



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangertter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

September 25, 1992

Mr. Richard Allison, Jr.
Project Supervisor
AMAX Coal Company, Belle Ayr Mine
2273 Bishop Road
P. O. Box 3005
Gillette, Wyoming 82717-3005

Dear Mr. Allison:

Re: Denial of School House Refuse Ditch Amendment, AMAX Coal Company, Castle Gate Mine, ACT/007/004-91D, Folder #3, Carbon County, Utah

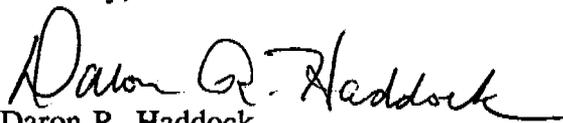
As discussed in our meeting held at the Division offices on September 24, 1992, there are still problems with the as-built designs for the diversions at the School House Canyon refuse pile. The amendment 91D is hereby denied.

You are still required to demonstrate that the diversions at the School House Canyon site meet the 100 year-6 hour design criteria. I have enclosed copies of technical memos written by Sharon Falvey which discuss the problems that need to be addressed. Please review the memos and correct any deficiencies as outlined. Your response should be readily insertable to the Castle Gate area submittal that the Division is currently reviewing in conjunction with the settlement agreement under docket 91-001.

In as much as the designs for the refuse ditches were originally required under enforcement action, we must stress the importance of your completing the design requirements. AMAX will have until October 31, 1992 to respond to the deficiencies as outlined.

If you have any questions please call me or Sharon Falvey.

Sincerely,


Daron R. Haddock
Permit Supervisor

Enclosures

cc: S. Falvey
J. Helfrich
S. Demczak

AMEN91D.DEN



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September 23, 1992

TO: Daron Haddock, Permit Supervisor

FROM: Sharon Falvey, Reclamation Specialist *SXF*

RE: Amendment 91D, School House Refuse Ditches, Amax Coal Company, Castle Gate Mine, ACT/007/004, Folder #2, Carbon County Utah

SUMMARY

The Operator responded to the deficiency memo of June 11, 1992. The response was received at the Division on July 14, 1992. It is interesting to note that the intent of the amendment submitted by the applicant was directly related to implementation of design plans resulting from enforcement action. That enforcement action was based on failure to provide adequate drainage designs for the refuse pile. Implementation of those designs varied from the approved designs and resulted in a deficiency memo. Now, the operator has resubmitted the designs but has not demonstrated that the designs meet the criteria for refuse piles; the 100 year-6 hour event.

I recommend the amendment be denied on the basis that it does not meet the requirements of the R645 regulations for refuse piles. The operator should be aware that this deficiency significantly affects the remainder of the review and therefore a complete review will be initiated with the next response. All previous deficiencies outlined in the June 11, 1992 memo still apply. The operator should also be aware that the September 8th submittal under Docket 91-001 also contains information related to this deficiency and should be addressed as necessary. I suggest the operator read R645-301-746-200 before resubmitting this amendment.

Presently the operator has not demonstrated the implemented plans meet the design requirements for the R645 rules; therefore, I recommend the re-submittal be handled as a Division Order.



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June 11, 1992

Mr. Richard Allison, Jr.
Project Supervisor
Amax Coal Company - Belle Ayr Mine
2273 Bishop Road
P. O. Box 3005
Gillette, WY 82717-3005

Dear Mr. Allison:

Re: Deficiencies with School House Refuse Ditches, Amax Coal Company, Castle Gate Mine, ACT/007/004-91D, Folder #3, Carbon County, Utah

The Division has completed a review of the as-built designs submitted after the construction of ditches at the School House Canyon Refuse Site. There still appears to be a few problems with the designs that were submitted. The enclosed technical memo written by Sharon Falvey discusses the problems.

Please review the memo and respond to the deficiencies by July 13, 1992. If you have any questions, please call me or Sharon.

Sincerely,

Daron R. Haddock
Permit Supervisor

Enclosure

cc: S. Falvey
SCHOHOUS.AMA



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Salt Lake City, Utah 84180-1203
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May 28, 1992

TO: Daron Haddock, Permit Supervisor
FROM: Sharon Falvey, Reclamation Specialist SKF
RE: School House Refuse Ditches, Amax Coal Company, Castle Gate Mine, ACT007/004, Carbon County,

Summary and Recommendations

The presentation of this document to the operator was delayed in order to correspond with the Castle Gate Area Review per the stipulation(s) under Docket 91-001.

Following construction of Ditches on the School House Canyon Refuse pile the operator submitted certified as-built designs. This analysis of the as built ditches determined the operator has varied from the approved design with some alterations the operator can demonstrate that the designs meet the R645 regulations.

Analysis

645-300-142. Conduct all coal mining and reclamation operations as approved.

Proposal

The operator constructed drainage Ditch CGD6-A and CGD6-B according to the designs for the refuse pile as it reaches its maximum height. CGD6-A and CGC6B are constructed based on the design of the "final" operational drainage control from the operators September proposed revision.

Analysis

The operator has failed to follow the approved design for the drainage on the refuse pile at it's present configuration. The operator has replaced their proposed "interim" designs indicated on Exhibit 3.4-2A with proposed "final" designs that were designed for the refuse pile at the maximum proposed elevation. The "final" operational design does not account for drainage from portions of CGWSD2-B and all of CGWSD2-A a requirement for determining the interim drainage designs. Therefore, the present ditch CGD6 is NOT demonstrated to be adequately sized. See Table 1.

The operator has changed proposed channel dimensions. The

operator has decreased the proposed D50 for the steep sections of the ditch design on sections 7IB and 6IB. However, these sections are presently grouted with concrete. The diversion configurations on ditches 7A and 6A have changed from the proposed configuration and no longer meet criteria for non-erosive velocities. The velocities are greater than 5 ft/s and therefore require riprap protection. This 5 ft/s criteria for non-erosive velocities was established by the applicant in the September, 1991 revision. The constructed freeboard for ditch 7IA has decreased to an inadequate amount. The operator proposed to provide 1 ft. of freeboard while the as-built provides 0.18 ft. See Table 2.

Deficiencies:

1. Provide ditch designs that include flow from all associated drainage areas to Ditch CGD6.
2. Provide riprap designs for ditches CGD7A and CGD6A as required by R645-301-745-222.
3. Provide for adequate freeboard on all ditches.

R645-301-121.100 Contain Current Information

Proposal:

The operator has provided as-built designs and maps for updating the plan.

Analysis:

Text and tables require revision to reflect the current information for the ditch designs. Text shall also include the commitment from the operator to notify and obtain approval from the Division for any ditch modifications or construction that may be necessary when raising or altering the elevation of the refuse pile.

Deficiencies:

1. Provide copies of current information for text, including updated tables, for all refuse design changes.
2. Text shall also include the commitment from the operator to notify and obtain approval from the Division for any ditch modifications or construction that may be necessary when raising or altering the elevation of the refuse pile. This was a previous commitment from the operator and a requirement for Division approval.

R645-301-121.200 Clear and Concise Permit Application.

Proposal:

The operator indicates that designs for Ditches 6A, 6B, and

7B, are approved for interim and final designs on Exhibit 3,4-13 and in Appendix 3.4 K.

The operator indicates on Exhibit 3.4-13 that the minimum cross sectional area will be maintained.

Analysis:

The Division has not approved the submitted as built designs as final designs i.e. reclamation designs. The October 7, 1991 memo to Daron Haddock, from Sharon Falvey submitted with the September 9, 1991 cover letter, page 3, states:

"It is recommended that the operator submit drainage designs for the temporary interim drainage and short term conditions to abate the cessation order. The final ditch reclamation designs must be submitted as a part of the division Order and NOV N91-28-2-1 ...".

The Division continued to attempt to clarify this issue and has indicated that the final ditch reclamation designs be submitted as part of Division Order and N91-28-2-1. in the attached memos on December 9, 1991, September 25, 1991, and October 4, 1991, and again on October 7, 1991." The operator continued to propose "final ditch designs" in disregard of the Division's requests. The operator attempted to clarify the designs as operational in text but, has not resubmitted that pre-approved text. The operator presented misleading information by failing to clarify the operational phase on the certified as-built, Exhibit and 3.4-13, and design drawings. Because the operator continues to portray the "interim" ditch designs as "final" ditch designs, all references to final ditch designs must be removed from Exhibits, figures, designs, text etc.

The operator indicates that the ditch designs may vary and that some minimum cross sectional area will be maintained. This implies that the ditches may have any side slope, any bottom width etc. as long as the minimal cross sectional area is maintained. The minimal cross sectional areas identified do not provide for a minimum design criteria. The operator fails to note that if the slope is in excess or less than the design slope, design capacities change. The operator also fails to include adequate freeboard for the worst case situation that might be observed at this proposed cross sectional area. Therefore the minimum x-sectional area is invalid.

The operator has not modified the existing ditch designs below the newly constructed designs. The operator must clarify what portions of the ditch designs apply to section of the ditch that is treated separately. For instance it should be clear where the cemented riprap begins and ends on ditch slopes and clarify what designs exist at ditches 7C and 7B below the concrete etc.

The operator was requested to provide a statement indicating the Division would be advised when the operator adjusts the drainage designs for the refuse pile as the site progresses in elevation.

Deficiencies:

1. Remove references to "final" Designs on all ditch maps, Exhibits, designs etc.
2. The operator should provide more design segments if it is felt the ditch designs vary. If the operator must use a minimum cross sectional for design criteria it should include the worst case scenario including adequate (0.3') freeboard above the maximum depth and be consistent with the deviations described in Deficiency 3 below.
3. If the operator does not provide more ditch design segments, the operator must provide acceptable minimum and maximum deviations for the ditch designs (not including the slope which must be maintained as-constructed) that meet engineering design standards and maintain the requirements of the R645 regulations.
4. Clarify design criteria for sections that deviate in design. For example identify the location of riprap v.s. concrete on maps and exhibits. Identify where ditch 6A v.s. 6B v.s. 6B riprapped section is located on Exhibit 3.4-2A.
5. Revise the minimum and maximum slope in the ditch designs to reflect the slopes as they are identified on the as-built longitudinal cross sections.

745.222. Stabilized Diversion Channels on Fill.

Proposal

The operator does not provide erosion protection for ditches CGD7-A and CGD6-A. The operator has provided some concrete grouting on some steep sections of the refuse.

Analysis

The operator has changed the ditch designs on ditches 7A and 6A so, they no longer meet their proposed erosive velocity criteria. The velocities are greater than 5 ft/second and therefore require riprap protection.

Deficiencies

- 1 The operator must provide designs for protection of ditches CGD6A and CGD7A6.

Table 1.

CGD6 Proposed(prop), As Built, Refuse Ditch Designs.

Ditch	6-IA PROPOSED (one design proposed)	6-IA AS BUILT (upper)	6-IA DOGM INTERIM DRAINAGE REVIEW *	COMMENTS	6-B "Final" Proposed design	6-B As-Built (steep) operator uses "Final" design	6-IB DOGM FOR INTERIM DRAINAGE (use oper. as built)	COMMENTS OPERATOR USES 2 DESIGNS CONCRETE AND RIP RAPPED
SHAPE	TRIANGLE	TRIANGLE	TRIANGLE		TRAPEZOID	TRAPEZOID	TRAPEZOID	TRAPEZOID
BOTTOM WIDTH	0	0	0		3'	5'	5'	
LEFT SIDE SLOPE(H:V)	3:1	2.3:1	2.3:1	VARIED SS FROM PROPOSED	3:1	1.3:1	1.3:1	VARIED SS FROM PROPOSED
RIGHT SIDE SLOPE(H:V)	3:1	2.3:1	2.3:1	VARIED SS FROM PROPOSED	3:1	1.3:1	1.3:1	VARIED SS FROM PROPOSED
MANNINGS n	0.035	0.030	0.030	EARTH DITCH MANNINGS	0.035	0.022	0.022 FOR CONCRETE/ RIPRAP 0.035	
DISCHARGE(cfs)	17.5	6.3	17.5	OPERATOR USES INCORRECT DISCHARGE	11.12	11.3	17.5	OPERATOR USES INCORRECT DISCHARGE
CHANNEL SLOPE MAX (FT/FT)	0.25	.030	0.0325 ?	AS-BUILT SHOWS AV. SLOPE 0.0325 INCORRECT MAX SLOPE	0.0.50	0.40	0.43 FOR CONCRETE(C) 0.11 FOR RIPRAP (RR)	MAX BY EX.3.4-13 IS 0.43
CHANNEL SLOPE MIN (FT/FT)	0.004	0.005	0.005		0.307	0.12	0.12 (C) 0.094 (RR)	EX.3.4-13 SHOWS AVE SLOPE<0.0943
DEPTH OF FLOW	1.65'	1.15	1.63'		0.32	0.25	0.32 (C) 0.45 (RR)	
TOTAL DEPTH ft. (AVAILABLE FREEBOARD)	2.65 (+1 FT.)	1.90 (+0.75)	1.90 (+0.27')	SIGNIF. DECREASED FREEBOARD	1.32 (+1)	1.5 (+1.25)	1.5 (+1.18) (C) (+1.15) (RR)	
MINIMUM X-SECTIONAL AREA(ft ²)		8.17	6.08	MIN X-SECT. DOES NOT REFLECT FREEBOARD		8.17	1.73 (C) 2.33 (RR)	
VELOCITY (ft/s)	10.66	5.29	5.81	EXCEEDS EROSION STANDARD	11.12	13.03	15.21(C) 7.51(RR)	
RIPRAP D50	10.8	REQUIRED	REQUIRED	INADEQUATE	12"	12"	D50 12"	

* DOGM uses operators values from proposed designs where pertinent for determination.

Table 2.

CGD7 Proposed(prop), As Built, Refuse Ditch Designs.

Ditch	7-IA PROPOSED	7-IA AS BUILT	COMMENTS	7-IB STEEP PROPOSED	7-IB AS-Built	COMMENTS	7-IC PROPOSED	COMMENTS OPERATOR DOES NOT INCLUDE DESIGN FOR LOWER PORTION OF DITCH
SHAPE	TRIANGLE	TRIANGLE		TRAPEZOID	TRAPEZOID		TRIANGLE	
BOTTOM WIDTH	0	0		3'	5'		0	
LEFT SIDE SLOPE (H:V)	3:1	2.2:1	VARIED PROPOSED SS	3:1	1.25:1		2.40	
RIGHT SIDE SLOPE (H:V)	3:1	2.2:1		3:1	1.25:1		3:1	
MANNINGS n	.030	0.030		0.035	.022		3:1	
DISCHARGE (CFS)	15.6	15.6		19.4	19.4		2.4	
CHANNEL SLOPE MAX (FT/FT)	.01	.030 AVERAGE 0.027		0.50	0.40		0.50	STABLE CHANNEL?
CHANNEL SLOPE MIN (FT/FT)	.005	.005		0.057	0.020	EXHIBIT 3.4 HAS MINIMUM SLOPE OF 0.05	0.057	
DEPTH OF FLOW	1.4	1.62		0.42	0.3'		0.48	
TOTAL DEPTH W/ FREEBOARD	2.4 (+1')	1.8 (+0.18')	INADEQUATE FREEBOARD	2	2		1.48	
MINIMUM X-SECTIONAL AREA (ft ²)		5.88			1.79			
VELOCITY (ft/s)	3.5	5.54	REQUIRES CHANNEL PROTECTION	13.19	15.59		8.54	
RIPRAP	NONE	NONE		15.6"	12"		7.2	