

October 18, 2000

Mr. Ray Tsukimura, President
Aerotest Operations, Inc.
3455 Fostoria Way
San Ramon, CA 94583

SUBJECT: NRC INSPECTION REPORT NO. 50-228/2000-201

Dear Mr. Tsukimura:

This letter refers to the inspection conducted on September 11-14, 2000, at your Aerotest Radiography and Research Reactor facility. The inspection included a review of activities authorized for your facility. The enclosed report presents the results of that inspection.

Various aspects of your safety program were inspected including selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, no safety concerns or noncompliances of NRC requirements were identified. However, the NRC staff identified an unresolved item on the transfer of ownership that apparently occurred in May 2000. This unresolved item will be subject of future correspondence. No response to this letter is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) <http://www.nrc.gov/NRC/ADAMS/index.html>.

Should you have any questions concerning this letter, please contact Mr. Craig Bassett at (404)562-4712.

Sincerely,

/RA by Marvin Mendonca Acting for/

Ledyard B. Marsh, Chief
Events Assessment, Generic Communications
and Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-228
License No. R-98

Enclosure: NRC Inspection Report

cc w/encl: Please see next page

cc w/encl:

Director, Energy Facilities Siting Division
Energy Resources Conservation & Development Commission
1516 9th Street
Sacramento, CA 95814

California Department of Health
ATTN: Chief, Environmental Radiation Control Unit
Radiologic Health Section
714 P Street, Room 498
Sacramento, CA 95814

Mr. Fred Meren, Reactor Supervisor
Aerotest Operations, Inc.
3455 Fostoria Way
San Ramon, CA 94583

Test, Research and Training Reactor Newsletter
202 Nuclear Sciences Center
University of Florida
Gainesville, FL 32611

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U.S. NUCLEAR REGULATORY COMMISSION

Docket No: 50-228

License No: R-98

Report No: 50-228/2000-201

Licensee: Aerotest Operations, Inc.

Facility: Aerotest Radiography and Research Reactor Facility

Location: 3455 Fostoria Way
San Ramon, CA 94583

Dates: September 11-14, 2000

Inspector: C. H. Bassett

Approved by: Ledyard B. Marsh, Chief
Events Assessment, Generic Communications and
Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Aerotest Operations, Inc.
Aerotest Radiography and Research Reactor (ARRR)
Report No: 50-228/2000-201

The primary focus of this routine, announced inspection was the on-site review of selected aspects of the licensee's Class II non-power reactor operation including: organization and staffing, review and audit functions, procedures, radiation protection and ALARA, effluent and environmental monitoring, shipment of radioactive material, safeguards and security, and material control and accounting since the last NRC inspection of this facility.

Changes, Organization, and Staffing

- The licensee's organization and staffing met the requirements specified in the Technical Specifications. An unresolved item was identified on the transfer of ownership that apparently occurred in May 2000.

Review and Audit Functions

- The Reactor Safeguards Committee conducted audits in compliance with the requirements specified in the Technical Specifications.

Procedures

- Facility procedures were acceptable and satisfied Technical Specifications requirements for revision by the licensee. Facility procedures were also reviewed and approved by the Reactor Safety Committee.

Radiation Protection Program

- Surveys were generally completed and documented acceptably to permit evaluation of the radiation conditions.
- Radiation monitoring equipment was maintained and calibrated as required.
- Notices and postings at entrances to work areas met the regulatory requirements.
- Personnel dosimetry was worn as required and doses were within the licensee's procedural action levels and NRC's regulatory limits.
- Training was provided as required covering the topics outlined in 10 CFR 19.12.
- The Radiation Protection and ALARA Programs satisfied regulatory requirements.
- The challenges faced by the licensee in maintaining worker doses ALARA will continue to be reviewed by the NRC.

Effluent and Environmental Monitoring

- Effluent monitoring satisfied license and regulatory requirements, and releases were within the specified regulatory and TS limits.

Transportation of Radioactive Materials

- The program for transportation of radioactive materials satisfied NRC requirements.

Safeguards and Security

- The NRC-approved security program was acceptably carried out at the facility.

Material Control and Accountability

- The licensee's program for control and accountability of special nuclear material was acceptable.

REPORT DETAILS

Summary of Plant Status

The licensee's TRIGA research reactor continued to be operated in support of laboratory experiments, reactor operator training, and neutron radiography. During this inspection, the reactor was started up and operated several hours per day at one hundred and thirty-two kilowatts (132 kW) to complete neutron radiographic operations. The maximum authorized power level is 250 kW. However, the licensee has opted to reduce the operating power of the reactor to achieve several goals including the reduction of personnel radiation exposures.

1. Changes, Organization, and Staffing (69001)

a. Inspection Scope

The inspector reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of Technical Specifications (TS) Sections 10.0 and 12.1 were met:

- organizational structure
- management responsibilities
- staffing for safe operation of the Reactor Facility

b. Observations and Findings

Through discussions with licensee representatives the inspector determined that management responsibilities and the organization at the facility have not changed since the previous NRC inspection in August 1999 (Inspection Report No. 50-228/99-201). The inspector determined that the Reactor Supervisor retained direct control and overall responsibility for management of the facility as specified in the TS. The Reactor Supervisor reported to the President, Aerotest Operations, Inc. (AO).

The inspector noted that an apparent indirect or ultimate transfer of the license occurred when the ownership of the Aerotest Radiography and Research Reactor (ARRR) was transferred in substantial part to Autoliv, Inc., a Swedish Company through parent company acquisitions. By letter (accession number ML003704794) dated April 14, 2000, AO informed the NRC staff of this apparent ownership change. From that letter, the NRC staff understands that Aerotest Operations, Inc. is a wholly-owned subsidiary of OEA Aerospace, Inc. OEA Aerospace, Inc. is a wholly owned subsidiary of OEA, Inc. Substantially all of OEA, Inc. is owned by Autoliv, Inc. Autoliv, Inc. is a publicly-traded Delaware corporation headquartered in Stockholm, Sweden and traded on the New York Stock Exchange. On May 5, 2000, Aerotest Operations, Inc. informed NRC staff by facsimile (accession number ML003756928) of an Autoliv interoffice memorandum that the total number of tendered shares gives Autoliv, Inc. at least 90 percent interest in OEA, Inc. This appears to raise concerns regarding the transfer of license, and foreign ownership although indirect. The April 14, 2000, AO letter stated that the Aerotest reactor "will remain under the direct control of U.S. Citizens." AO also stated in the April 14 letter that they would keep NRC informed of changes to that situation. AO informed the inspector that the situation had not changed. The NRC staff will follow

these concerns as an unresolved item (URI 50-228/2000-201-01). An unresolved item is a matter about which more information is required to determine whether the issue in question is an acceptable item, a deviation, a nonconformance, or a violation.

Through review of records and logs, as well as discussions with licensee personnel, the inspector determined that the staffing at the facility was acceptable to support the work and ongoing activities. The staffing also met the requirements of the TS. The inspector noted that the licensee recently hired a Nuclear Engineer who was in training to become a Reactor Operator (RO). ARRR also recently hired an Electronics Engineer to handle the maintenance and repair of the various items of equipment, as well as to train to become an RO.

c. Conclusions

The licensee's organization and staffing met the requirements specified in the Technical Specifications. An unresolved item was identified on the transfer of ownership that apparently occurred in May 2000.

2. Review and Audit Functions (69001)

a. Inspection Scope

The inspector reviewed the following to ensure that the audits and reviews stipulated in the requirements of TS Section I2.3 were completed:

- Reactor Safeguards Committee (RSC) meeting minutes
- ARRR Procedures
- TS defined duties of the RSC including the review and audit functions

The inspector also toured the licensee's facility to note any changes that may have been made. The inspector reviewed the program established by the licensee to ensure that activities at the facility were reviewed and audited as required.

b. Observations and Findings

Section I2.3 of the TS requires that the Reactor Safeguards Committee meet at least once yearly to review safety aspects of facility operation. The inspector reviewed the RSC's meeting minutes from October 1998 to the time of the inspection. The minutes showed that the RSC met annually as required and considered the types of topics outlined by the TS, including ALARA challenges faced by the facility.

The inspector noted that committee personnel had completed audits of various aspects of the reactor facility operations and programs as stipulated in the TS. The audits and the resulting findings were appropriate and that the licensee's response and corrective actions were acceptable.

The inspector toured the control room, sample preparation area, and various support areas at the facility. The inspector noted no changes from the facility descriptions or annual report description of changes.

c. Conclusions

The RSC conducted audits according to the requirements specified in the Technical Specifications.

3. Procedures (69001)

a. Inspection Scope

The inspector reviewed the following to ensure that the requirements of TS Section I2.2 were met concerning written procedures:

- selected operations and safety procedures
- the process used to revise, review, and approve all facility procedures

b. Observations and Findings

The inspector verified that procedures have been developed and were implemented for reactor operations and safety. The inspector also noted that, revisions were presented to the RSC for review and approval. The procedures were acceptable and in accordance with 10 CFR 20 and the TS. No problems were noted.

c. Conclusions

Facility procedures were acceptable and satisfied TS requirements for revision by the licensee, and were reviewed and approved by the RSC.

4. Radiation Protection Program (69001)

a. Inspection Scope

The inspector reviewed the following to verify compliance with 10 CFR 20 and the applicable licensee TS requirements and procedures:

- health physics (HP) and reactor surveillance survey records
- calibration and periodic check records for radiation monitoring instruments
- radiological signs and posting
- dosimetry records
- training records
- the Radiation Protection and ALARA Programs

The inspector also observed the use of dosimetry and radiation monitoring equipment during tours of the facility. Licensee personnel were interviewed as well.

b. Observations and Findings

Radiation monitoring and survey activities were as required. Equipment used for these activities was maintained, calibrated and used acceptably.

Copies of the current form, NRC Form 3, "Notice to Employees," were posted in accordance with 10 CFR 19.11. Caution signs, postings and controls to radiation areas were as required in 10 CFR 20, Subpart J. Licensee personnel observed the indicated precautions for access to the radiation areas.

Use of dosimeters and exit frisking practices were in accordance with radiation protection requirements. The licensee used a National Voluntary Laboratory Accreditation Program (NVLAP)-accredited vendor to process dosimetry. Radiological exposure records showed that occupational doses and doses to the public were within 10 CFR Part 20 limitations. The inspector noted that the licensee had made progress in reducing the annual exposures of some workers who were typically receiving the highest doses at the facility. This reduction in annual exposures was primarily due to the reduction in the power level at which the reactor was operated.

Training records showed that personnel were acceptably trained in radiation protection practices. Annual refresher training was provided by the facility Radiological Safety Officer (RSO).

The licensee did not require a respiratory protection program or planned special exposure program.

The radiation protection program had not changed since the last inspection. The licensee reviewed the radiation protection program at least annually in accordance with 10 CFR 20.1101(c). The last review included all areas the program and no weaknesses were reported. ALARA reviews were acceptably performed as required.

c. Conclusions

Surveys were generally completed and documented acceptably to permit evaluation of the radiation conditions. Radiation monitoring equipment was maintained and calibrated as required. Notices and postings at entrances to work areas comply with regulatory requirements. Personnel dosimetry was worn as required and doses were within the licensee's procedural action levels and the NRC's regulatory limits. The Radiation Protection Program and the ALARA Program satisfied regulatory requirements. The challenges faced by the licensee in maintaining worker doses ALARA will continue to be reviewed by the NRC.

5. Effluent and Environmental Monitoring (69001)

a. Inspection Scope

The inspector reviewed the following to verify compliance with the requirements of 10 CFR Part 20 and TS Sections C.2, D.2, and H:

- the licensee's environmental monitoring program
- dosimetry records
- release records
- counting and analysis records

b. Observation and Findings

Gaseous releases were calculated as prescribed by procedure and were acceptably documented. The results indicated that the releases were well within Appendix B concentrations, and TS limits. To demonstrate compliance with the annual dose constraints of 10 CFR 20.1101(d), the licensee used the COMPLY computer code. The highest dose calculated that could be received as a result of gaseous emissions from reactor operations was 2.1E-3 millirem per year (mr/yr) for 1998 and 1.8E-3 mr/yr for 1999. These doses were well below the limit set in 10 CFR 20.1101(d) of 10 mr/yr.

The licensee had released liquid only once during the past two years. The Radiological Safety Officer reviewed and approved the release after analyses proved that the release would meet regulatory requirements for discharge into the sanitary sewer. Another release was pending but had not been completed at the time of the inspection. The results of the sample analyses indicated that it also met the release criteria.

c. Conclusion

Effluent monitoring satisfied license and regulatory requirements and releases were within the specified regulatory and TS limits.

6. Transportation (86740)

a. Inspection Scope

The inspector interviewed licensee personnel and reviewed shipping records from 1998 through the time of the inspection to verify compliance with the requirements of 10 CFR 71.5 for shipments of licensed material.

b. Observations and Findings

Records showed that the licensee had completed one radioactive material shipment. The shipping records indicated that the radioactive material had been shipped in accordance with the applicable regulations. The inspector reviewed the licensee's program for transportation of radioactive material transport and determined that it was consistent with license requirements.

c. Conclusions

The program for transportation of radioactive materials satisfied NRC requirements.

7. Physical Security (81401, 81402, 81421)

a. Inspection Scope

To verify compliance with the licensee's NRC-approved Physical Security Plan (PSP) and to assure that changes, if any, to the plan had not reduced its overall effectiveness, the inspector reviewed:

- logs, records, and reports
- key and access control
- intruder detection and physical barriers
- procedures

b. Observations and Findings

The inspector determined that the licensee's physical protection program conformed to NRC requirements, the PSP, and the implementing procedures. Alarm system maintenance was completed as needed and alarm system tests were generally completed as required. Annual security training was completed.

c. Conclusion

The NRC-approved security program at the facility was acceptably carried out.

8. Material Control and Accounting (85102)

a. Inspection Scope

To verify compliance with 10 CFR 70, the inspector reviewed:

- storage areas
- annual inventory results
- associated records and reports

b. Observations and Findings

The licensee's item control measures ensure that physical and administrative control of special nuclear material (SNM) should be maintained. Records showed that physical inventories were conducted at least annually as required by 10 CFR 70.51(d). The inspector also determined that the licensee submitted Nuclear Material Transaction Reports (DOE/NRC Form 741) and Material Status Reports (DOE/NRC Form 742) at the frequency and as required by 10 CFR 74.13(a)(1).

c. Conclusion

No deficiencies were identified in the licensee's Material Control and Accounting program.

9. Follow-up on Previously Identified Items (92701, 92702)

a. Inspection Scope

The inspector reviewed the licensee's actions taken in response to previously identified Inspector Follow-up Items.

b. Observation and Findings

(Closed) IFI 50-228/98-201-01 - During an inspection in November 1998, the need for the development of a formal lesson plan covering the topics listed in 10 CFR 19.12 was reviewed. The licensee subsequently wrote a formal lesson plan and implemented the instructions into the training program at the facility. The inspector reviewed the training program and determined that it was acceptable. This item is considered closed.

c. Conclusion

One Inspector Follow-up Item will be closed as a result of this inspection.

10. Exit Interview

The inspection scope and results were summarized on September 14, 2000, with members of licensee management. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. Although proprietary information was reviewed during the inspection, no such material is included in this report.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

A. Meren, Manager, Neutron Radiography
R. Tsukimura, President, Aerotest Operations, Inc.
S. Warren, Radiological Safety Officer

Other Personnel

T. Lindholm, Central Station Manger, Denalect Alarm (Security Contractor)
S.Wurtz, Dispatcher, Denalect Alarm

INSPECTION PROCEDURES USED

IP 69001: Class II Non-Power Reactors
IP 81401: Plans, Procedures, and Reviews
IP 81402: Reports of Safeguards Events
IP 81421: Fixed Site Physical Protection of Special Nuclear Material of Low Strategic Significance
IP 85102: Material Control and Accounting - Reactors
IP 86740: Inspection of Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-228/2000-201-01	URI	Followup on concerns regarding transfer of license and foreign ownership.
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Closed

50-228/98-201-01	IFI	Follow-up on the development of a formal lesson plan covering the topics listed in 10 CFR 19.12.
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LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ALARA	As low as reasonably achievable
AO	Aerotest Operations, Inc.
ARRR	Aerotest Radiography and Research Reactor
CFR	Code of Federal Regulations
HP	Health Physics
IFI	Inspector Follow-up Item
IP	Inspection Procedure
kW	kilowatt
mr/yr	Millirem per year
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
PAR	Publicly Available Records
PDR	Public Document Room
PSP	Physical Security Plan
RO	Reactor Operator
RSC	Reactor Safeguards Committee
RSO	Radiological Safety Officer
TS	Technical Specification