Homestake Mining Company of California
Grants Reclamation Project
P.O. Box 98
Grants, New Mexico 87020

40-8903

Kurt Vollbrecht
Manager, Mining Environmental Compliance Section
Groundwater Quality Bureau
Water Protection Division
New Mexico Environment Department
1190 St. Francis Drive
P.O. Box 5469
Santa Fe, New Mexico 87502-5469

Re: Homestake Mining Company – Grants Reclamation Site
Evaporation Pond Investigations

Dear Mr. Vollbrecht:

As a follow-up to our recent Homestake/Regulatory Agency call, I am writing to advise that Homestake intends to conduct a technical review of the condition of the liner in Evaporation Pond 1 ("EP-1") to assess any potential for leakage and the pond's continued integrity, as well as the interstitial pumping installation and operation for Evaporation Pond 2 ("EP-2") and Evaporation Pond 3 ("EP-3") at the Grants Site.

As reported to the New Mexico Office of State Engineer (see Attachment), Alan Kuhn, the Engineer of Record (EoR) for the Homestake Grants Reclamation Site, has identified that the liner in the southeast corner of EP-1 has slumped forming a step or bench about 1.0 to 1.5 feet high, approximately 3 to 4 feet below the crest of the slope. This slump is located along approximately 200 feet of the south inner slope of the pond, from the southeast corner of the pond westward. According to Mr. Kuhn's inspection reports, the slump has not visibly changed since 2013 and the pond liner remains intact. In conducting the October 2016 inspection, Mr. Kuhn observed a lower slump approximately 2 vertical feet below the upper slump. This observation was possible due to lower water levels in EP-1 at the time. Mr. Kuhn reported that the function of the EP-1 liner has not been compromised by the existence of these slumps but suggested further review is warranted.

As you are aware, the use of all three evaporation ponds at the Site is important in maintaining the accelerated Site restoration program set in motion by the renewal of DP-200. Water monitoring samples from Well X, the well assigned in DP-200 as the monitor well for EP-1, do not indicate any significant variations in water quality that would indicate potential leakage from the pond. While any potential leakage from EP-1 would be contained within the hydrological barrier area at the Site, in light of the new slump identified Homestake believes that it is prudent to ensure the on-going viability of the EP-1 pond/liner system. Homestake plans to further reduce the water levels in EP-1 in order to conduct a review of the facility for this

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purpose. Should the results of the EP-1 evaluation indicate observations relevant to the integrity of the liner, Homestake will consider appropriate methods for addressing any potential leakage from EP-1 while minimizing operational impact. As DP-200 provides that Homestake may consider establishing additional evaporation ponds for Site restoration programs, this approach will also be considered in this context.

Monitor well sampling and inspection results for EP-2 and EP-3 indicate that these evaporation ponds continue to function as designed. Samples from Well X, the well assigned in DP-200 as the monitor well for EP-2, as well as samples from Wells DD and DD-2, the monitor wells for EP-3, do not indicate any significant variations in water quality that could indicate potential leakage from either of these ponds. However, Homestake also believes that an evaluation of the leak detection and collection system, configuration, and operation of these ponds is similarly prudent in order to ensure on-going pond/liner integrity and the ability to effectively identify potential leakage from any zones within ponds EP-2 and EP-3.

Please contact me if you have any questions concerning the reviews that Homestake plans to undertake at the Site. I can be reached at twohlford@homestakeminingcoca.com or phone at (505) 290-2187.

Sincerely,

Thomas P. Wohlford

Thomas Wohlford, Hydrogeologist, CPG
Interim Closure Manager
HOMESTAKE MINING COMPANY OF CALIFORNIA

Enclosures

cc:

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January 31, 2017 File No.: HMC2016

Mr. Jesse Toepfer
Homestake Mining Company of California
P.O. Box 98
Grants, NM 87020

SUBJECT: REPORT OF 2016 ANNUAL INSPECTION OF TAILING IMPOUNDMENTS AND PONDS, HOMESTAKE GRANTS PROJECT, GRANTS, NEW MEXICO

Dear Mr. Toepfer:

On October 12, 2016 the undersigned performed the annual visual inspection of the tailing impoundments and evaporation ponds at the Homestake Grants Project located at Grants, New Mexico. Adrian Venable accompanied me on the inspection. As the Responsible Engineer for these impoundments, I am required to annually inspect the stability and functionality of the impoundments.

Subsequent to my visual inspection, I reviewed additional information including:

- Impoundment piezometer readings taken by Homestake personnel during 2016 and tabulated at various times through the year,
- Summary of tailing collection well and tailing drainage sump collection rates through 2016,
- Map and table of tailing impoundment phreatic levels most recently measured in 2016, provided by Hydro Engineering on January 10, 2017,
- The settlement monument survey performed by Souder Miller on 11/29-12/1/2016 and dated 1/04/2017,
- Sump discharges recorded by Homestake during 2016,
- Leak detection monitoring records for evaporation ponds #2 and #3,
- Pond level measurements by Homestake through 2016.

This report addresses the observations and findings of my site inspection as well as assessment of the additional information listed above.

OBSERVATIONS

The undersigned performed visual observations of the tops and outslopes of both tailing impoundments and of the dikes, slopes, and liners of the evaporation ponds. The weather was sunny and calm with temperatures in the 60's. The ground surface was dry with no standing water.

Large Tailing Impoundment (LTP)

Overall, the surface of the LTP remains in good condition. The outslope riprap appears to be intact throughout and is extensively covered with volunteer vegetation, primarily Russian thistle. The vegetation does not compromise the structural integrity or erosion resistance of the slope riprap.

The washout of cover soil under the riprap that occurred in 2015 near the top of the south outslope near well #T41 was repaired in 2015 using flowable fill, which Homestake also used successfully in 2014 in remediating cover washouts that occurred during 2013. This repair, as well as the previous one on the north slope, remains intact and functioning as intended.

During 2015, Homestake constructed a second zeolite treatment system near the southeast corner of the LTP for treatment of contaminated ground water. At the time of my inspection, the zeolite cells were being brought on line. The old zeolite cells located near the middle of the LTP were working at the time of this inspection. Both zeolite facilities appear to be stable, and there was no visible indication of negative impact of these facilities on the stability of the LTP. The pipe corridor on the southeast slope of the LTP to convey water to and from the zeolite cells appears to be intact and functioning as intended, with no evident impact on the LTP.

At the time of this inspection, additional soil cover was been added on the northwest quadrant of the LTP to improve radon attenuation in the area.

Water injection into the LTP, part of the ground water restoration program, was discontinued in mid-2015. No injection of water into the LTP occurred in 2016.

The sumps along the toe of the east end of the north outslope of the LTP have continued to collect the toe seepage that previously had emerged at the ground surface. Since injection into the LTP was stopped, less water has been leaving the LTP and pumping rates have dropped accordingly. The buried drains and collection sumps around the toe of the LTP are still collecting water draining out of the tailings. At the time of this site visit, the ground surface in the toe at the east end of the north outslope has dried up, and no standing water was visible anywhere around the toe of the LTP.

The slope stability analysis of the LTP, updated in 2010 is still valid for 2016; the stability parameters have not changed negatively during 2016 and, as a result of cessation of water injection in the LTP, are gradually improving as the LTP phreatic surface declines. The static and pseudo-static factors of safety remain well above the design minimum values of 1.5 and 1.0, respectively.

Small Tailing Impoundment/ Evaporation Pond #1 (EP1)

The small impoundment (location of evaporation pond #1, or EP1) remains in generally good condition. The slumps in the subgrade fill of the south inslope, under the pond liner along approximately 200 feet of the pond westward from the southeast corner (Figure 1), have not visibly changed from 2013 and the liner remains intact. With the pond water level much lower than normal for this time of year, more of this liner was visible and a second, lower slump was exposed approximately two vertical feet below the upper slump. Each slump is an irregular step or bench about 1-1.5 feet high. The function of the liner has not been compromised by this condition. However, weathering cracks have developed at several locations in this area (Figures 2 and 3), and although they do not yet appear to penetrate the entire thickness of the liner, it is likely that

they will expand with time. While the water level was still relatively low and much of the liner on the slopes was exposed during October 2016, HMC personnel marked, cleaned and repaired (by application of hot asphaltic emulsion) cracks or tears in the liner above water level.

HDPE drain pipes and the HDPE-liner runoff discharge chute on the south end of the small tailings pile remain in good condition and are functioning as intended and effectively discharging runoff.

Water has been transferred from EP 1 to EP3. Consequently, on 10/12/16, EP1 pond water level was approximately eight feet below crest elevation, six feet more than the required minimum freeboard of 2.0 feet. This freeboard corresponds with a pond water depth of seven feet. The highest pond level during 2016 was 11.25 feet on 5/30/16 with freeboard of 3.75 feet, so more than the minimum required freeboard was maintained throughout the year.

At the time of my inspection, the turbo-misters and sprays were shut down for the remainder of the year. The wave dissipater booms were not deployed.

Rills have developed on all of the EP1 outslopes during 2016. On the south, southeast, and east outslopes of EP1, rills were up to 6-12 inches deep. On the north slope, rills were 6-8 inches deep. Blading to remove rills had not yet been completed at the time of my inspection but was completed during the week of January 23, 2017.

Evaporation pond #2 (EP2)

EP2 liner and outslopes are in good condition. The gravel cover on the north and south outslopes is intact and the slopes are free of major rills.

On 12/5/16, the pond water depth was 22.66 feet, and the freeboard was 2.34 feet. At the highest pond level on 4/25/2016, the water depth was 22.67 feet and the freeboard was 2.33 feet. Required minimum freeboard levels were maintained throughout the year. Evaporation sprays were shut down for the winter on the date on my inspection.

Evaporation pond #3 (EP3)

EP3 is functioning in accordance with design and the operating plan. During the latter months of 2016, water was transferred to EP3 from EP1 to free up more capacity in EP1 and EP2 for storage during the winter months, similar to 2015. On 11/14/16 the maximum pond water depth of the year in cell A was 8.6 feet, giving a freeboard of 4.80 feet. Maximum cell B pond level was 7.95 feet on 1/11-1/18/16, giving a freeboard of 5.45 feet. Required minimum freeboard levels were maintained throughout the year.

The pond outslopes are in good condition with rills up to 6 inches on the outslopes. There is no visible indication of slope deformation or leakage through the lining system.

RECORDS REVIEW

Evaporation Pond Freeboard

Homestake measured and recorded freeboard levels for the ponds during 2016. The minimum freeboard levels at any time during 2016 were:

- EP1 – 3.75 feet
- EP2 – 2.33 feet
- EP3A – 4.8 feet
- EP3B – 5.45 feet

All levels exceeded the minimum required freeboard of 2.0 feet.

LTP Drainage

HMC recorded tailing water drainage/ withdrawal data for the LTP on a weekly basis. Hydro Engineering reported that the average LTP dewatering rate was 4 gpm, which was down considerably from the 16.88 gpm average of 2015. Collection rates in the sumps averaged 14 gpm, down from an average rate of 19.9 gpm for 2015.

EP2 and EP3 Leak Detection Systems

During 2016, Homestake obtained and recorded weekly measurements of leakage through the primary liners collected in sumps of the leak detection and recovery system (LDRS) in EP2 and EP3 in accordance with DP 200. Gallons of water removed through the collection sumps each week are recorded, and these records are maintained on site. HMC is operating the pumps in the collection sumps of EP2 and EP3 at rates that are intended to limit the average head across the bottom liner to less than 1.0 feet as required by DP 200 and 40 CFR 264.222.

For EP2, Zone 1 had no recorded leakage during 2016. In zone 2, leakage occurred intermittently in the first of the year and reached 2.7 gpm is February. Zone 3 had one week of leakage at a rate of 4.5 gpm but otherwise had negligible or no leakage for the rest of the year. Leakage was intermittent and minor in zone 4 through 2016. In zone 5, leakage was negligible through most of the year but increased during a four-week period in Oct-Nov to about 4 gpm, then dropped to zero. Leakage rates in EP2 did not reach levels requiring investigation and development of an action plan per DP 200.

In EP3, only minor, intermittent primary liner leakage was observed in cell A. Cell B had leakage in zone B-1 up to 8.05 gpm in February and lesser rates at intermittent periods, separated by periods of no leakage, through the remainder of the year. Leakage in zone B-2 peaked at 5 gpm in early April, then declined to zero in June and remained negligible through the remainder of the year . B-3 saw leakage rates up to 5 gpm during the first half of the year and negligible leakage thereafter. Zone B-4 leakage was up to 3.5 gpm in July-August and essentially none during the rest of the year. Zone B-5 saw leakage in April-May up to 5.6 gpm but only intermittent, negligible leakage otherwise. Leakage rates in EP3 did not reach levels requiring investigation and development of an action plan per DP 200.

Piezometer and Settlement Monitoring

The LTP flushing program was discontinued in 2015, and no additional flushing was done in 2016. During 2016 the LTP was draining, and with only direct precipitation providing recharge to the LTP, the phreatic surfaced dropped substantially during 2016. Water level measurements were taken by Homestake on 55 wells or piezometers, 19 of which were the same as those measured during 2015. Eighteen piezometers showed water level declines ranging from -0.57 feet to -6.16 feet, with the average of -3.22 feet. Only one piezometer, CN2 at the top of middle-north slope, had a year-to-year increase in water level of +0.35 feet, but other piezometers in the vicinity had recorded declines in water level of several feet, so there is probably an error in the CN2 record, which has a history of unusual variability.

A number of piezometers on the LTP slopes show a 5-10 feet spike in water level in the 9/28/2016 record, followed by an equivalent decline in the following month. This was probably due to infiltration of one or more monsoonal storm events during August-September 2016.

Both the piezometer records and the LTP water level map provided by Hydro Engineering indicate that the phreatic level in the LTP has declined substantially but not uniformly during 2016. Below the pile slopes, the level has declined 2-6 feet. Within the west cell, levels have dropped 10-20 feet during 2016, and slightly less in the east cell.

The settlement monument survey performed by Souder Miller on 11/29-12/1/2016 recorded increases in elevation of all 46 monuments that were in working order. Two others were broken and one could not be found. The recorded increases in elevation ranged from +0.06 feet to +0.18 feet. These readings are opposite to what was expected – with pore water continuing to drain from the tailings, the tailings are consolidating and the LTP surface should be settling, producing negative elevation changes. The most likely explanation is that there was a systematic error in the survey that carried through all of the measurements, either due to instrument error or disruption of one or more survey control points.

CONCLUSIONS AND RECOMMENDATIONS

The tailing impoundments and the three evaporation ponds are in generally good condition and are being maintained within the operating limits of the NRC license and NMED discharge permit (DP 200) and the respective facility designs. The undersigned advised HMC that rill management and grade control were needed to maintain erosional stability of the small tailing impoundment, the evaporation ponds, and the interim cover of the LTP. This work on the small pile (EP1) was performed in January 2017.

The piezometers in the north and south slopes of the LTP were measured on a monthly to quarterly basis during 2016, as recommended in the Engineer's Report for 2015. Now that the phreatic surface is declining throughout the LTP and is below levels of interest for stability, the schedule of measurements can be relaxed; semi-annual measurements are sufficient.

The LTP is draining at a rate that should lead in a few years to the point where consolidation of tailings is nearly complete and 95% of primary settlement has occurred. When this point is reached, HMC can request that the NRC approve final grading and cover placement on the top of the LTP (outslopes are already in their final configuration with cover). To demonstrate that 95% of primary settlement has been reached, HMC must have enough settlement monitoring data to plot settlement versus log time for several years after pile flushing ceased. The 95% point is defined by the point at which the time-settlement curve becomes asymptotic to the log time axis. This will

require protection and reliable elevation data of the survey monuments that are still accessible and undisturbed. The 2016 settlement monument survey was evidently not accurate, and another survey should be performed as soon as possible, with additional surveys thereafter at six-month intervals until 95% primary settlement can be demonstrated.

The slump along the south inslope of EP1 should be protected against further displacement to protect the liner. In its present condition, the EP1 liner continues to be serviceable. Site staff should note any changes in the slump and the condition of the liner at that location.

Outslopes of the LTP should continue to be observed by site staff at least weekly for signs of water emerging from the slope, especially near the toe, and for visible evidence of slumps or other displacements in the slope surface. The undersigned should be notified immediately if slope seepage, surface slumps, or other deformations in the slopes are observed.

Repairs to the LTP slopes, completed in 2014 and 2015 using flowable fill, have been successful in remediating cover washouts. Until the final cover and erosion protection are applied to the top of the LTP, additional washouts on the outslopes are possible. Site staff should continue to be vigilant and to be ready to respond promptly to future washouts.

Until the final top cover of the LTP is constructed, the interim cover should be graded toward each HDPE drain so that no low spots remain between the drain pipe collars along the perimeter of the cover.

LIMITATIONS

The recommendations contained in this report are based on the undersigned's field visit, evaluation of information generated by others and obtained from Homestake, 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, the undersigned should be immediately notified so that he 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 option and risk.

If you have any questions or need additional information, please contact me.

Respectfully submitted,

Alan K. Kuhn, Ph.D., P.E., D.GE
Consultant and Responsible Engineer

ALAN K. KUHN
NEW MEXICO
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1/31/2017
REGISTERED PROFESSIONAL ENGINEER

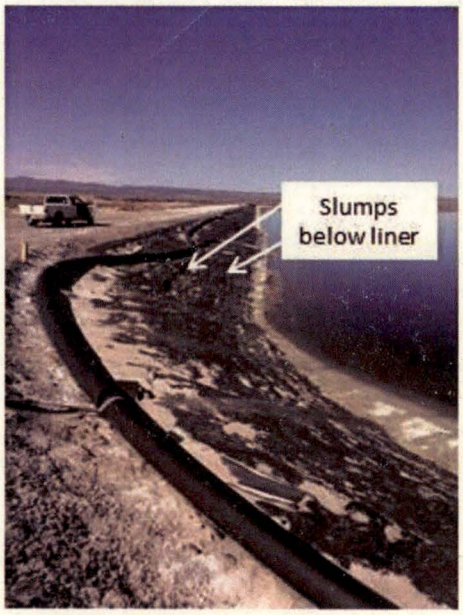

Figure 1 – Slumps below liner at east end of south inslope, EP1

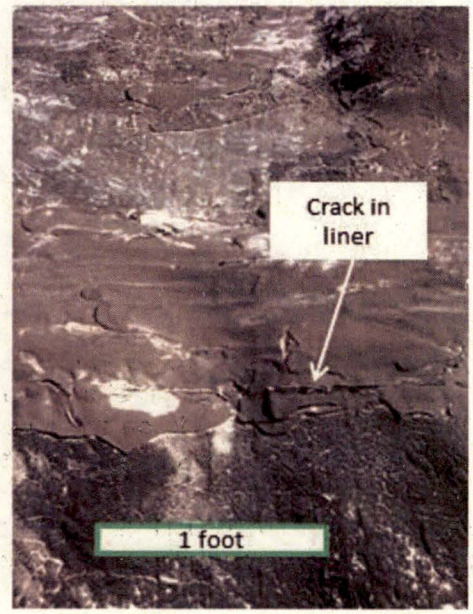

Figure 2 – Cracks in liner at east end of south inslope, EP1

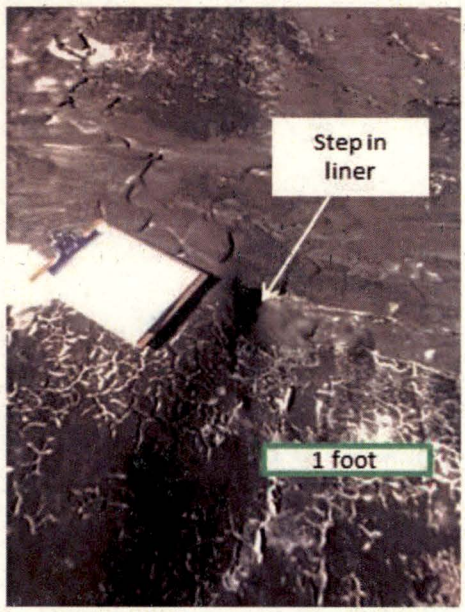

Figure 3 – Small step in liner related to lumps below liner at east end of south inslope, EP1