Appendix C-1
Reactor Operations Inspector
Technical Proficiency
Training and Qualification Journal

Table of Contents

Introduction

Do not begin the activities or complete the courses in this qualification journal until you have completed the Basic Inspector Certification Journal. You may complete the General Proficiency requirements contained in Appendix B together with the Technical Proficiency requirements outlined in this journal.

NOTE:

The following individual study activities required for certification as an operations inspector are similar to guides contained in Appendix C10, "Operator Licensing Examiner Technical Proficiency Training and Qualification Journal":

ISA-OPS-2, "Technical Specifications," parallels ISA-OLE-9
ISA-OPS-3, "Operability," parallels ISA-OLE-10
OJT-OPS-2, "Conduct of Operations," parallels OJT-OLE-2
OJT-OPS-9, "Shutdown Operations," parallels ISA-OLE-11

You may document completion of equivalent activities on both signature cards.

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

Required Reactor Operations Inspector Training Courses

(This course requires the completion of Appendix A as a prerequisite.)

- Reactor Type Full Series

Additional Required Course

(This course DOES NOT require the completion of Appendix A, but you must meet course prerequisites.)

- (Power Plant Engineering (self-study) (E-110S)

Post-Qualification Operations Inspector Training Courses

These courses ARE NOT required for initial qualification. Attendance at these courses is a post-qualification requirement to be completed with 24 months of full qualifications:

Probabilistic Risk Assessment Technology and Regulatory Perspectives (P-111)

- *Vendor-specific training course—Operations inspectors must complete vendor-specific training for assigned site. If reassigned to a new site after initial qualification, the inspector must complete the vendor-specific training for the new assignment. This training should be completed as*

soon as feasible after reassignment and must be completed within 2 years of assignment to a new site. [C-1]

Required Refresher Training

- Technical refresher and simulator/emergency operating procedures (EOP) refresher are both required every 3 years.

- If you are qualified in more than one reactor type, you must complete either the boiling-water reactor (BWR) or pressurized-water reactor (PWR) refresher training every 3 years. Inspectors should alternate between PWR and BWR technologies.

Operations Inspector Individual Study Activities

Operations Inspector Individual Study Activity

TOPIC: (ISA-OPS-1) Title 10, "Energy," of the *Code of Federal Regulations*

PURPOSE: The *Code of Federal Regulations* (CFR) is a codification of the rules published in the *Federal Register* by the executive departments and agencies of the Federal Government. Title 10 represents the broad area of energy, and Chapter 1, Parts 1 through 199, pertain to the U.S. Nuclear Regulatory Commission (NRC), an independent agency established by the Congress of the United States under the Energy Reorganization Act of 1974. NRC rules and regulations are established to ensure adequate protection of public health and safety, the common defense and security, and the environment in the use of nuclear materials in the United States.

Accordingly, it is essential that all operations inspectors gain a working knowledge of the contents of Chapter 1 of Title 10 of the *Code of Federal Regulations*. This activity will provide you with a working knowledge of the contents of Chapter 10, Parts 1 through 199, and an understanding of the broad spectrum of requirements associated with your inspection activities.

COMPETENCY AREAS:
INSPECTION
REGULATORY FRAMEWORK

LEVEL OF EFFORT: 40 hours

REFERENCES:

1. Chapter 1, Parts 1 through 199, of the *Code of Federal Regulations*
2. Energy Reorganization Act of 1974
3. Entry-Level Individual Study Activity (ISA) 22, "Overview of 10 CFR Part 50"
4. Entry-Level ISA 23, "Overview of 10 CFR Parts 19 and 20"

EVALUATION CRITERIA:

At the completion of this activity, you should be able to do the following:

1. Discuss the general content of the various parts of Title 10, Chapter 1, of the *Code of Federal Regulations* with which the NRC inspection staff is routinely involved or that include necessary inspection criteria.

2. Discuss in detail the contents and significance of the following parts of Title 10 of the *Code of Federal Regulations*. You should demonstrate an understanding of the methods, techniques, and procedures licensees use to demonstrate compliance with the requirements of the following:

   a. 10 CFR Part 21, "Reporting of Defects and Noncompliance"
   b. 10 CFR Part 25, "Access Authorization for Licensee Personnel"
   c. 10 CFR Part 26, "Fitness for Duty Programs"
   d. 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities" (see also Entry-Level ISA 22)
   e. 10 CFR Part 55, "Operators' License"
   f. 10 CFR Part 73, "Physical Protection of Plants and Materials"
   g. 10 CFR Part 100, "Reactor Site Criteria"

3. Discuss in detail the contents of the following appendices to 10 CFR Part 50. You should demonstrate an understanding of the methods, techniques, and procedures used by licensees to demonstrate compliance with the requirements of the following:

   a. Appendix A, "General Design Criteria for Nuclear Power Plants"
   b. Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants"
   c. Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities"
   d. Appendix J, "Primary Reactor Containment Leakage Test for Water-Cooled Power Reactors"
   e. Appendix K, "ECCS Evaluation Models"
   f. Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979"

4. Discuss the general contents of the statements of consideration and the value of this information to the inspector and the public.

TASKS:

1. Discuss experiences with compliance issues associated with the various parts of Title 10 and the appendices to 10 CFR Part 50 with a senior project engineer, resident, or senior resident.

2. Discuss the agency's experience relative to enforcement of the regulatory requirements specified in the various parts of Title 10 and the appendices to 10 CFR Part 50.

3. Meet with your supervisor, or a qualified operations inspector, to demonstrate your understanding of the evaluation criteria.

DOCUMENTATION: Operations Technical Proficiency-Level Qualification Signature Card Item ISA-OPS-1

Operations Inspector Individual Study Activity

TOPIC: (ISA-OPS-2) Technical Specifications

PURPOSE: The NRC requires that licensees operate their facilities in compliance with the NRC-approved technical specifications (TSs). The TSs provide the limits for facility operation with which the licensee must comply or receive NRC approval to deviate from the requirements. For this reason, it is mandatory that all operations inspectors gain a detailed knowledge of the content of the TSs.

This activity will provide you with detailed knowledge of the contents of the TSs, which may include a requirement for any specific topic, and how to apply the TS requirements.

COMPETENCY AREAS:
INSPECTION
REGULATORY FRAMEWORK

LEVEL OF EFFORT: 24 hours

REFERENCES:

1. The TSs for a facility designated by your supervisor
2. NRC Inspection Manual Part 9900, "Technical Guidance," standard TS (STS) chapters designated by your supervisor
3. Standard TSs for the vendor of your designated facility
4. The NRC's Technical Specifications web page

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

1. For the facility TSs, as designated by your supervisor, identify each TS section, discuss the general content of the requirements contained in each section, and the basis for issuing the requirements.
2. With respect to the operating license, discuss the legal basis, purpose, license conditions, and how the license can be changed.
3. Discuss the definition of the terms found in the TSs.

4. Discuss the safety limits and limiting safety system settings listed and the significance of these limits.

5. Discuss the requirements for limiting conditions for operation (LCOs) and surveillance testing and the actions required if these are not met.

6. Discuss the different sections of LCOs and the reason for the basis section provided with each LCO.

7. Discuss the design features section of the TS and the types of information located in this section.

8. Discuss the administrative controls section of the TS and the types of information located in this section.

9. With regard to the technical requirements manual (TRM), discuss its purpose, the legal basis of using it as a violation source document, and how the requirements can be changed.

10. Discuss the purpose, legal basis, and applicability of each of the chapters in NRC Inspection Manual Part 9900, Technical Guidance section, that your supervisor designated.

TASKS:

1. Locate a copy of the TSs for the facility designated by your supervisor.

2. Review the various sections of the TSs, as listed in the evaluation criteria section.

3. Review the contents of the TRM or other document referenced by the TSs to determine the types of requirements provided.

4. On the NRC external Web site, locate the STS chapters of NRC Inspection Manual Part 9900, Technical Guidance. Review the chapters that your supervisor designated.

5. Meet with your supervisor or a qualified operations inspector to discuss any questions you may have as a result of this activity. Discuss the answers to the questions listed under the evaluation criteria section of this study guide with your supervisor.

DOCUMENTATION: Operations Technical Proficiency-Level Qualification Signature Card Item ISA-OPS-2 (also ISA-OLE-9)

Operations Inspector Individual Study Activity

TOPIC: (ISA-OPS-3) Operability

PURPOSE: The process of ensuring that equipment at nuclear power plants is capable of performing its safety function is continuous and primarily consists of verification by surveillance testing and formal determinations of operability. Whenever the ability of a system or structure to perform its specified function is called into question, licensees should make a prompt determination (or evaluation) of operability and act on the results of that determination. It is important that NRC operations inspectors can effectively review these evaluations to ensure that operability is properly justified, the system or component remains available, and that an unrecognized increase in risk has not occurred.

This activity will familiarize you with the overall approach for reviewing operability determinations (evaluations) and the reference materials available to assist you in these reviews.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 20 hours

REFERENCES:

1. NRC Inspection Manual, Part 9900, Technical Guidance (sections on operability)
2. Generic Letter (GL) 91-18, “Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability,” dated November 7, 1991
3. Inspection Procedure (IP) 71111.15, “Operability Evaluations”
4. Reference or assigned site (licensee) procedures addressing operability determinations
5. Information Notice (IN) 97-78, “Crediting of Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Time,” dated October 23, 1997
6. Regulatory Issues Summary (RIS) 2001-09, “Control of Hazard Barriers,” dated April 2, 2001

7. GL 90-05, “Guidelines for Performing Temporary Non-Code Repair of ASME Code Class 1, 2 and 3 Piping.” dated October 10, 1990

EVALUATION CRITERIA:

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

1. Define the following terms and provide examples of each:
   a. operable/operability
   b. degraded condition
   c. abnormal condition
   d. nonconforming condition
   e. justification for continued operation (JCO)
   f. single failure
   g. consequential failure
   h. support system
   I. compensatory measures

2. Describe the licensee’s process to address operability issues for safety or safety support systems.

3. Describe what the applicable NRC guidance indicates should be included in formal operability determinations.

4. Discuss the actions that should be taken if a licensee is unable to demonstrate equipment operability.

5. Discuss the appropriate items that should be considered in a licensee’s development of a JCO.

6. Perform the inspection described in IP 71111.15, including effective review of the technical adequacy of an operability evaluation and development of a conclusion on whether the operability is justified.

TASKS:

1. Locate the listed references for your facility. Nonlicensee documents can be located in the Electronic Reading Room on the NRC external Web site.

2. Review the references to develop an understanding of the actions specified in the NRC guidance and licensee procedures to be completed when an operability question is identified.

3. Review at least two recently completed operability evaluations involving a risk-significant system, support system, or component. Compare the evaluations to the reference material guidance.

4. Verify that the licensee considered other existing degraded conditions as compensating measures and determine whether the measures are in place, will work as intended, and are appropriately controlled. Verify that the licensee's intended long-term resolution of any conditions meets the regulatory guidance.

5. Meet with your supervisor or a qualified operations inspector to discuss the operability evaluations. Discuss some questions you could ask to help you verify that the evaluations properly support the operability decision. In addition, discuss any questions that you have as a result of this activity and demonstrate that you can meet the evaluation criteria listed above.

DOCUMENTATION: Operations Technical Proficiency-Level Qualification Signature Card Item ISA-OPS-3 (also ISA-OLE-10)

Operations Inspector Individual Study Activity

TOPIC: (ISA-OPS-4) Notice of Enforcement Discretion

PURPOSE: The NRC requires that licensees operate their facilities in compliance with NRC regulations and the facility license. However, in some instances of noncompliance with specific license conditions, circumstances may arise in which the NRC believes that enforcement action is not appropriate. In these circumstances, the NRC may issue a specific type of enforcement discretion, called a notice of enforcement discretion (NOED).

This activity will familiarize you with the process established for the NRC to exercise enforcement discretion regarding LCOs in power reactor TSs or other license conditions.

COMPETENCY AREAS: INSPECTIONS
ASSESSMENT AND ENFORCEMENT

LEVEL OF EFFORT: 10 hours

REFERENCES:

1. NRC Inspection Manual Part 9900, Technical Guidance, OPERATIONS - NOTICES OF ENFORCEMENT DISCRETION
2. The Enforcement Policy
3. NRC Operating Reactor Project Manager's Handbook http://nrr10.nrc.gov/DLPMHandbook/NOEDs.html
4. NRC RIS 2005-01, "Changes to Notice of Enforcement Discretion (NOED) Process and Staff Guidance," dated February 2, 2005

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

1. Locate the current NRC guidance on the NOED process.
2. Explain what nonconformances the NOED process is intended to address.
3. Explain the difference between NOEDs and license amendments (emergency, exigent, and temporary license amendments).

4. Explain the two types of NOEDs.

5. Discuss the criteria used to consider granting of a “regular” NOED for an operating unit, a shutdown unit, or a unit attempting to start up.

6. Discuss the considerations for situations arising from severe weather or other external conditions.

7. Explain how telephone discussions involving NOEDs are handled and who is typically involved.

8. Explain what documentation actions are required when a NOED is issued.

TASKS:

1. Locate the listed references. The NRC Operating Reactor Project Manager’s Handbook can be located on the NRC internal Web site at the URL cited above.

2. Review the references and develop sufficient understanding of the NOED process to fulfill the evaluation criteria.

3. Identify a recently issued NOED. Review the NRC letter documenting the NOED.

4. Meet with your supervisor or a designated qualified operations inspector, discuss any questions you may have, and demonstrate that you can meet the evaluation criteria listed above.

DOCUMENTATION: Operations Technical Proficiency-Level Qualification Signature Card Item ISA-OPS-4

Operations Inspector Individual Study Activity

TOPIC: (ISA-OPS-5) Maintenance Rule Implementation

PURPOSE: The NRC requires that licensees operate their facilities in compliance with 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," (i.e., the Maintenance Rule). For this reason, it is mandatory that all operations inspectors gain a detailed knowledge of the content of the Maintenance Rule.

This activity will provide you with detailed knowledge of the Maintenance Rule requirements and their application.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 30 hours

REFERENCES:

1. Maintenance Rule implementation documents for the facility designated by your supervisor
2. IP 71111.12, "Maintenance Effectiveness"
3. NUMARC 93-01, Revision 2, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," issued April 1996 by the Nuclear Energy Institute
4. 10 CFR 50.65

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

1. For the facility designated by your supervisor, identify which structures, systems, and components (SSCs) are classified as (a)(1), discuss the reason these SSCs are monitored in the (a)(1) status, and describe the recovery plan for each SSC.
2. Discuss the different categories in which the SSCs may be scoped by the licensee.
3. Discuss the Maintenance Rule inspection requirements outlined in IP 71111.12.
4. Demonstrate the use of the flow charts in IP 71111.12 to determine whether the licensee is appropriately applying all Maintenance Rule requirements.

5. Discuss what actions are required if the requirements of the Maintenance Rule are not met.

6. Discuss the function and responsibilities of the expert panel.

7. Describe how the licensee performs a Maintenance Rule risk assessment before taking equipment out of service (planned) or for emergent work.

TASKS:

1. Obtain a copy of the Maintenance Rule procedures for the facility designated by your supervisor.

2. Review the Maintenance Rule procedures to become knowledgeable about the criteria listed in the above section.

3. Contact the licensee's Maintenance Rule expert and discuss the licensee's approach to satisfying the Maintenance Rule requirements.

4. Meet with your supervisor or a qualified operations inspector to discuss any questions that you may have as a result of this activity and demonstrate that you can meet the evaluation criteria listed above.

DOCUMENTATION: Operations Proficiency-Level Qualification Signature Card Item ISA-OPS-5

Operations Individual Study Activity

TOPIC: (ISA-OPS-6) Inservice Testing

PURPOSE: As required by 10 CFR 50.55a, the licensee must perform inservice testing (IST) on certain pumps and valves. IST is required for components classified as American Society of Mechanical Engineers (ASME) Code Class 1, 2, or 3. It is also required to perform a specific function in shutting down a reactor to the safe-shutdown condition, maintaining a safe-shutdown condition, mitigating the consequences of an accident, or providing overpressure protection. This activity will familiarize you with the requirements for IST and licensee implementation of the IST program.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 16 hours

REFERENCES:

1. Reference or assigned site (licensee) procedures addressing the IST program
2. TSs; final safety analysis report; ASME Code, Section XI and Class 1, 2, and 3; and 10 CFR 55.55a
3. NUREG-1482, “Guidelines for Service Testing at Nuclear Power Plants”
4. NRC Inspection Manual Part 9900 guidance on preconditioning
5. GL 89-04, “Guidance on Developing Acceptable Inservice Testing Programs,” dated April 3, 1989
6. IP 71111.22, “Surveillance Testing,” and IP 73756, “Inservice Testing of Pumps and Valves”
7. ASME OM-Code-(year), “Code for Operation and Maintenance of Nuclear Power Plants,” Subsections ISTA, ISTB, and ISTC
8. ASME OM-S/G-(year), “Standards and Guides for Operation and Maintenance of Nuclear Power Plants”

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:
   a. safety-related components or systems
   b. ASME Code Class 1, 2, or 3 systems
   c. Category A valves
   d. various types of valves (e.g., manual valve, check valve, safety/relief valve, containment isolation valve, gate valve, globe valve, butterfly valve, stop valve)
   e. centrifugal pump/positive displacement pump
   f. minimum flow lines/recirculation flowpath
   g. TS action statement
   h. alert range limits
   I. required action range limits
   j. common-cause failure
   k. preconditioning
   l. postmaintenance testing

2. Describe the NRC's regulations for IST and the licensee's programs for meeting those requirements.

3. Discuss what actions should be taken when test results are obtained which are in the alert range or exceed the required action limits.

4. Demonstrate that you can determine the specific test method and frequency requirements for pumps and valves within each ASME class.

5. Describe the overall process to implement relief requests and requests for approval of alternatives.

6. Explain how you would select an IST activity for a risk-significant pump or valve to inspect.

7. Perform the inspection described in IP 71111.22.

TASKS:

1. Locate the listed references for your facility. In some cases, you may have to use references maintained by licensee staff.

2. Discuss with your supervisor or another qualified inspector, as appropriate, to gain an overall understanding of how licensees implement IST programs. Review the references and licensee's procedures as necessary to understand how the specific licensee implements IST requirements. Select a risk-significant system and verify that the IST program includes all pumps and valves that perform a safety-related function(s).

3. Review the licensee's administrative controls for tracking tests performed quarterly, on a cold-shutdown frequency, or during refueling outage.

4. Review at least one recently completed valve test involving a risk-significant system. Verify that the test method, acceptance criteria (including the limit value for stroke time), and corrective actions met the requirements.

5. Review at least one recently completed pump test involving a risk-significant system. Verify that the pump test method, acceptance criteria, and any necessary corrective actions met the requirements.

6. Meet with your supervisor or a qualified operations inspector to discuss any questions that you may have as a result of these activities and demonstrate that you can meet the evaluation criteria.

DOCUMENTATION: Operations Inspector Proficiency-Level Qualification Signature Card Item ISA-OPS-6

Operations Inspector Individual Study Activity

TOPIC: (ISA-OPS-7) Significance Determination Process—Reactor Inspection Findings for At-Power Situations

PURPOSE: The significance determination process (SDP), as described in Appendix A to NRC Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," aids NRC inspectors and staff in determining the safety significance of inspection findings, including categorization of individual findings into one of four response bands using risk insights when appropriate. The SDP determinations for inspection findings and the performance indicator information are combined for use in assessing licensee performance. The purpose of this activity is for you to gain the requisite knowledge, understanding, and practical ability to use the significance determination of reactor inspection findings for at-power situations to evaluate the safety significance of reactor inspection findings.

COMPETENCY AREAS:
INSPECTION
TECHNICAL AREA EXPERTISE
REGULATORY FRAMEWORK

LEVEL OF EFFORT: 16 hours

REFERENCES:

1. IMC 0609, "Significance Determination Process"
2. IMC 0609, Attachment 0609.01, "Significance and Enforcement Review Panel Process"
3. IMC 0609, Attachment 0609.02, "Process for Appealing NRC Characterization of Inspection Findings (SDP Appeal Process)"
4. IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations"
5. IMC 0612, Appendix B, "Issue Screening"
6. IMC 0612, Appendix E, "Examples of Minor Issues"
7. Reference site risk-informed inspection notebook (http://nrr10.nrc.gov/adt/dssa/spsb/webpages/srapage/sdpnotebooks/sdpindex.html)

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

1. Explain the purpose, objectives, and applicability of the SDP process.

2. Describe and discuss the objective of the initiating events, mitigating systems, and barrier integrity cornerstones.

3. Screen findings using the SDP Phase 1 Screening Worksheet for the IE, MS, and BI cornerstones of Appendix A to IMC 0609.

4. Define the safety significance and give examples of Green, White, Yellow, and Red findings.

5. Discuss your role during the Significance and Enforcement Review Process (SERP) described in IMC 0609, Attachment 1.

6. Discuss the "Process for Appealing NRC Characterization of Inspection Findings (SDP appeal process)" as described in IMC-0609, Attachment 2.

TASKS:

1. Read the referenced section of IMC 0609, with a particular focus on Appendix A.

2. Go to the Reactor Oversight Process Web site and review a sample of Green, White, Yellow, and Red findings in each of the three cornerstones (if samples of each safety significance are posted).

3. Read the case studies that follow and answer these questions for each case study.

   a. Using Appendices B and E to IMC 0612, determine if the issue is more than a minor one. List key conditions of the scenario that you will consider in determining if the issue is more than a minor one and that could be used to determine the safety significance of the issue.

   b. If you determine that the issue is minor, then this scenario is completed.

   c. If you determine that the issue is more than a minor one, use the SDP Phase 1 Screening Worksheet in Appendix A to IMC 0609, to determine if the issue is of Green significance or if more analysis is required. Do not perform the additional analysis—do not perform a

phase II or phase III SDP. Be able to justify your determination.

d. Compare your conclusion with those given in the actual findings and case studies.

e. Discuss your results with your supervisor or a qualified inspector.

4. Whenever possible, attend a (SERP). Discuss the rationale for the outcome/resolution of the panel with a qualified inspector.

5. Meet with your supervisor or a qualified inspector to discuss any questions you may have as a result of this training activity.

DOCUMENTATION: Operations Technical Proficiency-Level Qualification Signature Card Item ISA-OPS-7

Scenario A

During the Unit 1 Spring 1R16 refueling outage (RFO), plant staff identified control rod drive mechanism nozzle XX as leaking. Workers repaired the nozzle weld and returned the unit to operation for another cycle. When the unit was shut down for RFO 1R17, visual examination of the reactor vessel head revealed repeat leakage of the nozzle. Based on the 1R16 RFO leakage, licensee staff performed an embedded flaw repair in accordance with Section XI of the ASME Code. However, the licensee staff recently concluded that this repair method is inadequate to prevent recurrence of the original primary water stress-corrosion cracking.

Based on this scenario, complete the following steps:

1. Using Appendices B and E to IMC 0612, determine whether the issue is more than a minor one. List the key conditions of the scenario that you will consider in determining if the issue is more than a minor one and that could be used to determine the safety significance of the issue.

2. If you determine the issue to be a minor one, then proceed to step 5.

3. If you determine the issue to be more than a minor one, use the SDP Phase 1 Screening Worksheet in Appendix A to IMC 0609 to determine if the issue is of Green significance or if more analysis is required. Do not perform the additional analysis—do not perform a phase II or phase III SDP. Be able to justify your determination.

4. Compare your conclusions with those given in the actual findings or case studies. (See Inspection Report 0500313/2003-008, ADAMS Accession No. ML040340732.)

5. Discuss your results with your supervisor or a qualified inspector.

Scenario B

On September 26, 2002, Unit 1 was at 99-percent reactor power, coasting down for the RFO scheduled to begin on October 5. At 5:41 a.m., the Unit 1 control room received a condenser off-gas alarm. At 12:43 p.m., the condenser off-gas 182 alarm actuated again and the No. 2 steam generator main steamline N-16 monitor went into alarm. At 10:24 p.m., the N-16 alarm cleared and the reading continued to trend downward.

On September 27, 2002, at 12:19 a.m., the condenser off-gas 182 alarm cleared. At 10:25 a.m., the N-16 alarm returned. At 10:40 a.m., the condenser off-gas 182 alarm came in, followed by the condenser off-gas 182 Hi alarm at 10:51 a.m. At 1:06 p.m., these alarms cleared. These alarms came in twice more on this day. At 7:54 p.m., the condenser off-gas 182 alarm came in and at 10:32 p.m., the condenser off-gas 182 HiHi alarm was reached. The alarms cleared in less than an hour.

On September 28, 2002, at 1:40 a.m., the Unit 1 control room operators commenced power reduction in response to the 1-02 steam generator tube leak. At 3:12 a.m., the Unit 1 control room operators performed a planned trip of the Unit 1 reactor.

Through subsequent inspection and testing, the licensee determined the source of the leakage to be a stress-corrosion crack initiating from the outer diameter surface in the U-bend region of tube R41C71 of the No. 2 steam generator. The licensee also determined through pressure testing that the tube failed to exhibit structural and accident leakage integrity margins consistent with the plant design and licensing basis.

An NRC inspection team independently reviewed eddy current test data from the previous outage (1RF08) inspection in 2001 for the specific tube location where the leakage developed in September 2002. The team found that a clearly detectable indication was present at the leak location during the previous outage (1RF08) inspection in 2001. The indication did not meet the reporting criteria in the RFO 1RF08 analysis guidelines, and therefore neither the primary or secondary analyst reported it in 2001.

The inspection team concluded that an experienced analyst should have recognized that the large wobble signal could mask a dent that could distort or rotate an indication outside the reportable phase angle response criteria. In such a case, the guidelines enabled the analyst to bring the indication to the attention of the lead analyst and the senior analyst. Therefore, the team determined that the analyst should have recognized the large wobble signal and should have brought it to the attention of a senior analyst.

As a direct consequence of the failure to detect the flaw, the tube was not removed from service and subsequently degraded to the point that it leaked and no longer satisfied the applicable tube integrity performance criteria. This occurred because the examination methods and analysis guidelines used during the RFO were not effective for ensuring that tubes would maintain their integrity until the next scheduled inspection.

Based on this scenario, complete the following steps:

1. Using Appendices B and E to IMC 0612, determine if the issue is more than a minor one. List the key conditions of the scenario that you will consider in determining if the issue is more than a minor one and that could be used to determine the safety significance of the issue.

2. If you determine the issue to be a minor one, then proceed to step 5.

3. If you determine the issue to be more than a minor one, use the SDP Phase 1 Screening Worksheet in Appendix A to IMC 0609 to determine if the issue is of Green significance or if more analysis is required. Do not perform the additional analysis—do not perform a phase II or phase III SDP. Be able to justify your determination.

4. Compare your conclusions with those given in the actual findings or case studies. (See Inspection Report 0500445, ADAMS Accession Nos. ML030090566, ML040270203, ML040440201, and ML040790025.)

5. Discuss your results with your supervisor or a qualified inspector.

Scenario C

The assumptions regarding the instruments used for safety-related heating, ventilation, and air conditioning (HVAC) systems (the auxiliary building ventilation system and the control room HVAC system in the licensee's 120-volt alternating current (Vac) degraded voltage calculation) did not reflect the actual plant configuration. Specifically, the 120-Vac degraded voltage calculation, "Evaluation of the 120 Vac Distribution Circuits Voltage at the Degraded Voltage Setpoints," assumed the input voltage to specific HVAC process instrumentation to be at 95 Vac. While the vendor information associated with the instrumentation specified a higher voltage for proper operation, the licensee had stated in the assumption for the calculation that the instrumentation would be able to operate because tests on the instrumentation while in service demonstrated that the control circuits would perform their design function at a reduced voltage of 95 Vac. It was unclear whether the licensee had a program in place for testing replacement instrumentation put in service at this reduced voltage. Without a test for each instrument placed in service, the licensee would have to use the vendor's specification for voltage as it could not guarantee that the replacement instruments would operate at these assumed reduced voltages.

While the licensee was able to determine the operability of the affected instruments through the bounding voltage drop calculation, the licensee's existing design basis (the assumptions in the degraded voltage calculation) had not been adequately verified or maintained. The design-basis assumption relied on testing the instruments at 95 Vac; however, the licensee did not test some instruments and replaced others without retesting the specific instrument at the assumed degraded voltage included in the calculation. Therefore, the licensee had failed to maintain accurate design-basis assumptions that were essential for its design-basis calculation.

Based on this scenario, complete the following steps:

1. Using Appendices B and E to IMC 0612, determine if the issue is more than a minor one. List the key conditions of the scenario that you will consider in determining if the issue is more than a minor one and that could be used to determine the safety significance of the issue.

2. If you determine the issue to be a minor one, then proceed to step 5.

3. If you determine the issue to be more than a minor one, use the SDP Phase 1 Screening Worksheet in Appendix A to IMC 0609 to determine if the issue is of Green significance or if more analysis is required. Do not perform the additional analysis—do not perform a phase II or phase III SDP. Be able to justify your determination.

4. Compare your conclusions with those provided by the actual findings or case studies. (See Inspection Report 0500456/2003-007, ADAMS Accession No. ML032870193.)

5. Discuss your results with your supervisor or a qualified inspector.

Scenario D

The licensee did not identify potential common-mode failures that existed involving power supplies to the recirculation line air-operated valve in the auxiliary feedwater (AFW) system and other system components. In addition, the licensee's corrective actions for the potential common-mode failure associated with a loss of instrument air did not prevent the failures from repeating. Although the licensee upgraded the safety function of the air-operated recirculation valve, this corrective action failed to ensure that successful operation of the recirculation line air-operated valve depended only on safety-related support systems. After the corrective actions, successful operation of the valve still depended upon nonsafety-related power to an interposing relay. In addition, the corrective actions did not discover a single failure mechanism involving a system orifice modification.

Based on this scenario, complete the following steps:

1. Using Appendices B and E to IMC 0612, determine if the issue is more than a minor one. List the key conditions of the scenario that you will consider in determining if the issue is more than a minor one and that could be used to determine the safety significance of the issue.

2. If you determine the issue to be a minor one, then proceed to step 5.

3. If you determine the issue to be more than a minor one, use the SDP Phase 1 Screening Worksheet in Appendix A to IMC 0609 to determine if the issue is of Green significance or if more analysis is required. Do not perform the additional analysis—do not perform a phase II or phase III SDP. Be able to justify your determination.

4. Compare your conclusions with those provided by the actual findings or case studies. (See Inspection Report 0500266/2002-015, ADAMS Accession No. MLML030920128.)

5. Discuss your results with your supervisor or a qualified inspector.

Scenario E

During an RFO, the licensee tested a charging pump at full-flow conditions, as required every 18 months. Vibration data taken during this test indicated vibration of 0.324 inches per second (ips), which exceeded the test procedure alert range of 0.320 ips. The procedure required the surveillance frequency to be increased to every 9 months after exceeding the alert range. The licensee failed to identify that the test result exceeded the alert range and did not increase the test frequency. Subsequent vibration testing revealed no further vibration degradation. The ASME Code acceptance criterion for vibration measurements is 0.325 ips.

Based on this scenario, complete the following steps:

1. Using Appendices B and E to IMC 0612, determine if the issue is more than a minor one. List the key conditions of the scenario that you will consider in determining if the issue is more than a minor one and that could be used to determine the safety significance of the issue.

2. If you determine the issue to be a minor one, then proceed to step 5.

3. If you determine the issue to be more than a minor one, use the SDP Phase 1 Screening Worksheet in Appendix A to IMC 0609 to determine if the issue is of Green significance or if more analysis is required. Do not perform the additional analysis—do not perform a phase II or phase III SDP. Be able to justify your determination.

4. Compare your conclusions with those provided by the actual findings or case studies. (See Appendix E to IMC 0612)

5. Discuss your results with your supervisor or a qualified inspector.

Scenario F

The licensee failed to consider one maintenance preventable functional failure (MPFF) of a system component during its demonstration of the effectiveness of preventive maintenance, in accordance with the Maintenance Rule (10 CFR 50.65(a)(2)). The Maintenance Rule requires, in part, that monitoring as specified in 10 CFR 50.65(a)(1) is not required if the licensee can demonstrate that it is effectively controlling the performance or condition of an SSC through appropriate preventive maintenance, such that the SSC remains capable of performing its intended function. When the additional MPFF was considered, the a(2) conclusion from the demonstration remained valid.

Based on this scenario, complete the following steps:

1. Using Appendices B and E to IMC 0612, determine if the issue is more than a minor one. List the key conditions of the scenario that you will consider in determining if the issue is more than a minor one and that could be used to determine the safety significance of the issue.

2. If you determine the issue to be a minor one, then proceed to step 5.

3. If you determine the issue to be more than a minor one, use the SDP Phase 1 Screening Worksheet in Appendix A to IMC 0609 to determine if the issue is of Green significance or if more analysis is required. Do not perform the additional analysis—do not perform a phase II or phase III SDP. Be able to justify your determination.

4. Compare your conclusions with those provided by the actual findings or case studies. (See Appendix E to IMC 0612)

5. Discuss your results with your supervisor or a qualified inspector.

Operations Inspector On-the-Job Activities

Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-1) Site System Reviews

PURPOSE: The purpose of this activity is to familiarize you with the proper method for walking down a system to verify that the system is properly aligned and maintained. This verification is one means of ascertaining that a system can perform its intended accident mitigation functions.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 80 hours

REFERENCES:

1. IP 71111.04, “Equipment Alignment,”
2. TSs for assigned facility
3. Piping and instrumentation drawings for each selected system
4. Licensee system operating, abnormal, and emergency procedures for each selected system
5. Final safety analysis report for assigned facility
6. Licensed operator training manual for each selected system, if available
7. Other pertinent reference material, such as corrective action program documents, work history, and surveillance history

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

1. Discuss the accident mitigation functions of each selected system.
2. Discuss the TS operability requirements for each selected system.
3. During a tour of each selected system, locate the major components identified by your supervisor.
4. During a tour of each selected system, discuss the function of the major system components identified by your supervisor.

5. During a tour of the selected systems, identify to your supervisor the important instrumentation and other indicators that should be monitored during a routine plant tour and explain the reason for monitoring these indications.

6. Identify to your supervisor any anomalies that you discovered during the walkdown of each selected system and discuss the basis for your classification of each item as an anomaly. Discuss how the information should be conveyed to the licensee.

7. Describe to your supervisor some ways in which the walkdown areas of emphasis could be shifted for walkdown of the same system in the future for increased effectiveness.

TASKS:

1. In conjunction with your supervisor and/or the senior resident inspector at your assigned facility, select two systems to be walked down. The selections should be risk-important, mitigating systems and should be readily accessible based on plant conditions.

2. Once the two systems have been identified, collect the information specified in References 2 through 6 for each system.

3. Review and understand the inspection requirements specified in Section 02.02 of IP 71111.04 for a complete system walkdown.

4. Perform a walkdown of each selected system to ensure that the requisite knowledge specified in the evaluation criteria (listed above) has been obtained.

5. During the walkdowns, record any conditions that appear to be anomalies and review the list with a qualified operations inspector.

6. Meet with your supervisor or a qualified operations inspector to discuss any questions that you may have as a result of this activity and demonstrate that you can meet the evaluation criteria listed above.

DOCUMENTATION: Operations Inspector Proficiency-Level Qualification Signature Card Item OJT-OPS-1

Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-2) Conduct of Operations

PURPOSE: The overall conduct of operations is an essential element in the safe operation of a nuclear power plant. Licensee procedures typically address operator attentiveness and professionalism, control room environment, shift turnover, configuration controls, and the conduct of evolutions. This activity will familiarize you with the various licensee procedural controls over these activities and applicable regulatory requirements.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 40 hours

REFERENCES:

1. Licensee procedures addressing the conduct of operations, including procedures covering such issues as use of procedures, independent verification, responsibilities of licensed operators, definition of "at the controls," shift manning and turnover, control of evolutions, equipment status and alignment, tagging, annunciator controls, and entry into TS LCOs.
2. Plant operating license and TSs
3. IMC 2515D, "Plant Status"
4. IP 71707, "Plant Operations"
5. IP 71715, "Sustained Control Room and Plant Observation"
6. Regulatory Guide (RG) 1.33, Revision 2, "Quality Assurance Program Requirements (Operation)," issued February 1978
7. American National Standards Institute (ANSI)/ANS-1994, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"

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

1. Generally describe the licensee's processes for conduct of operations. The description should include activities such as use of procedures, independent verification, responsibilities of licensed operators, definition of "at the controls" or other

control room areas, shift manning and turnover, control of evolutions, equipment status and alignment, annunciator controls, and entry into TS LCOs. Where applicable, explain the regulatory requirements which require the development and implementation of these procedures.

2. Be able to identify active TS LCOs and major equipment out of service through reviews of control room documentation or status boards.

3. Tour the control room, observe operating practices, and determine whether operators are correctly implementing procedural guidance, maintaining shift professionalism, and properly controlling and coordinating activities.

4. Evaluate the adequacy of control room shift turnovers, response to annunciators, and control room communications.

5. Verify that procedures for annunciator controls, such as disabled annunciators and nuisance alarms, are implemented properly.

TASKS:

1. Locate the listed references for your assigned or reference facility.

2. Review the licensee's procedures and develop an understanding of the licensee's expectations for the conduct of operations. These efforts should include comparison to implementation such as control room logs, equipment out of service logs, standing orders, night orders, operator workarounds, work control center activities, and briefings.

3. Observe at least two different shift turnovers, including reactor operator and senior reactor operator turnover, and verify that activities are conducted in accordance with procedures.

4. Observe the implementation of tagging procedures, including development and review of at least one tagout, hanging of tags, verifications of tags, and removal and restoration activities.

5. Observe portions of a valve alignment/alignment verification involving an important system as necessary to understand the licensee's processes.

6. Perform the activities described in IMC 2515D, Plant Status.

7. Meet with your supervisor or a qualified operations inspector to discuss any questions that you may have as a result of these activities and demonstrate that you can meet the evaluation criteria listed above.

DOCUMENTATION: Operations Inspector Proficiency-Level Qualification Signature Card Item OJT-OPS-2 (also OJT-OLE-2)

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: 12 hours

REFERENCES:

1. Security plan for your assigned facility
2. TSs for your assigned facility
3. 10 CFR Part 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Plants against Radiological Sabotage"

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 vital areas at your assigned site(s).
2. Demonstrate the appropriate procedures for escorting visitors into and out of the protected and vital areas.
3. Explain the site-specific protection strategy, including methods used to detect intruders.
4. Demonstrate an understanding of what actions are required when the security threat condition changes.

TASKS:

1. Review the references listed above, as appropriate, to develop an understanding of the site security system.
2. Conduct a walkdown of the protected and vital areas to identify the various types of intruder detection equipment used and protective station locations.
3. Tour the central and secondary alarm stations. Discuss the duties and responsibilities of personnel stationed in those facilities with the watchstanders and the security shift supervisor.

4. Discuss inspector responsibilities related to site security and safeguards with your supervisor or a qualified operations or physical security inspector. Your discussion should include the following:
   a. 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.

   b. actions required when threat conditions change

   c. questions that you may have as a result of this activity and a demonstration that you can meet the evaluation criteria listed above

5. Discuss with appropriate licensee security management the site's protective strategy.

DOCUMENTATION: Operations Inspection Proficiency-Level Qualification Signature Card Item OJT-OPS-3

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. Reference or assigned site (licensee) procedures addressing the radiation protection program and implementation
2. Plant TSs and updated final safety analysis report and 10 CFR Part 19 and 10 CFR Part 20
3. RG 8.38, Revision 1, "Control of Access to High and Very High Radiation Areas," issued May 2006
4. IP 71121, "Occupational Radiation Safety" and IP 83822, "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. locked high radiation area
   f. very high radiation area
   g. hot spots

h. airborne 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, high radiation areas, very high 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 high-dose-rate or high-exposure jobs and determine whether workers demonstrate the ALARA philosophy in practice (e.g., workers are familiar with the job scope and tools to be used, workers are using ALARA low-dose waiting areas)

7. Meet with an NRC inspector who performs the inspection described in IP 71121. Discuss how he/she completes this procedure at your site.

8. Meet with your supervisor or a qualified operations inspector to discuss any questions that you may have as a result of these activities and demonstrate that you can meet the evaluation criteria.

DOCUMENTATION: Operations Inspector Proficiency-Level Qualification Signature Card Item OJT-OPS-4

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: 40 hours

REFERENCES:

1. Appendices A and R to10 CFR Part 50
2. Reference site's Fire Protection Program
3. Technical requirements manual
4. IP 71111.05, "Inspector Review of Licensing-Related Information"
5. 10 CFR 50.48, "Fire Protection"
6. Appendix E to IMC 0609
7. Applicable branch technical positions
8. GL 86-10, "Implementation of Fire Protection Requirements," dated April 24, 1986
9. Licensee's response plans to mitigate the effects of large fires and explosions

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

1. Discuss the general content of Appendices A and R to 10 CFR Part 50, as well as 10 CFR 50.48.
2. Discuss the principle strategy and methodologies for achieving safe shutdown.
3. Discuss, in general terms, the contents of the licensee's fire hazards analysis and safe-shutdown analysis.

4. Discuss the principle of defense in depth as it applies to the licensee's Fire Protection Program.

TASKS:

1. Locate the listed references for your assigned facility.

2. Review and discuss with your supervisor or qualified inspector the methods of preventing fires from starting; rapid detection, control, and extinguishing of fires that occur; and design attributes that ensure that safe plant shutdown is achieved, should a fire occur.

3. At your assigned facility, walk down several plant areas to observe various detection and automatic/manual suppression systems. Observe the remote and/or alternate shutdown panel(s), as applicable. Discuss what areas of the site are most risk significant from a fire protection viewpoint.

4. At your assigned facility, perform the routine resident inspector portion of IP 71111.05 for at least one plant area important to safety.

5. At your assigned facility, observe one or more fire brigade drills, if practical.

6. Meet with your supervisor or a qualified operations inspector to discuss any questions that you may have as a result of these activities and demonstrate that you can meet the evaluation criteria listed above.

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

Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-6) Post Transient/Trip Review

PURPOSE: Following a reactor trip or transient, operations inspectors frequently verify that equipment functioned as intended and operators responded in an appropriate manner. To conduct an adequate review of equipment and operator performance, it is vital that the inspector obtain the necessary information to make an informed judgment. Upon completion of this guide, you will be able to identify the information sources that can be used to assess equipment and operator performance following a transient.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 24 hours

REFERENCES:

1. Licensee posttrip response procedure(s)
2. Plant final safety analysis report
3. Licensee event classification guide
4. Regional or office plant transient check list (as applicable)
5. IP 71153, “Event Followup”
6. IP 71111.14, “Operator Performance During Nonroutine Plant Evolutions and Events”

EVALUATION CRITERIA: Complete the tasks specified in this guide and meet with your supervisor to discuss any questions that you may have as a result of this activity. Upon completion of the tasks, you should be able to do the following:

1. Describe which plant data recording systems you would use to verify that plant equipment responded as designed following a transient.
2. Describe which plant reference documents you would consult to verify that plant equipment responded as designed following a transient.
3. Describe how you would verify that plant operators responded appropriately to the plant transient.

4. Demonstrate how you would verify that the licensee classified the event in accordance with its emergency classification guide.

NOTE: Ideally, you will be able to complete these tasks immediately following an unplanned reactor shutdown. If such an incident does not occur during your training period, you can perform these tasks by reviewing historical documents of a previous event and by successfully demonstrating that you could obtain the necessary information to conduct a review.

TASKS:

1. Read IP 71111.14, IP 71153, and the regional or office transient response guidance (if applicable) that defines management expectations regarding event followup at a reactor site.

2. Following a transient at your site, obtain pertinent data of the transient that was compiled by the plant process computer. Such data may include the following items:
   a. sequence of events printout
   b. control room annunciator record
   c. first out annunciator report

3. Obtain any pertinent records of plant or system process variables of the event, such as system temperature, pressure, or water levels that exist on plant chart recorders.

4. Review the licensee's posttrip procedure.

5. As appropriate, discuss the event with personnel who were directly involved in the transient. This may include control room operators, maintenance personnel, and instrumentation and control technicians. The focus of meeting with personnel who were involved in the transient is the following:
   a. confirm that plant systems responded as intended
   b. ensure an understanding of the sequence of events that led up to the transient

6. Using the data obtained from the plant process computer and chart recorders and information obtained from discussions with plant personnel and the plant documents, such as the plant final safety analysis report, verify that important plant equipment operated as designed following the transient.

7. Attend the licensee posttrip meeting (if conducted). Verify that the licensee conducted an adequate review of the transient and identified the following:
   a. possible or probable root cause(s) for the event
   b. equipment or plant performance anomalies
   c. corrective actions that should be implemented

8. Using the licensee's emergency event classification guide, verify that the event was properly classified and the appropriate offsite notifications were completed.

9. Compare the conclusions that the licensee reached regarding the event to your own. If the conclusions are significantly different, discuss the differences with your supervisor to understand why you reached different conclusions.

DOCUMENTATION: Operations Inspector Proficiency-Level Qualification Signature Card Item OJT-OPS-6

Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-7) Emergency Response

PURPOSE: 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. Emergency response is vital to the NRC, fulfilling one of its primary mandates—protecting the health and safety of the public.

COMPETENCY AREA: EMERGENCY RESPONSE

LEVEL OF EFFORT: 20 hours

REFERENCES:

1. Emergency plan for your assigned facility
2. Regional policy guide for emergency response
3. NUREG-0845 and regional supplement
4. Appendix E to 10 CFR Part 50 and 10 CFR 50.54(x)
5. Response technical manual (RTM-96)
6. Entry-Level ISA 16

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 (i.e., where would you go) for each event classification if you are on or off site when the emergency is declared.
4. Describe how and with whom you report the event for each classification.
5. Describe your responsibilities during the event.
6. Given a scenario, be able to describe what actions you would take in response to the emergency situation.

TASKS:

1. Observe emergency response activities during a sitewide emergency drill in the technical support center, operations support center, and emergency operations facility. If scheduling permits, participate in at least one sitewide emergency drill as the NRC resident inspector.

2. Determine the routes that can be taken to the plant from off site during various weather conditions and wind directions. Consider both radiological and toxic chemical sources on and off site.

3 Locate the telephone for NRC inspector use (NOT the emergency notification system line) in the control room, technical support center, and emergency operations facility. Learn the telephone protocol expected of the resident inspector.

4. Meet with your supervisor or a qualified operations inspector to discuss any questions that you may have as a result of this activity and demonstrate that you can meet the evaluation criteria listed above.

DOCUMENTATION: Operations Inspector Proficiency-Level Qualification Signature Card Item OJT-OPS-7

Operations On-the-Job Activity

TOPIC: (OJT-OPS-8) Emergent Work Control and Maintenance Risk Assessments

PURPOSE: The purpose of this activity is to (1) familiarize you with the typical licensee process for controlling emergent work activities, and (2) familiarize you with the various methods (such as an online risk monitor) that licensees use to assess and manage plant risk associated with scheduled or emergent work activities.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 32 hours

REFERENCES:

1. Licensee procedure(s) for control of emergent work
2. Licensee procedure(s) for conducting risk assessments and managing the resultant risk
3. 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.” section (a)(4).
4. IP 71111.13, “Maintenance Risk Assessments and Emergent Work Control.”

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

1. Generally describe how a licensee controls emergent work activities, including entering LCOs, control of troubleshooting, conduct of tagging, implementing temporary modifications, and restoring equipment to service.
2. Demonstrate knowledge of the functioning of a typical work control center at a nuclear power plant. This should include knowledge of work planning and scheduling and processing of work orders.
3. Explain how you would select risk-significant work activities to inspect.
4. Explain why licensees assess and manage plant risk for both scheduled maintenance and emergent work.

5. Demonstrate knowledge of methods that licensees use to assess and manage plant risk, such as use of an online risk monitor.

TASKS:

1. Locate the listed references for your facility.

2. Review the references to develop sufficient understanding of how the licensee controls emergent work activities.

3. Review the references to develop sufficient understanding of how the licensee conducts risk assessments and manages the resultant risk.

4. Discuss with a qualified operations inspector the functions typically performed by the licensee's work control center.

5. Discuss with a qualified operations inspector licensee controls for emergent work activities, risk assessment, and management of resultant risk, as well as the implementation of IP 71111.13. Specifically discuss sample selection and use of the flow chart in Appendix A.

6. Identify a risk-significant emergent work activity at your site and implement IP 71111.13. As a minimum for this emergent work activity review, observe, and/or verify as appropriate the following:
   a. work planning and scheduling activities
   b. entry into appropriate TS LCOs
   c. troubleshooting activities
   d. tagging
   e. implementation of any temporary modifications
   f. equipment restoration to ensure that the plant is not placed in an unacceptable configuration
   g. licensee assessment and management of plant risk

7. Meet with your supervisor or a qualified operations inspector to discuss any questions that you may have as a result of this activity and demonstrate that you can meet the evaluation criteria listed above.

DOCUMENTATION: Operations Inspector Proficiency-Level Qualification Signature Card Item OJT-OPS-8

Operations Inspector On-the-Job Activity

TOPIC: (OJT-OPS-9) Shutdown Operations

PURPOSE: The purpose of this activity is to provide you with detailed knowledge of shutdown operations that impose risks to public health and safety even though the facility is shutdown. When vital structures, systems, and components are removed from service for maintenance or refueling, risks to the facility can become high. The systems and activities that impose the greatest risk include decay heat removal systems, containment isolation systems, reduced water inventory periods (i.e., mid-loop in PWRs), switchyard work, refueling operations, and any transient activity (i.e., cooldown, heatup, startup, etc.).

COMPETENCY AREA: INSPECTION
TECHNICAL AREA EXPERTISE

LEVEL OF EFFORT: 30 Hours

REFERENCES:

1. Technical Specifications for your assigned facility designated by your supervisor
2. Licensee procedures for loss of decay heat removal, reactivity control, containment integrity, and refueling for your assigned facility
3. Regional policy and instructions, if available
4. Inspection Procedure 71111.20, "Refueling and Other Outage Activities"
5. NUREG-1449, "Shutdown and Low-Power Operation at Commercial Nuclear Power Plants in the United States"
6. Information Notice 95-57, "Risk Impact Study Regarding Maintenance During Low-Power Operation and Shutdown"
7. Information Notice 93-72, "Observations From Recent Shutdown Risk and Outage Management Pilot Team Inspections"
8. IMC-0609, Appendix G, "Shutdown Operations Significance Determination Process"

EVALUATION CRITERIA: At the completion of this activity, for your assigned facility, you should be able to:

1. Discuss the risks of shutdown operations.

2. Discuss the importance of maintaining decay heat removal during shutdown.

3. Discuss the methods of reactivity control during core alterations both in the core and in the spent fuel pool.

4. Discuss the requirements for containment/reactor building integrity during shutdown, refueling, and maintenance activities that require large equipment to be moved into and out of the reactor building/containment.

5. Discuss the importance of mode changes and what constitutes a mode change.

6. Discuss the risks involved with reduced inventory operations.

7. Discuss the risk involved with electrical work both in the plant and in the switchyard.

8. Discuss what type of items should be reviewed when reviewing the outage schedule.

9. Discuss the various means of monitoring vessel level and the importance of knowing the level.

10. Discuss the purpose of a containment closeout walkdown.

11. Briefly discuss the purpose of IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process," and who primarily uses it.

NOTE: Ideally, you will complete these tasks at your assigned or reference site, but you can perform some of the actual inspection activities at a different site (of similar design) if necessary because of

TASKS:

1. Review your designated facility licensee's TS and procedures for loss of decay heat removal, reactivity control, containment integrity, and refueling for your assigned facility

2. Review the requirements of Inspection Procedure 71111.20, as designated by your supervisor.

3. Meet with your supervisor or a qualified OL Examiner to discuss any questions that you may have as a result of this

activity and demonstrate that you can meet the evaluation criteria listed above.

DOCUMENTATION: Operations Inspector Proficiency-Level Qualification Signature Card Item OJT-OPS-9 (also OJT-OLE-11)

Reactor Operations Technical Proficiency-Level Signature Card and Certification

Inspector Name: _____	*Employee Initials/Date*	*Supervisor's Signature/Date*
A. Training Courses		
Power Plant Engineering (self-study)		
Reactor Full Series (either BWR or PWR)		
B. Individual Study Activities		
ISA-OPS-1 Title 10, "Energy," of the *Code of Federal Regulations*		
ISA-OPS-2 Technical Specifications (also ISA-OLE-9)		
ISA-OPS-3 Operability (also ISA-OLE-10)		
ISA-OPS-4 Notice of Enforcement Discretion		
ISA-OPS-5 Maintenance Rule Implementation		
ISA-OPS-6 Inservice Testing Program		
ISA-OPS-7 Significance Determination Process—Reactor Inspection Findings for At-Power Situations		
C. On-the-Job Training Activities		
OJT-OPS-1 Site System Reviews		
OJT-OPS-2 Conduct of Operations (also OJT-OLE-2)		
OJT-OPS-3 Security Plan and Implementation		
OJT-OPS-4 Radiation Protection Program and Implementation		
OJT-OPS-5 Fire Protection Program and Implementation		
OJT-OPS-6 Posttrip/Transient Review		
OJT-OPS-7 Emergency Response		
OJT-OPS-8 Emergent Work Control and Maintenance Risk Assessments		
OJT-OPS-9 Shutdown Operations (also ISA-OLE-11)		

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, "Reactor Operations Inspector Basic-Level Equivalency Justification," must accompany this signature card and certification, if applicable.

Form 1: Reactor Operations Technical Proficiency-Level Equivalency Justification

Inspector Name: _____	*Identify equivalent training and experience for which the inspector is to be given credit.*
A. Training Courses	
Power Plant Engineering (self-study)	
Reactor Full Series (either BWR or PWR)	
B. Individual Study Activities	
ISA-OPS-1 Title 10, "Energy," of the *Code of Federal Regulations*	
ISA-OPS-2 Technical Specifications	
ISA-OPS-3 Operability	
ISA-OPS-4 Notice of Enforcement Discretion	
ISA-OPS-5 Maintenance Rule Implementation	
ISA-OPS-6 Inservice Testing	
ISA-OPS-7 Significance Determination Process—Reactor Inspection Findings for At-Power Situations	

C. On-the-Job Training Activities		
OJT-OPS-1	Site System Reviews	
OJT-OPS-2	Conduct of Operations	
OJT-OPS-3	Security Plan and Implementation	
OJT-OPS-4	Radiation Protection Program and Implementation	
OJT-OPS-5	Fire Protection Program and Implementation	
OJT-OPS-6	Posttrip/Transient Review	
OJT-OPS-7	Emergency Response	
OJT-OPS-8	Emergent Work Control and Maintenance Risk Assessments	
OJT-OPS-9	Shutdown Operations	

Supervisor's Recommendation Signature/Date _____

Division Director's Approval Signature/Date _____

Copies to: Inspector
Human Resources Office
Supervisor

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	10/31/06 CN 06-032	To update reference lists and incorporate minor editorial changes. Completed 4 year historical CN search	None	N/A	ML062890456
C-1 Reference: OIG-05-A-06 recommendation 7 (ML052520204)	9/02/05	Add a requirement that operations inspectors take the appropriate vendor-specific training within 2 years of assignment to a new reactor type.	None	N/A	N/A