



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 15, 2018

Dr. David M. Slaughter
President and Reactor Administrator
Aerotest Operations, Inc.
3455 Fostoria Way
San Ramon, CA 94583

SUBJECT: AEROTEST OPERATIONS, INC. - REQUEST FOR ADDITIONAL
INFORMATION REGARDING THE OPERATOR REQUALIFICATION
PROGRAM FOR THE AEROTEST RADIOGRAPHY AND RESEARCH
REACTOR (EPID NO. L-2017-RNW-0027)

Dear Dr. Slaughter:

By letter dated January 2, 2018 (Agencywide Documents Access and Management System Accession No. ML18009A439), Aerotest Operations, Inc. (Aerotest) submitted an updated Aerotest Radiography and Research Reactor (ARRR) Operator Requalification Program (ORP), dated November 2017, for U.S. Nuclear Regulatory Commission (NRC) review.

During the NRC staff's review of the ARRR ORP, dated November 2017, questions have arisen for which the NRC staff requires additional information and clarification. The NRC staff requests that Aerotest provide responses to the enclosed requests for additional information within 60 days from the date of this letter.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.30(b), "Oath or affirmation," Aerotest must execute its response in a signed original document under oath or affirmation. The response must be submitted in accordance with 10 CFR 50.4, "Written communications." Information included in the response that is considered sensitive or proprietary, that you seek to have withheld from the public, must be marked in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Any information related to safeguards should be submitted in accordance with 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements." Following receipt of the additional information, the NRC staff will continue its evaluation of Aerotest's ORP.

If you have any questions, or need additional time to respond to this request, please contact me at 301-415-4067, or by electronic mail at Edward.Helvenston@nrc.gov.

Sincerely,

/RA/

Edward Helvenston, Project Manager
Research and Test Reactors Licensing Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation

Docket No. 50-228

License No. R-98

Enclosure:

As stated

cc:

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SUBJECT: AEROTEST OPERATIONS, INC. – REQUEST FOR ADDITIONAL INFORMATION REGARDING THE OPERATOR REQUALIFICATION PROGRAM FOR THE AEROTEST RADIOGRAPHY AND RESEARCH REACTOR DATED OCTOBER 15, 2018

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REQUEST FOR ADDITIONAL INFORMATION

REGARDING THE OPERATOR REQUALIFICATION PROGRAM

FOR THE AEROTEST RADIOGRAPHY AND RESEARCH REACTOR

LICENSE NO. R-98; DOCKET NO. 50-228

During the U.S. Nuclear Regulatory Commission (NRC) staff's review of the Aerotest Radiography and Research Reactor (ARRR) Operator Requalification Program (ORP), dated November 2017, submitted by letter dated January 2, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18009A439), questions have arisen for which the NRC staff requires additional information and clarification.

RAI ORP-1

Title 10 of the *Code of Federal Regulations* (10 CFR) 55.59(c)(3)(ii) states that the ORP must include on the job training so that:

Each licensed operator and senior operator has demonstrated satisfactory understanding of the operation of the apparatus and mechanisms associated with the control manipulations in [10 CFR 55.59(c)(3)(i)], and knows the operating procedures in each area for which the operator or senior operator is licensed.

ORP Section III, "ON-THE-JOB TRAINING," first paragraph, second sentence, states: "Each licensed operator and senior operator shall demonstrate a satisfactory understanding of the operating procedures in each area for which he is licensed."

However, the NRC staff notes that ORP Section III does not appear to address how each licensed operator and senior operator will demonstrate satisfactory understanding of the operation of the apparatus and mechanisms associated with the control manipulations in 10 CFR 55.59(c)(3)(i).

Revise the ORP to address how each licensed operator and senior operator will demonstrate such understanding, or provide a justification for how the ORP meets the requirements of 10 CFR 55.59(c)(3)(ii).

RAI ORP-2

The regulations in 10 CFR 55.59(c)(4)(i) and (ii) state:

Evaluation. The requalification program must include — (i) Comprehensive requalification written examinations and annual operating tests which determine areas in which retraining is needed to upgrade licensed operator and senior operator knowledge. (ii) Written examinations which determine licensed operators' and senior operators' knowledge of subjects covered in the

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requalification program and provide a basis for evaluating their knowledge of abnormal and emergency procedures.

ORP Section V, "OPERATOR EVALUATION/EXAM-ADMINISTRATION," first paragraph, states:

Biennial written examinations and annual operating tests will be given to all licensed operators and senior operators. The biennial written exam shall include questions formulated from the lecture material presented in [ORP] Section II specifically to reinforce the phenomena, equipment, and processes associated with the Facility licensee.

However, the NRC staff notes that ORP Section V does not appear to address the requirements in 10 CFR 55.59(c)(4)(i) and 10 CFR 55.59(c)(4)(ii), other than mentioning that the licensee will give biennial written examinations and annual operating tests to all licensed operators and senior operators. Specifically, the ORP does not appear to address the evaluation criteria for determination of retraining needs of licensed operators and senior operators. The NRC staff notes that the language used in Enclosure 3 of Aerotest's January 2, 2018, submittal (Decommissioned Requalification Plan), Section IV, "EVALUATION," while brief, appears to provide some additional explanation of these requirements.

Revise the ORP to address, in detail, the evaluation criteria for determination of retraining needs, or provide a justification for how the ORP meets the requirements of 10 CFR 55.59(c)(4)(i) and 10 CFR 55.59(c)(4)(ii).

RAI ORP-3

The regulations in 10 CFR 55.59(c)(5)(i) state:

Records. The requalification program documentation must include the following: The facility licensee shall maintain records documenting the participation of each licensed operator and senior operator in the requalification program. The records must contain copies of written examinations administered, the answers given by the licensee, and the results of evaluations and documentation of operating tests and of any additional training administered in areas in which an operator or senior operator has exhibited deficiencies. The facility licensee shall retain these records until the operator's or senior operator's license is renewed.

ORP Section VI, "RECORDS," states:

Records of the requalification program will be maintained to document each licensed operator's and senior operator's participation in the program. A summary document (log) will be maintained for each licensee that includes entries to support the licensee's active duty status, attendance dates for lectures, and references for on-the-job training activities. Records will also include copies of the written examination given, the answers given by each licensee, and the results of evaluations and documentation of operating tests and of any additional training given in areas where licensed operators and senior operators become inactive or exhibited deficiencies.

However, the NRC staff notes that ORP Section VI does not appear to address the record retention period for requalification documents as stated in 10 CFR 55.59(c)(5)(i).

Revise the ORP to include the record retention requirements for each licensed operator's and senior operator's participation in the requalification program (i.e., to state that the facility licensee shall retain these records until the operator's or senior operator's license is renewed) or provide a justification for how the ORP meets the requirements of 10 CFR 55.59(c)(5)(i).

RAI ORP-4

The regulations in 10 CFR 55.59(a)(2)(ii) state:

Requalification requirements. Each licensee shall — Pass a comprehensive requalification written examination and an annual operating test. (ii) The operating test will require the operator or senior operator to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a comprehensive sample of items specified in [10 CFR] 55.45(a) (2) through (13) inclusive to the extent applicable to the facility.

The regulations in 10 CFR 55.45(a)(2-13) state:

- (a) Content. The operating tests administered to applicants for operator and senior operator licenses in accordance with [10 CFR 55.45(b)(1)] are generally similar in scope. The content will be identified, in part, from learning objectives derived from a systematic analysis of licensed operator or senior operator duties performed by each facility licensee and contained in its training program and from information in the Final Safety Analysis Report, system description manuals and operating procedures, facility license and license amendments, Licensee Event Reports, and other materials requested from the facility licensee by the Commission. The operating test, to the extent applicable, requires the applicant to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a representative sample from among the following 13 items.
- (2) Manipulate the console controls as required to operate the facility between shutdown and designated power levels.
- (3) Identify annunciators and condition-indicating signals and perform appropriate remedial actions where appropriate.
- (4) Identify the instrumentation systems and the significance of facility instrument readings.
- (5) Observe and safely control the operating behavior characteristics of the facility.
- (6) Perform control manipulations required to obtain desired operating results during normal, abnormal, and emergency situations.

(7) Safely operate the facility's heat removal systems, including primary coolant, emergency coolant, and decay heat removal systems, and identify the relations of the proper operation of these systems to the operation of the facility.

(8) Safely operate the facility's auxiliary and emergency systems, including operation of those controls associated with plant equipment that could affect reactivity or the release of radioactive materials to the environment.

(9) Demonstrate or describe the use and function of the facility's radiation monitoring systems, including fixed radiation monitors and alarms, portable survey instruments, and personnel monitoring equipment.

(10) Demonstrate knowledge of significant radiation hazards, including permissible levels in excess of those authorized, and ability to perform other procedures to reduce excessive levels of radiation and to guard against personnel exposure.

(11) Demonstrate knowledge of the emergency plan for the facility, including, as appropriate, the operator's or senior operator's responsibility to decide whether the plan should be executed and the duties under the plan assigned.

(12) Demonstrate the knowledge and ability as appropriate to the assigned position to assume the responsibilities associated with the safe operation of the facility.

(13) Demonstrate the applicant's ability to function within the control room team as appropriate to the assigned position, in such a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated.

ORP Section V, "OPERATOR EVALUATION/EXAM-ADMINISTRATION," second paragraph, states: "Each reactor operator and senior reactor operator is required to take an annual operational exam to demonstrate operational proficiency of the reactor and auxiliary systems, and implementation of security and emergency processes to ensure safe and secure operation."

However, the NRC staff notes that ORP Section V does not appear to address a comprehensive sample of the requirements specified in 10 CFR 55.45(a)(2-13).

Revise the ORP to include the topics that each licensed operator and senior operator will be evaluated on during an annual operating exam, or provide a justification for how the ORP meets the requirements of 10 CFR 55.45(a)(2-13).

RAI ORP-5

The regulations in 10 CFR 55.59(c)(4)(v) state that requalification programs must include "[p]rovisions for each licensed operator and senior operator to participate in an accelerated requalification program where performance evaluations ... clearly indicated the need."

The guidance in American National Standards Institute/American Nuclear Society (ANSI/ANS)-15.4-2007, "Selection and Training of Personnel for Research Reactors," Section 5.5, states:

The minimum acceptance score shall be 70% for each category of the written examination and 70% for the entire operating and oral examination. Individuals who did not achieve passing scores in one or more of the categories listed in [Section] 5.4 may be reexamined following retraining in the deficient areas. The responsible authority may waive reexamination in categories with passing scores provided the candidate has demonstrated proficiency in those portions of an examination.

ORP Section V, "OPERATOR EVALUATION/EXAM-ADMINISTRATION," third paragraph, states:

Licensed operators or senior operators who score less than 80% overall on the written examination or operating test will be required to participate in an accelerated program and during such a program may continue to perform licensed duties under supervision. The accelerated course content and duration will depend upon the individual's deficiencies.

The NRC staff notes that ORP Section V does not appear to discuss acceptable performance on examinations and tests. The ORP mentions an "accelerated program" but does not appear to include, in detail, how Aerotest plans to identify performance weaknesses based on the subject areas in ORP Section II.

Revise the ORP to include how Aerotest will determine if the identified performance weaknesses have been adequately remediated, or justify why no ORP revision is required.

RAI ORP-6

The regulations in 10 CFR 55.21 state: "An applicant for a license shall have a medical examination by a physician. A licensee shall have a medical examination by a physician every two years. The physician shall determine that the applicant or licensee meets the requirements of [10 CFR] 55.33(a)(1)."

However, the ORP does not appear to include the requirements of 10 CFR 55.21 for medical examinations, besides a line item, "Medical Exam Date Due," under "OPERATOR EVALUATION/EXAM-ADMINISTRATION," on the ORP Checklist (Enclosure 2).

Revise the ORP to include medical examination requirements, and to require that the medical examination period not exceed the biennial medical examination requirement stated in 10 CFR 55.21, or justify why the current ORP is acceptable.

RAI ORP-7

The regulations in 10 CFR 55.53(e) state:

Each license contains and is subject to the following conditions whether stated in the license or not: (e) If a licensee has not been actively performing the functions of an operator or senior operator, the licensee may not resume activities authorized by a license issued under this part except as permitted by [10 CFR 55.53(f)]. To maintain active status, the licensee shall actively perform the functions of an operator or senior operator on a minimum of seven 8-hour or five 12-hour shifts per calendar quarter. For test and research reactors, the

licensee shall actively perform the functions of an operator or senior operator for a minimum of four hours per calendar quarter.

The regulations in 10 CFR 55.53(f) state:

If [10 CFR 55.53(e)] is not met, before resumption of functions authorized by a license issued under this part, an authorized representative of the facility licensee shall certify the following: (1) That the qualifications and status of the licensee are current and valid; and (2) That the licensee has completed a minimum of 40 hours of shift functions under the direction of an operator or senior operator as appropriate and in the position to which the individual will be assigned. The 40 hours must have included a complete tour of the plant and all required shift turnover procedures. For senior operators limited to fuel handling under [10 CFR 55.53(c)], one shift must have been completed. For test and research reactors, a minimum of six hours must have been completed.

The regulations in 10 CFR 55.59(c)(6) state:

Alternative training programs. The requirements of this section may be met by requalification programs conducted by persons other than the facility licensee if the requalification programs are similar to the program described in [10 CFR 55.59(c)(1) through (5)] and the alternative program has been approved by the Commission.

ANSI/ANS-15.4-2016, "Selection and Training of Personnel for Research Reactors," Section 6.5 states:

Absence from licensed functions: Licensed personnel who have not actively performed the functions of an operator or senior operator for a minimum of 4 hours per calendar quarter shall perform a minimum of 6 hours of licensed functions under the direction of a qualified individual holding the same or higher-level license prior to being reinstated.

The NRC staff notes that the ORP does not appear to include the requirements of 10 CFR 55.53(e), 10 CFR 55.53(f), and 10 CFR 55.59(c)(6). Since the ARRR has not been routinely operated since October 2010, and was defueled in July 2012 (see ADAMS Accession No. ML18127B706), the NRC staff notes that none of Aerotest's licensed personnel currently hold an active status.

- a) Discuss the provisions that Aerotest will be taking to return the ARRR operator licenses to active status, including, if applicable, Aerotest's plan to meet the requirements for an alternative training program that can be approved by the Commission, or justify why no additional information is required.
- b) Additionally, revise the ORP to include the requirements of 10 CFR 55.53(e), 10 CFR 55.53(f), and 10 CFR 55.59(c)(6), or justify why the current ORP is acceptable.