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CYPRUS-PLATEAU MINING CORP.
An Affiliate of Cyprus Coal Company
P.O. Drawer PMC Price, Utah 84501
Telephone (801) 637-2875

September 21, 1987

Mr. Lowell Braxton
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: Sediment Pond No. 9

Dear Mr. ~~Braxton~~: LOWELL

Enclosed, please find a set of plans and calculations for a new sediment pond for Cyprus-Plateau Mining Corporation. We request an expedited review of this pond to allow construction before weather conditions prevent completion.

A representative from our hydrologic consultant, Hansen, Allen and Luce, and I met with John Whitehead and Tom Munson on September 11 to discuss the pond.

The new pond will essentially take the place of Sediment Pond No. 5, and will collect drainage from the west. Pond 5 will still collect runoff from a portion of the refuse pile and it will not be modified; therefore, it will be greatly oversized for its drainage area.

Construction of the new Pond No. 9 will allow us to utilize the center portion of the refuse pile for refuse disposal, therefore maximizing the disposal area. During the past few winters, we have had much difficulty operating on the wet pile during low evaporation winter conditions. With this new pond, expansion of the pile toward the west can be delayed, thus delaying disturbance of soils and vegetation.

The new pond would have been necessary in any event, when Phase II of the Refuse Pile Plan was completed. By constructing the pond now, we believe a more efficient job of refuse disposal can be accomplished.

During our September 11 meeting with John and Tom, we indicated our preference to modify the permit to include the new pond and drainage plan changes associated with the pond in our responses to the permit renewal stipulations UMC 817.43-(1)-(TM) and UMC 817.45-.47-(3)-(TM); John and Tom verbally agreed to this proposal.

We appreciate you and your staff and their willingness to expedite matters such as these in the past and hope this does not create a great inconvenience for you. It is important for an operation such as ours to have this kind of cooperation.

If you need additional copies, please give me a call.

Respectfully,

Ben Grimes
Sr. Environmental Engineer

BG:sd

Enclosure

File: ENV 2-5-2-16-8-4
Chrono: BG870903

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE inc
6771 SOUTH 900 EAST
MIDVALE, UTAH 84047
(801) 566-5599

September 17, 1987

Mr. Ben Grimes
Plateau Mining Company
P.O. Drawer PMC
Price, Utah 84501

Re: Sediment Pond 9 Design Calculations

Dear Ben:

Presented herein is a design summary and accompanying calculations for Sediment Pond 9, which is to be constructed to allow Cyprus Plateau Mining Corporation to begin filling between the Phase I and Phase II areas of the coal refuse pile. The tributary area to Sediment Pond 9 will comprise the majority of the tributary area to the existing Sediment Pond 5. Therefore Sediment Pond 9 will drastically reduce the required capacity of Sediment Pond 5. A summary of the design and results from the calculations are presented below, and the design calculations are appended hereto for submittal to the Division of Oil, Gas, and Mining for their review.

Pond Storage Capacity Requirements

Sediment Pond 9 has been designed to provide sufficient storage to accommodate an estimated 3-year accumulated sediment yield plus sufficient runoff volume to totally contain the runoff volume from a 10-year 24-hour precipitation event. The tributary area assumed in the design for Sediment Pond 9 is the total area that will ultimately be tributary to the pond upon completion of the construction of the coal refuse pile. At the present time a significant portion of the coal refuse pile area will not be tributary to the pond, but will continue to be tributary to Sediment Pond 5 until the area between the Phase I and Phase II areas of the refuse pile are filled in, thereby reversing the present direction for surface water drainage in the area of the refuse pile.

Sediment yield to Sediment Pond 9 was estimated using the Universal Soil Loss Equation. Since the majority of the area that was tributary to Sediment Pond 5 will become tributary to Sediment Pond 9 after construction of Pond 9, factors previously estimated for the derivation of sediment yield to Sediment Pond 5

were used to estimate the sediment yield to Sediment Pond 9. The estimated 3-year sediment yield to Sediment Pond 9 is 1.98 acre feet.

The runoff volume from the 10-year 24-hour precipitation event was estimated by use of the U.S. Soil Conservation Service curve number methodology. The required runoff storage volume in Sediment Pond 9 to provide sufficient storage to totally contain the estimated runoff from the 10-year 24-hour precipitation event, in addition to the three-year sediment storage volume, is 4.45 acre feet.

Spillways

Sediment Pond 9 has been designed to have both a primary and emergency spillway, with the crest of the emergency spillway set 1 foot higher than the crest of the primary spillway. As indicated on the plans, both spillways are pipe drop inlet type spillways consisting of a 36-inch diameter CMP standpipe, connected to a 36-inch CMP outlet pipe. The outlet pipe will discharge into the existing 60-inch diameter CMP culvert which receives runoff from the undisturbed areas west of the coal stacking and transfer area located north of Sediment Pond 9.

The spillways were designed such that the combined capacity of the primary and emergency spillways would allow passage of the routed hydrograph through the pond from the 25-year 24-hour precipitation event. Both inflow hydrograph prediction and routing of the inflow hydrograph through the pond were accomplished by use of the Army Corps of Engineers HEC1 computer model, using the Soil Conservation Service unit hydrograph curve number methodology option of the model. The inflow hydrograph was routed through the pond assuming that the pond was full to the crest of the primary spillway. By routing the inflow hydrograph through the pond, the hydrograph peak was reduced from the peak inflow of 52 cfs to a peak outflow of 40 cfs, the flowrate used in the design of the primary and emergency spillways.

The outflow hydrograph from the sediment pond was combined with the hydrograph through the 60-inch diameter culvert (into which the outflow from the pond will be discharged) to check the capacity of the 60-inch pipe with the added flow from the pond. The critical section of the 60-inch pipe is downstream from the discharge point from the pond where the 60-inch pipe changes from a full-round pipe to a half-round pipe. It was determined that the 60-inch half-round pipe could carry the combined peak (145 cfs) from the pond and the area tributary to the 60-inch pipe with 0.5 feet of freeboard.

Sediment Pond Efficiency

Dewatering of the runoff storage volume from the sediment pond will be accomplished using a self dewatering small diameter trickle type device, consisting of a 3-inch diameter orifice placed at the top of the sediment storage volume. The efficiency of the pond in removing inflowing sediments was estimated using the SEDIMOT II computer model, which is the IBM PC version of the DEPOSITS model developed by the Agriculture Engineering Department at the University of Kentucky for determining detention performance of sediments in trap structures. Results from the SEDIMOT II model are attached as part of the calculations for the design of the sediment pond. As indicated on the attached printout, the estimated peak effluent settleable concentration of suspended sediments using the 3-inch diameter orifice (set at the top of the sediment storage volume) was only .03 mg/l.

Diversion Ditches

Diversion Ditch 7E, which is presently tributary to sediment Pond 5, will be rerouted to Sediment Pond 9. The new rerouted section of this ditch has been designed to handle the peak flowrate from the runoff hydrograph of the 10-year 24-hour precipitation event.

As illustrated on the plans, due to the steep terrain much of this rerouted segment of the ditch will require some form of channel lining. The uppermost segment of the ditch which is too steep to be lined with a reasonable size of rock riprap will be lined with a 24-inch diameter pipe. Other segments of the ditch in which slopes are somewhat flatter and in which flow velocities are in excess of 5 fps will be lined with rock riprap. Two separate methodologies were compared in sizing the rock riprap linings for the channel. The first methodology was that presented in the OSM design manual for steep channels entitled, "Surface Mining Water Diversion Design Manual." The second methodology uses " Shields Criteria" as presented in "Sediment Transport Technology" by Simons and Senturk. The second methodology provided the more conservative design which we also felt to be more applicable. Lining requirements and typical channel cross-sections and rock gradations are presented in the plans and specifications for construction of the pond.

If you have questions regarding the information presented herein, please call.

Sincerely,

Marvin E. Allen

Marvin E. Allen, P.E.
Executive Vice President