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SEP 20 1982

WMUR:PJG
Docket No. 40-3453
04003453180E

MEMORANDUM FOR: Docket File No. 40-3453

FROM: Pete J. Garcia, Jr., Project Manager
Operating Facility Section II, WMUR

SUBJECT: REVIEW OF FIRST QUARTER 1982 ENVIRONMENTAL MONITORING DATA AND 40 CFR 190 DOSE CALCULATIONS FOR THE MOAB MILL

By letter dated May 28, 1982, Atlas Minerals submitted the results of first quarter environmental monitoring and dose calculations for the nearest receptor as required by Condition No. 47 of Source Material License SUA-917. My review of the information provided in the May 28, 1982 submittal is described below.

I. Environmental Monitoring Data

Airborne Particulate Sampling

Atlas has performed monthly sample collection and analysis for U-nat and Pb-210. Atlas has also performed quarterly sample analysis for Ra-226 and Th-230. The above frequencies are as specified in SUA-917. Samples were collected from the six locations specified in SUA-917. All of the required data was provided.

My review of the data provided indicates that all results were well below the maximum permissible concentrations (MPC) for unrestricted areas specified in Appendix B to 10 CFR 20. The highest gross values, expressed as a percentage of MPC, are as follows:

(1) U-nat - 0.96%
(2) Pb-210 - 0.81%
(3) Ra-226 - 0.17%
(4) Th-230 - 8.0%

Radon Sampling

Atlas has performed continuous radon sampling for one week per month at the six locations where particulate sampling is conducted. This is in

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accordance with the requirements of SUA-917. The highest gross reading obtained for Rn-222 was 23.7% of the MPC.

Stack Sampling

Atlas is required by SUA-917 to conduct semi-annual isokinetic sampling of the yellowcake dryer stack. This sampling was not performed during first quarter 1982.

Groundwater Sampling

Atlas has performed quarterly grab sampling at three monitor wells specified in SUA-917 as well as the well at Arches National Monument Headquarters, which serves as a background well. Sample analysis was for Gross Beta-Gamma, U-nat, Ra-226, Th-230, Pb-210, Po-210, and thirteen chemical parameters. Sampling and analyses were as specified in SUA-917. Data was provided for all groundwater sampling performed.

My review of the radionuclide data indicates that all concentrations were well below the MPC for unrestricted areas. The highest gross values, expressed as a percentage of MPC, are as follows:

(1) U-nat - 3.4%
(2) Ra-226 - 17.2%
(3) Th-230 - 2.0%
(4) Pb-210 - 9.0%
(5) Po-210 - 0.6%

A review of the chemical data indicates elevated levels of seepage indicator parameters. Atlas is currently performing a hydrology study to determine the extent of seepage from the tailings pond and where it is going. This study will provide information regarding the adequacy of the current seepage monitoring system and the possible need for seepage mitigation measures.

Colorado River Sampling

Atlas has conducted monthly sampling at six locations for Gross Beta and Gamma, U-nat, Th-230 and Ra-226. Quarterly sampling was conducted for Pb-210, Po-210, and thirteen chemical parameters.
Parameters, frequencies, and locations for sampling are in accordance with SUA-917. Data was submitted for all sampling performed.

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My review of the radionuclide data indicates that all concentrations are very small percentages of MPC. In addition, analysis of the radionuclide and chemical data indicates that there is no discernible difference between the background sample taken upstream of the mill and those taken downstream of the mill.

Direct Radiation

Atlas has taken a quarterly gamma reading at several locations around the tailings pile and at several site boundary locations, as specified in SUA-917. The readings do not indicate any reason for concern.

Vegetation and Soil Sampling

Atlas is required by SUA-917 to conduct annual soil and vegetation sampling. However, this sampling was not conducted during first quarter 1982.

II. Dose Evaluations

Pathways Considerations

Dose to the nearest residence was calculated using the guidelines in Appendix A of "Compliance Determination for Environmental Radiation Protection Standards for Uranium Recovery Facilities--40 CFR 190," dated December 1980. Atlas considered exposure to external radiation and exposure from inhalation of airborne particulates in the dose determination. The pathways of meat, milk, food, and water ingestion were not considered because Atlas has indicated these pathways do not exist.

Determination of Doses from External Radiation

Doses from external radiation at the nearest residence were determined using TLDs at the nearest receptor and at the background location. The data provided indicates the whole body exposure above background to be 2 mrem.

Determination of Doses from Inhalation of Airborne Particulates

Atlas determined the doses from inhalation of airborne particulates by determining net concentrations of the particulates, then multiplying these net concentrations by the dose conversion factors furnished by NRC.

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The net concentrations were determined by subtracting particulate concentrations at the background site from those at the nearest residence (Tex's Tour Center located 0.5 miles east of the mill).

The results of the dose evaluation indicate the dose commitments to the whole body, bone and lung to be -1.39, -5.58, and -2.36 mrem, respectively.

However, the staff has requested by letter dated July 28, 1972, that Atlas propose a new location for the background air monitoring site. This request was based on a large fluctuation in readings for the third and fourth quarter 1981 which indicates that the concentrations at the site are not representative of unaffected background concentrations. The doses calculated by Atlas were based on background values at the location found unacceptable by the staff. The staff will therefore determine compliance with the 40 CFR 190 standard once the new site is operational.

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Pete J. Garcia, Jr., Project Manager
Operating Facility Section II
Uranium Recovery Licensing Branch
Division of Waste Management

Approved By: ORIGINAL SIGNED BY

Harry J. Pettengill, Section Leader
Operating Facility Section II
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Case Completed: 04003453180E

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