UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
URANIUM RECOVERY FIELD OFFICE
BOX 25325
DENVER, COLORADO 80225

MAY 18 1989

URFO:GRK
Docket No. 40-8903
SUA-1471, Amendment No. 4
04008903240E

MEMORANDUM FOR: Docket File No. 40-8903

FROM: Gary R. Konwinski, Project Manager
Uranium Recovery Field Office
Region IV

SUBJECT: ESTABLISHMENT OF GROUND-WATER PROTECTION STANDARDS

Ground-Water Protection Standards

By letter dated March 15, 1989, Homestake Mining Company submitted ground-water quality data. The data which Homestake has collected over the past several years, as well as the data collected in response to License Condition No. 35, is sufficient to establish ground-water protection standards for the site. Table 1 shows the measured background in Well P for appropriate Criterion 13 hazardous constituents, the wells which have exceeded the measured background, the applicable ground-water protection standard considering Table 5C of 10 CFR 40, Appendix A, and the wells exceeding the ground-water protection standards. Homestake Mining Company collected background water quality from Wells DD, P, Q and R. However, due to the redundant nature of the data collected from the numerous background wells, Well P was chosen as the most representative of background water quality. Therefore, all comparisons will be made utilizing Well P.

Based upon this data review, the staff finds that the ground-water protection standards are being exceeded for chromium, molybdenum, selenium, thorium-230, uranium and vanadium at the point of compliance and numerous other monitoring well locations. Therefore, as discussed in Criterion 5D, a corrective action program must be put into operation.

The staff has also utilized this review opportunity to observe the ground-water monitoring program that exists at the site. It is apparent that the extent and concentration of hazardous constituents and other ionic compounds are not completely known for the site. Therefore, Homestake Mining Company will be required to submit a proposal for a modified ground-water monitoring program.

Table 1

Measured background		Wells exceeding measured background	Ground-water protection standards	Wells exceeding ground-water protection standard
Chromium	0.06 mg/l	DB, DE, DG, SA, SB, SE, DL, SV	0.06 mg/l	DB, DE, DG, SA, SB, SE, DL, SV
Molybdenum	0.03 mg/l	DB, DE, DG, SA, SB, SE, DL, SV	0.03 mg/l	DB, DE, DG, SA, SB, SE, DL, SV
Radium-226 & 228	1.1 pCi/l	DL	5.0 pCi/l	none
Selenium	0.10 mg/l	DB, DE, DG, SA, SB, SE, DL, SV	0.10 mg/l	DB, DE, DG, SA, SB, SE, DL, SV
Thorium-230	0.30 pCi/l	DB, DE, DG, SA, SB, DL, SV	0.30 pCi/l	DB, DE, DG, SA, SB, DL, SV
Uranium	0.04 mg/l	DB, DE, DG, SA, SB, SE, DL, SV	0.04 mg/l	DB, DE, DG, SA, SB, SE, DL, SV
Vanadium	0.02 mg/l	DB, DE, DG, SA, SB, SE, DL, SV	0.02 mg/l	DB, DE, DG, SA, SB, SE, DL, SV

Based upon the above discussion, the staff recommends that License Condition Nos. 34 and 35 be revised to incorporate a modified ground-water monitoring program as well as require the submittal of a corrective action program.

Conclusion

Based upon the above discussion, the staff would recommend that License Condition Nos. 34 and 35 be revised to read as follows:

34. DELETED by Amendment No. 4.

35. The licensee shall implement a compliance monitoring program containing the following:

A. Sample Wells SV, SB, SE, SA, DB, DE, DG, DL, P, F, B, I, and BC on a quarterly frequency for pH, TDS, water level, Ca, Mg, K, Na, HCO_3 CO_3, Cl, SO_4 and cation-anion balance, and sample Wells SV, SB, SE, SA, DB, DE, DG, DL, and P on a semiannual frequency for chromium, molybdenum, radium-226 and 228, selenium, thorium-230, uranium, vanadium and pH. Additionally, the volumes of water injected and recovered as part of the ground-water cleanup program shall be monitored and the values documented quarterly.

B. Comply with the following ground-water protection standards at point of compliance Wells DB, DE, DG, SA, SB, SE, DL and SV, with background being recognized in Well P.

chromium = 0.06 mg/l, molybdenum = 0.03 mg/l, selenium = 0.10 mg/l, vanadium = 0.02 mg/l, uranium = 0.04 mg/l, radium-226 and 228 = 5.0 pCi/l and thorium-230 = 0.30 pCi/l.

C. Implement a corrective action program due to exceeding ground-water protection standards, with the objective of returning the concentrations of chromium, molybdenum, selenium, thorium-230, uranium and vanadium to the concentration limits specified in Subsection (B).

The corrective action program shall be proposed as designated in Criterion 5D, Appendix A, 10 CFR Part 40. Accordingly, the licensee shall submit to the Uranium Recovery Field Office a proposed corrective action program and supporting rationale for Commission approval by August 1, 1989. The corrective action program shall be fully operational by November 1, 1990.

D. Determine the extent and concentration of hazardous constituents in the uppermost aquifer as well as propose a comprehensive ground-water monitoring program.

MAY 18 1989

E. Establish point of compliance wells for the inactive tailings.

Gary R. Konwinski, Project Manager
Uranium Recovery Field Office
Region IV

Approved by: _____
Edward F. Hawkins, Branch Chief
Uranium Recovery Field Office
Region IV

Case Closed: 04008903240E

8903/240E/GRK/89/05/11/M

DISTRIBUTION

Docket File 40-8903
LFMB
PDR/DCS
ABBeach, RIV
GKonwinski
PGarcia
RCPD, NM
LLO Branch, LLWM
URFO r/f

CONCURRENCE:		DATE:
GKonwinski/URFO	GRK VOTED	5-15-89
PGarcia/URFO	PJG	5/15/89
EHawkins/URFO		5/16/89

lmv