



Homestake Mining Company of California

Jesse R. Toepfer  
*Closure Manager*

12 February 2015

**ATTN Mr. David L. Mayerson**  
Mining Environmental Compliance Section  
Ground Water Quality Bureau  
New Mexico Environment Department  
P.O. Box 5469  
Santa Fe, New Mexico 87502-5469

**RE: Homestake's Responses to NMED's Comments Received 16 January 2015 Pertaining to Homestake's "Plan to check the integrity of Homestake's San Andres wells IAW Condition 21 of DP-200" (December 15, 2014)**

Mr. Mayerson:

Homestake Mining Company of California (HMC) received from the New Mexico Environment Department (NMED) comments in a letter dated 12 December 2014, entitled *Homestake Mining Company of California/DP-200: NMED review comments for "Plan to check the integrity of Homestake's San Andres wells IAW Condition 21 of DP-200" (December 15, 2014)*.

Enclosed with this letter you will find HMC's responses to NMED's comments in the aforementioned letter.

On behalf of Homestake, I hope this information is helpful to your department and will be of value to you during the review process. Please feel free to contact me directly at 505.290.3067 if you have any questions or comments pertaining to this material.

Respectfully,

**Jesse R. Toepfer**  
Closure Manager  
HOMESTAKE MINING COMPANY OF CALIFORNIA

Copy To:

Mr. Jack Parrott, US Nuclear Regulatory Commission – Rockville, Maryland  
Mr. Sai Appaji, US Environmental Protection Agency, Region 6 – Dallas, Texas  
Mr. Wayne Canon, New Mexico Office of the State Engineer – Albuquerque, New Mexico  
Ms. Deborah Barr, US Department of Energy, Office of Legacy Management – Grand Junction, Colorado  
Mr. Russell Edge, US Department of Energy, Office of Legacy Management – Westminster, Colorado  
Mr. Bill Ferdinand, Barrick Gold – Salt Lake City, Utah  
Mr. Patrick Malone, Barrick Gold – Salt Lake City, Utah  
Mr. George Hoffman, Hydro Engineering – Casper, Wyoming  
Mr. Phil DeDycker, ARCADIS U.S., Inc. – Denver, Colorado

Comment Number	Page #	Quoted Text	NMED Comment	Response
1	1	N/A	<p>No well that is designated "Old Deep #1" appears on Figure 8.0-1 of the HMC's 2013 annual report ("2013 annual monitoring report/performance review for Homestake's Grants Project pursuant to NRC license SUA-1471 and Discharge Plan DP-200," March 2014). Please submit a map that shows the locations of the subject wells in this submittal, as well as any other San Andres-completed wells within the vicinity of the Site (see following comment).</p>	<p><b>Figure 1</b> (Attached) illustrates the locations of the San Andres wells in the area of the HMC Grants site, and also shows the location of the Old #1 Deep well near the #1 Deep well. The #1 Deep well replaced the Old #1 Deep well in 1979.</p>
2	1	N/A	<p>Please provide details about how HMC is proposing to use water quality data to evaluate the integrity of HMC's San Andres-completed wells. The proposed use of water quality data should incorporate time-series plots of relevant water quality data that are available from all San Andres-completed wells in the vicinity of the Site (excluding wells on the nearby Bluewater Disposal Site) in order to provide context for water quality data from HMC's San Andres-completed wells.</p>	<p>Time-series plots of key water quality constituents for the four active San Andres wells will be used to evaluate whether the water quality in one of the active San Andres wells has changed or is changing. If this is the case, the evaluation of the particular San Andres well will be given the highest priority in the planned schedule. The four active San Andres wells have been very useful in the ground-water restoration programs and will continue to be a very important part of HMC's remediation strategy until the majority of injection water can be replaced by additional, alternatively treated water (e.g., from the planned zeolite water treatment system). Time-series plot for other San Andres wells will not aid the evaluation of the four active San Andres wells, because these wells are all a significantly up gradient, and variations in their water quality would have to be very large to be of any meaningful value.</p>

Comment Number	Page #	Quoted Text	NMED Comment	Response
3	1	" ... recent water quality data [for "Active SA Wells"] indicates that each of these wells produces water that complies with the site standards for injection"	Please explain HMC's assertion that" ... recent water quality data [for "Active SA Wells"] indicates that each of these wells produces water that complies with the site standards for injection" would be indicative of the integrity of these wells, since the applicable water quality standards for injection to the overlying aquifers are generally lower than those that are applicable to the San Andres aquifer.	The water quality concentrations for each of the San Andres wells are below the Site Standards for the aquifer where the water is being used to restore the ground water. This is one of the reasons why the San Andres water is so important for the ground-water restoration program. While a record of stable and good water quality in the San Andres wells does not confirm casing integrity, it does indicate that the water quality in the well has not been measurably impacted by a compromised casing. HMC believes water quality assessments and downhole videography are sufficiently complementary, and therefore, adequate to determine well casing integrity.
4	1	N/A	Please explain how execution of the proposed activities in this workplan will evaluate the condition of well annular seals.	The scheduling in the work plan includes evaluation of the well annular seals of HMC's three inactive San Andres wells during 2015. The evaluation includes review of water quality data and videography of the well casing. This will allow continued usage of the four active wells as injection water supply until the scheduled evaluation in 2016. However, if water quality monitoring reveals a change is occurring in one of the active San Andres wells, the scheduled evaluation with videography may be conducted sooner.
5	2	N/A	Following a previous inspection by NMED's Superfund Oversight Section several years ago, HMC confirmed that Well 928 has a ruptured casing, which was allowing ground water from one or more overlying aquifers to cascade down the wellbore. This cross-contamination also is reflected in available water quality data from this well. If this well casing rupture has not yet been addressed, HMC should prioritize the further evaluation of this well towards the development of a remedial plan.	HMC will ensure the evaluation of Well 928 is priority.

<b>Comment Number</b>	<b>Page #</b>	<b>Quoted Text</b>	<b>NMED Comment</b>	<b>Response</b>
6	2	N/A	<p>HMC has proposed to evaluate the "Active SA Wells" " ... after substantial completion of the site's reverse osmosis and full-scale zeolite water treatment systems." NMED infers that this scheduling is related to the role of these wells in providing water for injection activities, which future operation of these remedial systems should largely supplant. However please justify why all of these "Active SA Wells" would need to be available until 2nd quarter 2016 to provide sufficient injectate volume. HMC indicates that most of these "Active SA Wells" are largediameter supply wells, and previously has stated that water from some wells that are completed in shallower aquifers outside of the contaminant plume also may be used for injectate supply.</p>	<p>The San Andres wells are used in different restoration areas. For example, well 951R is only piped to the North Off-Site area and, therefore, is needed in the restoration plan if fresh water injection is being used. The operation of the additional treatment systems will need to be in service for several months to allow adequate time to resolve start-up and commissioning issues, so as maximize the operation's success. Until that time, the fresh water injection supply from this well will be very important to the restoration. The restoration plan still calls for some fresh water usage even after the new treatment processes are placed into full service. Plans are to use fresh water from Off-Site wells in the two Off-Site areas to supplement the treated water that is currently pumped to the Off-Site areas for restoration. Fresh water from the two On-Site wells will be important if fresh water injection is needed to maintain the hydraulic barrier. HMC believes it is critically important to maintain all of this flexibility until the second quarter of 2016. The Chinle wells that have been used for fresh water supply are east of Highway 605 and are only useful for fresh water injection east of Highway 605.</p>

