

Docket File 40-3453

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Docket No. 40-3453
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04003453190S

MEMORANDUM FOR: Docket File No. 40-3453
FROM: Pete J. Garcia, Jr., Project Manager
Uranium Recovery Field Office
SUBJECT: REVIEW OF ATLAS MILL APPRAISAL AND FOLLOWUP
INSPECTION

The purpose of this memorandum is to review the results of the mill appraisal at the Moab Mill conducted during the period May 11-15, 1981 and the followup inspection conducted on May 25-27, 1982. I have reviewed correspondence concerning the mill appraisal from Region IV to Atlas dated July 1, 1981; October 15, 1981; and December 22, 1981, and replies from Atlas to Region IV dated August 5, 1981; November 12, 1981; and December 11, 1981. Correspondence reviewed concerning the followup inspection includes letters from Region IV to Atlas dated June 23 and August 5, 1982 and Atlas' reply dated July 10, 1982.

Violations and significant appraisal findings and Atlas's response to major specific recommendations are discussed below.

- I. Significant Appraisal Findings
- 1. Organization, Management and Training

Appraisal Finding

The radiation protection function is not fully effective in implementing the mill radiation safety program due to the combination of the function with the metallurgy function and deficiencies in the training and qualifications of its staff members. The radiation protection component lacks full authority to implement radiation safety programs and to suspend operations as necessary. Programs for maintaining exposures ALARA, for auditing the effectiveness of the radiation protection function, and for formally and fully proceduralizing radiation protection programs

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have not been established. Also, responsibility and authority for worker radiation safety training and for mill fire protection have not each been established under single qualified individuals. The training program has not been developed to adequately train workers in radiation safety.

Resolution

Atlas provided a revised organization chart in their December 11, 1981 letter which provides the requested separation of production and radiation safety functions. As Atlas requested via telecon that a specific organization chart not be incorporated into their license to allow flexibility, Atlas' license SUA-917 was amended on September 30, 1982 to require that the line of authority between the RSO and the individual onsite with the final responsibility for site operations not include any positions having production responsibilities. This amendment, Amendment No. 10, also specified minimum qualifications and training requirements for the mill RSO and stated that the RSO would be responsible for all radiation safety programs. Atlas' December 11, 1981 letter stated that the Regulatory Affairs Manager and his designated representatives have the authority to suspend operations as necessary.

Amendment No. 10 also required that Atlas perform a comprehensive, annual audit which addresses all items listed in draft Regulatory Guide OH 941-4, and that a copy of the report documenting the audit be submitted to NRC for review. By letter dated December 4, 1981, Atlas provided for NRC review a report containing detailed written procedures for all aspects of the mill radiation safety program. The staff review of quality assurance aspects of the December 4 Atlas submittal resulted in the issuance of Amendment No. 10.

Atlas has stated that the RSO would have responsibility for all mill radiation safety training, and that the General Mill Manager, or designated shift foremen in the event of his absence, would have overall responsibility for the mill fire protection program. In addition, Atlas has provided specific details concerning their employee radiation safety training program. The training program includes the subjects specified in draft Regulatory Guide OH 941-4 and a written examination to test effectiveness.

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2. Internal Exposure and Contamination Control

Appraisal Finding

Licensee programs for airborne radioactivity sampling, worker exposure determination, respiratory protection, contamination control and bioassay were found to be weak as a result of insufficient management commitment to program development, implementation, and enforcement which has resulted in inadequate sampling procedures and analysis techniques, incomplete assessment of worker exposure, and failure to institute process controls in order to maintain exposures ALARA.

Resolution

Major commitments made by Atlas with regard to this area are discussed below. Atlas has indicated that documentation procedures will be improved to provide a record of radiation safety practices. This was the major weakness in this area. Included in the improved procedures will be records of the following: mill operational status during sampling, flow rates on lapel air samplers, investigative and corrective actions taken in response to monitoring data showing elevated radioactivity levels, and attendance at respirator user training sessions.

Atlas also committed to establish a program for routine inter-laboratory comparisons as a quality assurance check for sample analysis. A requirement that Atlas participate in the EPA cross-check program or an equivalent program is included in Amendment No. 10, as is a requirement that at least 5% of samples analyzed in the Atlas laboratory be quality control samples. This should significantly improve quality assurance for the radiation safety program.

Atlas also indicated that respirators will not be issued to individuals who have not been medically qualified to use a respirator. Atlas further agreed to an appraisal recommendation that new mill employees submit urine samples prior to initial work in the mill to establish baseline values.

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3. Facilities and Equipment

Appraisal Finding

The appraisers found that certain mill facilities and equipment were not designed or used in a manner that would reduce effluents to the environment or maintain exposure to workers ALARA. Methods of detecting failure of stack scrubber and dust collectors had not been established, and mill ventilation and ore pile dust reduction methods had not been fully optimized.

Resolution

Major specific recommendations in this area are discussed below. Atlas has stated that ore piles are sprayed with water on an "as necessary" basis, but indicated this is generally done daily. Atlas further indicated that RSO inspections include examination of the ore piles for blowing. Inspection findings are documented in inspection reports.

Atlas agreed to install pressure differential gauges on bag filter dust collectors used in the crushing and grinding areas, and to read and record the values daily to provide early detection of filter failure. Findings concerning instrumentation for the yellowcake area scrubbers are discussed under the "Violations" section of this document. Atlas also agreed to phase in use of a 5/8" retaining bolt on yellowcake shipping containers. This will provide better security for the yellowcake product in the event of an accident than the smaller bolts currently in use.

The final major recommendation was that Atlas institute a formalized tailings embankment inspection program and perform an annual technical evaluation of embankment performance. A formalized inspection program in accordance with Regulatory Guide 3.11.1, including an annual technical evaluation, was incorporated into SUA-917 by Amendment No. 7 dated June 30, 1982.

4. Environmental Monitoring

Appraisal Findings

The appraisers found that the rationale for the environmental monitoring program had not been fully developed. Ambient airborne

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concentrations were not assessed at a point on the site boundary closest to and predominantly downwind from the mill stacks, and equipment was not utilized in order to obtain representative samples at other locations. Stack sampling had not been performed isokinetically. Thermoluminescent dosimeters for direct radiation measurements were improperly utilized and specified surface ponds were not sampled. A program for data trend analyses and laboratory quality assurance, including laboratory intercomparisons, had not been established.

Resolution

The items concerning sampling at the site boundary closest to and downwind from mill stacks and isokinetic sampling of the stacks will be discussed under the "Violations" section of this document. The continuous air particulate samplers used by Atlas included a metal enclosure over the sampling assembly. The appraisers felt the samples collected using this system would not be representative. Atlas stated that their air samplers have been modified to assure representative sampling.

Atlas has replaced the TLD's previously used for external radiation monitoring, which are the same type used for personnel monitoring, with TLD's specifically designed for environmental monitoring. Atlas also agreed to read the TLD's quarterly rather than monthly, which will reduce the relative amount of statistical error associated with the measurement.

Atlas clarified that several onsite ponds noted during the appraisal are normally dry and only contain water infrequently as a result of rainfall and river water overflow. The water is allowed to evaporate and is not subject to direct human use. Sampling of water in the ponds is therefore not necessary.

Atlas has submitted a quality assurance program which contains all the elements of an acceptable program as specified in Regulatory Guide 4.15. Aspects of the quality assurance program regarding percentage of quality control samples analyzed in the mill laboratory and participation of the mill laboratory in an inter-laboratory comparison program have been incorporated into the Atlas license via Amendment No. 10. Amendment No. 10 also specifies that the required annual ALARA audit include a trend analysis of environmental monitoring data.

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II. Violations Identified During Appraisal

Violation No. 1:

Contrary to License Condition No. 25(c), contamination levels in excess of the values specified in License Annex C, dated November 1976, were present in the acid filter doghouse, a lunchroom and office area, during March, June and July 1980, and corrective measures were not taken to prevent recurrence. A study was not performed by the licensee to determine the cause of the build-up.

Resolution

Atlas indicated that corrective actions were taken to prevent recurrence, but admitted the actions were not well documented. The main action taken was to remodel the doghouse, which was responsible for the high readings, to eliminate sources of airborne radioactive material. Atlas stated that the study which was the basis for the remodeling was begun following the initial high reading, and that the corrective action was implemented immediately following the July 1980 measurement. Atlas further stated that two eating areas located near the doghouse were no longer being used as eating areas. Finally, Atlas stated that documentation of future corrective actions would be improved.

Violation No. 2

Contrary to License Condition No. 39, isokinetic sampling of the yellowcake drying and packaging stacks had not been performed since January 1980.

Resolution

Atlas responded that the sampling had not been performed because the stack access ladder and platform were being constructed. Construction was completed by August 15, 1981, and isokinetic sampling is being conducted as required.

Violation No. 3

Contrary to License Condition No. 46, remote instrumentation installed by Atlas signals an audible alarm as a result of temperature changes rather than as a result of changes in water flow and air pressure differential.

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Daily checks of the alarm system have been neither performed nor documented since the license condition was issued.

Resolution

Atlas stated that the specified water flow and air pressure differential alarm would be installed. Atlas further stated that daily checks of the existing alarm system and the new alarm system when installed would be performed and documented.

Violation No. 4

Contrary to 10 CFR 20.103(b)(1), the licensee had not undertaken efforts to reduce dust accumulations in airborne radioactivity areas located within the ore crushing and storage areas.

Resolution

Atlas indicated that the ore crushing and storage areas were thoroughly washed to remove existing sources of airborne dust. Recurrences will be prevented by limited wash downs, increased use of vacuum cleaning and conveyer sprays, and a daily, documented inspection of all mill areas by the RSO.

Violation No. 5(a)

Contrary to 10 CFR 20.201(b), adequate surveys had not been performed to assess worker exposure to airborne uranium in accordance with 10 CFR 20.103(a). Specifically, sampling had not been performed in a manner which would yield results representative of airborne uranium concentrations inhaled by mill workers.

Resolution

Atlas stated that workers wearing lapel samplers have been required to record the flow rate for the sampler just prior to shutting it off and also the time worked in the area. Atlas also indicated that tripods would be obtained and modified for use with area air samplers to provide more representative breathing zone samples. These actions should allow a more accurate determination to be made of airborne uranium concentrations inhaled by mill workers.

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Violation No. 5(b)

Contrary to 10 CFR 20.201(b), surveys had not been performed in accordance with 10 CFR 20.106(a) to evaluate radioactivity in airborne effluents released to unrestricted areas north of the mill complex.

Resolution

Atlas' current monitoring program is in accordance with Condition No. 37 of their license. A monitoring station had previously been located immediately north of the mill, but had been moved to Tex's Tour Center, site of the nearest resident, following discussions with NRC licensing in mid-1980. This change was requested to allow determination of nearest resident exposures for 40 CFR 190 and to bring the location into conformance with Condition No. 37. Atlas did, however, provide data for the period mid-1976 to mid-1980 when the monitor was located north of the mill. Data was provided for Rn-222, U-nat, Th-230, Ra-226, and Pb-210. All results were well below the applicable MPC.

Violation No. 6

Contrary to License Condition No. 34, on May 11-15, 1981, sprinkler heads in the solvent extraction area were encrusted with mineral deposits which would have prevented their operation.

Resolution

Atlas indicated that the fire prevention checklist form used in performing weekly inspections would be modified to include inspection and cleaning, if necessary, of sprinkler heads in the SX area.

Violation No. 7

Contrary to 10 CFR 20.203(d)(2), the ore crusher area known to be an airborne radioactivity area was not so posted on May 11-15, 1981.

Resolution

Atlas indicated that the area was properly posted on June 1, 1981.

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III. Followup Inspection

A followup inspection was conducted on May 25-27, 1982 to verify that the corrective actions committed to by Atlas in response to the significant findings and violations noted during the mill appraisal had been implemented. The inspection report dated June 23, 1982 verified that all corrective actions committed to by Atlas had been implemented, and indicated that all items noted during the appraisal were considered closed.

The inspection report did, however, note four new violations of license conditions or regulations. The violations and resolutions are discussed below.

Violation No. 1

Contrary to License Condition No. 28, environmental air samplers were not calibrated during the fourth quarter of 1981.

Resolution

Atlas indicated that the samplers were not calibrated during the fourth quarter of 1981 because their calibration instrument had itself been sent to the manufacturer for recalibration and was not returned for several months. Atlas indicated the manufacturer has been contacted concerning the unacceptably long turn-around time, and has agreed to be more responsive in the future. In addition, Atlas has made arrangements to enable them to borrow a calibrator as a substitute, if necessary.

Violation No. 2

Contrary to 10 CFR 20.103(b)(2), actions were not taken sufficient to prevent ten occasions of recurrence of exposure to airborne concentrations of ore dust in excess of the forty-hour control measure during subsequent weeks of May and June, 1981.

Resolution

Atlas stated that the crushing and samples areas were cleaned in May, and plans were begun for a complete water wash down of the crushing area. The wash down was completed by the end of June. Atlas indicated that weekly air samples are now collected in the crushing and sampling areas

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to allow adequate time for the planning and scheduling needed for extensive cleaning and wash down with water.

Violation No. 3

Contrary to 10 CFR 20.103(c), full-face particulate respirators with a protection factor of 50 were used during work in airborne concentrations ranging from 70 to 83 times the 10 CFR 20, Appendix B limit for natural uranium on three occasions during August through October of 1981.

Resolution

Atlas responded that they have rectified the situation by requiring that employees use either the Raca1 Airstream Respirator or air-line respirators for nonroutine work in the crusher area. Both types of respirators have protection factors of 1000.

Violation No. 4

Contrary to 10 CFR 40.64(b), annual statements of source material inventory were not submitted to the NRC during 1980 and 1981.

Resolution

Atlas stated that the 1980 and 1981 inventory reports are in the process of being filed and that the 1982 report will be filed in accordance with 10 CFR 40.64(b). Atlas further indicated that administrative procedures have been established to ensure that future reports are prepared and submitted in a timely manner.

IV. Conclusions

I have reviewed the significant findings and violations identified during the two inspections, and Atlas' responses and corrective actions. Modifications to Atlas' radiation safety program were incorporated into SUA-917 by Amendment Nos. 7 and 10 to rectify the major deficiencies noted during the appraisal. I feel that the corrective actions undertaken by Atlas are adequate to rectify the other deficiencies and violations noted. I therefore conclude that no further action is

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necessary regarding the May 11-15, 1981 mill appraisal or the followup inspection of May 25-27, 1982.

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Pete J. Garcia, Project Manager
Uranium Recovery Field Office

Approved by:

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H. J. Pettengill, Section Leader
Uranium Recovery Field Office

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