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40-3453/PJG/82/06/30/0

WMUR:PJG
Docket No. 40-3453
SUA-917, Amendment No. 7

JUN 30 1982

Atlas Minerals
Post Office Box 1207
Moab, Utah 84532

Gentlemen:

Pursuant to Title 10, Code of Federal Regulations, Part 40, and in accordance with your application dated July 10, 1981, Source Material License SUA-917 is hereby amended by revising Condition Nos. 19, 22 and 24 and adding Condition No. 52 to read as follows:

19. (A) Construction of the tailings embankment to elevation 4076 feet shall be in accordance with Appendix B of the submittal "Report of Stability Analyses, 18-Foot Raise of Tailings Embankment to Elevation 4076 Feet, Moab, Utah, for Atlas Minerals" dated June 4, 1981, with the following exceptions:

(1) Quality control tests shall be performed at the frequencies specified below (ASTM Standard Methods):

(a) Compaction test, D-698 - At least five full tests prior to construction using a range of representative borrow soils followed by one-point tests at a frequency of at least one per 5000 cubic yards of fill placed. The family of curves developed from the full compaction tests shall be used in evaluating one-point test data.

(b) Gradation test, D-422 - At least one test per 5,000 cubic yards of fill placed.

(c) Nuclear moisture and density tests D-3017 and D-2922, respectively - At least one test per 2,500 cubic yards of fill placed.

(d) Conventional moisture and density tests D-2216 and D-1556, respectively - Calibration of the nuclear tests specified in (c) above shall be performed using

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the tests specified in this section prior to beginning construction and at least once per 50,000 cubic yards of fill placed thereafter.

(e) Additional gradation testing shall be performed if the gradation of material appears to differ significantly from materials previously tested. If the gradation has changed significantly, a full compaction test shall be performed.

(2) Embankment piezometers shall be read at a weekly frequency during construction and until readings have stabilized. Thereafter, piezometers shall be read on a monthly frequency.

(3) A report describing construction activities and containing the results of all quality control testing specified in (1) above shall be submitted to the Uranium Recovery Licensing Branch within six months of completion of construction.

(B) The licensee shall maintain a minimum of six feet of freeboard and 150 feet of beach between the embankment crest and the ponded liquid.

(C) At least ninety days prior to beginning construction the licensee shall submit to the Uranium Recovery Licensing Branch for review the results of the field and laboratory testing specified below:

(1) At least six additional borings with standard penetration tests shall be drilled at, and toward the pond from, the final embankment crest. Three borings shall be located at each of two critical sections. The locations shall extend far enough upstream of the crest to investigate all the soils that could affect the embankment stability. The borings shall penetrate at least to the underlying foundation soils.

(2) In the borings described above and in at least two additional borings on the downstream slope, representative undisturbed fixed piston samples shall be obtained for triaxial compression testing. Samples of both the sand tailings and slime tailings at all depths shall be

included. The sampling and handling procedures shall be selected to minimize disturbance and densification. Careful field measurements shall be taken to permit determination of the following data:

-inside diameter of tube and inside diameter of cutting edge
-total distance tube is pushed
-gross length of sample recovered
-net sample length after trimming
-distance to sample and/or packer from both ends of tube, before and after handling and transport

(3) Perform consolidated undrained triaxial compression tests to large enough strains to determine post-peak (steady-state) undrained and drained strength parameters for both sand and slime tailings. Perform sufficient tests to determine any variation in strength with distance into the pond, and to define the strength envelopes over the range of consolidation stresses on the failure envelopes. Carefully monitor sample length and density during handling, trimming, and consolidation in the laboratory.

(4) Evaluate liquefaction potential of soils at and upstream of the crest, based on blowcounts and/or cyclic triaxial test results. Include consideration of the plasticity of the soils, if appropriate. If soils are potentially liquefiable, perform additional analyses to determine effect of liquefaction on overall stability of embankments and pond.

(5) Determine appropriate post-peak undrained strengths for seismic analyses from results of triaxial tests using the lower of the undrained or drained strengths. Include appropriate corrections for the density changes between the soil in situ and the samples as-tested. If the strengths determined from these additional tests are lower than the values used in the analyses, perform additional pseudostatic seismic stability analyses at critical sections.

(D) Drainage berms shall be installed over seepage areas on the embankment prior to construction of the lift. These berms shall be graded to protect against piping of the embankment material.

22. The licensee shall reclaim the Atlas Mill tailings disposal area in accordance with the May 29, 1981 submittal "Report Conceptual Design and Cost Estimate, Tailings Pile Reclamation, Moab, Utah, for Atlas Minerals." In addition, surety arrangements covering the tailings reclamation costs shall be maintained.

24. The licensee shall establish an effective, NRC-approved financial surety arrangement, by January 1, 1983, to cover all costs for mill decommissioning, decontamination, and site reclamation, and maintain these or other NRC-approved arrangements thereafter until this license is terminated by the NRC.

52. The licensee shall implement the embankment inspection program as specified on pages 8-1, 8-2, and 8-3 of their submittal "Response to NRC Requests For Additional Information, Proposed Tailings Embankment Raise, Moab, Utah, for Atlas Minerals," dated May 17, 1982. In addition to the above program, the licensee shall comply with the following:

    (1) Embankment piezometer readings and pond elevation readings shall be maintained in graphical form.

    (2) An annual technical evaluation of embankment performance, including reviews of all embankment instrumentation data, shall be performed by an individual familiar with the design, construction and operation of embankments. A copy of this annual report shall be submitted to the Uranium Recovery Licensing Branch within one month of completion.

All other conditions of this license shall remain the same.

The effect of this amendment is to authorize the construction of an 18 foot lift for the tailings embankment system at the Moab Mill. The

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issuance of this amendment was discussed via telecon between your Mr. R. Weaver and Pete Garcia of my staff on June 28, 1982.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by

Ross A. Scarano, Chief
Uranium Recovery Licensing Branch
Division of Waste Management

Case Completed: (04003453012S)

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