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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
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May 18, 1989

CERTIFIED RETURN RECEIPT REQUESTED
(P 879 596 394)

Mr. Robert Hagen, Director
Office of Surface Mining
Reclamation and Enforcement
Suite 310 Silver Square
625 Silver Avenue, S. W.
Albuquerque, New Mexico 87102

Dear Mr. Hagen:

Re: TDN X88-02-107-9, TV1, Cyprus-Plateau Mining Company, Starpoint Mine, ACT/007/006, Folder #5, Carbon County, Utah

This letter responds to the above-referenced Ten-Day-Notice (TDN) and documents that the surface water conveyance system diverting all surface drainage from the area above the coal processing waste and from the crest and face of the waste is designed in accordance with 100-year, 6-hour storm event design criteria both in the PAP and in the field at the Starpoint Mine.

The attached technical memorandum documents the field dimensions and calculations necessary to document compliance with rules governing coal processing waste piles.

Sincerely,

Lowell P. Braxton
Associate Director, Mining

TM/djh
Attachment
AT5/34

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May 17, 1989

TO: Richard V. Smith, Permit Supervisor

FROM: Tom Munson, Reclamation Hydrologist <MB for T.M.

RE: Updated 100-Year, 6-Hour Storm Design Criteria for the Coarse Refuse Pile Diversions and Culverts, Cyprus-Plateau Mining Company, Starpoint Mines, ACT/007/006, Folder #2, Carbon County, Utah

Synopsis

On October 3, 1988, the Division received TDN #X-88-02-107-9, TV-1, as a result of a federal oversight inspection. This memo provides the necessary calculations to document that all diversions and culverts are in compliance with 100-year, 6-hour storm design criteria, as well as provides the documentation that the diversions and culverts in the field meet this criteria.

Analysis

A design analysis for diversions was carried out by the Division using the standard "Trap Q" program, assuming the maximum drainage area for all design checks. All culvert capacities were checked against standard charts for "Headwater Depth for Corrugated Steel Pipe Culverts with Inlet Control". They proved to be well in excess of design requirements and the information in the PAP documents the size of culverts and the field headwater dimensions necessary to demonstrate compliance with the 100-year, 6-hour storm criteria.

The following diversions (6B, 7E, 8, 16, 32, 33 and 76) were surveyed in the field using minimum and maximum slope criteria to determine maximum depth of flow and maximum velocity of flow for determining potential implementation of erosion protection and adequate conveyance of peak flows (see attachment).

Ditches 7E and 6B exhibited potentially erosive flows in their steeper reaches. It is the Division's recommendation that no additional erosion protection be implemented in either ditch. Ditch 6B has a steep portion, approximately a 7 percent slope, in the first reaches of this ditch. Due to the steep slope and the routing of the entire drainage area through this portion of Ditch 6B, an erosive velocity was calculated. In reality, this reach of Ditch 6B has only one-quarter of the total drainage area contributing to the flow. As a result, it will be monitored for erosion potential versus implementation of any erosion protection at this time.

A similar scenario exists for Ditch 7E. A new ditch, 7G, replacing ditch 7E is in the process of being constructed, and will convey one-third less drainage than the existing Ditch 7E. This is based on future expansion plans for the refuse pile. Portions of Ditch 7E where there is evidence of erosion will be monitored. The ditch has a shaley hardpan and does not appear to be actively eroding. It is the Division's opinion that any disruption of this hardpan layer would cause more erosion. It is recommended that Ditch 7E be monitored for erosion potential versus any implementation of erosion protection at this time.

All reaches of Ditch 8, 16, 32, 33 and 76 were within the Division's guidelines for erosion protection and conveyance of the 100-year, 6-hour storm. The ditches have adequate freeboard to pass the design storm.

Recommendation

The operator meets the requirements of the regulations regarding diversion of surface water from the area above the coal processing waste and from the crest and face of the waste in accordance with the 100-year, 6-hour design storm criteria. The operator must now include the calculations found in the attachment on the appropriate table on Map 42.

Ditch 7E and 6B will be checked during each complete inspection for any accelerated erosion in the upper reach of Ditch 6B and lower reach of Ditch 7E. Protection of these areas will be recommended if accelerated erosion is documented.

djh
Attachment
AT5/32-33

Plateau Mining Ditch Field Data

DITCH NUMBER	SLOPE FT./FT.	DITCH DEPTH FT.	BOTTOM WIDTH FT.	SIDESLOPE RIGHT BANK FT./FT.	SIDESLOPE LEFT BANK FT./FT.	AVERAGE SIDESLOPE FT./FT.	MANNING'S n	CURVE NUMBER	PEAK FLOW cfs	CALCULATED DEPTH FT.	CALCULATED VELOCITY FT./S
6B											
MIN SLOPE	0.02	0.66	0.1	1.6:1	16.5:1	9.1:1	0.032	70	23.08	0.83	3.7
MAX SLOPE	0.07	0.66	0.1	1.8:1	6.3:1	4:1	0.032	70	23.08	0.89	7.1
7E											
MIN SLOPE	0.04		1.9	1:1	3:1	1.5:1	0.032	70	16.43	0.67	5.5
MAX SLOPE	0.06	5.0	2.3	1:2	0.5:1	0.75:1	0.032	70	16.43	0.68	6.1
16A											
MIN SLOPE											
MAX SLOPE							0.032	70			
16B											
MIN SLOPE											
MAX SLOPE	0.12	2.0	0.1	1.8:1	6.25:1	4:1	0.032	70	2.2	0.33	4.8
16D											
MIN SLOPE											
MAX SLOPE							0.032	70			
16E											
MIN SLOPE											
MAX SLOPE	0.12						0.032	70			
16F											
MIN SLOPE											
MAX SLOPE							0.032	70			
8											
MIN SLOPE	0.08										
MAX SLOPE	0.12	2.6	0.1	9:1	1.5:1	5.25:1	0.032	70	1.97	0.28	4.4
76											
MIN SLOPE								75	3.80	0.34	5.0
MAX SLOPE	0.12	2.6	0.1	11.7:1	0.75:1	6.2:1	0.032	70	2.29	0.28	4.4
33											
MIN SLOPE								75	0.27	0.11	1.9
MAX SLOPE	0.06	0.6	0.6	12.1:1	1.2:1	6.7:1	0.032	70	0.17	0.09	1.7
32											
MIN SLOPE								75	0.31	0.12	2.9
MAX SLOPE	0.1	0.6	0.6	4.4:1	0.67:1	2.5:1	0.032	70	0.19	0.09	2.5