Dames & Moore

1626 Cole Boulevard
Golden, Colorado 80401
(303) 232-6262
TELEX: 3720401 Cable Address: DAMEMORE

40-8859

November 19, 1984
Our Ref: 08987-003-14

AVI, p.c.
1700 Westland Road
Cheyenne, WY 82001

Attention: Mr. Jim Voeller, P.E.

Re: Flood Routing Study for AML Project 7, Part III, Contract No. 1

Gentlemen:

Dames & Moore has completed an analysis of a probable maximum precipitation event falling on the reclaimed processing facility near Baggs, Wyoming. This analysis was performed to evaluate the long-term stability aspects of the uranium mill by-product disposal area in accordance with NRC guidelines.

The drainage basin upstream of the disposal site covers approximately 2.3 square miles. A maximum precipitation event of 45.3 inches generates a peak flow of 10,592 cubic feet per second. The stream water level, under these conditions, is elevated to about 6295 feet. Plate 1 illustrates the location of three critical cross-sections near the by-product disposal site. The maximum flow velocity developed at this location is 8.44 feet per second at the center of the channel. The corresponding bank velocity is 4.27 feet per second along the reclaimed slope.

The conclusion from this analysis is that riprap is necessary in order to prevent erosion of the reclaimed slope. The riprap size should be suitable to prevent erosion with a design stream velocity of about 6.75 feet per second which is 80 percent of the maximum flow. This may be achieved with a nominal 7-inch size riprap according to U.S. Army Corps of Engineers method. This general size range was also verified by your staff using Wyoming Highway Department methods for riprap sizing. This size material is necessary only along the slope up to an elevation of 6300 feet.

An optimal design for the by-product disposal area has been developed to minimize the quantity of riprap and associated costs. The long-term stability requirements for the disposal area can be met if the slope is steepened to 5:1, and as a result, the area requiring riprap is minimized. It was not felt necessary to perform another flood routing study for a 5:1 slope, since the 10:1 analysis would provide a sufficiently conservative design. The 5:1 slope would lower the water level slightly and probably also decrease the flow velocities.

Due to the steepening of the slope, above an elevation of 6300 feet, a nominal 2-inch size riprap will be necessary for gully erosion protection. The final designs will also call for the placement of topsoil cover and vegetation establishment over the riprap to further enhance the stability and visual impact.

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The details of our analyses were presented to Gary Konwinski of the NRC on November 16th and generally met with his approval. A letter from the NRC should be forthcoming.

This completes the analyses required for Construction Contract #1, and should complete the comments for final design. If there are any further questions regarding this aspect of the project, please do not hesitate to call.

Sincerely,

DAMES & MOORE

Mary L. Pearson

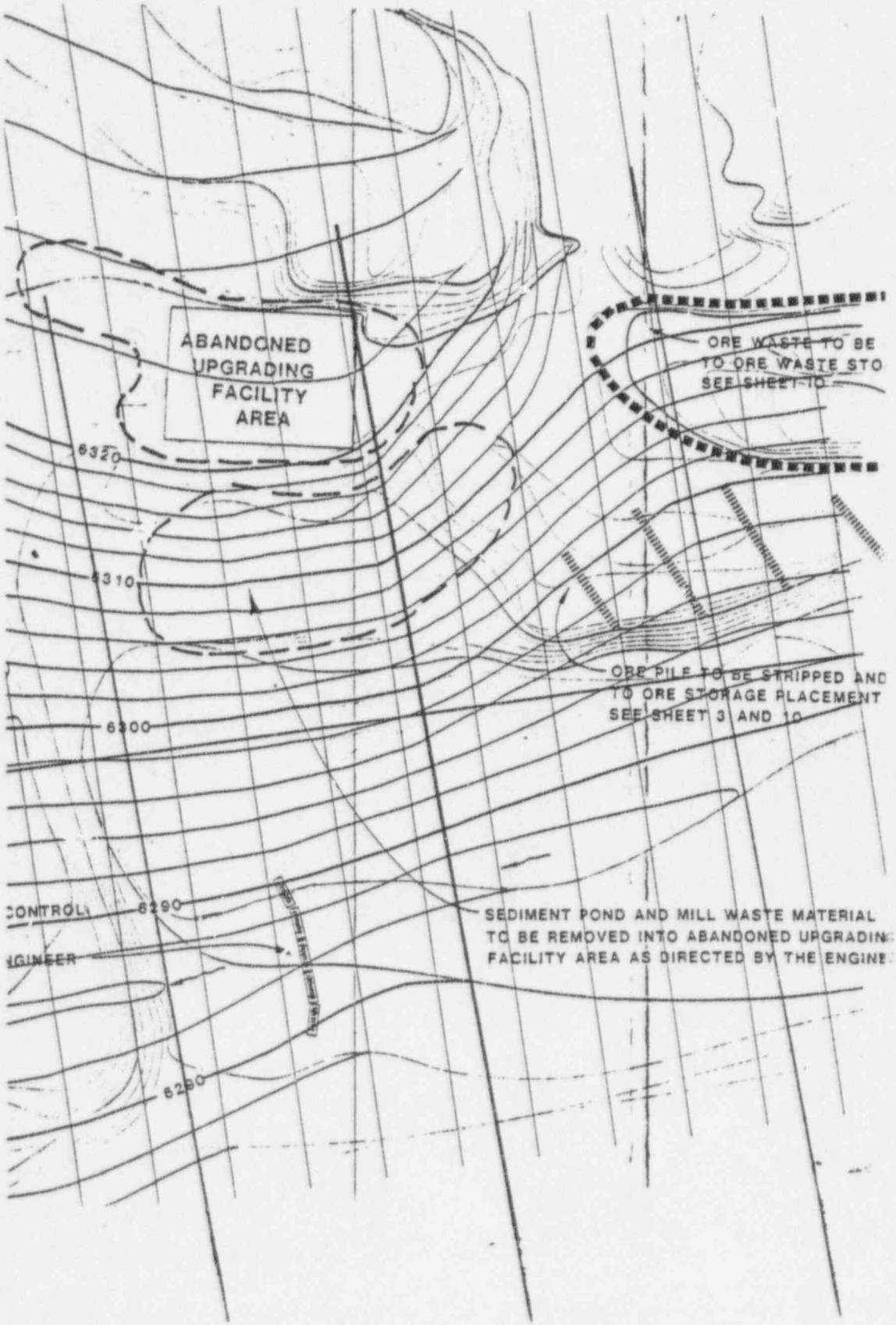
Mary L. Pearson
Project Manager

Gordon M. Matheson by MP

Gordon M. Matheson, P.E.
Senior Engineer

MLP:GMM:sj

cc: Mr. Gary Beach, WDEQ
Mr. John Giedt, EPA
Mr. Gary Konwinski, NRC
Mr. Doug Beahm, AGIP Mining Co.



FLOOD ROUTING STUDY - CRITICAL CROSS SECTIONS

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PLATE 1