

Radiation Protection Consultant

Noel Savignac, Ph.D.

COMPLIANCE AUDIT OF THE EQUIPMENT SURVEY PROCEDURES
AT THE
ATLAS URANIUM MILL, MOAB, UT

BY:

NOEL SAVIGNAC

MARCH 22, 1994

9409190099 940420
PDR ADDCK 04003453
C PDR

6100 Uptown Boulevard N.E., Suite 700 · Albuquerque, New Mexico 87110
Bus: (505)881-4150 Res: (505)256-9603 FAX: (505)881-7420

EXECUTIVE SUMMARY

An audit of the Atlas equipment and materials survey procedure was conducted March 22, 1994. The survey procedure was being followed well with considerable attention given to each step of the procedure. All equipment and materials released from the uranium mill since the implementation of the survey procedures on 02-02-94 appeared to meet the Nuclear Regulatory Commission (NRC) release standards. Only minor deficiencies were observed, which included:

- 1) Not all entries on the record keeping form has been completed, but the entries were corrected during the audit,
- 2) A gap was observed in between the gate and the fence around the equipment transfer yard,
- 3) Not all equipment in the transfer yard, outside the restricted area of the mill, was marked as noncontaminated.
- 4) Not all releasable equipment was stored in the transfer yard, or stored for 10 days or less on the clean ore pads.

I. REGULATORY BASIS FOR AUDIT

Source Materials License No. SUA-917, condition 18 states: "Release of equipment or packages from the restricted area shall be in accordance with the document entitled, 'Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of License for Byproduct or Source Materials' dated September, 1984. [Applicable Amendments: 18] [NRC, 1984]." That document presents the NRC standards for release of material and equipment from a uranium mill.

The Atlas Minerals Radiation Safety Procedures Manual Section 4.4, Release of Equipment from the Mill During Decommissioning, Quality Assurance (02-02-94) states "A Radiation Protection Consultant is to conduct two radiation protection and compliance audits of the implementation of this procedure within the first 3 months of procedure implementation. If materials and equipment have been released with contamination exceeding the NRC release standards, corrective actions are to be implemented and the frequency of audits increased...Audit reports will be made available to the NRC within 30 days of the receipt of the audit report by Atlas Minerals. Subsequently Atlas Minerals or its designee will conduct quarterly audits of this procedure for the next year that equipment is being released offsite. Thereafter the audits will be part of the annual ALARA audit."

II. AUDIT FINDINGS

An audit of the Atlas Minerals equipment survey procedure was conducted March 22, 1994 at the Atlas Minerals uranium mill in Moab, UT. The audit was conducted by Noel Savignac, Radiation Protection Consultant with the cooperation of Dale Edwards, Radiation Control Coordinator; Carl Dixon, Contract Manager, Susan Hatch, Radiation Technician; and Johnnie Chicon, Radiation Technician. Results of the audit are presented below. Each of the items in the audit report represents conditions observed during the audit, is based on records present at the time of the audit, and does not reflect corrective actions implemented by Atlas personnel between the time of the audit and the receipt of this audit report.

1. The Atlas equipment survey procedure requires that survey results be documented on form AT-1, "Atlas Minerals Equipment Release Survey." Between 02-02-94 and 03-22-94 a total of 5 truckloads of equipment and scrap had been shipped off site. The AT-1 forms documented the survey results and indicated that all released equipment met the requirements of NRC, 1984. Most of the AT-1 forms were complete, however a few forms had incomplete entries, which included:

- a) Not all of the DPM/100 cm² values, which are calculated from the observed CPM/50 cm², were recorded on the form.
- b) Checks had not been placed in all of the equipment release columns,
- c) Some surveyed items were marked as rejected but the survey results were not recorded,
- d) Not all forms included an entry for the mark used to designate releasable equipment,
- e) Counter efficiency and background was not recorded on every form,

None of these deficiencies indicated that any piece of contaminated equipment has been released. With the exception of item c) where the data was not available, each of these deficiencies were corrected during the audit.

2. The equipment transfer yard use to store surveyed, releasable equipment was enclosed by an intact wire mesh fence and a gate. However when the gate to the fence was closed and locked a 2.5 foot gap was present between the gate and the adjoining fence post. The gap provided easy access through the gate without unlocking the gate.

Although big pieces of equipment were secure within the transfer yard, personnel and small pieces of equipment could pass through the gate unimpeded. Atlas personnel agreed to close the gap to provide better security of surveyed equipment inside the yard.

3. Not all the equipment within the equipment storage yard was marked as being noncontaminated and releasable. Examples included the Gardner Denver air compressor, a ventilation fan, two D8 bulldozers, a 621 carry-all, and a 126 scraper. The Radiation Control Coordinator stated the bulldozers, carry-all, and scraper had been surveyed before the 02-02-94 Atlas equipment survey procedures were implemented. At that time equipment was not marked to designate that the equipment was not contaminated. Although the equipment survey procedure does not specifically require all equipment in the transfer yard to be marked, contaminated equipment is not to be outside the restricted area of the mill. The equipment transfer yard is outside the restricted area of the mill. All equipment in the equipment transfer yard will be verified as noncontaminated. The air compressor was marked during the audit to indicate that the compressor was not contaminated.
4. Releasable equipment is to be either released with a copy of the Authorization for Release form filed, stored in the equipment transfer yard or stored for 10 days or less on the ore pad. In contrast a surveyed and marked variable drive unit, was located in the mill shop inside the restricted area of the mill. The variable drive will be moved to the equipment transfer yard or released.

III. QUESTIONS ASKED DURING THE AUDIT Answers provided below:

1. When surveying potentially contaminated equipment are all surfaces monitored? All surveyed and releasable equipment observed during the audit was marked with white spray paint on each side to designate that the surface had been monitored.
2. What evidence exists of planning prior to surveying equipment? American Reclamation informs the Radiation Control Coordinator when equipment will be ready for surveying.
3. What evidence exists that the ore pads, when in use, were washed weekly? Form AT-1 were available for surveys conducted on 02-02-94; 03-08-94; 03-17-94. If a pad was covered with steel which was not being washed or monitored the pad was not considered in use.

- 4.. Where does the wash water from the pads flow? The wash water flows down the dirt road in the restricted area to the "gyp" pond. Photographs were taken of the water path.
5. Are the items ready for monitoring separated from one another on the pad? Yes.
6. Have identification numbers been placed on all the items to be monitored? All items to be surveyed were numbered using a grease pencil. Atlas was not monitoring items in groups of similar items.
7. Were all the survey instruments in use properly calibrated? Yes. Calibration dates were 05-30-94 or 12-31-93.
8. Were any items released in excess of the standards? None were found during the audit. Some items that could have been released based on the survey results were not released by the Radiation Control Coordinator because he had reason to question the survey results or the residual contamination on the item.
9. Were noncontaminated items marked with orange paint? Yes. In addition contaminated items were marked with blue paint which was not required by the procedures.
10. Where were the contaminated items placed? Contaminated items were kept inside the restricted area of the mill.
11. Was the gate to the equipment transfer yard locked? Yes, see finding 2 above.
12. Were any monitored, noncontaminated items left on the ore pad more than 10 days? The survey procedure does not require documenting the hold time, but the Radiation Control Coordinator and the Radiation Technicians were enforcing the 10 day limit with the reclamation contractor.
13. Were survey results available of trucks leaving the restricted area with loads of clean equipment? Yes.
14. Were the gates to the restricted area locked when Atlas personnel were not in the vicinity? Yes.
15. Were beta-gamma surveys conducted monthly of the equipment transfer yard? Results were available for surveys conducted 03-01-94; 03-17-94.
16. Were the vehicles or equipment used to move equipment from the ore pads to the equipment transfer yard surveyed? Yes, a survey was conducted on 03-17-94.

17. Were any paper air filters used on equipment in the restricted area monitored? No. The filters were removed from the equipment before the equipment was removed from the restricted area.
18. Were empty transport trucks monitored before equipment was loaded onto the truck? Yes.
19. Were the loaded transport trucks monitored before leaving the Atlas property? Yes.
20. Was an "Authorization for Release of Equipment and Materials" form signed and available for each outgoing shipment? Yes, copies of the bill of lading with the "Authorization for Release" were observed during the audit.
21. Are the AT-1 forms filed in the Radiation Control Coordinator's office? Yes.
22. Were weekly spot checks conducted on the Radiation Technician's surveys of contamination? Yes, on 02-17-94; 02-25-94, 0303-94; 03-10-94, and on 03-17-94.
23. Are the radiation exposures of the Radiation Technicians documented? TLD measurements and urinalyses were conducted on the Radiation Technicians.
24. Has all of the known contaminated equipment released prior to 02-02-94 been cleaned up or returned to Atlas? NO, Atlas was still working on the issue. The Radiation Control Coordinator has made a two trips to clean up some of the equipment, one to Wanship, UT and one to Arora, UT. The State of Washington Radiation Control personnel had been contacted about clean up of the ball mills in their state.

IV. PHOTOGRAPHS AND VIDEO TAPE

Photographs and a video tape of the equipment survey procedure are available from Atlas Minerals.

V. RECOMMENDATION

1. Monthly reports have been prepared by the Radiation Control Coordinator and submitted to the Vice President of Environmental and Governmental Affairs. The reports contain averages of each category of equipment contamination which are statistics that are time consuming to prepare. Rather than compiling the averages of each category, the highest value in each category could be reported. The highest value could then be compared to the values in NRC, 1984 and used

as an indicator of trends, washing efficiencies, etc.
Changing to the highest value from the average will save
considerable time in preparing the report and yield
equivalent information to the Vice President.