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

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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 has 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.)

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

Post Qualification Operations Inspector Training Courses
This course IS NOT required for initial qualification. Attendance at this course is a post-qualification requirement to be completed with 24 months of full qualifications.

- PRA Technology and Regulatory Perspectives (P-111)
- Vendor-Specific Training Course - Operations inspectors must complete vendor-specific training for assigned site. If re-assigned to a new site after initial qualification, the inspector is required to 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 new site.

Required Refresher Training

- Technical refresher and simulator/EOP refresher both required every three years.
- If you are qualified in more than one reactor type, either the BWR or PWR refresher training shall be completed every three years. Inspectors should alternate between PWR and BWR technologies.

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Operations Inspector Individual Study Activities

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Operations Inspector Individual Study Activity

TOPIC: (ISA-OPS-1) Title 10 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 Nuclear Regulatory Commission (NRC), an independent agency established by the U.S. Congress under the Energy Reorganization Act of 1974. NRC rules and regulations are established to ensure adequate protection of the 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 the 10 CFR. This activity will provide you with a working knowledge of the contents of 10 CFR, Parts 1 through 199, and an understanding of the broad spectrum of requirements associated with your inspection activities.

COMPETENCY AREA: INSPECTION
REGULATORY FRAMEWORK

LEVEL OF EFFORT: 40 Hours

REFERENCES:

1. 10 CFR, Chapter 1, Parts 1 through 199.
3. Energy Reorganization Act of 1974
4. Entry Level ISA 22, Overview of 10 CFR Part 50
5. 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:

1. Discuss the general content of the various Parts of 10 CFR that the NRC inspection staff is routinely involved with or inspects against.

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

   – Part 21
   – Part 25
   – Part 26
   – Part 50 (also see Entry Level ISA 22)
   – Part 55
   – Part 73
   – Part 100

3. Discuss in detail the contents of the following Appendices to Part 50. You should demonstrate an understanding of the methods, techniques and procedures used by licensees to demonstrate compliance with the requirements of:
   – Appendix A
   – Appendix B
   – Appendix E
   – Appendix J
   – Appendix K
   – Appendix R

4. Discuss the general contents of the "Statements of Consideration" and the value of this information to the inspector and public.

TASKS:

1. Discuss experiences with compliance issues associated with the various parts of CFR and Part 50 Appendices with a Senior Project Engineer, Resident or Senior Resident.

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

3. Meet with your supervisor, or 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 Technical Specifications (TS) approved by the NRC. The TS provide the limits for facility operation that the licensee must comply with 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 TS.

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

COMPETENCY AREA: INSPECTION
REGULATORY FRAMEWORK

LEVEL OF EFFORT: 24 Hours

REFERENCES:

1. Technical Specifications for a facility designated by your supervisor

1. NRC Inspection Manual Part 9900, Technical Guidance, STS Chapters designated by your supervisor

2. Standard TS for the vendor of your designated facility

EVALUATION CRITERIA:

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

1. For the facility TS, as designated by your supervisor, be able to identify each TS section, discuss the general content of the requirements contained in each section, and the basis for issuing the requirements.

2. Discuss the following with respect to the operating license: legal basis, purpose, license conditions, and how the license can be changed.

3. Discuss the definition of the terms found in the TS.

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 (LCO) and surveillance testing, and what actions are required if the requirements are not met.

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

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. For the Technical Requirements Manual (TRM), discuss the: purpose, legal basis of using as a violation source document, and how requirements can be changed.

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

TASKS:

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

2. Review the various sections of the TS, as listed in the Evaluation Criteria section.

3. Review the content of the TRM or other document referenced by the technical specifications to determine the types of requirements provided.

4. On the NRC External Web, locate the NRC Inspection Manual Part 9900, Technical Guidance, STS Chapters. Review the chapters that were designated by your supervisor

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 consists primarily 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 no unrecognized increase in risk has 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 NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions.”
3. Inspection Procedure 71111.15, Operability Evaluations
4. Reference or assigned site (licensee) procedures addressing operability determinations.
5. Information Notice 97-78, “Credit of Operator Actions in Place of Automatic Actions and Modification of Operator Actions, including Response Time.”
6. Regulatory Issue Summary 2001-09, Control of Hazard Barriers.
7. GL 90-05, Guidelines for Performing Temporary Non-Code repairs of ASME Code Class 1, 2 and 3 Piping.

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

1. Define the following terms and provide examples of each term.

   – Operable/operability
   – Degraded condition
   – Abnormal condition
   – Nonconforming condition
   – Justification for continued operation (JCO)
   – Single failure
   – Consequential failure
   – Support system
   – Compensatory measures

2. Describe the licensee's process of addressing 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 what actions should be taken if a licensee is unable to demonstrate equipment operability.

5. Discuss what appropriate items should be considered in a licensee's development of a JCO.

6. Perform the inspection described in Inspection Procedure 71111.15, Operability Evaluations. This includes 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. Non-licensee documents can be located in the Electronic Reading Room on the NRC External Web site.

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

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

4. Verify that licensee considered other existing degraded conditions as compensating measures, and determine if the measures are in place, will work as intended, and appropriately controlled. Verify that the licensee's intended longterm 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. Additionally, 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)

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Operations Inspector Individual Study Activity

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

PURPOSE: The NRC requires that licensees operate their facilities in compliance with NRC regulations and the facility license. In some instances of non-compliance with specific license conditions, however, 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 an Notice of Enforcement Discretion (NOED).

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

COMPETENCY AREA: INSPECTIONS
ASSESSMENT AND ENFORCEMENT

LEVEL OF EFFORT: 10 hours

REFERENCES:

1. NRC Inspection Manual Part 9900, Technical Guidance, OPERATIONS - NOTICES OF ENFORCEMENT DISCRETION
2. NUREG 1600, Enforcement Policy
3. NRC Operating Reactor Project Manager's Handbook http://nrr10.nrc.gov/DLPMHandbook/NOEDs.html
4. NRC Regulatory Issue Summary 2005-01 Changes to Notice of Enforcement Discretion (NOED) Process and Staff Guidance

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

1. Locate the current NRC guidance on the NOED process.
2. Explain what non-conformances 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 startup.

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 an NOED is issued.

TASKS:

1. Locate the listed references. The Project Manager’s Handbook can be located on the NRC Internal Web site

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.

5. 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 (MR) Implementation

PURPOSE: The NRC requires that licensees operate their facilities in compliance with 10 CFR 50.65 (i.e., the maintenance rule) requirements for monitoring the effectiveness of maintenance at nuclear power plants. 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 contents of the MR requirements and how to apply those requirements.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 30 Hours

REFERENCES:

1. MR implementation documents for the facility designated by your supervisor
2. Inspection Procedure (IP) 71111.12, “Maintenance Rule Implementation”
3. NUMARC 93-01, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants”
4. 10 CFR 50.65

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

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

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

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

7. Describe how the licensee performs a MR risk assessment prior to taking equipment out of service (planned) or for emergent work.

TASKS:

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

2. Review the MR procedures to become knowledgeable of the criteria listed in the above section.

3. Contact the licensee's MR expert and discuss the licensee's approach to satisfying the MR 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) In-Service Testing (IST)

PURPOSE: 10 CFR 50.55a requires in-service testing (IST) to be performed on certain pumps and valves. IST is required for components classified as ASME Code Class 1, 2, or 3 and 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 over pressure protection. This activity will familiarize you with the requirements for IST and how the licensee implements the IST program.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 16 Hours

REFERENCES:

1. Reference or assigned site (licensee) procedures addressing IST program.
2. Technical Specifications, Final Safety Analysis Report, American Society of Mechanical Engineers (ASME) Code, Section XI and Class 1, 2, and 3, and 10 CFR 55.55a, Codes and Standards
3. NUREG-1482, Guidelines for Service Testing at Nuclear Power Plants
4. NRC Manual Chapter 9900 guidance on pre-conditioning.
5. Generic Letter 89-04, Guidance on Developing Acceptance In-service Testing Program
6. Inspection Procedures 71111.22, Surveillance Testing and 73756, In-service Testing of Pumps and Valves
3. ASME OM Code-(year), “Code for Operation and Maintenance of Nuclear Power Plants.” Subsections ISTA, ISTB, and ISTC
4. 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:

1. Generally describe the following terms and provide examples of each term.

   a. Safety-Related Components or Systems
   b. ASME Code Class 1, 2 or 3 systems
   b. Category A valves
   c. Various Types of Valve (Manual Valve, Check Valve
   d. Safety/Relief Valve, Containment Isolation Valve, Gate Valve, Globe Valve, Butterfly valve, Stop Valve etc.)
   e. Centrifugal Pump/Positive Displacement Pump
   f. Minimum Flow Lines/Recirculation Flow path
   g. TS Action Statement
   h. Alert Range Limits
   i. Required Action Range Limits
   j. Common Cause Failure
   k. Pre-conditioning
   l. Post Maintenance Testing

2. Describe the NRCs 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 Inspection Procedure 71111.22, Surveillance Testing.

TASKS:

1. Locate the listed references for your facility. In some cases, you may have to utilize 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 develop an understanding of how the specific licensee implements IST requirements. Select a risk significant system and verify that

the pumps and valves that performed a safety-related function(s) are included in the IST program.

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

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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 of Manual Chapter 0609, 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 gain the requisite knowledge, understanding, and practical ability such that upon completion of this activity, you will be able to use the Significance Determination of Reactor Inspection Findings for At-Power Situations to determine the safety significance of reactor inspection findings.

COMPETENCY AREAS:
INSPECTION
TECHNICAL AREA EXPERTISE
REGULATORY FRAMEWORK

LEVEL OF EFFORT: 16 hours

REFERENCES:

1. Inspection Manual Chapter (IMC) 0609, “Significance Determination Process”
2. IMC 0609 Attachment 0609.01, “Significance and Enforcement Review Process”
3. IMC 0609 Attachment 0609.02, “Process for Appealing NRC Characterization of Inspection Findings (SDP Appeal Process)”
4. IMC 0609 Appendix A, “Significance Determination 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:

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 IE, MS, and BI Cornerstones of IMC-0609 Appendix A

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" as 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 particular focus on Appendix A.

2. Go to the ROP web-site and review a sample of Green, White, Yellow and Red findings in each of the three cornerstones (if there are samples of each safety siginificance).

3. Read the case studies below and answer the following questions for each case study.

    1. Utilizing IMC-0612 Appendix B and Appendix E, determine if the issue is more than minor. List key conditions of the scenario that will be considered in determining if the issue is more than minor and that could be used to determine the safety significance.

    2. If the issue is determined to be minor, then this scenario is completed.

    3. If the issue is determined to be more than minor, use the SDP Phase 1 Screening Worksheet in IMC 0609 Appendix A to determine if the issues is Green 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 conclusion with those provided by the actual findings and case studies.

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

4. Whenever possible, attend a significance determination and enforcement review panel (SERP). Discuss 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), Control Rod Drive Mechanism Nozzle XX was identified as leaking. Repairs were made to the nozzle weld, and the unit was returned to operation for another cycle. Upon shutdown for RFO 1R17, repeat leakage of the nozzle was self revealed during visual examination of the reactor vessel head. 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 was inadequate to prevent recurrence of the original primary water stress corrosion cracking.

4. Utilizing IMC-0612 Appendix B and Appendix E, determine if the issue is more than minor. List key conditions of the scenario that will be considered in determining if the issue is more than minor and that could be used to determine the safety significance.

5. If the issue is determined to be minor, then go to 5

6. If the issue is determined to be more than minor, use the SDP Phase 1 Screening Worksheet in IMC 0609 Appendix A to determine if the issues is Green 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.

7. Compare your conclusions with those provided by the actual findings or case studies. [IR 0500313/2003-008, ML040340732]

8. 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 with the refueling outage 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 steam line 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 and at 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.

Subsequent inspection and testing by 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 Steam Generator 2. 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 (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 was outside (did not meet) the reporting criteria in the Refueling Outage 1RF08 analysis guidelines and was not reported by either the primary or secondary analyst in 2001.

The inspection team concluded that an experienced analyst should have recognize 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. 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.

The direct consequence of failure to detect the flaw was that 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 used during RFO, including the analysis guidelines, were not effective for ensuring that tubes would maintain their integrity until the next scheduled inspection.

1. Utilizing IMC-0612 Appendix B and Appendix E, determine if the issue is more than minor. List key conditions of the scenario that will be considered in

determining if the issue is more than minor and that could be used to determine the safety significance.

2. If the issue is determined to be minor, then go to 5

3. If the issue is determined to be more than minor, use the SDP Phase 1 Screening Worksheet in IMC 0609 Appendix A to determine if the issues is Green 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. [IR 0500445: ML030090566, ML040270203, ML040440201, ML040790025]

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

Scenario C

The assumptions in regard to instruments used for safety related HVAC systems (the auxiliary building ventilation system and the control room HVAC System in the licensee's 120 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 since tests on the instrumentation 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 vendor's specification for voltage would have to be used as it could not be guaranteed that the replacement instruments would operate at these assumed reduced voltages.

While the licensee was able to determine operability of the affected instruments through 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 upon testing of the instruments at 95 Vac; however, some instruments were either not tested, while others were replaced without retesting the specific instrument at the assumed degraded voltage included in the calculation. As such, the licensee had failed to maintain accurate design basis assumptions that were essential for their design basis calculation.

1. Utilizing IMC-0612 Appendix B and Appendix E, determine if the issue is more than minor. List key conditions of the scenario that will be considered in determining if the issue is more than minor and that could be used to determine the safety significance.

2. If the issue is determined to be minor, then go to 5

3. If the issue is determined to be more than minor, use the SDP Phase 1 Screening Worksheet in IMC 0609 Appendix A to determine if the issues is Green 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. [IR 0500456/2003-007/ML032870193]

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

Scenario D

The licensee failed to 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 preclude repetition. Specifically, the licensee's corrective actions, to upgrade the safety function of the air-operated recirculation valve, failed to ensure that successful operation of the recirculation line air-operated valve was dependent only on safety-related support systems. Following the corrective actions, successful operation of the valve was still dependent upon nonsafety-related power to an interposing relay. Additionally, the corrective actions failed to discover a single failure mechanism involving a system orifice modification.

1. Utilizing IMC-0612 Appendix B and Appendix E, determine if the issue is more than minor. List key conditions of the scenario that will be considered in determining if the issue is more than minor and that could be used to determine the safety significance.

2. If the issue is determined to be minor, then go to 5

3. If the issue is determined to be more than minor, use the SDP Phase 1 Screening Worksheet in IMC 0609 Appendix A to determine if the issues is Green 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. [IR 0500266/2002-015, MLML030920128]

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

Scenario E

During a refueling outage, 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 nine months after exceeding the Alert range. The licensee failed to identify that the test result exceeded the Alert range, so the test frequency was not increased. Subsequent vibration testing revealed no further vibration degradation. The ASME Code acceptance criterion for vibration measurements was 0.325 ips.

1. Utilizing IMC-0612 Appendix B and Appendix E, determine if the issue is more than minor. List key conditions of the scenario that will be considered in determining if the issue is more than minor and that could be used to determine the safety significance.

2. If the issue is determined to be minor, then go to 5

3. If the issue is determined to be more than minor, use the SDP Phase 1 Screening Worksheet in IMC 0609 Appendix A to determine if the issues is Green 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. [IMC 0612 Appendix E]

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 their a(2) demonstration that preventive maintenance was being effective. The Maintenance Rule 10 CFR 50.65(a)(2) requires, in part, that monitoring as specified in (a)(1) is not required where it has been demonstrated that the performance of condition of an SSC is being effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function. When the additional MPFF was considered, the a(2) conclusion remained valid.

1. Utilizing IMC-0612 Appendix B and Appendix E, determine if the issue is more than minor. List key conditions of the scenario that will be considered in determining if the issue is more than minor and that could be used to determine the safety significance.

2. If the issue is determined to be minor, then go to 5

3. If the issue is determined to be more than minor, use the SDP Phase 1 Screening Worksheet in IMC 0609 Appendix A to determine if the issues is Green 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. [IMC 0612 Appendix E]

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

Operations Inspector On-the-Job Activities

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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 the system is properly aligned and maintained. This verification is performed as one means for 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. Technical Specifications for assigned facility
3. P&ID for each selected system
4. Licensee system operating and 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:

1. Discuss the accident mitigation function(s) of each selected system.
2. Discuss the Technical Specification operability requirements for each selected system.
3. During a tour of each selected system, be able to locate the major components identified by your supervisor.
4. During a tour of each selected system, be able to 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 routinely monitored during a routine plant tour and explain the reason for monitoring these indications.

6. Identify to your supervisor, any anomalies that you identified 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(s) 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. Operator attentiveness and professionalism, control room environment, shift turnover, configuration controls, and the conduct of evolutions are typically addressed in licensee procedures. 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. This typically involves procedures addressing 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 Limiting Condition for Operations.
2. Plant Operating License and Technical Specifications
3. Manual Chapter 2515D, Plant Status
4. Inspection Procedure 71707, Plant Operations
5. Inspection Procedure 71715, Sustained Control Room and Plant Observations
6. Regulatory Guide 1.33, QA Program Requirements (Operations)
7. ANSI-N18.7-1976, QA for Operational Phase of Nuclear Power Plant

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

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 Limiting Condition for Operations. Where applicable, explain the regulatory requirements which require the development and implementation of these procedures.

2. Be able to identify active technical specifications (TS) limiting conditions for operation (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 if procedural guidance is being implemented correctly, operators are maintaining shift professionalism, and activities are properly controlled and coordinated.

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 RO and SRO 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 Manual Chapter 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)

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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

5. Technical Specifications for your assigned facility

6. 10 CFR Part 73.55

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

1. Generally describe how the site security force maintains access control of the owner-controlled, protected, and vital areas at your assigned sites.

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:

   (a) Practical circumstances that you may encounter such as loss of security badge, identification of an inattentive guard, suspicious package is received, or a bomb threat is received. The discussion should include actions to be taken by the licensee and you, as appropriate.

   (b) The actions that are required when the threat conditions change.

   (c) Any questions that you may have as a result of this activity and demonstrate 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. As Low As Is Reasonable Achievable (ALARA) program, external exposure, internal exposure, respiratory protection, posting and labeling, survey, and reporting requirements are addressed in licensee's procedures and in 10 CFR Parts 19 and 20. 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.

5. Plant Technical Specifications, Plant Updated Final Safety Analysis Report, and 10 CFR Parts 19 and 20.

6. Regulatory Guide 8.38, Control of Access to High and Very High Radiation Areas.

7. Inspection Procedures 71121, Occupational Radiation Safety and 83822, Radiation Protection.

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

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 how the radiation protection program is being implemented at your site.

3. Select several important radiation detection and measurement instruments (these may include 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 of each of the following: radiation area, high radiation area, very high radiation area, hot spots area, and an airborne radioactivity area and verify that each access is controlled in accordance with regulations and the licensee's requirements.

5. Review at least one completed radiation survey results and verify 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 if workers demonstrate the ALARA philosophy in practice (e.g. workers familiar with the job scope and tools to be used, utilizing ALARA low dose waiting areas, etc.)

7. Meet with an NRC inspector who performs the inspection described in Inspection Procedure 71121, Occupational Radiation Safety. 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

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Operations On-the-Job Activity

TOPIC: (OJT-OPS-5) Fire Protection Program and Implementation

PURPOSE: This activity will provide you with a working knowledge of the regulatory requirements for the Fire Protection (FP) Program and how these requirements are implemented by the licensee.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 40 Hours

REFERENCES:

1. 10 CFR, Part 50, Appendices A and R
2. Reference Site Fire Protection Program
3. Technical Requirements Manual
4. Inspection Procedure 71111.05
5. 10 CFR 50.48
6. Manual Chapter 0609, Appendix E
7. Applicable Branch Technical Positions
8. Generic Letter 86-10

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

1. Discuss the general content of 10 CFR 50, Appendices A and R, and Part 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 FP 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 which ensure 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 71111.05 for at least one plant area important to safety.

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

6. Meet with your supervisor or a qualified Operations inspector to discuss any questions that you may have as a result of theses 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 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 judgement. Upon completion of this guide, you will be able to identify the information sources that could be used to assess equipment and operator performance following a transient.

COMPETENCY AREA: INSPECTION

LEVEL OF EFFORT: 24 Hours

REFERENCES:

1. Licensee post trip response procedure(s).

1. Plant Final Safety Analysis Report

2. Licensee event classification guide

3. Regional or Office Plant Transient Check List (as applicable)

4. Inspection Procedure 71153, “Event Followup”

5. Inspection Procedure 71111.14, “Personnel Performance During Nonroutine Plant Evolutions.”

EVALUATION CRITERIA: Complete the tasks specified in this OJT 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:

1. Describe which plant data recording systems you would use to verify plant equipment responded as designed following a transient.

1. Describe which plant reference documents you would consult to verify plant equipment responded as designed following a transient.

2. Describe how you would verify plant operators responded appropriately to the plant transient

3. Demonstrate how you would verify the licensee classified the event in accordance with their emergency classification guide.

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

TASKS:

1. Read inspection procedures 71111.14 and 71153 and the Region or Office transient response guidance (if applicable) that defines management expectations regarding event follow-up 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:

   - Sequence of Events (SOE) Printout
   - Control Room Annunciator Record
   - 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 post trip 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 instrumentation and control technicians. The focus of meeting with personnel who were involved in the transient is to:

   a. Confirm plant systems responded as intended
   b. Ensure you understand the sequence of events that led up to the transient.

6. Using the data obtained from the plant process computer, chart recorders, information obtained from discussions with plant personnel, and plant documents such as the plant Final Safety Analysis Report (FSAR), verify important plant equipment operated as designed following the transient.

7. Attend the licensee post - trip meeting (If conducted). Verify the licensee conducted an adequate review of the transient and identified the following:

   - Possible or probable root cause(s) for the event.
   - Equipment or plant performance anomalies
   - Corrective actions that should be implemented.

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

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

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

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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 NRC 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. 10 CFR Part 50, Appendix E and 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:

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 site-wide emergency drill in the technical support center, operations support center, and emergency operations facility. If scheduling permits, participate in at least one site-wide 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 both on and off site.

3 Locate the telephone for NRC inspector use (NOT the ENS line) to be used by an inspector 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 on-line 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:

1. Generally describe how a licensee controls emergent work activities, including entering limiting conditions of operation (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 licensee's 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 on-line 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, and then 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 Technical Specification 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

LEVEL OF EFFORT: 30 Hours

REFERENCES:

1. Technical Specifications for your assigned facility designated by your supervisor
2. Most recent outage schedule and risk assessment for your assigned facility
3. Licensee procedures for loss of decay heat removal, reactivity control, containment integrity, and refueling for your assigned facility
4. Regional policy and instructions, if available
5. Inspection Procedure 71111.20, Refueling and Outage Activities

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.

NOTE: Ideally, these tasks will be completed at your assigned or reference site but some of the actual inspection activities can be performed at a different site (of similar design) if necessary due to refueling outage

TASKS:

1. Perform the requirements of Inspection Procedure 71111.20, as designated by your supervisor or a qualified Operations inspector.

2. Conduct a walkdown of containment just prior to closeout for plant startup.

3. 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-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 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 (NOED)		
ISA-OPS-5 - Maintenance Rule (MR) Implementation		
ISA-OPS-6 - IST 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 - Post Trip/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_____

This signature card and certification must be accompanied by the appropriate Form 1, Reactor Operations InspectorBasic Level Equivalency Justification, if applicable.

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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 of the Code of Federal Regulations	
ISA-OPS-2 - Technical Specifications	
ISA-OPS-3 - Operability	
ISA-OPS-4 - Notice of Enforcement Discretion (NOED)	
ISA-OPS-5 - Maintenance Rule (MR) Implementation	
ISA-OPS-6 - IST 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	
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 - Post Trip/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
HR Office
Supervisor