



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV  
URANIUM RECOVERY FIELD OFFICE  
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DENVER, COLORADO 80225

DEC 08 1992

URFO:CDMC  
Docket No. 40-8905  
SUA-1473, Amendment No. 25  
04008905710E

MEMORANDUM FOR: Docket File No. 40-8905

FROM: Cynthia D. Miller-Corbett, Project Manager

SUBJECT: QUIVIRA MINING COMPANY, AMBROSIA LAKE FACILITY: REQUEST TO  
AMEND SOURCE MATERIAL LICENSE SUA-1403 TO MODIFY THE  
AMBROSIA LAKE FACILITY SEMI-ANNUAL GROUND-WATER MONITORING  
PROGRAM AND THE CORRECTIVE ACTION PLAN

INTRODUCTION

By letter dated August 1, 1992, Quivira Mining Company (QMC) requested an amendment to Source Material License SUA-1473. The effect of this amendment would be to modify the semiannual ground-water monitoring requirements and therefore, the corrective action plan (CAP) sampling program at the Ambrosia Lake Facility, McKinley County, New Mexico.

The Ambrosia Lake Facility CAP submitted by cover letter dated September 25, 1989, was authorized by Amendment No. 13 to SLA-1473 on December 2, 1989. Pursuant to this amendment, License Condition No. 34 was amended to require the licensee establish a ground-water detection monitoring program with ground-water protection standards (GWPS) from background wells derived through statistical analysis of 1988 sampling data for four strata. These strata include the surficial alluvium (Qal), the Tres Hermanos B (THB), the Tres Hermanos A (THA), and the Dakota Sandstone (Kd), in descending order. The Qal is monitored by four monitor wells located cross-gradient from the site tailings piles. The THA is monitored by two monitor wells, one located down-gradient and one located cross-gradient from the site tailings piles. The THB is monitored by five monitor wells, one located up-gradient and four located down-gradient of the site tailings piles. The Kd is also monitored by five monitor wells, all located in a generally down-gradient direction relative to the tailings piles. The background well for each strata is included in the above well count.

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## REVIEW OF REQUEST TO MODIFY THE CORRECTIVE ACTION PROGRAM

Presently, License Condition No. 34 requires the licensee analyze ground-water samples from each of the referenced strata for 17 nonradioactive elements, 5 radionuclides, pH, and electrical conductivity. The licensee's original request was to modify the ground-water CAP by deleting the requirement for analyses of 11 of the nonradioactive ground-water constituents from each of the four sampling suites. The analyses to be deleted included those for silver, arsenic, barium, beryllium, cadmium, chromium, cyanide, mercury, lead, antimony, and thallium. The licensee requested the criterion for deletion be that constituents were at or near the lower limit of detection and/or below the recognized background limit (GWPS) in excess of 2 years.

By telecon on November 5, 1992, Bill Ferdinand of QMC and Cynthia Miller-Corbett of our staff discussed the fact that, based on a review of data, some of the 11 noted elements still reside in the THB or Kd at levels exceeding GWPS. The THB and Kd are characterized as having very low hydraulic conductivities (velocities), and ground-water migration through these strata is very slow. Therefore, a longer period of time is needed for ground-water quality to stabilize, indicating recovery of all pockets of ground-water contaminants.

During the referenced telecon, the licensee revised the initial amendment request, indicating different criteria for authorizing deletion of requirements for sample analyses. For each strata, the revised amendment request to delete ground-water analyses for a particular element is based on the following:

- Ground-water analytical data including and subsequent to the 1988 sampling event which indicates that a particular nonradioactive element has remained at levels below GWPS.
- Ground-water analytical data that indicates a nonradioactive constituent occurred at levels above GWPS for only one sampling event, during or subsequent to the 1988 sampling, and prior to authorization of the CAP (December, 1989). These data appear to represent one-time, isolated instances. The majority of data in this category are from 1988.

Based on our evaluation of the ground-water CAP at the Ambrosia Lake facility, and in accordance with the revised criteria, the licensee is justified in making the following modifications to the ground-water CAP:

- Deletion of the requirement for analyses of silver, arsenic, barium, beryllium, cadmium, cyanide, chromium, mercury, lead, antimony, and thallium in surficial alluvium ground water.

- Deletion of the requirement for analyses of silver, arsenic, barium, beryllium, cadmium, chromium, mercury, lead, thallium, and antimony in the Tres Hermanos B ground water.
- Deletion of the requirement for analyses of silver, arsenic, barium, beryllium, cadmium, chromium, mercury, lead, antimony, and thallium in the Tres Hermanos A ground water.
- Deletion of the requirement for analyses of silver, barium, chromium, mercury, and thallium in the Dakota Sandstone ground water.

As discussed during a telephone conversation between Marvin Freeman, Vice President of Quivira Mining Company, and the NRC on December 1, 1992, License Condition No. 19 is also being revised. The purpose of this revision is to clarify the licensee's commitment to submit a report comprising the results of effluent and environmental monitoring semiannually.

This amendment appears to be consistent with the NRC guidance, and it is recommended SUA-1473 be amended as requested by Quivira Mining Company, by revising License Condition Nos. 19 and 34 to read as follows:

19. The results of all effluent and environmental monitoring required by this license shall be reported semiannually and in accordance with 10 CFR 40, Section 40.65, with copies of the report sent to the NRC, Uranium Recovery Field Office. Monitoring data shall be reported in the format shown in the attachment to SUA-1473 entitled, "Sample Format for Reporting Monitoring Data." [Applicable Amendments: 25]
34. The licensee shall implement a ground-water compliance monitoring program containing the following:
  - A. Sample Dakota Sandstone wells 17-01, 30-02, 30-48, 32-45, and 36-06 for antimony, arsenic, beryllium, cadmium, cyanide, lead, molybdenum, nickel, selenium, combined radium-226 and -228, natural uranium, thorium-230, lead-210, gross alpha, chloride, sulfate, nitrate, Ph, and electrical conductivity.  
  
Sample Tres Hermanos A wells 31-01 and 33-01 for cyanide, molybdenum, nickel, selenium, radium-226 and -228, natural uranium, thorium-230, lead-210, gross alpha, chloride, sulfate, nitrate, pH, and electrical conductivity.  
  
Sample Tres Hermanos B wells VH19-2, 31-66, 31-67, 36-01, and 36-02 for cyanide, molybdenum, nickel, selenium, combined radium-226 and -228, natural uranium, thorium-230, lead-210, gross alpha, chloride, sulfate, nitrate, pH, and electrical conductivity.

Sample alluvium wells 5-03, 32-59, 31-61, and MW-24 for molybdenum, nickel, selenium, combined radium-226 and -228, thorium-230, natural uranium, lead-210, gross alpha, chloride, sulfate, nitrate, pH, and electrical conductivity.

- B. Comply with the following ground-water protection standards at Dakota Sandstone point of compliance wells 30-02, 30-48, 32-45, and 36-06, with background being recognized at well 17-01: antimony = 0.05 mg/l; arsenic = 0.1 mg/l; beryllium = 0.01 mg/l; cadmium = 0.01 mg/l; cyanide = 0.04 mg/l; lead = 0.14 mg/l; molybdenum = 0.06 mg/l; nickel = 0.03 mg/l; selenium = 0.04 mg/l; gross alpha = 56 pCi/l; combined radium-226 and -228 = 5.0 pCi/l; natural uranium = 0.02 mg/l; thorium-230 = 2.3 pCi/l; lead-210 = 1.9 pCi/l.

Comply with the following ground-water protection standards at Tres Hermanos A point of compliance well 31-01, with background being recognized at well 33-01: cyanide = 0.01 mg/l; molybdenum = 0.03 mg/l; nickel = 0.05 mg/l; selenium = 0.03 mg/l; gross alpha = 18.0 pCi/l; combined radium-226 and -228 = 5.0 pCi/l; natural uranium = 0.01 mg/l; thorium-230 = 4.3 pCi/l; lead-210 = 4.14 pCi/l.

Comply with the following ground-water protection standards at Tres Hermanos B point of compliance wells 31-66, 31-67, 36-01, and 36-02, with background being recognized at well VH19-12: cyanide = 0.01 mg/l; molybdenum = 0.08 mg/l; nickel = 0.06 mg/l; selenium = 0.04 mg/l; gross alpha = 21.0 pCi/l; combined radium-226 and -228 = 7.4 pCi/l; natural uranium = 0.02 mg/l; thorium-230 = 2.2 pCi/l; lead-210 = 0.9 pCi/l.

Comply with the following ground-water protection standards at alluvium point of compliance wells 32-59, 31-61, and MW-24, with background being recognized at well 5-03: molybdenum = 0.06 mg/l; nickel = 0.06 mg/l; selenium = 0.05 mg/l; gross alpha = 57 pCi/l; combined radium-226 and -228 = 5.0 pCi/l; thorium-230 = 3.1 pCi/l; natural uranium = 0.06 mg/l; lead-210 = 4.9 pCi/l.

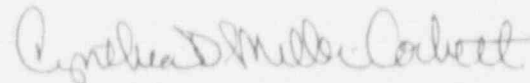
- C. Implement a corrective action program as described in the September 25, 1989, submittal with the objective of returning the concentrations of hazardous constituents to the concentration limits specified in Subsection (B). The program shall, at a minimum, consist of mine dewatering and maintenance and operation of the interceptor trench.
- D. Submit, by August 1 of each year, a review of the corrective action program and its effect on the aquifers.

[Applicable Amendments: 9, 11, 13, 15, 25]

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In accordance with the categorical exclusion contained in paragraph (c)(11) of 10 CFR 51.22, an environmental assessment is not required for this licensing action. That paragraph states that the categorical exclusion applies to the issuance of amendments to licenses for uranium mills provided that (1) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, (2) there is no significant increase in individual or cumulative occupational radiation exposure, (3) there is no significant construction impact, and (4) there is no significant increase in the potential for or consequences from radiological accidents.

The licensing action discussed in this memorandum meets these criteria as the proposed amendment involves changes in the ground-water monitoring program and corrective action plan. The proposed change is to omit the requirement for analyses of certain nonradiological ground-water constituents, based on historical data which show these constituents should not occur at levels exceeding ground-water protection standards. An environmental report is not required from the licensee because the amendment does not meet the criteria of 10 CFR 51.60(b)(2).



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Docket File 40-8905  
LFMB  
PDR/DCS  
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LJCallan, RIV  
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CDMiller/lv	PJGarcia	EFHawkins	REHall	
12/2/92	12/7/92	12/3/92	12/7/92	