, Maps, and Plans - MMD

Exhibit 3.2-3 contains the following deficiencies:

Response: See Exhibits 3.2-5 thru 3.2-8. No final reclamation slopes within the disturbed area boundary will exceed 2:1.

12. Reclamation drawings must be enlarged to sufficiently show detail of different reclamation treatments, including but not limited to slope and contour, disturbed area acreage, delineation of soils and vegetation treatments, identification of structures, mine openings, and other surface facilities, and appropriate cross sections in order to determine cut and fill requirements for reclamation. These drawings should be typically set at a scale of 1"=40', and a two foot contour interval used to locate and identify the facilities and determine the amount of earthwork required for reclamation.

Response: The Division concluded that the map scales of the existing Exhibits are adequate.

13. An attempt was made on the drawings to identify the locations of the various seed mixes to be used in conjunction with the reclamation. No definition of their respective acreages were found on the drawing, nor was the total disturbed area acreage included on the map.

Response: See reclamation plans in Sections 3.2-5.

14. No grid, coordinates or references were found on some of the drawings to specify the location of the map with respect to the permit area or other topographic boundaries or features.

Response: The regulation cited does not require grid coordinates on all maps. At the January meeting, the Division concluded the existing maps are adequate.

15. Contour intervals of 100 feet are not suitable for reclamation design as currently shown on those drawings presented by the operator for reclamation of the facilities. Cross sections are not found or referenced on the drawings which show the final configuration of the area as it is to be reclaimed. No detailed plans for the closure of the mine openings or sufficient cross sections could be found to ensure highwall reduction at the site.

Response: Castle Gate Coal has added Exhibits 3.2-5 thru 3.2-8 which show the final configuration of the area.

UMC 783.25 Cross Sections, Maps, and Plans - MMD

Exhibit 3.2-3 contains the following deficiencies:

1. The disturbed area is incorrectly labeled as the permit area. The substation pad and access road below Pond 005 must be included with the rest of the disturbed area and delineated as such on an appropriate map.

Response: The substation and pad have been included into the disturbed area boundary.

2. The map scale is not large enough to accurately determine diversion locations, drainage areas reporting to specific runoff control structures, runoff controls, and disturbed area slopes. A map of scale 1 inch = 40 feet or greater must be submitted which accurately depicts and labels these features.

Response: At the January, 1989, meeting the Division determined that the existing maps are adequate.

3. Exhibit 7-3 is the only map which delineates watershed boundaries for Sowbelly Canyon. The map scale is not adequate to accurately determine physiographic parameters necessary to calculate design peak flows. Without these calculations the Division cannot approve any structural designs for the facility. A revised map of scale 1 inch = 100 feet must be submitted delineating watershed boundaries for undisturbed and disturbed areas and which clearly shows surface contour lines at an interval of 50 feet or less.

Response: Exhibit 7-3 is not the only map which delineates watershed boundaries. Exhibit 3.2-1A also delineates watersheds. At the January meeting with Castle Gate Coal, the Division concluded that the map scales are adequate.

#### UMC 784.13(b) Revegetation Plan - LK

The schedule for reclamation (Chapter 9, page 72) is not acceptable in that it does not identify each major step in reclamation (i.e., removal and/or construction of sediment controls, backfilling and grading, topsoil replacement, seedbed preparation, seeding, mulching, planting, etc.) as required by UMC 784.13(b)(1) and (b)(5)(i), and the proposed timing is not during the normal period for favorable planting as required by UMC 817.113(a). Please provide appropriate starting and ending dates and time frames for each major step in reclamation (refer to the Division's Draft Revegetation Guidelines to aid in developing an acceptable schedule.)

Response: The reclamation plan in Section 3.2-5 has been rewritten to address the Division's concerns.

Page 58 (Chapter 9) indicates straw mulch will be applied at a rate of 1500 - 2500 lbs. per acre. Please note, the minimum acceptable rate for mulch is 2000 lbs. per acre. Also, all mulch must be appropriately

anchored. Please identify how mulch will be anchored on areas where crimping is not practical or possible. Also it is recommended that the mulch source be identified early to allow sufficient time to have the materials tested for noxious weed seed. This has been a problem in the past few years with straw mulch.

It is assumed that Castle Gate will broadcast seed the entire site (see page 59, Chapter 9). If Castle Gate intends to use other seeding areas for all or part of the seeding work, the alternative method(s) and areas where they will be used needs to be identified.

Exhibit 3.2-3, the post mining reclamation map for Sowbelly Gulch, is in conflict with the proposed seeding plan and the vegetation communities to be re-established. Page 61 (Chapter 9) identifies that seed mix #4 will be used for the entire site and that planting list #2 will be used along any drainages. The map needs to be corrected. Also, in response to your October 18, 1988, letter, the above referenced seed mix has sufficient quick-growing species that the addition of an annual grass is not needed.

It is recommended that a seed-plant materials supplier be retained several months in advance to assure procurement of the required revegetation materials. Since we are still experiencing problems with seed supplies not providing the species or quality of seed materials as listed on the seed labels, please make arrangements to have the State Agriculture Inspector collect a sample for analysis. This testing will be done at no cost to the mine. The Division can assist in arranging for this test if needed.

The current plan does not address protection of reclaimed areas from grazing (domestic) animals and wildlife. Due to the past experiences at the 'Goose Island' reclamation site, it is suggested that fencing or other appropriate protection be implemented to protect the area from grazing until vegetation is established.

Finally, it will be necessary to have the current range condition of the reference area for this site re-evaluated during the 1989 field season. This can be done by a qualified consultant or the U.S. Soil Conservation Service (preferably the SCS). If current range condition is not in fair or better condition, appropriate management practices will be required.

Response: See Chapter IX and Section 3.2-5. This section has been rewritten to address the Division's concerns.

UMC 784.13 Reclamation Plan: General Requirements - MMD

UMC 784.16 Ponds, Impoundments, Banks, Dams, and Embankments - MMD

The reclamation timetable, submitted in response to the Division's Mid-Term Permit Review dated February 19, 1988, must be sequentially organized relative to the start of reclamation construction. Channel reclamation should be included in addition to the activities contained in the submitted table.

Section 3.2-5(2) of the MRP states that the access road and substations will remain until final reclamation is undertaken. Section 3.2-5(1) estimates final reclamation will occur in the year 2008 for an area of only three acres with the access road remaining permanently. This discrepancy should be addressed and clarified as to what facilities are to remain permanently, the acreage of the area to be reclaimed, and when final reclamation is to occur.

Response: See Reclamation Plan Section 3.2-5.

UMC 784.13 Reclamation Plan: General Requirements - JRH

1. The operator's drawings should include sufficient details for; backfilling, compacting and grading, with contour maps that show the final anticipated surface or the proposed permit area.

Response: See Exhibits 3.2-5 thru 3.2-8.

2. A description including appropriate cross sections and maps of the measures to be used to seal or manage mine openings, and to plug, case or manage exploration holes or other boreholes, wells and other openings within the permit area in accordance with UMC 817.13-15 must be provided in the plan.

Response: See Figures 3.1-3, 3.1-4.

3. Those facilities such as sediment ponds, embankments, cut slopes, pads, highwalls, roads and other facilities used in conjunction with mining operations must all be proven to conform to the performance standards and be included in the disturbed area for the operations.

Response: All the facilities used in conjunction with mining operations conform or have been proved to conform with the performance standards.

4. Backfilling and grading calculations in order to determine the amount of earthwork required during reclamation are required. Cross sections from the maps should show the existing contours and the proposed contours for final reclamation. These cross sections should be of sufficient number and scale so as to determine the amount of earthwork required on the site, maximum slopes to remain upon reclamation, any retention of highwalls from portals or other cut slopes, and suitability of the reclaimed slopes in achieving approximate original contour requirements.

Response: At the January, 1989, meeting the Division decided backfilling and grading calculations were not necessary. Additional cross sections were taken and shown on Exhibits 3.2-5 thru 3.2-8.

5. The operator has not demonstrated the stability of slopes and embankments. This may be accomplished in some cases by the performance of the structure in the past with a commitment to maintain and monitor those embankments and slopes throughout the permit term. In some cases however, it may be necessary to provide geotechnical information in order to satisfy the requirements to this section. Upon detailed technical review of the mine plan, the Division shall determine which areas, if any, will require further geotechnical analysis to ensure stability.

Response: Existing slopes have demonstrated stability by past performance over the last ten or more years.

UMC 784.14 Reclamation Plan: Protection of Hydrologic Balance - MMD

The operator must include in the reclamation plan all best management practices to be utilized during the reclamation process, including alternate sediment control measures such as straw bales and sediment fences. The location of any permanent measure to be implemented must be included on an appropriate map.

Response: See Section 3.2-5 in the MRP.

The operator needs to submit a post mining water quality monitoring plan to be followed after the operational monitoring plan has ceased. This plan should commit to sampling every year until termination of bonding and conducting analyses for constituents listed in the Divisions's Water Quality Monitoring Guidelines. A single stage sampler similar to the US U-59 sampler should be utilized for sample collection because of the drainage system's ephemeral nature in Sowbelly Canyon.

Response: Castle Gate Coal has committed to sampling post mining water quality for two years after the operational monitoring has ceased. See Section 7.5-1.

UMC 784.22 Diversions - MMD

Diversion design worksheets submitted in the plan are not legible. Designs must be submitted for each proposed or existing diversion which will remain during reclamation or permanently. Designs must include calculations and values for peak flows, channel depth, channel width, flow depth, flow width, side slope, minimum and maximum bed slope, and channel roughness. Permanent diversions must be designed to safely convey the runoff from a 100-year, 24-hour event.

Exhibit 3.2-3 shows the channel parallel to the road above channel section RC-2 as unreclaimed. This reach is in the disturbed area and must be included in the final channel reclamation design for the 100-year, 24-hour storm. The location of the access road and stream channel cross section at the top of this exhibit is not identified on the map. It is not clear what the orientation of this cross section is. The channel configuration depicted on the conflicts with the configuration portrayed in the cross section.

Response: See Figures 3.2-8 and 3.2-9.

UMC 800 Bond and Insurance Requirements - JRH

Bonding calculations do not include the following information:

1. A map as specified under UMC 784.23(b)(3) specifying each area of land for which bond will be posted under Subchapter J of the regulations.

Response: See Exhibit 1-1.

2. Mass balance calculations showing backfilling and grading requirements for distribution and disposal of excess spoil and mine development waste, backfilling to meet AOC requirements, subsoil, topsoil and substitute topsoil; distribution and quantities for each sub-area of the permit.

Response: The Division decided in the January meeting that additional mass-balance calculations are not required.

3. Calculations for determination of quantities, equipment selection and productivity used in determining the bond amount.

Response: See Section 3.1-10.

4. Determination of Phase I and Phase II reclamation activities including a map showing those facilities to be constructed and/or removed during each phase or reclamation.

Response: The Division is not clear as to what is meant by Phase I and Phase II reclamation. See Section 3.2-5 for the reclamation plan.

5. Costs associated with reclamation were not included in the cost estimate, these costs include but are not limited to the construction of permanent reclaimed channels, sediment pond removal, soil sampling and analysis, revegetation sampling, and water monitoring costs.

Response: Section 3.10(1) provides a maintenance and contingency of 15% for water monitoring costs. All other costs are described in Section 3.10.

UMC 817 Permanent Program Performance Standards - MMD

A cursory review of the design calculations for the existing sedimentation ponds and diversions revealed the following inadequacies:

1. No justification could be found for the determination of curve numbers used in design calculations. Table 7.4 of the MRP presents SCS curve number values. Soil and ground cover input values used for this methodology must be provided with references to the appropriate corresponding maps and survey information describing soil and vegetation types.

Response: See Section 7.2-2(5).

2. The operator uses a value of 0.35 acre feet per acre of disturbance in the pond volume calculations on pages 7-9, Section 3.2 of the MRP. Example calculations in Chapter Seven determined a conflicting value of 0.035 acre feet per acre of disturbance. Neither value is justified by the example calculations presented in Chapter Seven. These calculations were performed using input values for Crandall Canyon assuming that this was representative of the entire permit area. This is not a valid assumption. Calculations for sediment yields must be conducted using site specific values for Sowbelly Canyon.

Response: The .35 acre feet per acre was a typing error and has been corrected to .035. The justification for the use of .035 is given in Chapter VII. Pond 4 will be reclaimed in 1989. Ponds 3 and 5 will be retained as part of the post mining land use.

3. Submitted maps of Ponds 003, 004, and 005 are not adequate. Cross sections of pond embankments included on these maps do not show spillway structural dimensions or configurations. Longitudinal cross sections and plan views of scale 1 inch = 10 feet or greater must be submitted for any proposed or existing sedimentation ponds to remain during reclamation. These drawings must show 1 or 2 foot contours of the pond structure and extend at least to the spillway outlet.

Response: Pond 004 will be reclaimed in the Summer of 1989. Ponds 003 and 005 will be retained as part of the post mining land use. Additional cross sections of the area were taken and shown on Exhibits 3.2-5 thru 3.2-8. Also See Exhibit 11.1.

Calculations must be submitted demonstrating that these spillways are adequate to convey the design storm as required by UMC 817.46.

Response: See Table 3.2-1(A).

4. Section 3.2-5(1) states that stream channels will be riprapped where necessary yet no calculations were found regarding channel stability. Calculations must be submitted demonstrating channel velocities and identifying reaches requiring riprap. The operator must submit riprap design calculations for each channel to be reclaimed including values for riprap and filter blanket gradations.

Response: The existing stream channels in Sowbelly Canyon will be used for existing channels are well vegetated and show no signs of erosion. The only channel which will require riprap is a section of RC-2 where the culvert Number 3 will be removed. Details of this reach are shown on Exhibit 3.2-8, channel profile 3. Calculations are shown on Figure 3.2-22.

UMC 817.24 Topsoil: Redistribution - JSL

The depth of scarification should be clarified. The depth of scarification must be determined by the depth of available soil, total length of effective root growth and any hard pan remediation.

The operator must commit to redistribute soil when the soil is dry to reduce the potential for redistribution compactions.

Response: Section 3.2-5 has been revised to address the Division's concerns for compaction.

UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations - MMD

The operator's letter to the Division, received October 19, 1988, requests that the Division grant a small area exemption for the entire 16 acre disturbed area in Sowbelly Canyon. This request was based on the operator's assumption that without an exemption, the three existing ponds could not be removed until adequate vegetative cover had been established. Subsequent removal would then require re-entering the reclaimed area, subjecting the area to further disturbance. However, other options are available for sediment control during the revegetation process which will satisfy the requirements of subsection (a) without requiring a small area exemption.

The Division recommends that the two upstream sedimentation ponds be removed during regrading operations prior to reseeding. One pond structure located at the downstream perimeter of the disturbed area can be constructed to provide interim sediment control. The operator would

then have the option of removing this pond after vegetative and effluent limitations have been met, or leaving the pond as part of the post mining land use, if justified.

Subsection (a) (3) of this regulation states that exemptions may be granted for "small areas only". Therefore, the Division cannot grant an exemption for the entire disturbed area in Sowbelly Canyon as per the operator's requests.

Response: Castle Gate Coal has revised the reclamation plan to leave Ponds 003 and 005 as a part of the permanent reclamation, Pond 003 accepts the largest runoff area. Ponds 004 will be reclaimed. The Universal Soil Loss Equation (USLE) was used to calculate sediment losses in the reclaimed area. The USLE showed that a minimal amount of soil would be lost by using tackified mulch and contour planting. See Table 3.2-7.

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Retention of the road through the reclaimed site must be justified, demonstrating the utility of this road in meeting the post mining land use of grazing and wildlife habitat. If sufficient justification is not made, the Division will require reclamation.

Response: Retention of the road has been removed from the reclamation plan.