

Quivira Mining Company

Marvin D. Freeman
Vice President

Certified Return Receipt P 144 785 124

February 13, 1997

Mr. Joe Holonich
Nuclear Regulatory Commission
Uranium Recovery Branch
Division of Low Level Waste Management & Decommissioning
Mail Stop T7J9
11555 Rockville Pike
Rockville, MD 20850

Re: Ambrosia Lake Facility
License SUA-1473
Docket # 40-8905
Byproducts Material

Dear Mr. Holonich:

This letter is to provide additional information, clarifications and assurances applicable to our request to amend the Ambrosia Lake Facility license to provide for the acceptance of de minimis quantities of Section 11e.(2) byproduct materials as requested by Ken Hooks and Chris McKinney during a February 12, 1997 conference call.

Radiological Characteristics

Previous submittals have committed Quivira to obtaining a sample of the byproduct materials prior to authorizing shipment to the Ambrosia Lake Facility and to test those samples to assure the chemical characteristics are compatible with the materials already impounded on-site. Additionally, Quivira has committed to assure the average radium-226 will not exceed 1,100 pCi/gram averaged over the disposal area without securing NRC's approval prior to disposing of the materials which would cause that average to be exceeded. To provide further assurance that this limit is not exceeded, Quivira will test the pre-authorization samples from each supplier for radium-226 and will not authorize shipment of the materials from a supplier if the proposed shipments cause the average radium-226 in a given year for that supplier to exceed 1,100 pCi/gram without securing NRC's approval prior to authorizing shipment.

Additionally, Quivira will not authorize the supplier to ship materials which exceed an average concentration above 2,000 pCi/g for any radionuclide in the uranium series or above 6,000 pCi/g for any radionuclide in the thorium series in any shipment.

Tailings Capacity

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In reviewing the files and previous submittals, it is apparent that the development of the remaining tailings capacity is subject to a number of different factors which yield significantly different unused

capacity levels. For example, in Bill Ferdinand's May 9, 1996 response to previous NRC questions (NRC Clarification #10), the tailings capacity at the Ambrosia Lake Facility was bound by using an 18 year planned production level of 7,000 tons per day which yielded an additional 42.84 million tons of tailings materials disposal capacity. When added to the 31 million tons on-site at the time, the total "bounded quantity" was 74 million tons. Currently, 33 million tons are located on-site which would indicate an additional 41 mm tons of "bounded" disposal capacity.

Another approach taken by Bill Ferdinand was to measure the Pond #2 area prior to beginning reclamation (which he determined to be 121 acres), the height of Pond #2 at the time (which he determined to be 6,090 ft. elevation), and the tailings dam height of 7,050 ft. That calculation resulted in the 16 million ton capacity for Pond #2 as follows:

$$121 \text{ acres} \times (7,050 \text{ feet} - 6,090 \text{ feet}) \times \frac{43,560 \text{ ft}^2}{1 \text{ acre}} \times \frac{1 \text{ yd}^3}{27 \text{ ft}^3} \times \frac{1.4 \text{ tons}}{1 \text{ yd}^3} = 16.4 \text{ mm tons}$$

The above disposal capacities of 41 million tons for the tailings facility and 16 million tons for Pond #2 have been included in previous submittals.

However, in approaching the determination of available disposal capacity using current areas and elevations and limiting the height to that of Pond #1 to insure proper run-off controls, we have determined the additional usable capacity for Pond #2 is approximately 5.3 million tons, as calculated below.

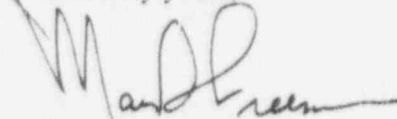
Appendix A of the September 9, 1992 Annual Surety Update, submitted in accordance with License Condition #22, indicates that the current size of Tailings Impoundment #2 is 78.3 acres. A review of the most recent contours of the tailings impoundments indicate that Pond #1 is currently at an average elevation of 7,025 feet and Pond #2 is at an average elevation of 6,995 feet. Consequently, Quivira believes the current additional capacity for Pond #2 without exceeding the height of Pond #1 can be calculated as follows:

$$78.3 \text{ acres} \times (7,025 \text{ feet} - 6,995 \text{ feet}) \times \frac{43,560 \text{ ft}^2}{1 \text{ acre}} \times \frac{1 \text{ yd}^3}{27 \text{ ft}^3} \times \frac{1.4 \text{ tons}}{1 \text{ yd}^3} = 5.3 \text{ mm tons}$$

Even using this more restricted limitation, Pond #2 will provide sufficient disposal capacity to accommodate byproduct materials generators in the foreseeable future.

I believe the above supplemental data completes the additional information requested to date from your office. If you have any questions regarding this response, please contact me at 405-848-1187.

Sincerely yours,



Marvin D. Freeman

cc: R. Adkisson
T. Fletcher
P. Luthiger
NRC - (Div. of Radiation Safety and Safeguards)
File