December 19, 2014

Ms. Sandra Warren, General Manager
Aerotest Operations, Inc.
3455 Fostoria Way
San Ramon, CA 94583

SUBJECT: AEROTEST OPERATIONS, INC. – NRC ROUTINE INSPECTION REPORT NO. 50-228/2014-201 AND NOTICE OF VIOLATION

Dear Ms. Warren:

On November 17-19, 2014, the U.S. Nuclear Regulatory Commission (NRC, the Commission) completed an inspection at the Aerotest Radiography and Research Reactor facility (Inspection Report No. 50-228/2014-201). The enclosed report documents the inspection results which were discussed on November 19, 2014, with you and Mr. Alfredo Meren, Manager of Reactor Operations.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspector reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited in the Notice because it constitutes a failure to meet regulatory requirements that has more than minor safety significance and the violation was identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (Agencywide Documents Access and Management System (ADAMS)). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the public without redaction.

Should you have any questions concerning this inspection, please contact Mr. Craig Bassett at (301) 466-4495 or by electronic mail at Craig.Bassett@nrc.gov.

Sincerely,

/RA/

Kevin Hsueh, Chief
Research and Test Reactors Oversight Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

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

Enclosures:
1. Notice of Violation
2. NRC Inspection Report No. 50-228/2014-201

cc: See next page

Aerotest Operations, Inc. Docket No. 50-228

cc:

Mr. Michael Anderson, President
Aerotest Operations, Inc.
Autoliv ASP, Inc.
1320 Pacific Drive
Auburn Hills, MI 48326

Mr. Alfredo Meren, Manager of Reactor Operations
Aerotest Operations, Inc.
3455 Fostoria Way
San Ramon, CA 94583

California Energy Commission
1516 Ninth Street, MS-34
Sacramento, CA 95814

Radiological Health Branch
P.O. Box 997414, MS 7610
Sacramento, CA 95899-7414

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

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ACCESSION NO.: ML14351A262 *concurred via e-mail **NRC-002**

OFFICE	NRR/DPR/PROB*	NRR/DPR/PROB
NAME	CBassett	KHsueh
DATE	12/18/2014	12/19/2014

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NOTICE OF VIOLATION

Aerotest Operations, Inc. Docket No. 50-228
Aerotest Radiography and Research Reactor License No. R-98

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted on November 17-19, 2014, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 of the *Code of Federal Regulations* Part 55.21, "Medical Examination," states that a licensee shall have a medical examination by a physician every two years.

Contrary to the above, a Senior Reactor Operator at the Aerotest Radiography and Research Reactor facility had a medical examination on November 12, 2010, but did not have another medical examination until September 18, 2013, a period greater than two years and a period greater than 30 months which includes a grace period of 6 months typically allowed for licensed operators at Research and Test Reactor facilities.

This has been determined to be a Severity Level IV violation (Section 6.4.d.1(c)).

Pursuant to the provisions of 10 CFR 2.201, Aerotest Operations, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001 with a copy to the responsible inspector, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access and Management System (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) http://www.nrc.gov/reading-rm/adams.html. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request

withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 19th day of December, 2014

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Docket No:	50-228
License No:	R-98
Report No:	50-228/2014-201
Licensee:	Aerotest Operations, Inc.
Facility:	Aerotest Radiography and Research Reactor
Location:	3455 Fostoria Way San Ramon, CA 94583
Dates:	November 17-19, 2014
Inspector:	Craig Bassett
Accompanied by:	Kevin Hsueh, Chief Research and Test Reactors Oversight Branch William Schuster, Project Manager Research and Test Reactors Oversight Branch
Approved by:	Kevin Hsueh, Chief Research and Test Reactors Oversight Branch Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

Enclosure 2

EXECUTIVE SUMMARY

Aerotest Operations, Inc.
Aerotest Radiography and Research Reactor
Report No: 50-228/2014-201

The primary focus of this routine, announced inspection was the on-site review of selected aspects of the Aerotest Operations, Inc. (the licensee's) Class II research and test reactor safety program including: 1) organization and staffing, 2) review and audit and design change functions, 3) facility operations, 4) procedures, 5) operator requalification, 6) maintenance and surveillance, 7) fuel handling, and 8) experiments since the last U.S. Nuclear Regulatory Commission (NRC) inspection of these areas.

Organization and Staffing

- The licensee's organization and staffing were in compliance with the requirements specified in Section 12 of the facility Technical Specifications.

Review and Audit and Design Change Functions

- Review and oversight functions required by Technical Specifications Section 12.1.3 were acceptably completed by the Reactor Safeguards Committee.

- No changes had been made at the facility since the last NRC inspection but a process for design change was in place and would be followed if changes were initiated.

Reactor Operations

- Reactor operations had ceased in 2010.

Procedures

- Facility procedures were being reviewed by the licensee and reviewed and approved by the Reactor Safeguards Committee as required by Technical Specifications and administrative procedures.

Operator Requalification

- Operator requalification was being conducted and completed as required by the Operator Requalification Program.

- One violation was noted for failure to have an operator with an active license complete a medical examination biennially as required.

Maintenance and Surveillance

- Maintenance was being completed in accordance with Technical Specifications and procedural requirements.

- The program for completing surveillance checks, tests, verifications, and calibrations was being implemented in accordance with Technical Specifications requirements.

Fuel Handling

- Following a fuel inspection in 2013, the total number of fuel elements with cracked or damaged cladding has been determined.

- Fuel movements and weighing of those elements in canisters were completed and documented in accordance with the requirements specified by procedure.

Experiments

- No experiments or irradiations have been conducted since October 15, 2010.

REPORT DETAILS

Summary of Facility Status

Aerotest Operations, Inc. (Aerotest, the licensee) 250 kilowatt (kW) TRIGA conversion research reactor, known as the Aerotest Radiography and Research Reactor (ARRR), had been operated in the past in support of neutron radiography experiments and reactor operator training. However, the licensee had voluntarily ceased to operate the research reactor on October 15, 2010, because of foreign ownership issues. During this inspection, the reactor remained shut down and was not operated.

1. Organization and Staffing

a. Inspection Scope (Inspection Procedure [IP] 69001)

The inspector reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of Technical Specifications (TS) Sections 10.1 and 12.1 were being met:

- Current staffing of the ARRR
- Management responsibilities and organizational structure indicated in Section 12 of the TS, as implemented through the latest revision to the Facility License Number (No.) 98, Amendment No. 4, dated January 28, 1981
- Section II of the ARRR Procedures Manual entitled, “Operating Procedures,” Procedure Change Notice (PCN) No. 2, RSC approval dated June 28, 1990
- Annual Summary of Changes, Tests, and Experiments at Aerotest Radiography and Research Reactor (ARRR) for the period from July 1, 2012, to June 30, 2013, issued July 30, 2013, and for the period from July 1, 2013, to June 30, 2014, issued July 8, 2014 (the facility annual reports)

b. Observations and Findings

Through discussions with licensee representatives, the inspector determined that management responsibilities at the facility had not changed since the previous routine NRC inspection conducted in December 2012 (NRC Inspection Report No. 50-228/2012-206). The inspector noted that the General Manager remained the local official in charge of day-to-day activities at the facility. The Reactor Supervisor (who was also assigned the duties of the Reactor Operations Manager) retained direct control over, and overall responsibility for, management of the reactor as specified in the TS. The General Manager and the Reactor Supervisor reported to the President, Aerotest Operations, Inc.

Through review of records and discussions with licensee personnel, the inspector determined that the staffing at the facility had been cut in 2010 due to issues involving foreign ownership. The current staffing at the ARRR consisted of the

General Manager (who was also the Security Officer, the Radiation Safety Officer, and a Senior Reactor Operator), the Reactor Supervisor (who was also the Manager of Reactor Operations and a Senior Reactor Operator), a Nuclear Engineer (who was also a Senior Reactor Operator), the Manager of Nuclear Radiography, and the Manager of Quality Assurance. The employees were monitoring the facility and conducting maintenance and surveillance duties as required by the TS.

c. Conclusion

The licensee's organization was as specified in the TS. The employees were monitoring the facility and conducting maintenance and surveillance duties as required by the TS.

2. Review and Audit and Design Change Functions

a. Inspection Scope (IP 69001)

In order to ensure that the audits and reviews were being completed as required by TS Section 12.1.3 and to verify that any modifications to the facility were consistent with 10 CFR 50.59, the inspector reviewed the following:

- Completed audits for 2013 and 2014
- Changes made under the licensee's 10 CFR 50.59 change process
- Reactor Safeguards Committee meeting minutes for 2013 and 2014
- Duties of the Reactor Safeguards Committee detailed in TS Section 12
- Charter of the Reactor Safeguards Committee outlined in Section I of the ARRR Procedures Manual entitled, "Administrative Procedures," PCN No. 2, RSC approval dated June 28, 1990
- The last two ARRR annual reports

b. Observations and Findings

(1) Review and Audits Functions

The Reactor Safeguards Committee (RSC) met at least once per year in accordance with TS requirements with the last two meetings held on November 19, 2013, and on November 5, 2014. The inspector reviewed the RSC's meeting minutes for these meetings. The meeting minutes showed that the RSC had considered the types of topics stipulated by the TS. It was noted that the meetings were attended by all members of the committee. Review of the minutes also indicated that the committee provided guidance and direction to ensure suitable oversight of the facility.

The inspector verified that the periodic audits specified by TS Section 12.1.3 were being completed as required. The RSC minutes and audit records indicated that the Chair of the RSC and generally another RSC

member conducted unannounced audits of facility operations annually and submitted the results to the President, Aerotest Operations, Inc. The inspector noted that current issues and the facility status were reviewed and that the licensee took appropriate corrective actions in response to those audit findings or recommendations as needed.

(2) Design Change Functions

Through review of applicable records and interviews with licensee personnel, the inspector determined that some design changes had been considered at the facility but that none had actually been initiated or completed since the last NRC inspection. It was noted that TS and procedural requirements were in place to ensure that changes, if proposed, would be reviewed by the RSC and in accordance with 10 CFR 50.59 as required.

c. Conclusion

Review and oversight functions required by TS Section 12.1.3 were acceptably completed by the RSC. No changes had been made at the facility since the last NRC inspection but a process for design change was in place and would be followed if changes were initiated.

3. Operations

a. Inspection Scope (IP 69001)

The inspector reviewed selected portions and/or aspects of the following to ensure compliance with TS Sections 10 and 12:

- ARRR Operational Log Sheets and ARRR Startup/Shutdown Sheets for 2013 and to date in 2014
- Section II of the ARRR Procedures Manual entitled, “Operating Procedures,” PCN No. 2, RSC approval dated June 28, 1990
- The last two ARRR annual reports

b. Observations and Findings

The inspector reviewed ARRR Startup/Shutdown Sheets and Operational Log Sheets for reactor-related checks and activities dating from January 2013 through October 2014. Since October 2010, the reactor had not been operated but Startup/Shutdown Sheets and Operational Log Sheets had been filled out to document the completion of various activities including quarterly maintenance, control rod inspection, fuel handling, and other checks and calibrations.

The operating logs appeared to be complete and provided an acceptable indication of facility activities. The Annual Summaries of Changes, Tests, and

Experiments (the licensee's annual reports to the NRC) documented the fact that no operations had occurred during the past two years.

c. Conclusions

Reactor operations had ceased in 2010. The operating logs appeared to be complete and provided an acceptable indication of facility activities.

4. Procedures

a. Inspection Scope (IP 69001)

The inspector reviewed the following to ensure that the requirements of TS Section 12.2 were being met concerning written procedures:

- Varioius ARRR procedures
- Procedure Approval Sheets
- Procedure Change Notice forms
- ARRR procedure review sign-off forms
- Section I of the ARRR Procedures Manual entitled, "Administrative Procedures," which detailed the process used to review, revise, and approve all facility procedures

b. Observations and Findings

The inspector noted that procedures had been developed for reactor operations and safety as required by the TS. The licensee's procedures were found to be acceptable even though no operations were currently in progress. The inspector noted that the administrative procedure specified the responsibilities of the RSC. The inspector verified that a designated member of the RSC had completed biennial reviews of the facility procedures as required. It was noted that the last review of all procedures had occurred on May 15, 2013. The licensee verified that any substantive revisions to procedures would be presented to the RSC for review and approval as required by TS.

c. Conclusion

Facility procedures satisfied TS and administrative procedure requirements which included being reviewed by the licensee and reviewed and approved by the RSC.

5. Operator Requalification Program

a. Inspection Scope (IP 69001)

To verify compliance with the Operator Requalification Program for the ARRR, which was submitted to the NRC on July 13, 2000, the inspector reviewed:

- Status of all qualified operators' licenses
- Operator physical examination records for 2012 and 2014
- Selected ARRR Operational Log Sheets documenting reactivity manipulations for 2013 and 2014
- SRO Licensed Activities Log documenting active operator supervisory and related functions for 2013 and 2014
- 2014 Senior Reactor Operator Biennial Written Examinations and related records
- 2013 and 2014 Senior Reactor Operator Annual Operating test results and related records

b. Observations and Findings

(1) Active Duty Status

There were three people who maintained an SRO license at the facility. The inspector verified that the SROs' licenses were current. It was noted that the paperwork for one individual had been submitted in a timely manner for a license renewal. Records showed that operators were given biennial requalification examinations and annual operations tests as required. Logs indicated that operators maintained active duty status as required by performing the required maintenance and inspections of reactor components or by completing supervisory and related licensed operator duties. The Operator Requalification Program was being maintained up to date. The inspector also verified that the operators were reviewing the contents of all abnormal and emergency procedures on a regularly scheduled basis as indicated by a sign off sheet located in the emergency procedures folder.

(2) Medical Examinations

10 CFR Part 55.21 states that a licensee shall have a medical examination by a physician every two years.

The inspector examined medical records to verify that each operator had received a biennial physical examination as required. It was noted that two of the Senior Reactor Operators had received a medical examination every two years as required by 10 CFR 55.21. The third SRO had had an examination on November 12, 2010, but had not had another examination until September 18, 2013.

The inspector noted that the third SRO and the other two SROs had been actively engaged in completing maintenance and surveillance activities associated with the reactor, conducting periodic security tests, and performing SRO-related functions such as supervising others during the entire period from November 2010 through September 2013. This included the period from May 2013 to September 2013 which was the

time period in excess of the 30 months allowed for Research and Test Reactor (RTR) operators to receive a medical examination.

The licensee was informed that failure to have an operator with an active license complete a medical examination every two years and within the 30 month time period normally allowed for RTR operator licensees was a violation of 10 CFR 55.21 (VIO 50-228/2014-201-01).

c. Conclusion

Operator requalification was being conducted and completed as required by the Operator Requalification Program. One violation was noted for failure to have an operator with an active license complete a medical examination biennially as required.

6. Maintenance and Surveillance

a. Inspection Scope (IP 69001)

To determine that maintenance and surveillance activities were being completed as required by TS Sections 3, 4, 5, 6, and 7, the inspector reviewed:

- ARRR Repair Folders for various instruments
- Operations Request Forms for 2013 and to date in 2014 which document the completion of inspections, fuel movement, and instrument repair and calibration
- Monthly Alarm Check Lists for 2013 and to date in 2014
- ARRR Pool Water Analysis sheets for 2013 and to date in 2014
- Quarterly Maintenance Check Lists for 2013 and to date in 2014
- Selected ARRR Startup/Shutdown Sheets for 2013 and to date in 2014
- Section VIII of the ARRR Procedures Manual entitled, “Maintenance Procedures,” PCN No. 2, RSC approval dated January 14, 1993

b. Observations and Findings

(1) Maintenance

The various Repair Folders and Operations Request Forms maintained by the licensee indicated that emergent problems were addressed by appropriate corrective maintenance as needed. If electrical components for the nuclear instrumentation were replaced, the maintenance protocol stipulated that calibrations and voltage checks occur prior to the instrumentation being placed back into service. The inspector verified that these tests were completed as required. Records showed that routine maintenance activities were conducted at the required frequency and in accordance with the TS and/or the applicable procedure.

(2) Surveillance

After suspending reactor operations in October 2010, the licensee continued to complete various monthly, quarterly, semiannual, and annual checks, tests, and calibrations as required. It was noted that the licensee had developed a modified checklist to ensure that appropriate oversight was maintained over various other items. These included such items as pool water temperature, air filter changeout, water conductivity, and cycling the pumps. These items were checked on a daily or weekly basis even though this was not required because the reactor was shut down and not operating.

c. Conclusion

Maintenance was being completed in accordance with TS and procedural requirements. The modified program for surveillance checks, tests, verifications, and calibrations was being implemented in accordance with TS requirements that were still applicable with the reactor shutdown.

7. Fuel Handling

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to verify that fuel movement and handling was being conducted as required by TS Section 5.1.1 and Section 11:

- Revised Fuel Weighing Procedure
- Fuel movement and examination records
- Fuel handling equipment and reactor instrumentation
- Various records and data sheets related to fuel movement
- Selected ARRR Operational Log Sheets for 2013 and 2014
- Data Sheets for Fuel and Graphite Transfer forms for 2013 and 2014
- Letter from NRC to Licensee, Aerotest Radiography and Research Reactor (ARRR) Fuel Examination, letter dated July 29, 1992
- Section IV of the ARRR Procedures Manual entitled, “Critical Assembly and Power Calibration”

b. Observations and Findings

(1) Fuel Elements With Damaged Cladding

The licensee has experienced various problems with their fuel. As documented in IR Nos. 50-228/2012-201 through 50-228/2012-206, the licensee took various measures to deal with the problems. These are briefly described below.

In December 2011 the licensee began an inspection of all their fuel elements in an effort to comply with their commitment to the U.S. Nuclear Regulatory Commission (NRC) to inspect all the fuel elements every 5 years. After removing all the elements that they could, the licensee found that there were 27 aluminum clad fuel elements and 11 graphite elements that were stuck in place and could not be removed through core upper grid plate (none of the stainless steel clad elements were found to be stuck). The licensee then used their underwater video camera to conduct an inspection of those fuel elements. The licensee found that, of those elements that remained in the core, four had signs of cracks in the cladding. On January 9, 2012, the licensee notified the NRC of the cracked fuel elements. The licensee submitted a letter documenting the problem the same day.

The licensee subsequently made the decision to remove the stuck fuel elements from the core and they hired a contractor to assist in the project. A project plan was subsequently developed for removing all the elements and submitted it to the licensee. When all the elements had been removed from the core, it was the intention of the licensee to place the fuel elements with cracked cladding in specially designed and fabricated canisters. Before beginning removal of the fuel with damaged cladding, the licensee anticipated that four to five more elements would be found with cracks in the cladding, in addition to the ones already noted. Therefore, a total of ten canisters were ordered and fabricated and a storage rack was designed and fabricated to hold up to twelve canisters in the reactor pool.

During the period of July 16–26, 2012, licensee and contractor personnel were able to remove all the stuck fuel elements from the core and conduct an initial examination of the elements. The licensee then proceeded to examine all the remaining aluminum clad elements and all of the stainless steel clad elements that were stored in the pool. Initially, two elements with cracked cladding were placed into the specially designed canisters (i.e., “canned”) and placed in the new storage rack. However, after examining all the fuel elements, the licensee determined that there were substantially more fuel elements with cladding problems than had originally been anticipated. On August 10, 2012, the licensee submitted a letter to the NRC documenting the fact that the inspection of the fuel elements at the facility indicated that there were a total of 22 fuel elements with cracks in the cladding. Plans were made to have contractor personnel return to the ARRR facility on December 10, 2012, to complete the containerization process.

The NRC staff observed as each of the elements with damaged cladding was placed into a canister and the canister was closed, dried, tested, backfilled with a cover gas, and weighed. The canisters were then placed into pre-designated locations in the new storage rack on the reactor pool floor.

During a fuel inspection conducted in July 2013, the licensee found that 8 fuel element serial numbers from the July 2012 inspection had been misidentified. Many of the serial numbers were very hard to read and only with a different camera was the licensee able to correctly identify all the proper numbers. The licensee also found two more elements with cracks in the cladding. In addition, one element was found to have bubbles leaking from the cladding. The bubbles were observed to stop after just a few minutes. This brings the number of fuel elements with cracked or damaged cladding to 25.

(2) Fuel Weighing Problems

During their fuel inspection earlier this year, the licensee attempted to weigh the cans containing damaged fuel, for the purpose of comparing 2014 weights with 2012 weights. They planned to verify that none of the fuel cans had allowed any water to enter the canisters, which would allow the fuel elements inside to continue to corrode. Canisters that were heavier than their 2012 weights would be assumed to have had water leaked into them. After beginning the weighing process, the licensee was unable to match the previous weights of the first four canisters. Also, there were problems with the strain gage which showed fluctuating weights if the canisters were moved even one inch. When the licensee and the Chairman of the Reactor Safeguards Committee reviewed the videotape of previous weighing operations, several points of potential error in the weighing operation were noted, especially with the depth of water over the weighed element. Therefore, it was noted that buoyancy affected the weights observed. The licensee then halted the weighing operation and re-worked the Reactor Work Instruction (RWI) and included an appendix for the weighing procedure, which was not previously described in the RWI. The new RWI required the entire assembly to hang vertically in one line from the crane hook, instead of being run through an I-bolt which added frictional forces, to ensure that each weighing was done in the exact same manner. The licensee also took care to make sure that the cans were all weighed at the same depth of the pool, which was near the bottom so it was easily reproducible.

The licensee re-weighed all of the canisters during the week of September 29, 2014. Using the new procedure, the weights were much more uniform. The cropped instrumented fuel element (IFE) with the new swage top was different than the other elements and weighed 8.1 pounds. All of the other 21 canisters weighed 7.7 pounds, +/- 0.1 pound.

The weighing data was sent via email to the RSC. After reviewing the data, the RSC was satisfied that none of the cans had any water intrusion.

The inspector reviewed the RWI and the weighing data. It appeared that the procedure used to weigh the canisters was appropriate and that there had been no water leakage into the canisters.

c. Conclusion

Following a fuel inspection in 2013, the total number of fuel elements with cracked or damaged cladding has been determined to be 25. Fuel movements and weighing of those elements in canisters were completed and documented in accordance with the requirements specified by procedure.

8. Experiments

a. Inspection Scope (IP 69001)

To ensure that the requirements of TS Sections 8 and 9 were being met concerning experimental programs, the inspector reviewed selected aspects and/or portions of:

- Aerotest Experiment Type Review forms (previously designated as AGNIR Operation Request Forms) documenting experiments approved by the RSC
- Section VII of the ARRR Procedures Manual entitled, “Experiment Review and Approval,” stipulating experimental program requirements
- The last two ARRR annual reports

b. Observations and Findings

There were six basic types of experiments that had been approved to be conducted at the ARRR facility. The one most commonly used was No. 114 - neutron radiography performed in the radiography facilities. Based on records review, observations of the facility, and radiation surveys, the inspector verified that no experiments had been conducted since October 2010.

c. Conclusion

No experiments had been conducted since October 2010.

10. Follow-up on Previously Identified Item

a. Inspection Scope (IP 92701)

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

b. Observation and Findings

(1) Inspector Follow-up Item (IFI) - 50-228/2007-201-01 - Follow-up on the completion of the Autoliv, Inc. divestiture and negation plans involving Aerotest Operations, Inc.

During an inspection in 2007, the inspector discussed the issue of the apparent indirect or ultimate transfer of the license. This had occurred when the ownership of the Aerotest Radiography and Research Reactor (ARRR) was transferred in substantial part to Autoliv, Inc., through an indirect transfer. This issue had been under review by both the licensee and the NRC for several years. During the inspection it was noted that the pathway to a resolution had apparently been established. The resolution of this issue never materialized and has been the subject of continuing discussions between the licensee and the NRC.

The original issue concerning foreign ownership and divestiture is closed.

(2) IFI - 50-228/2010-201-01 – Follow-up on the licensee's corrective actions to instruct workers in the proper use of extremity dosimetry – finger rings.

During an inspection in 2010, an issue was noted concerning the positioning of workers' extremity monitoring devices, i.e., their finger rings. Workers at the facility are issued ring dosimeters that are used whenever they handle radioactive materials. The dosimeter is in the form of a plastic ring containing one thermoluminescent chip enclosed in a protective cover. The dosimeter is intended to be worn on the finger closest to the source of the radiation, with the TLD chip facing the palm side of the hand. Through Interviews with licensee personnel it was noted that workers were wearing their ring dosimeter during work activities, but that sometimes the dosimeter was worn on the thumb or small finger because it would not fit properly on any of the other fingers. The rings were also being worn with the TLD chip facing the back of the hand. In this configuration, the dosimeter monitored the general area radiation in the vicinity of the hand rather than the dose to the hand. The licensee was cautioned that workers should be instructed to wear their extremity monitors – finger rings properly in order to provide an accurate assessment of the dose to the hands.

During this inspection it was noted that no work was being performed and no extremity monitoring was needed or being used. This issue is considered closed.

c. Conclusion

Two IFIs were reviewed and closed.

14. Exit Meeting Summary

The inspector reviewed the inspection results with members of licensee management at the conclusion of the inspection on November 19, 2014. The licensee acknowledged the findings presented and did not identify as proprietary any of the material provided to or reviewed by the inspector during the inspection.

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

C. Bauman	Nuclear Engineer and Senior Reactor Operator
F. Meren	Reactor Supervisor and Reactor Operations Manager
T. Richey	Neutron Radiography Manager
S. Warren	General Manager and Radiological Safety Officer
M. Wilkinson	Quality Assurance Manager

INSPECTION PROCEDURE USED

IP 69001	Class II Non-Power Reactors
IP 92701	Review of Previously Identified Items

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

50-228/2007-201-01	IFI	Follow-up on the completion of the Autoliv, Inc. divestiture and negation plans involving Aerotest Operations, Inc.
50-228/2010-201-01	IFI	Follow-up on the licensee's corrective actions to instruct workers in the proper use of extremity dosimetry – finger rings.

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
AO	Aerotest Operations, Inc.
ARRR	Aerotest Radiography and Research Reactor
CFR	Code of Federal Regulations
E-Plan	Emergency Plan
IFI	Inspector Follow-up Item
kW	kilowatt
LOA	Letter of Agreement
N-Ray	neutron radiography
NRC	Nuclear Regulatory Commission
OEA	OEA Aerospace, Inc.
ORF	Operations Request Form
PCN	Procedure Change Notice
RSC	Reactor Safeguards Committee
SRO	Senior Reactor Operator
SRV	San Ramon Valley
TS	Technical Specification