

0006

ACT/043/008

FILE COPY

October 22, 1987

TO: Technical File
FROM: Rick P. Summers, Reclamation Hydrologist *RPS*
RE: Response to Permit Stipulations (received 9-24-87), Summit Coal Company, Boyer Mine, ACT/043/008, Summit County, Utah

Summary:

Except for stipulation UMC 817.44 - (1) - RS, the submittal is complete at this time. That stipulation will be reviewed in December of 1987 and comments forwarded to the applicant at that time. The remainder of the stipulations have been addressed adequately and can be deleted from the permit.

Body:

Comments on the 9-24-87 submittal follow the original requests made in the DOGM letter of 7-27-87. New comments are indicated by indentation and an asterisk (*).

Stipulation UMC 817.42-1-RPS

1. The permittee shall within 30 days of permit issuance, submit revised appropriate sections and plates in the MRP to reflect a commitment to retain straw bale (or equivalent) treatment structures at the outlet of culvert C-6. Additionally, the permittee must commit, within 30 days of permit issuance, to sample all discharges from these structures and incorporate the analysis schedule proposed in Table 5-1 for all samples. A commitment to submit results of the analysis to the Division within 30 days of receipt must also be made.

Comment:

The applicant has proposed a catch basin as an alternative to the straw bales proposed in the original MRP. The Division approves the use of the catch basin, but will require straw bales or equivalent for the discharge from this basin until it can be demonstrated (through monitoring) that the catch basin as a sole treatment structure is adequate to maintain effluent limitations.

Narrative should be added to the permit reflecting this commitment. The applicant has committed to sampling the discharges from the catch basin for the operational parameters in the original MRP (Table 5-1 of Volume 2).

*The applicant has committed to the above on pps. 7-4d and has updated plate 7-1. This stipulation has been addressed.

Stipulation UMC 817.43-(1)-RPS

1. Within 60 days of permit issuance, the permittee shall submit a revised complete and technically adequate design plan for all diversions which incorporates correct hydrologic assumptions and meets the requirements of UMC 817.43.

Comment:

The applicant has revised Tables 7-1 and 7-2 to incorporate values calculated by the Division during the technical analysis stage of permit approval. The applicant must submit revised maps depicting the correct watersheds referenced for each structure. The Technical Analysis was written with the assumption the notation "M.D." related to riprap size means "median diameter" and not "maximum diameter". This should be stated on all applicable tables with a footnote.

*The applicant has submitted a corrected plate depicting the watersheds (plate 7-1). Notation has been added where appropriate in the permit to clarify the use of M.D. as mean diameter. This stipulation has been addressed.

Stipulation UMC 817.44-(1)-RPS

1. The permittee must submit complete and technically adequate designs for UD-1 that demonstrate compliance with subsections (b)(2) and (d) of this rule within 120 days of permit issuance.

Comment:

This response has not been reviewed at this time in order to allow operator to use resources to develop plans required to upgrade operational aspects of the current minesite. The review of these designs will be performed in December of 1987 and comments will be forwarded to the operator at that time.

Stipulations UMC 817.46-(2, 3, 5)-RPS

2. Within 30 days of permit issuance, the permittee shall submit detailed information regarding the sediment pond clean out. This information should include elevation of 60% volume, elevation of maximum sediment storage volume, location of sediment marker in pond, and a commitment to clearly mark the referenced elevations on the stake.

Comment:

The applicant has submitted correct elevations for the sediment clean out elevation (60 %), the maximum sediment elevation, committed to installation of indicator stake, and committed to clean out at 60 % elevation. However, the application states that the sediment volume was based upon PSIAC and USLE methods when it appears 0.1 AF/Ac was used. The narrative should be corrected to clarify the plan. The applicant needs to address the proposed plan for sediment pond clean out. This information must include: proposed disposal site for sediments removed, a proposal to insure that water draining from sediments removed (i.e. if dewater of the sediment is necessary prior to loading) reports a sediment treatment structure, a commitment to monitor the sediment pond dewatering process (if dewatering is needed) with samples at the start, mid-point, and at end of dewatering, and the method to be used to insure original (or greater) pond volume is restored.

*The applicant has provided the necessary information on p. 7-6, section 7.2.4.3. of the submittal. This stipulation has been adequately addressed.

Comment:

The applicant should submit stage-discharge curve demonstrating the primary spillway is capable of passing the design flow. The assumptions used in the preparation of the curve should also be included and referenced to applicable Plates as needed.

*The applicant has submitted a stage-discharge curve for the sediment pond. Technical analysis of the curve is attached to this memo.

5. Within 30 days of permit issuance, the permitted shall submit to the Division a commitment to inspect the sedimentation pond during construction and submit certified as-built drawings of the structure. These must be conducted by a registered professional engineer.

Comment:

The applicant states this information is found in Appendix 7-C. This section contains a certification statement, however a certified drawing (nor commitment) of the structure has not been submitted.

*The applicant has committed to submitting this information to the Division within 30 days of completion of the construction of the sediment pond. The pond is currently constructed, however the sediment volume is approaching the level required for cleaning. The Division feels that an as-built certified drawing of the pond following the sediment removal would be more useful and applicable to the rules for this situation. The applicant is currently studying alternatives for a waste disposal area. When an area is approved, the applicant will clean the pond. Therefore, drawings of the as-built nature of the pond are not required at this time. The commitment to supply these drawings satisfies the stipulation.

Stipulation UMC 817.47-(1)-RS

1. Within 30 days of permit issuance, the permittee shall submit adequate designs for the energy dissipator for the primary spillway. These designs must be based upon the expected velocity for the discharge from a 10-yr, 24-hr precipitation event.

Comment:

Designs for the energy dissipator were found to be deficient. The following deficiencies are noted:

1. Plate 7-2 depicts a concrete stilling basin and Figure 7-1a proposes a loose rock check dam. The proposal is vague as to the proposed location and type of structure. Cross-section A-A' depicts approximately 20 ft. from the outlet of the primary spillway and the roadside diversion. If the loose rock dam is to be placed to allow for the 15 ft. rock apron, the 30 in. dam will be located less than 5 ft. from the outlet. Is adequate space available onsite for this design? The backwater effect from the dam could cause the spillway to function under outlet flow conditions.
2. The proposal should include information (including calculations and assumptions) for the expected outlet velocity from the primary spillway flowing at maximum capacity. The energy dissipator should be designed using the worst case velocity (i.e. emergency spillway at design flow or primary spillway at maximum capacity).
3. The proposal uses a 30.0 % (3.33 : 1) slope for the calculation of the expected velocity from the emergency spillway. Plate 7-2 depicts the maximum slope as 67.7 % (1 1/2 : 1) and the slope entering the dissipator as 43 % (2.33 : 1). The proposal needs clarification.
4. The proposal should include the proposed size of riprap to be used for the rock apron (including determination information).
5. The proposal should include specific dimensions for the entire structure. These should include: 1) length, width and depth of basin, 2) width of loose rock check dam.

*The applicant has not addressed all of the above items. However, technical analysis of the proposed structure was performed and found to be adequate. It should be noted that the site configuration required the use of several assumptions for the design analysis. Due to the limited space available for the dissipator, standard design practices were impractical. The technical analysis indicated that the structure will perform satisfactory, however adjustment of the design will be required if inspection of the structure indicates improper functioning during flow events. This stipulation has been addressed adequately.

Stipulation UMC 817.49-(1)-RPS

1. Within 30 days of permit issuance, the permittee shall submit to the Division a commitment to conduct the inspection required by subsection (h) of UMC 817.49 and to submit the results of that inspection to the Division within 30 days following completion of construction of the proposed sedimentation pond.

Comment:

The applicant has submitted a commitment to conduct the inspections required under UMC 817.46, however the inspection required by UMC 817.49 (h) has not been submitted (nor committed).

*The applicant has committed to the above. This stipulation has been addressed.

Stipulation UMC 817.56-(1)-RS

1. Within 30 days of permit issuance, the permittee shall commit to renovating the permanent diversion labeled as UD-1 prior to final abandonment of the site. The commitment should include intent to ensure the capacity and stability criteria of the proposed design are adequately met and all necessary structural features are in good repair, functional and constructed as per the approved design.

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Memo to File
ACT/043/008
October 22, 1987

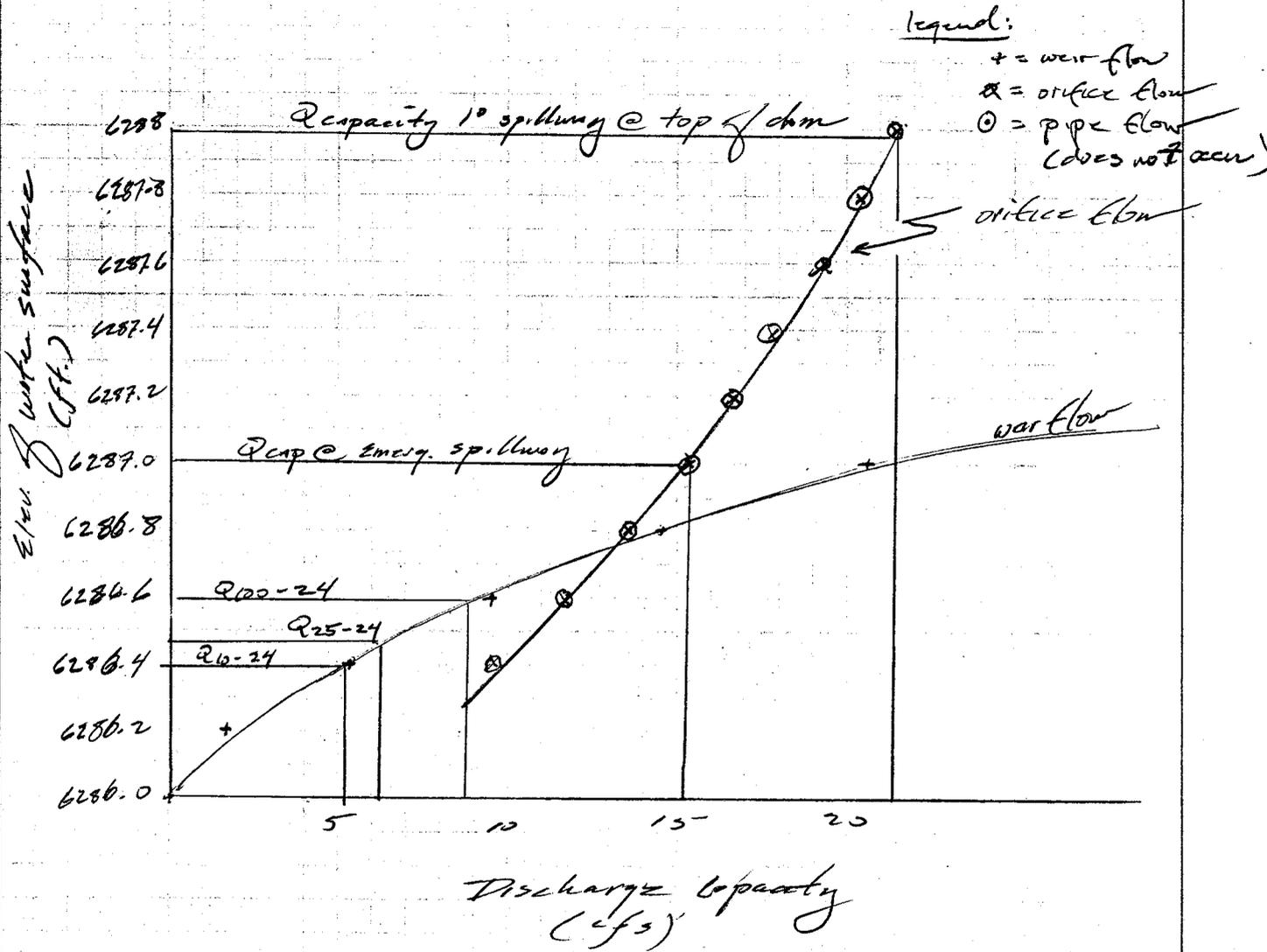
Comment:

The applicant has not committed to renovation of the diversion prior to site abandonment (i.e. following sedimentation pond removal, the applicant must insure the diversion constructed during phase 1 of reclamation is still functional as per approved design). A single paragraph describing the commitment to renovate the diversion to approved design specifications and repair of any diversion degradation which occurred prior to meeting the requirements of UMC 817.46 (u) will be sufficient for this stipulation.

*The applicant has committed to the above items on page 7-4a(1) of section 7.4.2.1. This stipulation has been addressed.

rps
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Stage-Discharge Curve:



conclusions:

- 1) approve. 1st spillway alone is overdesigned
- 2) no need to review emergency spillway, 1st spillway will handle in excess of 100 cfs - 24 hrs.

energy dissipator: figure 7.25, 1st spillway max @ elev. of emerg. crest = 15.1 cfs

assume TW < centerline of pipe (implicit in stage - R 2.6B rule).

use fig. 7.25 - Lapron = 10 minimum, can use 8' p. 7-6d-2 propose 20' approve

$W_{approx} = dia + L_e = 2' + 8' = 10'$ approve

$D_{50} = 0.5'$; $L_{max} = 1.5 D_{50} = 1.5(0.5) = 0.75'$

proposes 12-24 vertical - approve.

II. Results

Elev.	Head (above 1°)	Q _{weir}	Q _{outlet} (cfs)	Q _{TPC}
6286	0	0	0	0
6286.2	0.2	1.89	6.76	28.8
6286.4	0.4	5.23	9.57	29.16
6286.4	0.4	9.64	11.72	29.51
6286.8	0.8	14.88	13.53	29.86
6287.0	1.0	20.84	15.13	30.21
6287.2	1.2	-	16.57	-
6287.4	1.4	34.76	17.90	30.89
6287.6	1.6	-	19.13	-
6287.8	1.8	-	20.29	-
6288.0	2.0	59.89	21.39	21.88

* note: no need to check emergency spillway sizing - 1° will pass 100yr-24hr event (8.77 cfs)
 1° elevation = 6286'
 emergency elev. = 6287'
 top elev. = 6288'

Project: Stage-Discharge Curve, Boyer mine
 Date: 4/18/87

Reviewed: R. Summers, Reclamation Hydrologist

I. Inputs & Assumptions

Input	DOGMA	Boyer	comment
Ht. Riser	8 ft.		
Dia. Riser	2 ft.		not submitted
Co inlet	0.6		
Total head (top of riser to outlet)	9.0 ft		6286' - 6277'
Length Barrel	78'		
Total length of system	86'		scaled from A-A', Plate 7-2
Dia. Barrel	2 ft.		
n-value	0.024		
K _b	0.5		
K _c	1.0		
K _f	3.63		

$K_f = 184.6 \sim 4/0 4/3$

42 381 50 SHEETS 3 SQUARE
 42 382 50 SHEETS 3 SQUARE
 42 383 200 SHEETS 3 SQUARE
 MADE IN U.S.A.

