

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION IV

Report No. 40-3453/78-01

License No. SUA-917

Licensee: Atlas Minerals
Moab, Utah 84532

Docket No. 40-3453

Inspection conducted: August 2-3, 1978

Inspector:

J. B. Baird
for J. B. Baird, Radiation Specialist

10/5/78
Date

Inspector:

M. J. Mustain
M. J. Mustain, Radiation Specialist

10/5/78
Date

Approved by:

R. J. Everett for
Glen D. Brown, Chief, Fuel Facility and
Material Safety Branch

10/7/78
Date

Inspection Summary

Inspection on August 2-3, 1978 (Report No. 40-3453/78-01)

Areas Inspected: Routine, unannounced inspection of uranium mill operation including organization and administration; internal audits; facilities and equipment; maintenance; access controls; posting; internal exposure control; external exposure control; fire protection; training; environmental monitoring; and licensee action on previously identified noncompliance items. The inspection involved 26 inspector-hours on site by two NRC inspectors.

Results: Of the ten areas inspected, no apparent items of noncompliance or deviations were identified in seven areas; six items of noncompliance were identified in three areas; (infraction - five overexposures to airborne concentrations - See Paragraph 9.b.; infraction - improper respirator selection - See Paragraph 9.c.; infraction - procedures for implementing Part 21 - See Paragraph 11.; infraction - failure to implement 40-hour control measure for airborne radioactivity on a timely basis - See Paragraph 9.a.; deficiency - failure to file annual inventory report - See Paragraph 12; deficiency - no Part 21 posting - See Paragraph 11.)

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DETAILS

1. Persons Contacted

Atlas Minerals

- *R. Adrian, General Superintendent
- *S. Shately, Personnel and Safety Manager
- *D. Edwards, Chief Metallurgist and Radiation Safety Officer
- *R. Daughetee, Radiation Safety Technician

Other

- *D. Mitchell, Bureau of Radiation and Occupational Health, State of Utah

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Noncompliance (40-3453/77-01): This item involved the failure to notify NRC of allowance for the use of respiratory protective equipment. The inspectors noted that appropriate notice had been received by the NRC.
- b. (Closed) Noncompliance (40-3453/77-01): This item involved failure to maintain tailings pond water at a minimum distance from the embankment. The inspectors noted that this had been corrected by an approved upgrading of the tailing disposal area.
- c. (Closed) Noncompliance (40-3453/77-01): This item involved failure to properly endorse training forms to affirm the new employee's understanding of radiation safety. The inspectors noted that this was corrected and maintained in compliance during the period covered by this inspection.
- d. (Closed) Noncompliance (40-3453/77-01): This item involved failure to provide a portable radiation counter for the locker room. The inspectors noted that radiation survey instrumentation had been made available at shift changes.
- e. (Closed) Noncompliance (40-3453/77-01): This item involved failure to wear a required respirator during repairs to the dust collection auger. The inspectors observed that individuals were wearing respirators as required during the inspection period.

- f. (Closed) Noncompliance (40-3453/77-01): This item involved lack of a fence across Moab Canyon Wash. The inspectors observed that the fence had been replaced.
- g. (Closed) Noncompliance (40-3453/77-01): This item involved failure to collect soil samples to a depth of one inch. The inspectors noted that annual soil samples are collected as required.
- h. (Closed) Noncompliance (40-3453/77-01): This item involved failure to document channeling of the tailing pond embankment on inspection logs. The inspectors noted that inspection records included remarks about erosion of the tailings pond embankment.
- i. (Closed) Noncompliance (40-3453/77-01): This item involved crushed ore located outside of the restricted area. The inspectors observed that all crushed ore was located inside of the restricted area during the inspection.
- j. (Closed) Noncompliance (40-3453/77-01): This item involved (a) failure to make unrestricted area radiation surveys in areas adjacent to ore stock piles, and (b) failure to make adequate evaluations of airborne radioactive material concentration to demonstrate compliance with the 40-hour control measure. The inspectors noted that appropriate surveys and evaluations were being performed; however, it was noted that no evaluations of compliance with the 40-hour control measure had been performed prior to 1978.
- k. (Closed) Noncompliance (40-3453/77-02): This item involved failure to meet five requirements of License Condition 12 and Annex A in regard to the use of respiratory protection equipment. The inspectors noted that these requirements had been replaced by the provisions of 10 CFR 20.103(C) and Regulatory Guide 8.15. The inspectors also observed that the licensee has complied with the latter requirements with one exception noted in Paragraph 9.c.
- l. (Closed) Noncompliance (40-3453/77-02): This item involved failure to perform timely evaluations of individual intakes of radioactive material through measurements of radioactivity excreted from the body. The inspectors noted that evaluations are being performed on a timely basis.

- m. (Closed) Noncompliance (40-3453/77-02): This item involved exposure to airborne radioactivity such that intakes by individuals exceeded limits set by 10 CFR 20.103(a). The inspectors noted that five individuals' intakes exceeded the limits of 10 CFR 20.103(a) during the period covered by the inspection.
- n. (Closed) Noncompliance (40-3453/77-02): This item involved failure to report intakes of radioactivity exceeding 10 CFR 20.103(a) limits to the NRC. The inspectors noted that reports had been submitted for the excessive intakes noted in l., above.
- o. (Closed) Noncompliance (40-3453/77-02): This item involved failure to report intakes of radioactivity exceeding 10 CFR 20.103(a) limits to the individuals involved. The inspectors noted that reports to individuals had been made for the excessive intakes noted in l., above.

3. Organization and Administration

The inspectors discussed the organization and administration of the licensed activities with Atlas Minerals representatives and noted that Mr. Richard A. Adrian is employed as the General Superintendent. Mr. William P. Badger was employed in this capacity during the previous inspection.

No apparent items of noncompliance or deviations were identified.

4. Internal Review and Audit

The inspectors noted that the General Superintendent reviews the monthly Radiation Reports as an audit of control of radiation hazards, associated with the mill operations.

No apparent items of noncompliance or deviations were identified.

5. Training

The inspectors discussed radiation training procedures with the Personnel and Safety Manager and reviewed selected training records. It was noted that new employees are required to read and sign a radiation indoctrination form, which also is signed by the Radiation Safety Officer and a supervisor to indicate understanding of radiation safety requirements. In addition, an annual review of radiation safety procedures is conducted and documented for all workers.

No apparent items of noncompliance or deviation were identified.

6. Maintenance

The inspectors reviewed work control procedures to verify that control of maintenance activities were as required by the S.A.R. Nonroutine activities are initiated by a work permit signed by a superintendent or the Radiation Safety Officer. Major maintenance activity during the period covered by the inspection included replacement of the inside of the yellowcake hearth. This work resulted in several individuals being exposed to high airborne concentrations of yellowcake dust (See Paragraph 9.).

7. Facilities and Equipment

The inspectors toured the mill and the tailings disposal area on August 2, 1978. All facilities and equipment observed appeared to be as described in the licensee's applications. Posting and access controls were in accordance with applicable requirements. Discussion and records showed that the mill is operated 24 hours/day, 7 days/week, at an average throughput of 1200 tons/day.

The inspectors noted that the tailings area and embankment appeared to be well maintained, and freeboard was adequate with control of pond water to a minimum distance of 150 feet from the embankment crest on the north, east and south sides. A records review showed that daily tailings pond inspections are conducted and documented as required.

No apparent items of noncompliance or deviations were identified.

8. Radiation Protection Program - External

The radiation protection program for the control of external radiation was reviewed to determine compliance with the licensee's procedures and pertinent regulations. The inspectors reviewed the program as follows:

a. Personnel Monitoring

The licensee uses TLD badges supplied by the Radiation Detection Company. Review of the vendor badge reports through April 30, 1978, showed all recorded doses within the limits specified by 10 CFR 20.101, except for one individual's record for the period August 1-30, 1977. For this individual, a dose of 14,000 mrem of nonpenetrating radiation was recorded. The licensee evaluated this matter and concluded that the badge had been contaminated and did not truly represent the individual's exposure. This was reported to the NRC on October 31, 1977.

b. Direct Radiation Surveys

The inspectors noted that restricted area readings are taken and recorded quarterly with a portable survey instrument. It was also noted that similar surveys are conducted in unrestricted areas near the crushed ore storage each quarter.

No apparent items of noncompliance or deviation were identified.

9. Radiation Protection - Internal

The inspectors discussed the licensee's program for control of intakes of radioactive materials in the restricted area and reviewed selected records. It was noted that general air samples are taken in 14 locations on a monthly basis and 7 locations on a weekly basis. Routine breathing zone samples are collected for operators in 5 areas on a monthly basis. Nonroutine breathing zone samples are collected as stipulated on work orders. Half-mask air purifying respirators were used until September 1977, when full-face air purifying respirators were made available. No protection factor was applied for the half-mask use and a factor of 100 was used for the full-face masks until January 1, 1978, when a factor of 50 was initiated in accordance with Regulatory Guide 8.15.

- a. The inspectors noted that intakes of airborne radioactive materials had not been evaluated on a 40-hour control basis prior to 1978. This was cited as an item of noncompliance following the June 13-15, 1977, inspection. The inspectors stated that failure to implement corrective action for this item on a timely basis is considered to have been a continuing item of noncompliance which was subsequently corrected in February 1978.
- b. The inspectors noted that time-weighted exposure records showed that five individuals who worked on the yellowcake hearth in the period July 24, to September 3, 1977, received inhalation exposures of 1.2 to 1.8 times the limit specified in 10 CFR 20.103(a)(2) when the protection factor for half-masks was not allowed. No credit for the protection factor was allowed since, prior to January 1, 1978, the licensee did not have a respiratory protection program in accordance with Regulatory Guide 8.15 and the previously applicable Annex A to the license allowed no protection factor for half-masks. Because of this, the inspectors stated that the recorded intakes above are considered to be noncompliance with 10 CFR 20.103(a)(2).

- c. The inspectors reviewed the licensee's respiratory protection program and found it to be in accordance with 10 CFR 20.103(c) and Regulatory Guide 8.15 requirements during 1978 with one exception. Section C.2 of Reg. Guide 8.15 states that respiratory protective equipment is to be selected to provide a protection factor greater than the ratio of peak concentration to the Appendix B concentration value. Records show that an individual worked on the yellowcake hearth on May 2, 1978, with a full-face respirator having a protection factor of 50 when the peak concentration was approximately 298 times the Appendix B concentration limit. The inspectors stated that this is considered to be noncompliance with 10 CFR 20.103(c) and Regulatory Guide 8.15.
- d. The inspectors reviewed the in-vivo and urinalysis bioassay programs. Urinalysis samples are collected weekly or two times monthly depending on the type of work performed. Special samples are taken for nonroutine work with high airborne radioactivity. Workers are removed from an area when three consecutive samples exceed 15 micrograms per liter. The urinalysis records showed several examples of this with the highest value observed as 78.7 micrograms per liter. One value of 1221.4 micrograms per liter was noted but a sample taken three days later confirmed the first sample was not valid. No items of noncompliance or deviations were identified in this area.
- e. The inspectors reviewed the licensee's program for contamination surveys in the restricted area and for workers going off shift. No items of noncompliance or deviations were identified in this area.

10. Environmental Monitoring

Sampling, analyses and meteorological requirements are contained in License Condition 13 and Section 5 of the S.A.R. The inspectors discussed the programs for air, soil and water with the licensee and reviewed sampling results back to the last inspection. The annual stack sampling program was also reviewed.

No apparent items of noncompliance or deviations were identified.

11. Notices to Employees

The inspectors observed that notices required by 10 CFR 19.11(b) and (c) were posted as required. However, no posting pursuant to 10 CFR 21.6 was observed and this was cited as an apparent item of noncompliance. The inspectors also determined that the written procedures required by 10 CFR 21.21(a) had not been developed. This was cited as an apparent item of noncompliance.

12. Records and Reports

The inspectors reviewed the licensee's reporting pursuant to 10 CFR 40.64(a) and (b). The inspectors noted that no annual report of source material inventory had been submitted for 1977 in accordance with 10 CFR 40.64(b). This was cited as an apparent item of noncompliance.

13. Fire Protection and Prevention

The inspectors discussed the licensee's fire prevention and protection programs and observed the overhead foam spray system at the solvent extraction circuit. Since there are no requirements in this area, no items of noncompliance or deviations were noted.

14. Exit Interview

The inspectors met with those individuals denoted in paragraph 1 at the conclusion of the inspection on August 3, 1977. The purpose and scope of this inspection were summarized and findings were discussed.