

Appendix C1
Fuel Facility Operations Inspector
Technical Proficiency
Training and Qualification Journal

Table of Contents

Introduction.....	C1-3
Required Fuel Facility Operations Inspector Training Courses.....	C1-3
Required Refresher Training	C1-3
Fuel Facility Operations Inspector Study Activities	C1-4
(SG-OPS-1) Operations.....	C1-5
(SG-OPS-2) Resident Inspector Option.....	C1-7
Fuel Facility Operations Inspector On-the-Job Activities	C1-9
(OJT-OPS-1) Operational Safety Review	C1-10
(OJT-OPS-2) Conduct of Operations.....	C1-12
(OJT-OPS-3) Security Plan and Implementation.....	C1-14
(OJT-OPS-4) Radiation Protection Program and Implementation	C1-16
(OJT-OPS-5) Fire Protection Program and Implementation	C1-18
(OJT-OPS-7) Emergency Response	C1-20
Fuel Facility Operations Inspector Technical Proficiency-Level Signature Card and Certification.....	C1-22
Form 1: Fuel Facility Operations Inspector Technical Proficiency-Level Equivalency Justification	C1-23
Attachment 1: Revision History for IMC 1247 App C-1.....	Att1-1

Introduction

Consult with your supervisor prior to beginning the activities or completing the courses in this qualification journal. In most cases, you will need to complete the Basic Inspector Certification Journal prior to beginning the activities in this Appendix. You may complete the General Proficiency requirements contained in Appendix B together with the Technical Proficiency requirements outlined in this journal.

Several of the topics have both an individual study guide and on-the-job training. You must complete the individual study guide before beginning the corresponding on-the-job training.

Before signing up for any course, be sure that you have checked and have met any prerequisites.

Required Fuel Facility Operations Inspector Training Courses:

(F-206S) Fire Protection for Fuel Cycle Facilities Self-Study
(24 Hours) Chemical Safety for Fuel Cycle Facilities Course
(24 hours) OSHA HAZWOPR Course

Required Refresher Training:

(To be completed every three years)

(F-401) Fundamentals of Inspection Refresher for Fuel Facilities Inspectors
(G-102) Fundamentals of Inspection Refresher (alternate if F-401 is not available)
(16 Hours) Refresher Technical Training Seminar as approved by supervisor

(8 hours) OSHA HAZWOPER Refresher Course

Continuing Training:

These classes are suggested for continuing training for inspectors, following completion of qualification and post-qualification training courses. You may propose alternate courses in additional topic areas to your supervisor.

NQA-1 Training

Fuel Facility Operations Inspector
Study Guides

Fuel Facility Operations Inspector Study Guide

TOPIC:	(SG-OPS-1) Operations
PURPOSE:	The U.S. Nuclear Regulatory Commission (NRC) expects Fuel Facility licensees to ensure the safety of their workers, the public and the environment by conducting operations in accordance with prescribed and approved operating procedures, postings and other administrative and engineered safety controls.
COMPETENCY AREAS:	INSPECTION
LEVEL OF EFFORT:	16 hours
REFERENCES:	<ol style="list-style-type: none">1. Integrated Safety Analysis (ISA) and License Application for your designated facility.2. Procedures at your designated facility used to control operations.3. Inspection Procedure (IP) 88020, "Operational Safety."4. IP 88025, "Maintenance and Surveillance of Safety Controls."5. IMC 2600, Appendix A, "Guidance for Conducting Fuel Facility Inspections."6. (Optional) NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility."7. (Optional) NUREG-1513, "Integrated Safety Analysis Guidance."8. Defense Nuclear Facilities Safety Board letter regarding red oil dated November 13, 20039. Memorandum dated March 10, 2003, "Regulatory Authority Over Chemical Hazards at Fuel Cycle Facilities"10. SECY 02-0216, "Proposed Process for Providing Information on Significant Nuclear Materials Issues and Adverse Licensee Performance" (ML022410435)
EVALUATION CRITERIA:	<p>Upon completion of this activity, you should be able to do the following:</p> <ol style="list-style-type: none">1. Describe the operational controls used by the facility to ensure safety (administrative, engineered, procedures, postings, etc.)

2. Describe the licensee's program for operational safety, including any hierarchy of safety controls, Management Measures, Safety Review Meetings and Audit requirements, etc.
3. Describe license and ISA commitments to controls for operational safety, including Management Measures, Items Relied On For Safety (IROFS), Audits, Safety Review Meetings, etc.
4. Describe the concern with the red oil phenomenon and how facilities protect against it.
5. Describe your Regulatory Authority Over Chemical Hazards At Fuel Cycle Facilities
6. Describe the Process For Providing Information On Significant Nuclear Materials Issues And Adverse Licensee Performance

TASKS:

1. Review the ISA Summary, selected sections of the ISA, License Application, and any procedures used at your designated facility to control the conduct of operations and implement safety controls.
2. Identify any specific risks associated with your designated facility as a result of your review of the ISA.
3. Discuss with your supervisor or a qualified operations inspector the risks at your designated facility and the operational controls used by your designated facility to ensure safety of operations.
4. Discuss with your supervisor, or the person designated as a resource, the safety controls, safety control hierarchy, Management Measures, IROFS, Audits, Safety Review Meetings, and any other safety controls identified during your review.

DOCUMENTATION:

Fuel Facility Operations Inspector Technical Proficiency-Level Qualification Signature Card, Item SG-OPS-1

Fuel Facility Operations Inspector Study Guide

TOPIC: (SG-OPS-2) Resident Inspector Option

PURPOSE: The NRC maintains resident inspectors at the Category 1 Fuel Facilities and Gaseous Diffusion Plants to observe daily operations and ensure that the hazards associated with handling strategic special nuclear material are properly controlled. This inspection module is meant for resident inspectors and regional inspectors planning to become qualified to be resident inspectors.

COMPETENCY AREAS: INSPECTION

LEVEL OF EFFORT: 60 hours

- REFERENCES:**
1. IMC 2600, Appendix C, "Fuel Cycle Resident Inspection Program."
 2. IP 88135, "Resident Inspection Program for Category I Fuel Facilities."
 3. Regional Office Instruction (ROI) 0720, "Resident Inspector and Senior Fuel Facility Inspector Guidance for Fuel Cycle Licensees and/or Certificate Holders." (ML052940055)
 4. ROI 0530, "Senior Resident Inspector Site Turnover." (ML072640377)
 5. ROI 2204, "Back-Up Resident Inspector Coverage." (ML072620379)
 6. ROI 2219, "Senior Resident Inspector and Project Inspector Meetings with State and Local Public Officials and Local Public Organizations."
 7. OEDO Procedure 0350, "EDO Daily Notes" (ML053570414)

EVALUATION CRITERIA: Upon completion of this activity, you should be able to do the following:

1. Understand the additional requirements for performing as a Resident Inspector at a Fuel Cycle facility.

- TASKS:**
1. Read the referenced procedures above including the ROIs referenced in ROI 0720.
 2. Discuss the information with your supervisor or a Senior Resident Inspector at a Fuel Cycle facility. Ensure topics covered include role of the Senior Resident Inspector during:
 - a. Event Response.

- b. Communication with external stakeholders including the media.
- c. Communication with licensee employees on-site and offsite.
- d. Senior NRC Management or other government officials' site visits including members of Congress, state or local representatives.
- e. Guidance for staff involved in submitting, reviewing, and distributing the EDO Daily Notes and One-Week Look Ahead.

DOCUMENTATION: Fuel Facility Operations Inspector Technical Proficiency-Level Qualification Signature Card, Item SG-OPS-2.

Fuel Facility Operations Inspector

On-the-Job Activities

Fuel Facility Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-1) Operational Safety Review

PURPOSE: The purpose of this activity is to familiarize you with the proper method for inspecting a process to verify that it is properly operating and that the safety controls (IROFS) are effective to mitigate a potential adverse condition or event.

COMPETENCY AREA: INSPECTION
REGULATORY FRAMEWORK

LEVEL OF EFFORT: 32 hours

REFERENCES:

1. IP 88020, "Operational Safety"
2. IP 88025, "Maintenance and Surveillance of Safety Controls."
3. ISA for your designated facility.
4. Operating Procedures for selected facility process.

EVALUATION CRITERIA: Upon completion of the tasks, you should be able to do the following:

1. Identify the hazards (nuclear criticality safety, radiation protection, chemical safety, and fire protection) associated with a particular fuel facility process at your designated facility.
2. Identify the IROFS designated to ensure that process operations remains safe during normal and credible abnormal conditions.
3. Identify the Management Measures used to ensure IROFS are effectively maintained.

TASKS:

1. Review the ISA for your assigned facility and select a risk significant area or process based on the potential safety significance as described in the ISA.
2. Identify the existing safety controls (IROFS) and the associated Management Measures for Nuclear Criticality, Radiation, Chemical and Fire Safety.
3. Review the facility's Operating Procedures for the selected process or area. Identify if specific safety limits or criteria for

IROFS or Management Measures have been translated into the Operating Procedures or Postings.

4. Tour the area and observe the safety controls. Observe general housekeeping and cleanliness of the working areas. Note areas where debris can hamper emergency egress or cause an adverse fire loading concern.
5. Discuss the operation and maintenance of the safety controls with the workers. Discuss normal and emergency operational requirements.
6. Discuss procedural compliance with the workers.
7. Review the maintenance and surveillance requirements for the safety controls as listed in the Management Measures. Review a sampling of maintenance records for the maintenance and surveillance testing for a specific IROFS.
8. Discuss your evaluation of the operability of the safety controls with your supervisor or the person designated as a resource.

DOCUMENTATION: Fuel Facility Operations Inspector Proficiency-Level Qualification Signature Card, Item OJT-OPS-1.

Fuel Facility Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-2) Management Organization and Controls

PURPOSE: The NRC expects fuel facility licensees to implement processes and controls to ensure that the plant organization, procedure controls, internal reviews and audits, plant safety review committees, and program management support Operational Safety, Radiation Protection, Nuclear Criticality Safety, and Quality Assurance for their facility.

**COMPETENCY
AREA:** INSPECTION

**LEVEL OF
EFFORT:** 16 hours

REFERENCES:

1. IP 88005, "Management Organization and Controls."
2. License Application, Section 3, Integrated Safety Analysis.
3. License Application, Section 11, Management Measures.
4. Integrated Safety Analysis (ISA) for the facility designated by your supervisor.
5. Procedures used by the licensee at your designated facility to implement:
 - a. Procedure Revision and Review
 - b. Corrective Action Program
 - c. Plant audits conducted by plant staff
 - d. Plant audits conducted by external or independent staff.
6. (Optional) NUREG-1513, "Integrated Safety Analysis Guidance."
7. (Optional) NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility."
8. Memorandum dated August 1, 1995, "Consolidation of Criticality Inspections in Headquarters"

**EVALUATION
CRITERIA:** Upon completion of the tasks, you should be able to do the following:

1. Identify the requirements for maintaining, reviewing and approving procedures used to ensure facility safety.
2. Identify the requirements of the Plant Safety Review Committee.

3. Identify the requirements for implementation of a Corrective Action Program.
4. Identify the requirements for internal and external audits.

TASKS:

1. Review the License Application and procedures used by the licensee at your designated facility to establish and maintain the Plant Safety Review Committee. The requirements of this committee usually involve establishment of member by functional position and number (quorum) and review of various safety significant events or review of data to determine adverse trends in nuclear criticality, radiation protection, chemical and fire safety areas.
2. Review the License Application and procedures used by the licensee at your designated facility to review, revise and approve procedures. Discuss this process with your supervisor or a qualified fuel facility operations inspector.
3. Obtain a copy of the meeting minutes for the last Plant Safety Review Committee. Discuss the Plant Safety Review Committee requirements with your supervisor or a qualified fuel facility operations inspector.
4. Review the License Application and procedures used by the licensee at your designated facility to implement the Corrective Action Program (CAP). The License Application requirements for the CAP may vary between fuel facilities.
5. Obtain an example of a deficiency entered into the CAP. Discuss the issue with your supervisor or a qualified fuel facility operations inspector.
6. Review the License Application and procedures used by the licensee at your designated facility to implement the audit function. Audits are done both internally (plant staff) and externally (independent outside organization). Discuss this process with your supervisor or a qualified fuel facility operations inspector.
7. Obtain a copy of an internal and external audit of a required safety discipline (Nuclear Criticality Safety, Radiation Protection, etc.) Discuss the information with your supervisor or the person designated as a resource.

DOCUMENTATION:

Fuel Facility Operations Inspector Proficiency-Level Qualification Signature Card, Item OJT-OPS-2.

Fuel Facility Operations Inspector On-the-Job Activity

- TOPIC:** (OJT-OPS-3) Security Plan and Implementation
- PURPOSE:** The purpose of this activity is to familiarize you with the security plan for your assigned facility.
- COMPETENCY AREA:** INSPECTION
- LEVEL OF EFFORT:** 16 hours
- REFERENCES:**
1. The security plan for your assigned facility.
 2. Title 10 of the Code of Federal Regulations (10 CFR) Part 73.

Note: Security Plan information may be Sensitive Unclassified Non-Safeguards Information (SUNSI), Safeguards or Classified Information. Handle the information as required by Management Directive 12.2, "NRC Classified Information Security Program" and ROI 1220, "Region II Classified Information Security Plan."

EVALUATION CRITERIA:

Upon completion of the tasks, you should be able to do the following:

1. Generally describe how the site security force maintains access control of the owner-controlled, protected, and material access areas, and secures special nuclear material (SNM) at your assigned site.
2. Demonstrate the appropriate procedures for escorting visitors into and out of the protected and vital areas.
3. Explain the site-specific protection strategy.
4. Explain how the security response actions are integrated into the emergency preparedness plan.
5. Demonstrate an understanding of what actions are required when the security threat condition changes.

- TASKS:**
1. Read the security plan for your assigned site and 10 CFR Part 73, as applicable.
 2. Tour the protected and material access areas to identify the various types of equipment used to safeguard the facility as identified in the security plan.

3. (If applicable) Tour the central and secondary alarm stations. Discuss the duties and responsibilities of personnel stationed in those facilities with your supervisor or a qualified operations or physical security inspector.
4. Discuss inspector responsibilities related to site security and safeguards with your supervisor or the person designated as a resource or a Fuel Facility Physical Security Inspector. Your discussion should include practical circumstances that you may encounter, such as loss of security badge, identification of an inattentive guard, receipt of suspicious package, or receipt of a bomb threat, including actions to be taken by the licensee and you, as appropriate.

DOCUMENTATION: Fuel Facility Operations Inspection Proficiency-Level Qualification Signature Card, Item OJT-OPS-3.

Fuel Facility Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-4) Radiation Protection Program and Implementation

PURPOSE: The Radiation Protection Program and implementing procedures are intended to ensure adequate protection of worker health and safety from exposure to radiation from radioactive material during routine nuclear reactor operation. Licensee procedures and 10 CFR Part 19, Notices, Instructions and Reports to Workers: Inspections and Investigations, and 10 CFR Part 20, Standards for Protection Against Radiation, address programs to keep exposures at as low as reasonable achievable (ALARA) levels, external exposure, internal exposure, respiratory protection, posting and labeling, survey, and reporting requirements. This activity will provide you a general understanding of the applicable regulatory requirements, the licensee's radiation protection program, and implementing procedures.

**COMPETENCY
AREA:** INSPECTION

**LEVEL OF
EFFORT:** 16 hours

REFERENCES:

1. License Application Chapter, "Radiation Protection."
2. Radiation protection procedures at your assigned site.
3. 10 CFR Part 19 and 10 CFR Part 20.
4. Integrated Safety Analysis for your designated facility.
5. IP 88030, "Radiation Protection."

**EVALUATION
CRITERIA:** Upon completion of the tasks, you should be able to do the following:

1. Generally describe the following terms and provide examples of each term:
 - a. controlled area
 - b. radiological restricted area
 - c. radiation area
 - d. high radiation area
 - e. very high radiation area
2. Identify the locations of the process and area radiation monitoring systems and their major components at your site.
3. Explain the ALARA concept and how it is applied to performance of radiological work at your site.

4. Describe the plant's overall administrative procedures for control of external exposure, internal exposure, and airborne exposure.
5. Describe physical and administrative controls for radiation areas and airborne radioactivity areas at your site.

TASKS:

1. Locate the listed references for your facility.
2. Review the references and licensee's procedures to develop an overall understanding of the regulatory requirements and the implementation of the radiation protection program at your site.
3. Select several important radiation detection and measurement instruments (e.g., portable survey instruments, fixed monitoring equipment, constant air monitors, portable air samplers). Examine them as necessary to verify operability, including proper alarm settings (if applicable).
4. During a plant tour identify at least one radiation area, high radiation area, very high radiation area, hot spots area, and airborne radioactivity area, and verify that access to each is controlled in accordance with regulations and the licensee's requirements.
5. Review the results of at least one completed radiation survey and verify that the survey was conducted in accordance with procedures.
6. Observe radiation worker and radiation protection technician performance during a high-exposure job and determine whether workers demonstrate the ALARA philosophy in practice.
7. Discuss inspector responsibilities related to radiation protection with your supervisor or the person designated as a resource or a health physics inspector.

DOCUMENTATION:

Fuel Facility Operations Inspector Proficiency-Level Qualification
Signature Card, Item OJT-OPS-4

Fuel Facility Operations On-the-Job Activity

TOPIC:	(OJT-OPS-5) Fire Protection Program and Implementation
PURPOSE:	This activity will provide you with working knowledge of the regulatory requirements for the fire protection program and how the licensee implements these requirements.
COMPETENCY AREA:	INSPECTION
LEVEL OF EFFORT:	16 hours
REFERENCES:	<ol style="list-style-type: none">1. License Application Chapter for Fire Safety for your designated facility.2. ISA for your designated facility.3. The Pre-Fire Plan for your designated facility.4. The Emergency Preparedness Plan for your designated facility5. (Optional) NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility."
EVALUATION CRITERIA:	<p>Upon completion of the tasks, you should be able to do the following:</p> <ol style="list-style-type: none">1. Explain the fire safety risks at your designate facility.2. Explain the Emergency Preparedness response to a severe fire at your designated facility.3. Explain the Fire Detection and Protection Systems at your designated facility.
TASKS:	<ol style="list-style-type: none">1. Review the applicable referenced documents for your designated site.2. Identify the most significant fire hazards based on your review of the ISA.3. Discuss the on-site and offsite response to a large scale fire at your designated facility with your supervisor or a qualified operations or fire safety inspector.

4. Discuss the Fire Detection and Protection System at your designated site with your supervisor or the person designated as a resource or a qualified fire safety inspector. Explain the alarm system and evacuation process following alarm activation.

DOCUMENTATION: Fuel Facility Operations Inspector Proficiency-Level Qualification Signature Card, Item OJT-OPS-5

Fuel Facility Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-6) Emergency Response

PURPOSE: Emergency response is vital to the NRC, fulfilling one of its primary mandates - protecting the health and safety of the public. The purpose of this activity is to familiarize you with the emergency response plan for your assigned facility and the NRC's expectations during response to an emergency by an operations inspector.

COMPETENCY AREA: EMERGENCY RESPONSE

LEVEL OF EFFORT: 16 hours

REFERENCES:

1. Emergency Preparedness plan for your assigned facility.
2. IP 88050, "Emergency Preparedness."
3. IP 88051, "Evaluation of Drills and Exercises."
4. IP 88064, "Emergency Response Procedures."
5. Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities." (ML003739885)

EVALUATION CRITERIA: Upon completion of the tasks, you should be able to do the following:

1. Describe the types of emergency classifications and give examples of each.
2. Describe the NRC response to each type of emergency classification.
3. Describe your response for an emergency if you are on-site. Describe your responsibilities during the event including emergency communications.
4. Given a scenario, be able to describe what actions you would take in response to the emergency situation.

TASKS:

1. Read the Emergency Plan for your assigned facility. Note the significant hazards that the plan is designed to protect workers and the public against.

2. Review the NRC reporting requirements for your assigned facility as described in the facility emergency plan.
3. Meet with your supervisor, the person designated as a resource or a qualified Fuel Facility Operations Inspector to discuss your responsibilities as an NRC inspector in an emergency situation.
4. Tour the Emergency Operations Center at your assigned facility.
5. (Optional) Observe an emergency response drill or exercise at your assigned facility.

DOCUMENTATION: Fuel Facility Operations Inspector Proficiency-Level Qualification Signature Card, Item OJT-OPS-6.

Fuel Facility Operations Inspector Technical Proficiency-Level Signature Card and Certification

<i>Inspector Name:</i> _____	<i>Employee Initials/Date</i>	<i>Supervisor/Is Signature/Date</i>
A. Training Courses		
Fire Protection for Fuel Cycle Facilities Self-Study (F-206S)		
Chemical Safety for Fuel Cycle Facilities Course		
OSHA HAZWOPR Course		
B. Study Guides		
SG-OPS-1 Operations		
SG-OPS-2 Resident Inspector Option		
C. On-the-Job Training Activities		
OJT-OPS-1 Operational Safety Review		
OJT-OPS-2 Management Organization and Controls		
OJT-OPS-3 Security Plan and Implementation		
OJT-OPS-4 Radiation Program and Implementation		
OJT-OPS-5 Fire Protection Program and Implementation		
OJT-OPS-6 Emergency Response		

Supervisor's signature indicates successful completion of all required courses and activities listed in this journal and readiness to appear before the Oral Board.

Supervisor's Signature: _____ Date: _____

The appropriate Form 1, Fuel Facility Operations Inspector Basic-Level Equivalency Justification, must accompany this signature card and certification, if applicable.

Form 1: Fuel Facility Operations Inspector Technical Proficiency-Level Equivalency Justification

Inspector Name: _____	Identify equivalent training and experience for which the inspector is to be given credit.
A. Training Courses	
Fire Protection for Fuel Cycle Facilities Self-Study (F-206S)	
Chemical Safety for Fuel Cycle Facilities Course	
OSHA HAZWOPR Course	
B. Individual Study Guides	
SG-OPS-1 Operations	
SG-OPS-2 Resident Inspector Option	
C. On-the-Job Training Activities	
OJT-OPS-1 Operational Safety Review	
OJT-OPS-2 Management Organization and Controls	
OJT-OPS-3 Security Plan and Implementation	
OJT-OPS-4 Radiation Program and Implementation	
OJT-OPS-5 Fire Protection Program and Implementation	
OJT-OPS-6 Emergency Response	

Supervisor's Recommendation

Signature/Date _____

Division Director's Approval

Signature/Date _____

Copies to: Inspector
Human Resources Office
Supervisor

Attachment 1

Revision History for IMC 1247

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	02/18/09 CN 09-006	<p>Researched commitments for 4 years and found none.</p> <p>New inspection manual chapter to specify qualification requirements for NRC fuel facility operations, health physics, emergency preparedness, security, material control and accounting, and construction inspectors.</p>	N/A	N/A	ML090400598