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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

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DIVISION OF
OIL, GAS & MINING

August 22, 1988

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

Re: **Certification of Sediment Pond 9**

Dear Mr. Hedberg:

Enclosed please find a copy of the Engineer's Certification for Sediment Pond 9.

Respectfully,

Ben Grimes
Sr. Environmental Engineer

BG:sd

Enclosure

File: ENV 2-5-2-16-8 Certifications
Chrono: BG880805

August 17, 1988

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

CONSULTANTS/ENGINEERS

**HANSEN
ALLEN
& LUCE INC**

6771 SOUTH 900 EAST
MIDVALE, UTAH 84047
(801) 566-5599

RE: Construction Certification - Sediment Pond 9

Dear Ben:

The purpose of this letter is to certify the completion of Sediment Pond 9 and that the pond has been constructed generally in accordance with accepted engineering standards. Construction monitoring was verified by an on-site inspector provided by Chen and Associates who monitored the construction of the pond in accordance with the plans and specifications and who also conducted the required soils testing on the project. Hansen, Allen, and Luce, Inc. provided periodic site inspections and maintained close contact with the on-site inspector to provide clarifications with regard to the plans and specifications.

Modifications to the design and or specifications which occurred during the construction of the pond include the following:

1. One and one-half feet instead of two feet of clay liner were placed on the south and northeast slopes of the pond. There was an apparent mix-up in communication between the surveyor (Bruce Ware), Cyprus Plateau, HA&L, and Chen and Associates and as a result a documented survey of the subgrade of the clay liner was not completed prior to clay liner placement on these inside side slopes of the pond. The depth of clay was measured on these inside slopes by test pits and through observation of the inspector during placement of the clay liner. Test pits dug on the south side slope of the pond indicated that less than two feet and in some cases toward the eastern end of the south slope of the pond less than one foot of clay liner was found. Thus additional clay liner was placed on the south side such that the thickness of clay liner was at least one and one-half feet.
2. The additional clay liner placed along the south inside slope of the pond (to provide a one and one-half foot thick clay liner) encroached on the required volume of the pond. In order to compensate for the reduction in volume of the pond due to clay liner placement, an additional cut was made along the west inside slope of the pond to increase the pond volume to meet the design capacity of 6.52 acre feet up to the invert of the primary spillway. A survey and volumetric computation prepared by Bruce Ware (the surveyor on the project) indicated

the final volume of the pond after the additional excavation to be 6.64 acre feet.

3. No clay liner was placed on the west side slopes of the pond since native clayey soils were found to exist.
4. As directed by Cyprus Plateau, the outer slope of the embankment constructed to form an inlet basin to the 24-inch CMP culvert, which diverts or reroutes the flows of Ditch 7E, was left steeper than the designed 2H:1V slope and compaction testing was not conducted on this fill material. However, the top of this basin was left 10 to 12 feet wide rather than the designed four-foot width. This steep slope will create some ongoing maintenance problems for Cyprus Plateau and thus should be monitored.
5. Grates were installed at the inlet of the 24-inch culvert referenced above, as well as approximately 20 feet upstream from the inlet to the culvert.
6. Slopes along portions of the channel that diverts Ditch 7E into Pond 9 were modified. The contractor missed the upstream culvert invert elevation of the 30-inch culvert by 2 feet 10 inches which modified the slope of this culvert between stations 2+33.58 and 2+88.58 from 21.95% to 16.8%. To correct for this error, the culvert was extended an additional 20 feet to station 3+08.58 on a 21.8% slope. The slope of the channel between stations 3+08.58 and 3+69.7 was reduced from 6.5% to 6.0%. To better fit the topography as encountered in the field, the slope of the 24-inch culvert was modified so that the first 20-foot section of the culvert moving from the downstream end toward the upstream end was placed on a 2% slope. The remainder of the culvert was placed on a 41% slope. None of these changes will significantly modify the hydraulics or erosion control calculations for this channel.
7. The slope of the 18-inch culvert in Ditch 74B was modified from 3% to 2.3% and corresponding invert elevations were modified for the entire length of this ditch. The slope of 0.5% was maintained along the ditch.
8. The area around the junction manhole was backfilled, however, as requested by Cyprus Plateau no compaction testing was required.
9. As was indicated in our November 23, 1988 letter to you, the contractor was unable to continue working on the project due to the wintry weather conditions which prevented him from achieving 95% compaction on the soils. In order to allow him to continue working to complete the project as you requested,

Ben Grimes
August 17, 1988
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it was determined after discussions with the geotechnical consultant, Chen and Associates, that a 90% compaction would be acceptable for backfill soils. Thus, the compaction specification for backfill in the trenches and for a small portion of the embankment of the pond was modified to 90% instead of 95%. Ninety percent was accepted for the small portion of the embankment because this portion of the embankment will become simply a portion of the refuse pile and in essence as the refuse pile is constructed there will be no embankment to the pond any longer. Thus achieving a compaction of 90% is compatible with the construction procedures for the coal refuse materials into which some of the remainder of the pond is excavated.

10. The strength of some of the concrete used was somewhat less than the 4550 psi strength concrete specified. However, since the minimum strength tested was nearly 4000 psi and since none of the concrete used in this project was to provide major structural support, 4000 psi was accepted as an acceptable strength for the concrete.

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

Sincerely,



Marvin E. Allen, P.E.
President