

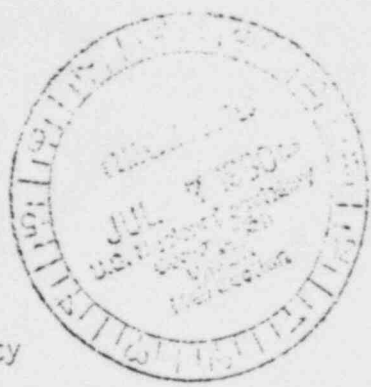
PDR

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July 1, 1980



Mr. Dan Gillen
Uranium Mill Licensing Section
Division of Fuel Cycle & Material Safety
7915 Eastern Avenue
Silver Springs, MD 20906

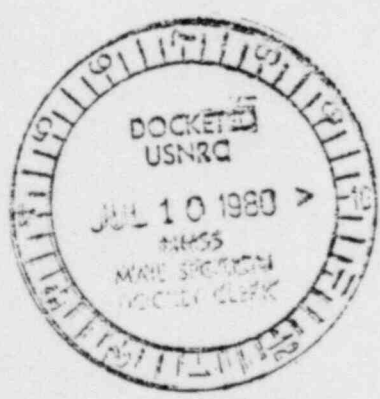
Dear Dan:

Enclosed please find one copy of the FAP Uranium Mill Sub-surface Tailings Disposal Study, Dames & Moore Proposal as per your request.

Yours truly,

G. W. Pierson
Director of Technical Services

/sb
Encl.



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KAISER
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KAISER ENGINEERS, INC.
300 LAKESIDE DRIVE
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PARTNERS

May 28, 1980

KE Job No. 79159-003

Mr. K. H. Wright
FEDERAL-AMERICAN PARTNERS
Gas Hills Star Route
Riverton, Wyoming 82501

Subject: FAP Uranium Mill
Subsurface Tailings Disposal
Study
Dames & Moore Proposal

Dear Ken:

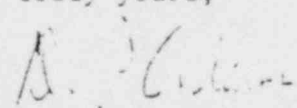
Enclosed is our Recommendation for Purchase of Geotechnical Work for Ground Water Impacts, along with one copy of Dames & Moore Proposal dated March 3, 1980 and Addendum dated May 23, 1980.

We have reviewed the proposal and find that it adequately describes the required work to be performed for our Subsurface Tailings Disposal Study.

If you agree with our Recommendation, please sign and return the Recommendation for Purchase.

Let us know if you have any comments or questions.

Very truly yours,


D. P. Adams
Project Manager

DPA/vjt

enc.

File: chron

E. R.

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P.O. 002 w/att. (2)



DAVIES & BRODOME

CONSULTANTS IN THE ENVIRONMENTAL AND APPLIED EARTH SCIENCES

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SUITE 200, 250 EAST BROADWAY - SALT LAKE CITY, UTAH 84111 - 801-359-5764
CABLE: DAVEMORE TWX: 910-923-5602

May 23, 1980

Kaiser Engineers
Kaiser Center - 300 Lakeside Drive
P. O. Box 23210
Oakland, California

Attention: Mr. Dana Adams

Gentlemen:

Addendum to Proposal
Evaluation of Ground Water Impacts
Proposed Subsurface Disposal Project
West Gas Hills, Wyoming
For Federal American Partners

INTRODUCTION

This letter transmits additions to our proposal for evaluation of ground water impacts from proposed subsurface tailings disposal, dated March 3, 1980. These proposed additions were requested by Messrs. Michael Jones and Dana Adams of Kaiser Engineers and are for the purpose of evaluating seepage and ground water impacts resulting from operation of an evaporation pond in conjunction with subgrade tailings disposal. The analyses will evaluate the evaporation pond in combination with the three conditions of pit liners discussed in your report.

We understand that "Tailings Pond #1" is proposed for the evaporation pond. This area is located northwest of the main (#2) tailings pond and contains a small amount of tailings. The area was lined with slimes last year and presently contains liquid. Five dewatering wells return seepage to the

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pond. We understand that geotechnical investigations have been made and ground water monitor wells have been installed around ponds #1 and #2. No enlargement of the evaporation pond is planned; however, this is uncertain since final plant flow sheets and water balances have not yet been made.

ADDITIONS TO SCOPE

The following five additional tasks to our original work plan are proposed:

1. Evaluate Existing Evaporation Pond Data

A detailed review and evaluation of geologic, geotechnical and ground water information on the evaporation pond will be made. This review will reveal whether additional field studies are needed and will provide valuable information for input parameters to the model.

2. Additional Field

We understand geotechnical investigations have been made of the evaporation pond area. We have assumed, however, that one additional deep boring will be required at the area to obtain additional soil samples and to evaluate ground water conditions. The boring will be cased and completed as a monitoring well and will be pump tested. A small diameter observation well will also be drilled near the boring so that good values of permeability, transmissivity, and storage coefficients may be obtained.

In addition, we will test pump three of the existing dewatering wells to obtain data on aquifer permeability. Hand sampling of the tailings, slimes, liner and other materials will also be done.

3. Additional Laboratory Testing

Samples obtained during this part of the program will be tested to obtain data for input to the model. These tests will include saturated-unsaturated permeability, porosity, density, moisture content, and geochemical tests.

If detailed review of the existing information indicates that a reduction in scope of the field and laboratory work is justified, this work plan would be modified.

4. Additional Modelling Effort

Additional modelling effort will be required for calibration and for modelling details of seepage from the evaporation area. Existing hydrodynamic and ground water quality conditions in the evaporation pond vicinity together with available information on past disposal practices will be used to calibrate both flow and geochemical parameters in the model. The level of detail of modelling in the evaporation pond will be increased to allow time-dependent prediction of the movement of contaminants under the proposed pond operation modes, as discussed for the pit tailings disposal in our previous proposal. We will also evaluate the three pit lining systems proposed in combination with the evaporation pond.

5. Report Preparation

This work would be included as an integral part of our final report.

ESTIMATED COSTS

The fee for our work on this addendum will be on a time and expense basis as described in our original proposal. The following additional costs for the scope outlined above are anticipated:

1. Review Additional Data	\$ 1,000
2. Field Work	12,000
3. Laboratory Testing	5,000
4. Modelling and Engineering Analyses	18,000
5. Report Preparation	<u>2,000</u>
Total -	\$38,000

Thus, total costs for the project are now estimated at \$183,000.

SCHEDULE

The additional work scoped out is anticipated to extend the schedule shown in our previous proposal by three to four weeks.

INFORMATION TO BE PROVIDED BY CLIENT

Our work plan requires that we obtain past geotechnical reports and water quality data for the evaporation and tailings ponds. We expect that selected drill hole and borehole geophysical data available from Federal American Partners will also be needed. As complete information as possible on past operation of the evaporation pond will also be helpful. Details on the proposed evaporation pond size, construction and operation will also be needed before final modelling runs are made.

oOo

DAMES & MOORE

Kaiser Engineers

-5-

May 23, 1980

We appreciate the opportunity to prepare this proposal addendum for your consideration. Please contact us if you have any questions.

Yours very truly,

DAMES & MOORE



L. T. Murdock
Associate

LTM/GWC:si