

AUDIT AND REVIEW PLAN  
FOR THE IDAHO STATE UNIVERSITY  
AGN NUCLEAR REACTOR

Nuclear Engineering Laboratory  
Idaho State University  
Pocatello, Idaho 83209

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Revised  
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## **I. Purpose**

This document sets forth the requirements for the Audit and Review Program for the Idaho State University's AGN Research Nuclear Reactor (R-110). The audit and review program is established to provide a method for the independent audit and review of the safety aspects of reactor facility operations to advise facility management. The purpose of the audit and review program is to ensure that all facility documentation is completely and properly maintained to satisfy R-110 licensing conditions.

## **II. Regulatory Requirements**

### **Audit**

Audits and reviews are functions explicitly assigned to the Reactor Safety Committee or subcommittee(s) thereof in the R-110 Technical Specifications (TS). Audits shall include an examination of the following pursuant to TS 6.4.3:

- (1) reactor operating records (defined in TS 6.10) annually,
- (2) operator requalification procedures biennially,
- (3) changes in equipment or deviations from procedures,
- (4) emergency procedures biennially, and
- (5) facility security procedures biennially.

### **Review**

The TS does not specify a review frequency for items 1-7 in the list below. These reviews will be performed on an as needed basis. Item 8, however, is required to be reviewed on a biennial schedule not to exceed 30 months. Review topics outlined in TS 6.4.2 include the following:

- (1) all new experiments utilizing the reactor facility
- (2) all proposed changes to the facility license by amendment, and to the Technical Specifications.
- (3) audit reports
- (4) significant operating abnormalities or deviations from normal and expected performance of facility equipment that affect nuclear safety
- (5) approvals of all determinations of whether a proposed change, test or experiment would constitute a change in the Technical specifications or an unreviewed safety question as defined in 10CFR50.59.
- (6) reportable occurrences and the reports filed with the NRC for said occurrences
- (7) all standard operating procedures and changes thereto
- (8) all standard procedures, the facility emergency plan, and the facility security plan.

## **III. Guidelines**

### **Audit**

The audit process is described in the ANSI/ANS standards. Audits are selective examinations of the

operating records. ANSI/ANS 15.1 (6.2.4) and ANSI/ANS 15.18 (3.5.4.) both suggest and TS 6.4.3 requires that in no case shall the individual immediately responsible for the area audit that area. Audit reports should be submitted directly to the Facility director as the Level 1 representative of facility management, and to the audit group members within three months after the audit has been completed. Subjects of examinations include operating records, logs, and other documents involving the following:

- (1) Emergency Plan
- (2) Physical Security Plan
- (3) Operator Requalification Plan
- (4) Radiation Safety Program
- (5) Standard Operating Procedures.

#### Review

The review process is further described in the ANSI/ANS standards. Reviews are program-wide examinations to assess overall compliance with the Code of Federal Regulations, NRC Regulatory Guides, ANSI/ANS Standards, Technical Specifications, NUREG's, and other documents. ANSI/ANS 15.1 (6.2.3(8)) and ANSI/ANS 15.18 (3.5.3(h)) both suggest that audit reports be included in the review process. Review reports should be submitted directly to the Facility Director as the Level 1 representative of facility management, and to the review group members in a timely manner after the review has been completed. These plans, programs, and procedures to be reviewed include the following:

- (1) Emergency Plan
- (2) Physical Security Plan
- (3) Operator Requalification Plan
- (4) Radiation Safety Program
- (5) Standard Operating Procedures

#### IV. Responsibility

Since responsibility for audit and review program lies solely with the Reactor Safety Committee (TS 6.1.6, 6.4.2, and 6.4.3) a subcommittee thereof shall be established to conduct and report activities associated with this plan. Audit and Review subcommittee(s) shall be composed of at least three persons (ANSI/ANS 15.1 (6.2.1)). Members and alternatives shall be appointed by and report to the Facility Director as Level 1 management. Members shall be appointed from the Reactor Safety Committee and shall collectively represent a broad spectrum of expertise in the appropriate reactor technology. No subcommittee member shall be assigned to audit in an area for which the member has principal responsibility. Qualified and approved alternates may serve in the absence of regular members.

Audit and review activities shall be initiated by the Chairman of the RSC at the regularly scheduled RSC meeting prior to the scheduled activity by assigning a member of the subcommittee the responsibility of completing the identified task. A suggested schedule for performance of these activities is contained in the appendix.

## V. Criteria for Assessment

The auditor or reviewer must have criteria (bases) to judge when an item is in compliance. For audits, an item is not in compliance if a procedure is incomplete either through failure to initiate a procedure or failure to appropriately complete the procedure. For reviews, an item is not in compliance if the plan, procedures, or other reports do not document the regulatory requirements or guidelines.

## VI. Audit and Review Materials

### Audit

Audit Reports shall be filed on a form NEL-029 (see appendix) and shall be submitted to the Facility Director in a timely manner. The following outline is provided to assist the auditor in selecting the proper audit materials. The bases (plans, procedures, and programs) are to be used to compare records for compliance.

#### *Emergency Plan*

##### Bases

- Emergency Plan

- Emergency Procedures(SOP Ch. 8, and Police Dispatcher's Procedures)

##### Records

- Emergency Drill Planning and Evaluation Memos

- Emergency Procedures Training (attendance list, NEL-032)

- Emergency Procedures Training for Support Agencies (attendance list)

#### *Radiation Safety Program*

##### Bases

- Idaho State University Radiological Health Procedures

- Standard Operating Procedures (Ch. 7)

##### Records

- Personnel Exposure Records

- Irradiation Request (radioactive materials transfer/release), NEL-027

- Radiation Safety Training (attendance list, NEL-032)

- Laboratory Surveys

- Monitor and Detector Calibrations

### *Requalification Plan*

#### Bases

- Operator Requalification Plan
- Standard Operating Procedures (Ch. 10)

#### Records

- Operator License Files
  - License
  - Medical Exam, Form 396 and Physicians Form
  - Operator Training, NEL-025
  - Annual RSC Chairman's Review Memo
- Lecture Attendance, NEL-032

### *Security Plan*

#### Bases

- Security Plan
- Standard Operating Procedures (Ch. 9)

#### Records

- Safeguard Events Log
- Security Training (attendance list, NEL-032)

### *Standard Operating Procedures*

#### Bases

- Standard Operating Procedures (except Ch. 7-10)

#### Records

- Operations Log
- Preliminary and Termination Checks
- Maintenance Log
- Procedures Log
- Experiments Log

### *Review*

Review Reports shall be filed on a form NEL-034 (see appendix) and shall be submitted to the Facility Director in a timely manner. The following outline is provided to assist the auditor in selecting the proper audit materials. The bases (license conditions, technical specifications, regulations, guidelines, standards, etc.) are to be used to compare plans, programs, and procedures for compliance.

### *Emergency Plan*

#### Bases

10CFR50.54 and Part 50, Appendix E  
NUREG-0849  
Regulatory Guide 2.6  
ANSI/ANS 15.16

#### Records

Emergency Plan  
Emergency Procedures (SOP Ch. 8, and Police/Fire/Hospital Procedures)

### *Radiation Safety Program*

#### Bases

10CFR20  
Technical specifications 3.7, 4.3.3, and 5.4  
ANSI/ANS 15.11

#### Records

Idaho State University Radiological Health Procedures  
Standard Operating Procedures (Ch. 7)

### *Requalification Plan*

#### Bases

10CFR19.12  
10CFR55.41, 43, 53, and 59  
Technical Specifications 6.3, 6.4, and 6.5.2  
Regulatory Guides 8.13, 8.27, and 8.29  
ANSI/ANS 15.4

#### Records

Operator Requalification Plan  
Standard Operating Procedures (Ch. 10)

### *Security Plan*

#### Bases

10CFR50.54(p), and Parts 70 and 73  
NUREG-1304  
Regulatory Guides (5.12 and 5.65)  
ANSI/ANS 15.14



## Records

Security Plan

Standard Operating Procedures (Ch. 9)

## *Standard Operating Procedures*

### Bases

10CFR20, 50, and 55

R-110 Technical Specifications

R-110 License

University Broad Form License

### Records

Standard Operating Procedures (except Ch. 7-10)

## VII. Correction of Items Not in Compliance

Management of the reactor facility will assess items listed not in compliance. If the item requires action, the appropriate procedure shall be determined. For example, if an entry is missing on a procedure, information concerning the item shall be acquired and the item shall be corrected with an initialed and dated entry on the procedure. If an item constitutes a reportable occurrence, then the item shall be reported pursuant to TS 6.9.2. If a procedure or plan requires modification, facility staff will draft the modified document for review by the RSC at the next meeting. Other situations will be corrected appropriately.

## VIII. Failure to Begin Audit or Review

Audits and reviews are required to be performed on a regular schedule established in the TS as suggested in the appendix. Failure to satisfy the frequency requirements of the TS is based on the intervals between the last day of the last audit or review and the first day of the next audit or review, the time required for the function is neglected.

## IX. Records

Program tracking shall be maintained in the Audit and Review Log. When an Audit Report NEL-029 or Review Report NEL-034 is submitted by a subcommittee member to the facility Director, the report shall be placed into the Audit and Review Log. Filing of the report shall be logged in the Biennial Audit and Review Program Checklist, NEL-035 (see appendix). These records shall be maintained in the Facility for at least three years before being filed in the archives.

## APPENDIX

### A. Suggested Schedule

#### 1. Audits

- a. May, every year
  - (1) Standard Operating Procedures (operations records)
  - (2) Changes in equipment or deviations from procedures
- b. November, even years
  - (1) Radiation Safety Program
  - (2) Requalification Plan
- c. November, odd years
  - (1) Emergency Plan
  - (2) Security Plan

#### 2. Reviews

- a. February, even years
  - (1) Emergency Plan
  - (2) Security Plan
- b. February, odd years
  - (1) Standard Operating Procedures
- c. November, even years
  - (1) Requalification Plan
  - (2) Radiation Safety Program



**Annual Audit  
of Reactor Operations Records**

Form NEE-029

RSC Approval:

Audit Period:

\_\_\_\_\_  
Begin

\_\_\_\_\_  
End

Date Conducted:

\_\_\_\_\_  
Begin

\_\_\_\_\_  
End

Auditor:

\_\_\_\_\_  
Print Name

Audit Subject:

(1) Emergency Plan  
(2) Requalification Plan

(3) Rad. Safety Program  
(4) Security Plan

(5) Standard Operating  
Procedures

Bases:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Records:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Results:

Minimum required (TS 6.4.3)

List and Comment on Area Audited

(1) Records maintained in the proper location:

\_\_\_\_\_

(2) Entries legible:

\_\_\_\_\_

(3) Entries complete:

\_\_\_\_\_

(4) Conformance to technical specifications:

\_\_\_\_\_

(5) Deficiencies corrected:

\_\_\_\_\_

Comments and Recommendations (attach additional sheets if necessary):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Auditor: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Form approved by Reactor Safety Committee:

Reactor Administrator: \_\_\_\_\_ Date: \_\_\_\_\_

Form NEL-034  
RSC Approval

Begin

End

Begin

End

Print Name

(5) Standard Operating Procedures

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This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

Reactor Administrator: \_\_\_\_\_ Date: \_\_\_\_\_

### REQUALIFICATION/TRAINING STRUCTURE

Topic \_\_\_\_\_

Instructor \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_  
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Maintenance Log entries covered in training session:

Log

Entry Date

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Log

Entry Date

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## REQUALIFICATION LECTURE PROGRAM

Topic \_\_\_\_\_  
Name \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Instructor \_\_\_\_\_  
Date \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Maintenance Log entries covered in training session:

Log	Entry Date	Log	Entry Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Updated Procedures covered in training session:

Procedure	Approval Date	Procedure	Approval Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Form approved by Reactor Safety Committee:

Reactor Administrator: \_\_\_\_\_ Date: \_\_\_\_\_

IDAHO STATE UNIVERSITY  
NUCLEAR ENGINEERING LABORATORY  
REQUALIFICATION PROGRAM PROGRESS CHECKLIST

Operator \_\_\_\_\_ License No. \_\_\_\_\_

License Effective Date \_\_/\_\_/\_\_ License Expiration Date \_\_/\_\_/\_\_

Training period (2 years): Beginning \_\_/\_\_/\_\_ Ending \_\_/\_\_/\_\_

<u>Lecture Program</u>	<u>Date</u>	<u>Instructor</u>	<u>Licensee</u>
1. Nuclear Reactor Theory	__/__/__	_____	_____
2. Radiation Control and Safety	__/__/__	_____	_____
3. Governing Regulations	__/__/__	_____	_____
4. Reactor Design	__/__/__	_____	_____
5. Reactor Control and Safety Systems	__/__/__	_____	_____
6. Reactor Operating Characteristics	__/__/__	_____	_____
7. Normal, Abnormal, and Emer. Op. Procedures	__/__/__	_____	_____
8. Technical Specifications and License Conditions	__/__/__	_____	_____

On the Job Training

S H I F T   D U T Y

	<u>Date</u>	<u>Hours</u>	<u>Date</u>	<u>Hours</u>	<u>Date</u>	<u>Hours</u>	<u>Total</u>
Qtr. 1	__/__/__	_____	__/__/__	_____	__/__/__	_____	_____
2	__/__/__	_____	__/__/__	_____	__/__/__	_____	_____
3	__/__/__	_____	__/__/__	_____	__/__/__	_____	_____
4	__/__/__	_____	__/__/__	_____	__/__/__	_____	_____
5	__/__/__	_____	__/__/__	_____	__/__/__	_____	_____
6	__/__/__	_____	__/__/__	_____	__/__/__	_____	_____
7	__/__/__	_____	__/__/__	_____	__/__/__	_____	_____
8	__/__/__	_____	__/__/__	_____	__/__/__	_____	_____

Additional entries may be inserted between the lines.

Form approved by Reactor Safety Committee:

Reactor Administrator: \_\_\_\_\_

Date: \_\_\_\_\_

On the Job Training (cont.)

Prestart Check completed: \_\_\_/\_\_\_/\_\_\_ Examiner: \_\_\_\_\_  
Startup completed: \_\_\_/\_\_\_/\_\_\_ Examiner: \_\_\_\_\_  
Termination completed: \_\_\_/\_\_\_/\_\_\_ Examiner: \_\_\_\_\_

Evaluations (satisfactory/unsatisfactory)

Written Year One Date Administered \_\_\_/\_\_\_/\_\_\_ Evaluation \_\_\_\_\_  
Year Two Date Administered \_\_\_/\_\_\_/\_\_\_ Evaluation \_\_\_\_\_

Console	Date	Examiner	Evaluation
1. Prestart Check	___/___/___	_____	_____
2. Reactor Startup	___/___/___	_____	_____
3. Power Operation	___/___/___	_____	_____
4. Termination	___/___/___	_____	_____

Operator Reinstatement

Failure to complete quarterly shift duties requires certification for operation by the Reactor Supervisor. This is accomplished by serving 6 hours of supervised shift duty.

Quarter _____	Date _____	Supervisor _____
Quarter _____	Date _____	Supervisor _____
Quarter _____	Date _____	Supervisor _____

An unsatisfactory grade in the evaluations requires certification for operation by the Reactor Supervisor. This is accomplished through additional training.

Topic _____	Date _____	Supervisor _____
Topic _____	Date _____	Supervisor _____
Topic _____	Date _____	Supervisor _____

Medical Examination Completion Date: \_\_\_/\_\_\_/\_\_\_

Form approved by Reactor Safety Committee:

Reactor Administrator: \_\_\_\_\_ Date: \_\_\_\_\_

## Reactor Safety Committee-Charter

### I. Membership and Organization

The Reactor Safety Committee is one of the University's regularly constituted standing committees. Appointments to the Committee are made through the office of the Academic Vice President for Research.

The Committee shall be composed of at least five members knowledgeable in fields that relate to nuclear reactor safety. The Committee shall consist of the Reactor Administrator, who shall be the Chairman, the Reactor Supervisor, the Radiation Safety Officer and at least two other members not directly involved in reactor operations but knowledgeable in fields related to nuclear reactor safety.

One member of the Committee other than the Chairman will be appointed by the Chairman to serve as Secretary of the Committee.

All significant deliberations and all actions of the Committee shall be reported in the minutes by the Secretary in sufficient detail for an independent reviewer to understand the nature and consequences of Committee actions. The Secretary will assure that minutes of each Committee meeting are made and copies distributed to all members after the meeting.

### II. Duties and Responsibilities

1. Review and approve safety aspects associated with the use of the reactor facility; in conformance with NRC and University regulations;

2. Review and approve all proposed experiments and procedures as required, and changes thereto, and modifications to the reactor and its associated components;

3. Determine whether proposed experiments, procedures or modifications involve unreviewed safety questions, as defined in 10CFR 50, Part 50.59 (c), and are in accordance with the written Technical Specifications;

4. Conduct periodic audits of procedures, reactor operations and maintenance, equipment performance, and records;

5. Review all reported abnormal occurrences and violations of the Technical Specifications; evaluate the cause of such events and the corrective action taken, and recommend measures to prevent recurrence;

6. Reports of findings and recommendations concerning the above stated items 1-5, whether performed by individual Committee members, or by appointed subcommittees, and to be made to the Reactor Administrator.

### III. Meeting

The Committee shall meet on call of the Chairman and shall meet at least once in each calendar quarter.



#### IV. Quorum

A quorum for conducting the business of the committee shall consist of a simple majority of its members; provide that this majority includes the Reactor Administrator, the Reactor Supervisor and the Radiation Safety Officer, or their designates.

#### V. Parliamentary Rules

Robert's Rules of Order shall be followed in conducting all meetings of the Committee.

#### VI. Order of Business

The official agenda, together with copies of all proposals for significant Committee actions (e.g. new experiments, proposed amendments to licenses or technical specifications, etc.), as distributed prior to the meeting, shall constitute the principal business at each meeting. The regular order shall be:

- (1) Roll call;
- (2) Action on the minutes of the preceding meeting;
- (3) Report by the Reactor Administrator;
- (4) Report by the Reactor Supervisor;
- (5) Report by the Radiation Safety Officer;
- (6) Reports by other individuals or subcommittees;
- (7) Approval of experiments, procedures etc.;
- (8) Review of communications, audit of records and reactor operations, logs and miscellaneous matters.

#### VIII. Records

Documentation of the activities of the Committee shall be maintained. The documentation shall include the names and qualifications of the members, the agenda and approved minutes of all Committee meetings, Committee actions, and copies of all correspondence and reports to or from the Committee. One complete file should be prepared and transmitted annually to the University Archives. The original file shall be maintained by the Chairman.

## Senior Reactor Operator

The Idaho State University College of Engineering invites applications for a staff opening for a senior reactor operator.

Applicants must possess a bachelor's degree in nuclear engineering or a related discipline and must qualify for a Nuclear Regulatory Commission Senior Reactor Operator's license within six months of assuming the position. The successful applicant should have a knowledge of federal regulations related to reactor operations, and be capable of contributing to the college's teaching and research activities. Candidates must be eligible to hold security clearances. Review of applications will commence after March 1, 1992; the search will remain open until the position is filled.

Idaho State University is a small, dynamic institution located in a region of great natural beauty. The proximity of the Idaho National Engineering Laboratory and other industries provide unusual opportunities for professional development. The College of Engineering offers an A.B.E.T accredited undergraduate program in Engineering, the M.S. in Measurements & Controls along with the M.S. and Ph.D. in Nuclear Science & Engineering. Please submit applications including: resume; the names, addresses, and phone numbers of three references; and proof of legal authority to work permanently in the U.S. to Chairman, SRO Search & Screen Committee, ISU, P.O. Box 8060, Pocatello, ID 83209. Idaho State University is an affirmative action employer.

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