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MAR 10 1988

URFO: PJG  
Docket No. 40-8902  
SUA-1470, Amendment No. 3  
04008902150E

MEMORANDUM FOR: Docket File No. 40-8902

FROM: Pete J. Garcia, Project Manager  
Licensing Branch 2  
Uranium Recovery Field Office, Region IV

SUBJECT: AMENDMENT NO. 3 TO SOURCE MATERIAL LICENSE SUA-1470  
FOR THE BLUEWATER MILL

Introduction

By letter dated December 17, 1986, Anaconda Minerals Company submitted its response to the "List of Necessary Program Elements" presented in Appendix A of NRC Inspection Report No. 40-8902/86-001 issued on October 21, 1986. Anaconda also responded by two letters dated May 28, 1987 to NRC requests for information dated April 27 and May 8, 1987. Finally, Anaconda provided additional information regarding the proposed radiation safety and environmental monitoring programs in letters dated June 10, 1987 and February 24, 1988. The staff review of Anaconda's proposed programs is discussed below.

TAILINGS MANAGEMENT AND EFFLUENT CONTROL

Anaconda's proposed program for controlling blowing of tailings is discussed in Section A of the December 17, 1986 submittal and also the letter dated May 28, 1987. Anaconda's primary method of control is the placement of a six-inch soil cover over exposed tailings sands. The placement of the soil was initiated in June 1987 and was completed during September 1987. In sand-slime areas where the soil cover cannot be placed due to insufficient consolidation, chemical stabilizers and wind fences will be used to control blowing.

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The licensee proposed to verify the effectiveness of the control measures by means of a weekly inspection conducted by the Environmental Engineer (EE) the Mill Engineer, or the Radiation Safety Officer (RSO). A task checklist is maintained to assure the timely performance of corrective actions. The checklist is reviewed weekly for completion of tasks by the EE. The staff will require that any corrective actions requiring more than 30 days to complete be approved in writing by the NRC.

Anaconda has also conducted a test program to evaluate the effectiveness of various geotextiles in accessing slimes areas. Anaconda submitted the results of the testing program along with a proposed program for covering slimes areas for NRC review on February 17, 1988. This program will be reviewed separately by the staff.

Anaconda has proposed a windblown contamination cleanup program in the reclamation plan submitted for NRC review on October 1, 1986. Anaconda states in the May 28, 1987 letter that windblown cleanup is scheduled to begin in mid 1989 and be completed by the end of the first quarter of 1990. This timeframe coincides with Anaconda's proposed schedule for decommissioning of the mill.

#### Organization, Management, and Training

The organizational structure for the Bluewater Mill is described in the February 24, 1988 submittal. The individual responsible for the radiation safety program at the site is the RSO. He reports to the facility Project Manager, who is located at Anaconda's Denver, Colorado headquarters. The Project Manager in turn reports to the Manager of Minerals Projects, also located in Denver.

The qualifications for the position of RSO are required by Condition No. 19 of Source Material License SUA-1470 to be in accordance with Section 2.4.1 of Regulatory Guide 8.31. In addition, the licensee committed that the RSO would receive refresher training in health physics every two years.

The licensee has stated that an annual ALARA audit will be performed by an audit team which includes the Project Manager, the EE, and the RSO. The audit will include a review of monitoring data, training activities, and operating procedures. Anaconda also stated that a copy of the report documenting the ALARA audit will be submitted for NRC review within 30 days of completion of the report.

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Anaconda stated that radiation safety training will be provided to employees on an annual basis. Further, Anaconda stated that the training topics and class rosters would be kept on file. Finally, the licensee indicated that the training would include the topics specified in Section 2.5 of Regulatory Guide 8.31.

Anaconda indicates that site standard operating procedures (SOPs) will be reviewed, updated, and approved by the RSO and that Radiation Work Permits (RWPs) will be used for non-routine jobs where the potential for exposure to radioactive materials exists. Standard license conditions regarding SOPs and RWPs are already included in Anaconda's license.

#### Radiation Safety Program

The mill is currently non-operational and is awaiting decommissioning. Further, no site personnel are routinely stationed within mill process areas. Any work within mill process areas is performed under an RWP, which will describe the radiological monitoring necessary to evaluate worker exposure. The licensee also stated that all entries to mill process buildings will be conducted under an RWP. Air monitoring during the pre-decommissioning period will be as specified in the RWPs issued by the RSO. A mill decommissioning plan was submitted for NRC review by letter dated December 29, 1987. A health physics monitoring program suitable for mill decommissioning will be included in the approved plan.

The licensee's proposed external radiation and surface and personnel contamination control programs are specified in Attachments 27 and 33 of the February 24, 1988 and the December 17, 1986 submittals, respectively. External radiation surveys are conducted annually in more than 50 locations within the restricted area. In addition, the licensee stated that surface contamination surveys will be performed on a monthly frequency at eight locations, including offices, eating areas and laboratories. Further, employees exposed to yellowcake are required to either shower or monitor for contamination prior to leaving the restricted area. Equipment leaving the restricted area is also surveyed for surface contamination. License conditions regarding the release of equipment to unrestricted areas and personnel contamination are already included in the license for the Bluewater Mill. The licensee submittals did not, however, address action levels for surface and personnel surveys. The staff will therefore require that the action levels be in accordance with Table 1 of Regulatory Guide 8.30.

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Proposed calibration frequencies for site instrumentation are specified in Attachment 24 of the December 17, 1986 submittal. The proposed frequencies are as follows:

- (1) Instant Working Level Meter - before each use or at least quarterly.
- (2) Air sampling pumps - before each use, once per quarter, or whenever the pumping volume is changed, whichever comes first.
- (3) Gamma and alpha survey meters-annually with function checks conducted prior to each use.

Anaconda's general quality assurance program is discussed in Attachment 25 of the December 17, 1986 submittal. The general program consists of the use of duplicate analyses, standards, and spiked samples to verify the quality of analysis. In addition, aliquots of samples are sent to outside laboratories for independent verification. More specific information is provided in the QA portion of Attachment 14. The procedure indicates that one blank, two standards, and one spiked sample are analyzed for each eight regular samples analyzed. The procedure further states that if the analysis of the spiked sample results in an error of more than 20%, the entire sample set is reanalyzed. Finally, the licensee states that aliquots of about 10% of the samples are sent to two different outside laboratories for analysis and comparison. Anaconda has stated that lower limits of detection (LLD) to be utilized for sample analysis will be equivalent to those specified in Table 2 of Regulatory Guide 8.30.

Anaconda's proposed bioassay program is discussed in Attachment 26 of the December 17 submittal. Anaconda states that all mill personnel submit urine samples for analysis semi-annually. The samples are submitted after two, but not more than four days after the most recent occupancy of the mill. The samples are analyzed flourometrically using an LLD of 5 ug/l. Each set of samples to be analyzed consists of one blank, one standard, background specimens spiked with 15 and 30 ug/l uranium concentrations, two spiked worker samples, and six regular samples. If any of the spiked samples are in error by more than 30%, the entire set will be reanalyzed. Anaconda stated that samples showing results over 15 ug/l are reanalyzed, then sent to an outside laboratory for confirmation. Anaconda stated that action levels for urinalysis results and the resulting corrective actions will be as specified in Revision 1

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of Regulatory Guide 8.22, and committed to reporting the exceeding of action levels to the NRC. Anaconda also indicated that in vivo counting will be performed in accordance with Section 3 of Revision 1 to Regulatory Guide 8.22.

#### Environmental Monitoring Program

Anaconda's proposed particulate monitoring program is specified in Attachment 35 of the submittal dated February 24, 1988. Continuous monitoring for airborne particulates is conducted at three locations: the nearest residence, upwind of the tailings pond, and downwind of the tailings pond. The filters are changed weekly, and quarterly composites of the filters are analyzed for U-nat, Ra-226, Th-230, and Pb-210. Continuous monitoring for Rn-222 and gamma exposure rates is also conducted at the three air particulate monitoring sites, as specified in Attachments 35.

The licensee's proposed ground-water sampling program is provided in Attachment 39 to the December 17, 1986 submittal. Anaconda proposes to sample more than 30 ground-water wells on or near the site. The wells are sampled for Ra-226, gross alpha and beta, and eight chemical or physical parameters monthly, quarterly, or semi-annually depending on well location. In addition, all wells are sampled annually for U-nat, Th-230, Ra-226, gross alpha and beta, and 17 chemical or physical parameters. The program is acceptable. However, future changes to the program as a result of staff review of Anaconda's submittal dated January 19, 1988 concerning compliance with Criterion 5 of Appendix A to 10 CFR 40 may be necessary.

A proposed soil and vegetation sampling program is also discussed in Attachment 35. Anaconda proposes to collect vegetation and soil samples annually at the three air particulate sampling locations and analyze for Unat, Ra-226, and Pb-210.

Anaconda stated that all analyses of environmental samples would be performed by an EPA-certified laboratory, and that LLDs for sample analysis would be in accordance with Section 5 of Regulatory Guide 4.14. The proposed environmental monitoring program is adequate. The staff will, however, require that the licensee perform an annual survey of land use within two miles of the site to assure that changes in land use which would necessitate a change in the environmental monitoring program do not go undetected.

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Conclusion

The staff concludes that Anaconda's proposed radiation safety and environmental monitoring programs, as modified by the staff, are adequate for a mill to be decommissioned. The staff therefore recommends that Source Material License SUA-1470 be amended to incorporate the updated programs and delete reference to the programs previously in effect by deleting Conditions No. 28 and 29, revising Condition No. 16, and adding Conditions No. 32 and 33 to read as follows:

16. The licensee shall implement an interim stabilization program for tailings as specified in Section A of the December 17, 1986 submittal and Items 1-4 of the submittal dated May 28, 1987 in response to the NRC letter dated April 27, 1987. This program shall include written operating procedures and shall prevent or minimize dispersal of blowing tailings to the extent reasonably achievable and in accordance to Criterion 8 of 10 CFR 40, Appendix A. The effectiveness of the control method used shall be evaluated weekly by means of a documented tailings area inspection, and corrective actions taken and documented in response to inspection findings. Corrective measures requiring more than 30 days to complete shall require the written approval of the NRC.
28. DELETED by Amendment No. 3.
29. DELETED by Amendment No. 3.
32. The licensee shall implement the radiation safety and environmental monitoring programs specified in Section B and Attachments 24, 26, 27, 28, 33, 35, and 39 of the licensee's submittal dated December 17, 1986, as revised by submittal dated February 24, 1988. The licensee shall also implement the quality assurance procedures specified in Attachment 14 of the December 17, 1986 submittal for all sample analyses conducted onsite. Action levels for surface and personnel contamination surveys shall be as specified in Table 1 of Regulatory Guide 8.30.

Whenever the word "will" is used in the documents referenced above, it shall denote a requirement.

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33. The licensee shall conduct an annual survey of land use (grazing, residence, wells, etc.) in the area within two miles of the mill and submit a report of this survey annually to the USNRC, Uranium Recovery Field Office. This report shall indicate any differences in land use from that described in the licensee's previous annual report. The report shall be submitted by July 1 of each year.

The issuance of this amendment was discussed via telecon between Messrs. Paul Bergstrom and Natver Patel of Anaconda and myself on March 3, 1988.

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Pete J. Garcia, Project Manager  
Licensing Branch 2  
Uranium Recovery Field Office  
Region IV

Approved by:

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Harry J. Pettengill, Chief  
Licensing Branch 2  
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