



ALBUQUERQUE OFFICE

Alan D. Cox  
Manager - Grants & Southwest U.S

3 December 2002

Mr. Jeff Sanders  
State of New Mexico  
Ground Water Pollution Prevention Section  
Environmental Department  
P.O. Box 26110  
Santa Fe, New Mexico 87502

40-8903

Re: **Grants Reclamation Project - Discharge Plan (DP-725)**  
Engineer Inspection Reports of Liner Repair for Evaporation Pond #1

Dear Mr. Sanders:

In our letter dated May 31, 2002 we notified your office regarding our identification of some pond liner tears along the upper margins of evaporation pond #1, particularly on the east dike flank. A liner contractor was engaged to complete required repairs to the liner on Pond #1 and also some spot liner repairs along the upper margins of the East and West Collection Ponds. The attached engineering inspection letters from Kleinfelder provide a review of the completed liner repair work.

We have implemented a couple of changes to hopefully prevent future problems with liner tearing associated with wind wave action on Pond #1. The main water delivery system pipe located on the east flank of the pond has been raised to a higher level inside the pond such that wind waves will not contact the pipe under normal working pool pond elevations and allow unimpeded wave roll-out on the liner surface. Additionally, a floating pipe system was installed on the eastern portion of the pond to assist in surface wave dissipation. These changes should assist in assuring that future liner damage due to wind waves are minimized in the future.

Thank you for your time and attention on this matter; if you or members of your staff have questions or comments, please contact me in our Albuquerque office.

Sincerely yours,

HOMESTAKE MINING COMPANY  
Alan D. Cox

\ Enclosures

Cc: B. Landin- NMED, Santa Fe  
E. Brummett - NRC, Rockville  
B. Ingersoll, SLC  
G. Gleadle, Grants  
G. Hoffman, Hydro-Engineering, Casper

NM 5501



Sept. 23, 2002  
Project No. 16977

Mr. Al Cox  
Homestake Mining Company of California  
P.O. Box 98  
Grants, NM 87020

**SUBJECT: REPORT OF ENGINEERING EVALUATION OF LINER REPAIR  
EAST DIKE OF EVAPORATION POND #1  
HOMESTAKE GRANTS PROJECT  
GRANTS, NEW MEXICO**

Dear Mr. Cox:

This report addresses our engineering evaluation of the repair of the liner on the east dike of evaporation pond #1 at the Homestake Grants Project located at Grants, New Mexico. The repair work, performed by others under contract to Homestake, implemented measures recommended by Kleinfelder in our letter of May 29, 2002.

On May 24, 2002 Dr. Alan Kuhn of Kleinfelder, Inc. accompanied you on a site visit to the Homestake Grants Project to examine and discuss problems with the liner and east dike of Evaporation Pond #1 (EP1). At that time Dr. Kuhn described to you his observations of the problems and some measures that could be taken to address them. Kleinfelder's letter of May 29, 2002 described repairs that, if implemented properly, would restore the liner to serviceable condition. Subsequent to the Kleinfelder letter of May 29, 2002 those repairs were performed, and on July 3, 2002 Dr. Kuhn made a visual inspection of the repair work completed to that date. The following documents Dr. Kuhn's visual inspection and findings regarding the repair work on the pond liner.

#### **OBSERVATIONS**

The repair measures recommended in our letter of May 29, 2002 appear to have implemented. Specifically:

- The liner was opened for the length of the east dike along the split in the liner and was folded back to fully expose the eroded bench.
- Crusher fines from the basalt quarry west of the large impoundment were placed in the eroded bench, restoring the dike inslope to its original elevations and grade.
- The split liner was laid back in place over the repaired slope.

- The liner was mended with a mesh overlay applied over the liner fabric, then the patch was sealed to the liner along all the repaired length with Derry Oil #6 asphaltic emulsion or a compatible sealing material.
- At the time of our inspection some of the mesh overlay was still visible in a few locations where the emulsion was relatively thin. Although these locations do not constitute defects per se, with time they are likely to be points of potential weakness. Therefore, Dr. Kuhn recommended that another application of emulsion be applied wherever the mesh remained visible.

The repairs described above should correct the leakage problem through the liner and consequent damage to the dike inslope at the repaired locations. However, subsequent leaks at other locations in the pond could destabilize susceptible soils, leading to problems similar to those addressed here.

To reduce the chances of a similar split developing again in this liner, the HDPE water pipe located on the dike inslope should be kept above the run-up elevation of waves on the dike. A wave dissipater, consisting of a floating large-diameter pipe or other linear, slightly flexible barrier anchored in the pond a few feet from the inslope, would help in reducing the height and energy of waves impacting the east inslope.

#### LIMITATIONS

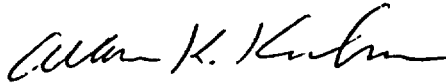
The recommendations contained in this report are based on our field visit and our understanding of the repair activities that were performed in our absence. If any conditions are encountered at this site which are significantly different from those described in this report, Kleinfelder should be immediately notified so that we may make any necessary revisions to findings or recommendations contained in this report. In addition, if the condition of the liner or repairs changes from that described in this report, our firm should also be notified.

This report was prepared in accordance with generally accepted standards of practice at the time the report was written. No warranty, express or implied, is made. It is the Client's responsibility to see that all parties to the project including the repair contractor or subcontractors are made aware of this report in its entirety. The information contained in this report should be used at the Owner's and Contractor's option and risk.

We appreciate the opportunity to work with you on this project. If you have any questions or need additional information, please contact this office.

Respectfully submitted,

**KLEINFELDER, INC.**



Alan K. Kuhn, Ph.D., P.E., R.P.G.  
Senior Consultant



AK:as

ABO  
office  
files



November 26, 2002  
Project No. 16977

Mr. Al Cox  
Homestake Mining Company of California  
P.O. Box 98  
Grants, NM 87020

**SUBJECT: — REPORT OF INSPECTION OF TAILING PILES AND PONDS —  
HOMESTAKE GRANTS PROJECT  
GRANTS, NEW MEXICO**

Dear Mr. Cox:

In accordance with your verbal request of November 19, 2002, the undersigned performed a visual inspection of the tailing piles and evaporation ponds at the Homestake Grants Project located at Grants, New Mexico. This report addresses the observations and findings of the requested inspection, which was performed on November 22, 2002.

On this date, Dr. Alan Kuhn of Kleinfelder, Inc. performed a visual inspection of the tops and outslopes of both tailing impoundments and of the dike, slopes, and liners of both evaporation ponds. The weather was clear, calm, and temperatures were near freezing.

**OBSERVATIONS**

The tailing impoundment slopes appear to be stable and free of any visible signs of mass movement. The outslopes of the small pile, which are not yet covered with riprap, are slightly rilled. However, the rills are shallow (a few inches at most) and appear to have been bladed occasionally to prevent them from entrenching. Impoundment top surfaces are also slightly rilled. All rilled surfaces on the impoundments will be regarded, then covered with a filter layer and riprap as part of their final closures. Therefore, only routine maintenance is needed to identify and fill in any rills that might deepen due to concentrated runoff. The outslopes of the large impoundment are covered with final riprap; these slopes and the riprap cover are in good condition.

Based on information related to recent settlement point surveys, made available by Homestake, settlement on the large impoundment continues. The largest settlement over the last year, 0.31 feet, shows that dewatering and consolidation of the slimes is still progressing at a rate substantial enough that additional settlement of the top of the impoundment can be expected. This consolidation and the resulting settlement have been ongoing for at least eight years and are normal and desirable processes that gradually increase the overall stability of the impoundment. Factors of safety for both impoundments are higher than the values used (>1.5 and >1.0 for static and pseudostatic loading, respectively) for reclaimed slope design.

The evaporation ponds appear to be in good condition. No liner breaks or other defects were observed. No evaporation spray equipment was operating at the time of this inspection; however, the pipes and other visible components of the evaporation spray systems appeared to be in good repair.

#### CONCLUSIONS

The foregoing observations indicate that the tailing impoundments (piles) and the evaporation ponds are in good condition and are being maintained within the operating limits of the NRC license and the respective facility designs. No correctives actions are required.

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#### LIMITATIONS

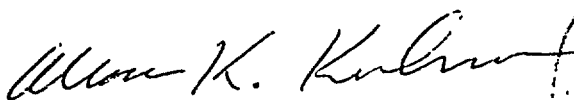
The recommendations contained in this report are based on Dr. Kuhn's field visit and his understanding of the inspected facilities. If any conditions are encountered at this site which are significantly different than those described in this report, Kleinfelder should be immediately notified so that we may make any necessary revisions to findings or recommendations contained in this report.

This report was prepared in accordance with generally accepted standards of practice at the time the report was written. No warranty, express or implied, is made. It is the Client's responsibility to see that all parties to the project are made aware of this report in its entirety. The information contained in this report should be used at the Owner's and Contractor's option and risk.

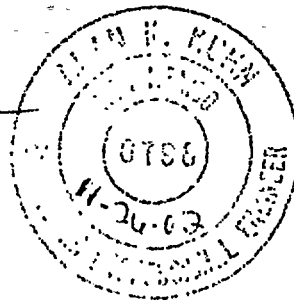
We appreciate the opportunity to work with you on this project. If you have any questions or need additional information, please contact this office.

Respectfully submitted,

**KLEINFELDER, INC.**



Alan K. Kuhn, Ph.D., P.E., R.P.G.  
Senior Consultant



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