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Quivira Mining Company

August 30, 1990

Certified Mail
Return Receipt Requested P 568 963 609

Mr. Pete Garcia
Uranium Recovery Field Office
U. S. Nuclear Regulatory Commission
Region IV
Box 25325
Denver, Colorado 80225

Re: Response To Inspection
NRC Inspection Report 40-8905/90-01
License SUA-1473
Docket No. 40-8905

Dear Mr. Garcia:

In accordance with Quivira Mining Company's commitment as contained in its inspection response letter of June 28, 1990 and subsequently approved by Mr. Ramon Hall by letter dated July 5, 1990, Quivira hereby submits a revised "Health Physics and Environmental Programs" manual for the Ambrosia Lake facility.

With this submittal, Quivira formally proposes to use Section 17, venthole #4 as a new high volume air sampling station. This will replace the Berryhill Ranch sampling site. This request to use the Section 17, venthole #4 site is reflected in the revised manual in Section 7, Environmental Monitoring.

In addition to this formal proposal, the manual has been edited to reflect other changes in the various monitoring programs including the approved groundwater Corrective Action Plans and air sampling stations in raffinate processing. Other changes include the reorganization of the manual. This is necessary due to the removal of the Standard Operating Procedures (SOP) from the manual. As we discussed, the SOP's were removed from the manual as they need to

6305 Waterford Boulevard, Suite 325, Oklahoma City, Oklahoma 73118 • (405) 848-1190 • FAX (405) 848-1208

be reviewed and updated annually. This will be performed by the facility Radiation Safety Officer (RSO) as part of his normal annual review of SOPs.

If you have any questions or need additional information, please call me at (405) 842-1773.

Sincerely,

Bill Ferdinand

Bill Ferdinand, Manager
Radiation Safety, Licensing
& Regulatory Compliance

xc: M. Freeman
R. Luke
G. Trujillo
H. Whitacre
file

7.0 Environmental Monitoring

7.1 Overview

The environmental surveillance program for the Ambrosia Lake mill includes routine monitoring of air, water, soil, and vegetation samples within the restricted and unrestricted areas around the site to assure compliance with federal, state, and company regulations, rules and policies. The programs are designed to provide maximum surveillance for environmental control and are based on many years of monitoring experience in conjunction with numerous regulatory agencies suggested practices.

Air quality sampling includes sampling of the yellowcake and crushing circuit stacks on a quarterly and semiannual basis respectively during normal operations. The yellowcake stacks are sampled isokinetically in accordance with Method 5 as outlined in 40 CFR 60, Appendix A. The current stack sampling system being used is a RAC #2343-5 stack sampler. However, equivalent systems may be used. The parameters analyzed are natural uranium, thorium-230, radium-226, and lead 210.

During standby and normal operations, there are five locations surrounding the milling facility which monitor airborne particulate concentrations. These locations include, Sub Station, Section 17 Vent hole #4, Section 32, Section 30W - Vent hole 6 and the Mill Diversion. All locations

use a General Metal Works Model GMWL-2000 sampler but equivalent systems my be used. Each sampler contains a timer/programmer, flow controller, and rotameter flow indicator. The samplers operate on a continuous basis. The collection substrate are 8 inch by 10 Whatman filters. The filters are exchanged weekly and at the end of each quarter are sent to an outside lab for analysis of natural uranium, thorium 230, radium 226, and lead 210.

Located throughout the Ambrosia Lake area are 5 radon track-etch chips. The chips are exchanged on a quarterly basis with the chips currently sent to Landauer/Terradex Corporation for analysis. The chips are passive monitors which collect information continuously.

Water quality monitoring samples are collected at various locations throughout the Ambrosia Lake area including Corrective Action Plan monitor wells, NPDES discharge and Section 35 discharge.

The facility has an approved groundwater Corrective Action Plan for the monitoring and restoration of impacted geologic units. The program requires background and point of compliance wells be sampled semiannually with an annual report reviewing the progress of the plan.

A part of the water quality monitoring program is monitoring discharges from Ion Exchange

operation including the NDPES discharge from the mill facility. This discharge is monitored weekly with 24 hour composites in accordance with EPA permit conditions. At the outfall at Section 35-36 IX plant, the Environmental Protection Agency has claimed non jurisdiction. During operation the outfall is sampled weekly with grab samples and monthly with 24 hour composite samples to ensure the treatment facility is operating properly.

Soil and sediment samples are collected annually and sent to outside labs for analysis. Soil samples are collected at the five particulate sampler locations while sediment samples are collected at four Arroyo del Puerto Creek locations. Samples are analyzed for natural uranium, radium 226, thorium 230, and lead 210. Vegetation samples are collected three times per year at the five high volume air sampling locations. They are also sent to an outside vendor for analysis and are sampled for the same radionuclides as soil and sediment.

Direct radiation is sampled with five environmental thermoluminescent dosimeters supplied and analyzed by an outside lab having been accredited by NVLAP procedures. The dosimeters are exchanged quarterly and are located at the high volume air sampler locations.

The sampling and analytical methods shall allow a lower limit of detection (LLD) equal to those recommended by USNRC Regulatory Guide 4.14 Section 5.

7.2 Sampling Schedule During Standby & Normal Operations

7.2.1 Air Sampling

1. Particulate Sampling - Sampled Continuously - Hi Vol Samplers

    a. Sub Station

    b. Section 30 West Venthole 6

    c. Section 17 Venthole 4

    d. North Fence Line

    e. Mill Diversion

    Parameters - Natural Uranium, Thorium 230, Radium 226, Lead 210

2. Radon - Sampled Continuously - Track-etch Chips

    a. Sub Station

    b. Section 30 West Venthole 6

    c. Section 17 Venthole 4

    d. North Fence Line

    e. Mill Diversion

3. Direct Radiation (gamma) - Sampled Continuously - TLD Chips

a. Sub Station

b. Section 30 West Venthole 6

c. Section 17 Venthole 4

d. North Fence Line

e. Mill Diversion

7.2.2 Water Samples

1. NPDES Permit #NM 0020532 - Sampled as per U.S. EPA NPDES requirements

   Monthly Parameters - U-nat, Ra-226

   Bi-Monthly Parameters - Pb-210, Po-210

2. Section 35-36 IX Discharge - Sampled Monthly - 24 hr. composite

   Monthly Parameters - U-nat, Ra-226

   Bi-Monthly Parameters - Pb-210, Po-210

3. Corrective Action Plan - Monitor Wells Sampled Semiannually

   a. Alluvial Wells - 5-03, 32-61, 32-59, MW-24

   b. Tres Hermanos B Wells - Section 19/vh2, 31-66, 31-67, 36-01, 36-02

   c. Tres Hermanos A Wells - 33-01, 31-01

   d. Dakota Wells - 17-01, 30-02, 30-48, 32-45, 36-06

Parameters - As, Ba, Cd, Cr, CN, Pb, Hg, Mo, Ni, Se, Ag, Be, Sb, Tl, gross alpha, Ra-226, Ra-228, natural uranium, Th-230, Pb-210, Cl, SO_4, NO_3, pH, conductivity.

7.2.3 **Soil, Sediment, Vegetation**

1. Soil - Sampled Annually

   a. Sub Station

   b. Section 30 West Venthole 6

   c. Section 17 Venthole 4

   d. North Fence Line

   e. Mill Diversion

   Parameters - Natural Uranium, Thorium 230, Radium 226, Lead 210

2. Sediment - Sampled Annually

   a. Sampling Locations - P-0, P-1, P-2, P-3

   Parameters - Natural Uranium, Thorium 230, Radium 226, Lead 210

3. Vegetation - Three Times/Year

   a. Sub Station

   b. Section 30 West Venthole 6

   c. Section 17 Venthole 4

   d. North Fence Line

   e. Mill Diversion

   Parameters - Natural Uranium, Thorium 230, Radium 226, Lead 210