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HOMESTAKE

GRANTS PROJECT

ALAN D. COX
PROJECT MANAGER
- GRANTS

5 December 2005

Mr. Gary Janosko, Branch Chief
c/o Document Control Desk
Chief of Fuel Cycle Facilities Branch (Mailstop T8-A33)
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Two White Flint North
Rockville, MD 20852-2738

Re: Grants Millsite Reclamation Project – SUA-1471 – Docket No. 40-8903
Tracking number – TAC LU0014
Aquifer Site Standards

Dear Mr. Janosko:

This letter is provided as final documentation and rationale for Homestake Mining Company of California's (HMCo) request to set background water quality site standards for the alluvial, Chinle mixing zone, Upper Chinle non-mixing zone, Middle Chinle non-mixing zone and the Lower Chinle non-mixing zone aquifers at the Grants Project. As you are aware, this action was initiated in 2001 and expanded upon in late 2003 through evaluation of the Chinle aquifers and related correspondence with the Nuclear Regulatory Commission. The final recommended standards, which have been reviewed and concurred with by the New Mexico Environment Department and Region VI EPA, are as tabulated in the following table:

		PROPOSED SITE STANDARDS			
CONSTITUENTS	ALLUVIAL	CHINLE MIXING ZONE	UPPER CHINLE NON-MIXING ZONE	MIDDLE CHINLE NON-MIXING ZONE	LOWER CHINLE NON-MIXING ZONE
SELENIUM (mg/l)	0.32	0.14	0.06	0.07	0.32
URANIUM (mg/l)	0.16	0.18	0.09	0.07	0.03
MOLYBDENUM (mg/l)	0.10	*	*	*	*
SULFATE (mg/l)	1500	1750	914	857	2000
CHLORIDE (mg/l)	250	250	412	250	634
TDS (mg/l)	2734	3140	2010	1560	4140
NITRATE (mg/l)	12	15	*	*	*
VANADIUM (mg/l)	0.02	0.01	0.01	*	*
THORIUM-230 (pCi/l)	0.30	*	*	*	*
RA-226 + RA-228 (pCi/l)	5	*	*	*	*

NOTE: * = Site standards not necessary for the constituents in the indicated aquifer.

Alluvial Aquifer – Site Standards

Site License background water quality standards for vanadium, thorium-230 and radium-226 plus radium-228 for the alluvial aquifer remain the same as originally approved by NRC in 1989 and remain as depicted in the previous table. The establishment of revised site standards for selenium, uranium and molybdenum as well as new site standards for sulfate, chloride, TDS and nitrate for the alluvial aquifer is requested based on the last 10 years of data for the near upgradient wells. Two new proposed alluvial groundwater standards for chloride and molybdenum are not based on the background concentration but reflect EPA and NRC standards.

Specifically, relative to chloride, the proposed site standard is 250 mg/l, which is the Federal secondary drinking water standard for this constituent.

Second, the proposed alluvial aquifer site standard for molybdenum is above the background data but well below the current New Mexico water standard. Homestake is requesting the use of a site standard of 0.1 mg/l for molybdenum for the alluvial aquifer at the Grants site. 10 CFR, Part 40, Appendix A, Criterion 5B(5) states that the site standard should be based on the background concentration or the respective value given in the table in Criterion 5C of 10 CFR, Part 40, Appendix A, if the background level is less than the value listed in the table. Although molybdenum is not listed in this table, a value of 0.1 mg/l is listed for molybdenum in the table of values EPA has established as protective of human health and the environment for ground water at Title I sites. *See* 40 CFR Part 192, Subpart A, Table 1. Accordingly, the 0.1 mg/l value is the appropriate value to use for molybdenum at the Grants site.

Chinle Mixing Zone – Site Standards

Site standards for selenium, uranium, sulfate, chloride, TDS, nitrate and vanadium are requested and the indicated values are based on background data except for the higher secondary drinking water standard for chloride. Site standards are not proposed for thorium-230, radium-226 plus radium-228 and molybdenum for the Chinle mixing zone based upon criteria (i) and (ii) that NRC has established for excluding detected constituents in 10 CFR Part 40 Appendix A – Criterion 5B(3)(a).[1]

Upper Chinle Non-Mixing Zone – Site Standards

The preceding table lists the requested site standards for the Upper Chinle non-mixing zone. Site standards are requested for selenium, uranium, sulfate, chloride, TDS and vanadium based on the observed background concentrations in the Upper Chinle non-mixing zone. Site standards are not proposed for molybdenum, thorium-230, radium-226 plus radium-228 and nitrate for the Upper Chinle non-mixing zone based upon the exclusions provided in 10 CFR Part 40 Appendix A – Criterion 5B(3)(a)(i) and (ii).

[1] Criterion (i) considers the "physical and chemical characteristics of the waste in the licensed site, including its potential for migration. Criterion (ii) considers the "hydrogeological characteristics of the facility and surrounding land."

Middle Chinle Non-Mixing Zone – Site Standards

Background concentrations for selenium, uranium, sulfate and TDS for the Middle Chinle non-mixing zone were used to establish concentration levels listed in the preceding table. The chloride site standard of 250 mg/l for the Middle Chinle non-mixing zone is based on the secondary drinking water standard of 250 mg/l. Site standards are not proposed for molybdenum, nitrate, vanadium, thorium-230 and radium-226 plus radium-228 for the Middle Chinle non-mixing zone based on the exclusions provided in 10 CFR Part 40 Appendix A – Criterion 5B(3)(a)(i) and (ii).

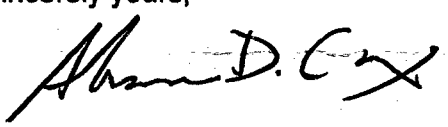
Lower Chinle Non-Mixing Zone – Site Standards

Site standards are proposed for selenium, sulfate, chloride and TDS based on the background data for the Lower Chinle non-mixing zone. The site standard of 0.03 mg/l for uranium for the Lower Chinle non-mixing zone is based on the federal drinking water standard of 0.03 mg/l. Site standards are not proposed for molybdenum, nitrate, vanadium, thorium-230 and radium-226 plus radium-228 for the Lower Chinle non-mixing zone based on the exclusions provided in 10 CFR Part 40 Appendix A – Criterion 5B(3)(a)(i) and (ii).

It is our understanding from previous discussions with William von Till of your staff that an Environmental Assessment (EA) under NEPA will be prepared with respect to the request to incorporate the proposed background site standards into the project Radioactive Materials License.

Thank you for your time and attention on this matter. If you or members of the NRC staff have any questions regarding the requested site standards, please contact me at your earliest convenience. I can be reached at the letterhead telephone number or via cell phone at (505) 400-2794.

Sincerely yours,



HOMESTAKE MINING COMPANY OF CALIFORNIA
Alan D. Cox

cc: Bill von Till, NRC

Sai Appaji, Region VI EPA
Dana Bahar, NMED
J. Schoeppner, NMED

R. Chase, SLC
D. Deisley, SLC
B. Ferdinand, SLC
J. Gleadle, Grants files
G. Hoffman, Hydro-Engineering