

NRC INSPECTION MANUAL

VPO

INSPECTION MANUAL CHAPTER 2504

CONSTRUCTION INSPECTION PROGRAM:
INSPECTION OF CONSTRUCTION AND OPERATIONAL PROGRAMS

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2504-01 PURPOSE

01.01 To specify the inspection policies for reviewing the construction programs not directly related to Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) that support construction of a plant licensed in accordance with *Title 10 of the Code of Federal Regulations (10 CFR) Part 52*.

01.02 To specify the inspection policies to assess whether a licensee conforms to and correctly implements the preoperational testing portion of the Initial Test Program (ITP) contained in the Final Safety Analysis Report (FSAR).

01.03 To specify the inspection policies for reviewing the operational programs described in the FSAR, for a plant licensed in accordance with 10 CFR Part 52.

01.04 To provide the input by which the staff will inform the Commission of the status of the operational programs before the anticipated date for loading fuel.

2504-02 OBJECTIVES

02.01 To assess whether the licensee has implemented construction programs that address quality assurance (QA), including corrective actions for conditions adverse to quality, reporting of defects and failures in accordance with 10 CFR 50.55(e), fitness for duty (FFD), and a process for completion and closure of ITAAC.

02.02 To evaluate the operational programs listed in the licensee's FSAR.

02.03 To determine the status of the operational programs before the anticipated date for loading fuel.

02.04 To determine the adequacy of the preoperational testing portion of the ITP conducted by the licensee.

2504-03 APPLICABILITY

This phase of the construction inspection program (CIP) will become effective upon issuance of a combined license (COL) or Limited Work Authorization (LWA). This manual chapter remains effective until inspection of the operational programs has been completed.

The CIP includes those inspection activities directed toward assessing a licensee's construction and operational programs (including preoperational testing). Start-up Testing activities will be assessed under Inspection Manual Chapter (IMC) 2514, "*AP1000 Reactor Inspection Program – Startup Testing Phase*." This manual chapter will be performed in parallel with, but independent of, IMC 2503, "Construction Inspection Program: Inspections of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Related Work." All inspections directly related to ITAAC activities will be performed under IMC 2503. IMC 2504 inspections will involve the inspection of QA activities affecting systems, structures, and components (SSCs) that are installed in the plant, thereby having the potential to impact ITAAC. Therefore, ITAAC will be "indirectly" evaluated by programmatic inspections (such as those of the QA program) because such programs affect the quality of the SSCs that are the subject of the ITAAC.

The general requirements identified in this IMC are applicable to all COL designs. However, the detailed inspection procedures to be implemented may differ, depending upon the type of plant design contained in the COL.

2504-04 DEFINITIONS

Applicable definitions are found in Inspection Manual Chapter 2506, "Construction Reactor Oversight Process General Guidance and Basis Document."

2504-05 RESPONSIBILITIES AND AUTHORITIES

05.01 Director, Office of Nuclear Reactor Regulation (NRR)

- a. Informs the Commission of the operational readiness of the plant and implementation status of the operational programs to support loading of fuel.
- b. Concurs with the decision of the Regional Administrator, Region II, to allow a plant to transition **from construction to operations oversight**.

05.02 Regional Administrator, Region II

- a. Provides overall direction for the implementation of the construction inspection program for all new construction sites.
- b. Informs the Director, NRR, when the inspection staff has completed inspections of required operational programs.
- c. Provides an assessment of the overall operational readiness to load fuel to the Director, **NRR**.
- d. Makes the decision, with the concurrence of the Director, NRR, to allow a plant to transition **from construction to operations oversight**.

05.03 Division of Construction Oversight (DCO) Staff, Region II

- a. Implements the CIP.
- b. Coordinates development and review of the site-specific inspection plan and schedule.
- c. Ensures that inspections are promptly and properly documented.
- d. Periodically assesses inspection findings in accordance with IMC 2505, "Periodic Assessment of Construction Inspection Program Results."

05.04 Director, Construction Project Office (e.g., Vogtle Project Office (VPO))

- a. Provides overall program direction for the construction inspection program.
- b. Develops and directs the implementation of policies, programs, and procedures for the construction inspection program.

2504-06 REQUIREMENTS

06.01 Construction Programs

The NRC staff will perform inspections to evaluate the licensee's construction programs **using the Inspection Procedures (IPs)** listed in Appendix A of this IMC. These inspections will verify the programs have been developed and implemented by the licensee as described in its COL and updated FSAR as approved by the staff in its safety evaluation report, and that they meet regulatory requirements and licensee commitments.

06.02 Operational Programs

The NRC staff will perform inspections to evaluate the Operational Programs **using the IPs** listed in Appendix B of this IMC. These inspections will verify that the licensee has developed and implemented the programs in its COL and updated FSAR. It will also verify that the programs meet regulatory requirements and licensee commitments.

06.03 Manual Chapter Completion

This IMC is completed when the staff has conducted each of the IPs in Appendix A, Construction Programs, and Appendix B, Operational Programs.

06.04 Status of Operational Programs

Region II will use the results of the inspections conducted under this manual chapter as an input into the status of the operational programs to be reported to the Commission before the anticipated date for loading fuel, as discussed in SECY-06-0114, "Description of the Construction Inspection Program for Plants Licensed Under 10 CFR Part 52." This status should be consistent with the requirements of NRR Office Instruction LIC-114, "Title 10 of the *Code of Federal Regulations* (10 CFR) 52.103(g) Finding and Communication Process."

06.05 Inspection Findings & Enforcement

For inspection findings associated with construction or operational programs identified prior to the 10 CFR 52.103(g) finding, Region II will evaluate the inspection findings in accordance with IMC 0613, "Construction Inspection Reports," and IMC 2519, "Construction Significance Determination Process." Those findings associated with operational programs identified after the 10 CFR 52.103(g) finding will be evaluated in accordance with IMC 0612, "Issue Screening," and IMC 0609, "Significance Determination Process."

06.06 Transition at 10 CFR 52.103(g) Finding

Region II will coordinate operational program inspection planning and IP completion for operational programs that have not achieved inspection completion at the time of the 10 CFR 52.103(g) finding.

06.07 Response to Significant Issues or Events

Region II construction inspection staff must be prepared to provide input to the joint decision between Region II and NRR in the circumstance that unplanned, potentially significant, issues or events arise.

2504-07 GUIDANCE

This section provides guidance for implementing the inspection of the construction and operational programs portions of the construction inspection program. It establishes uniform inspection methodology and leaves sufficient latitude for the construction inspection staff to optimize the use of inspection resources. This manual chapter defines the inspection program for the evaluation of the licensee's construction programs, including QA, ITAAC maintenance, and FFD; operational programs; and preoperational testing. In addition, both Appendices A and B also include IPs, 92701, "Follow-up," and 92702, "Follow-Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, And Orders," to conduct follow-up inspection activities.

07.01 Construction Programs

- a. Appendix A of this IMC lists each construction program and the corresponding IPs that must be completed to complete this manual chapter.
- b. The inspection of the licensee's construction programs will cover both the programmatic elements and implementation using the IPs provided in Appendix A of this IMC.

07.02 Operational Programs

- a. Appendix B of this IMC lists each operational program and the corresponding IPs that must be used to determine whether the operational programs developed by the licensee conform to the program described by the licensee in its COL and updated FSAR and approved by the staff in its safety evaluation report and that they meet regulatory requirements and licensee commitments.
- b. The approach to inspection of operational programs reflects the staff positions detailed in SECY-05-0197, "Review of Operational Programs in a Combined License and General Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria." The goal of the inspections conducted under this manual chapter is to determine whether the licensee has developed and implemented operational programs that conform to the program described by the licensee in its COL and updated FSAR and that they meet regulatory requirements and licensee commitments. The results of these inspections will be used to inform the Commission of the status of those programs before the anticipated date for loading fuel.

- c. At sites with an operating unit where the licensee has chosen to take credit for similar operational programs as those that are already in use (e.g., corrective action program, radiation protection program, etc.), the inspectors shall focus on the differences between the program already in use and the newly developed program. The operational program inspection should be limited to those steps in the IMC 2504 inspection procedures where the inspectors cannot verify that the operational program is the same or similar to the program being implemented at the operating unit.
- d. Similar aspects among the various operational programs may allow the construction inspection staff to adjust the level of inspection of some operational programs based on the inspection results for programs already reviewed (e.g., Process and Effluent Monitoring, Liquid Waste Management, and Gas Waste Management). In these circumstances, the overlapping inspections should be completed and documented simultaneously. If the overlap is identified after the inspection has already taken place, the remaining uncompleted step(s) could be documented in the report by referring to the applicable input from a previous report.
- e. The staff developed Inspection Manual Chapter, IMC 2200 (Official Use Only – Security Related Information), “Security Inspection Program during Construction,” which specifically describes inspection policy for the security inspection program.
- f. ITAAC inspection samples performed under IMC 2503 should be credited for IMC 2504 inspections if the IMC 2504 IP has similar sample requirements.

07.03 Manual Chapter Completion

This IMC is completed when each of the IPs in Appendix A, Construction Programs, and Appendix B, Operational Programs, have been completed.

- a. Construction Programs – Appendix A: Inspection of these programs will be completed when the corresponding IPs have been completed. This can be accomplished in one of two different ways depending on the specific IP.
 - 1. IPs with periodic or cyclic inspection requirements – complete when there are no remaining open issues and the 10 CFR 52.103(g) finding memorandum has been issued (e.g., QA & FFD).
 - Or
 - 2. IPs with a defined sample size (e.g., ITAAC Management and Preoperational Testing) – complete when inspection of the samples specified in the IP is complete.
- b. Operational Programs – Appendix B: Inspection of these programs will be completed when the relevant IPs for a given operational program have been completed. If an inspector is performing an inspection after program implementation and is unable to perform IP steps at the time of inspection because the program requirements for those IP steps are not applicable at that point of construction/operation, then those IP steps need not be performed in order to complete the IP. Some operational programs have implementation milestones after the 10 CFR 52.103(g) finding, and licensees may not

have developed and implemented **these** programs at the time of the 10 CFR 52.103(g) finding. **Consequently**, it may not be practical to complete **inspections** for those programs with implementation milestones shortly before, or after, the 10 CFR 52.103(g) finding. **DCO staff will complete those inspections or may coordinate with Regional Division of Reactor Projects or Safety to complete inspection efforts** as part of the Reactor Oversight Process inspection program.

07.04 Status of Operational Programs

- a. SECY-06-0114, "Description of the Construction Inspection Program for Plants Licensed Under 10 CFR Part 52," states that the staff intends to inform the Commission of the status of the operational programs before the anticipated date for loading fuel.
- b. The staff will report the status to the Commission in accordance with NRR Office Instruction LIC-114, "Title 10 of the *Code of Federal Regulations* (10 CFR) 52.103(g) Finding and Communication Process," which includes a discussion of the status of inspection activities, including those of operational programs. Appendix A to the Office Instruction provides the content to be included in a memorandum from the Director, NRR, to the Commission, the subject of which is "Status of ITAAC Closure, Inspection, and Licensing Activities." The Status of Inspection Activities section of the memorandum states that an enclosure lists the operational programs, their implementation dates, and NRC inspections associated with the implementation of these programs.

07.05 Inspection Findings, Enforcement, and Assessment

- a. IMC 0613, "**Power Reactor Construction Inspection Reports**" and IMC 2519, "**Construction Significance Determination Process**" will be used to **disposition** and document all findings and violations prior to the 10 CFR 52.103(g) finding. Findings identified after the 10 CFR 52.103(g) finding associated with operational programs will be dispositioned using Reactor Oversight Process (ROP) IMC 0612, "Issue Screening" and IMC 0609, "**Significance Determination Process.**" All findings identified after the 10 CFR 52.103(g) finding will be assigned to the ROP cornerstone most closely related to the finding. **Significance of findings will be considered in determining the appropriate ROP Action Matrix column in IMC 0305, "Operating Reactor Assessment Program."**
- b. The NRC will inform the licensee of all inspection findings **for** inspections conducted under this manual chapter whether identified for onsite construction activities or for offsite fabrication activities.

07.06 Transition of Inspection Activities at 10 CFR 52.103(g)

- a. Certain operational programs have implementation milestones that will occur just prior to, or after, the 10 CFR 52.103(g) finding. Therefore, the required inspections of these operational programs may be completed after the 10 CFR 52.103(g) finding, depending on the licensee's readiness for the inspections. Inspections of operational programs after the 10 CFR 52.103(g) finding will be conducted using the inspection procedures in IMC 2504 or the applicable ROP IP.

- b. A major focus of the construction inspection program is on licensee work being performed in support of ITAAC closure, which the staff inspects in accordance with IMC 2503. Completion of ITAAC supports the Commission in making the finding, required by 10 CFR 52.103(g), on whether the acceptance criteria in the COL have been met. The 10 CFR 52.103(g) finding represents the transition point where IMC 2503 will end and IMC 2514, "AP1000 Reactor Inspection Program - Startup Testing Phase" will be implemented. IMC 2504 will remain in effect until the inspection of all the Operational Programs **IPs, as applicable**, listed in Appendix B has been completed.
- c. The transfer of the new plant to oversight by the host region will require the written approval of the Regional Administrator Region II, with the concurrence of the Director, NRR.

07.07 Response to Significant Issues or Events

During construction, the NRC staff may need to respond to any number of events at the site. Appendix C provides the decision-making process for Regional and Headquarters staff to use in planning how to respond appropriately when potentially significant issues or events occur. Due to the large number of possible issues or events to which the NRC may need to respond, no specific guidance is provided on how to respond in any given situation. Rather, only general guidance is provided and the decision of how, and if, to respond will be made as a joint decision between Region II, the host region (if applicable), and NRR.

07.08 Witnessing Unsafe Situations

When NRC personnel identify unsafe work practices or violations that could lead to an unsafe situation, they shall make every reasonable attempt to prevent them from occurring or continuing in their presence. When an inspector identifies such situations, the inspector shall promptly notify a licensee representative so that corrective or preventive measures can be taken. A goal of the NRC inspection program is to witness licensee activities as close to a normal environment as possible. From the assessment of these observations, inspectors will draw conclusions relative to the licensee's ability to properly conduct licensed activities. Notwithstanding this goal, under no circumstances will an NRC inspector knowingly allow an unsafe work practice or a violation which could lead to an unsafe situation to occur or continue in his/her presence in order to provide a basis for enforcement action. If such a work practice or violation is in progress, or about to occur, the NRC inspector shall immediately bring the situation to the attention of the appropriate licensee personnel. This action shall be taken without regard for any impact it may have on the ability of the NRC to take future enforcement action.

2504-08 REFERENCES

10 CFR Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants"

Inspection Manual Chapter (IMC) 0612, "Issue Screening"

IMC 0613, "Power Reactor Construction Inspection Reports"

IMC 2200, "Security Inspection Program during Construction" (Official Use Only – Security Related Information)

IMC 2503, "Construction Inspection Program: Inspections of Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) Related Work"

IMC 2505, "Periodic Assessment of Construction Inspection Program Results"

IMC 2506, "Construction Reactor Oversight Process General Guidance and Basis Document"

IMC 2514, "AP1000 Reactor Inspection Program - Startup Testing Phase"

IMC 2519, "Construction Significance Determination Process"

LIC-114, "Title 10 of the *Code of Federal Regulations* (10 CFR) 52.103(g) Finding and Communication Process"

SECY-05-0197, "Review of Operational Programs in a Combined License and General Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria"

SECY-06-0114, "Description of the Construction Inspection Program for Plants Licensed under 10 CFR Part 52"

END

Appendix A, Inspection of Construction Programs

Appendix B, Inspection of Operational Programs

Appendix C, Response to Significant Issues or Events

Attachment 1: Revision History for IMC 2504

APPENDIX A

INSPECTION OF CONSTRUCTION PROGRAMS

This Appendix lists the Inspection Procedures (IPs) to be used when reviewing the licensee construction programs.

| CONSTRUCTION PROGRAM INSPECTIONS | | | |
|--------------------------------------------------------|------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------|
| <u>Program</u> | <u>Requirement</u> | <u>IP No.</u> | <u>IP Title</u> |
| Quality Assurance (QA) - Construction | 50.54(a) 50.55(f) Part 50, Appendix B | 35007 | Quality Assurance Program Implementation during Construction and Pre-Construction Activities |
| Reporting Defects and Noncompliance - Construction | 50.55(e)(3) | 36100.01 | Inspection of 10 CFR 50.55(e) Programs for Reporting Defects and Noncompliance during Construction |
| ITAAC Management | 52.99 | 40600 | Licensee Program for Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) |
| Security (including Fitness for Duty – Construction) | Part 26, Subpart K 73.55(b) | 81504 | Fitness for Duty Program for Construction |
| | | 81505 | Protection of Safeguards Information for Construction |
| Preoperational Testing portion of Initial Test Program | 50.34 52.79(a)(28) | 70367 | Inspection of Preoperational Test Program |
| | | 70702 | Inspection of Preoperational Test Performance |
| Inspection Follow-up | | 92702 | Follow-Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, and Orders |
| | | 92722 | Follow Up Inspection for Any Severity Level I or II Traditional Enforcement Violation or for Two or More Severity |

| CONSTRUCTION PROGRAM INSPECTIONS | | | |
|----------------------------------|--|-------|-----------------------------------------------------------------------------------------------------------------------------------|
| | | | Level III Traditional Enforcement Violations in a 12 Month Period |
| | | 92723 | Follow Up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period |
| | | | |

APPENDIX B

INSPECTION OF OPERATIONAL PROGRAMS

This Appendix lists the Inspection Procedures (IPs) to be conducted to determine the status of operational programs.

| <u>OPERATIONAL PROGRAM INSPECTIONS</u> | | | |
|----------------------------------------------|--------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <u>Program</u> | <u>Requirement</u> | <u>IP No.</u> | <u>IP Title</u> |
| Preservice Inspection / Inservice Inspection | 50.55a(g) | 73054 | Part 52, Preservice and Inservice Inspection - Review of Program |
| | | 73754 | Part 52 - Preservice Inspection - Non-Destructive Examination |
| | | 73757 | Part 52, Preservice Inspection - Data Review and Evaluation |
| Inservice Testing | 50.55a(f) | 73758 | Part 52, Functional Design and Qualification, and Preservice and Inservice Testing Programs for Pumps, Valves and Dynamic Restraints |
| Environmental Qualification | 50.49 | 51080 | Part 52 Environmental Qualification (EQ) Under 10 CFR 50.49 |
| Reactor Vessel Material Surveillance | 50.60, App. H | 50054 | Reactor Vessel Material Surveillance Program |
| Preservice Testing | 50.55a(f) | 73758 | Part 52, Functional Design and Qualification, and Preservice and Inservice Testing Programs for Pumps, Valves and Dynamic Restraints |
| Containment Leak Rate Testing | 50.54(o) | 70368 | Part 52 Containment Leakage Rate Testing Program (Programmatic) |

| <u>OPERATIONAL PROGRAM INSPECTIONS</u> | | | |
|-------------------------------------------|-------------------------------------------------------|---------------|--------------------------------------------------------------------------------------|
| <u>Program</u> | <u>Requirement</u> | <u>IP No.</u> | <u>IP Title</u> |
| Fire Protection | 50.48 | 64705 | Part 52, Fire Protection Operational Program |
| Process and Effluent Monitoring | 50.34(b)(3), Part 50, App. I | 84527 | Part 52, Solid Waste Management System |
| | | 84528 | Part 52, Liquid Waste Management Program |
| | | 84529 | Part 52, Gaseous Waste Management Program |
| | | 80522 | Part 52, Radiological Environmental Monitoring Program (REMP) |
| | | 83746 | Part 52, Offsite Dose Calculation Manual (ODCM) |
| | | 83531 | Part 52, Life Cycle Minimization of Contamination and Groundwater Protection Program |
| Radiation Protection | Part 20, Subpart B | 83533 | Part 52, External Occupational Exposure Control and Personal Dosimetry |
| | | 83534 | Part 52, Internal Exposure Control |
| | | 83535 | Part 52, Control of Radioactive Materials and Contamination, Surveys, and Monitoring |
| | | 83536 | Part 52, Facilities and Equipment |
| | | 83537 | Part 52, Maintaining Occupational Exposures ALARA |
| Non-licensed Plant Staff Training Program | 50.120 52.79(a)(33) | 41501 | Part 52, Review of Training and Qualification Programs |
| Reactor Operator Training | 52.79(a)(33), 55.13, 55.31, 55.41, 55.43, 55.45 | 41501 | Part 52, Review of Training and Qualification Programs |
| | | 41502 | Nuclear Power Plant Simulation Facilities |
| Reactor Operator Requalification | 52.79(a)(34) 50.34(b) 50.54(i) | 71111.11 | Licensed Operator Requalification |
| | | 41501 | Part 52, Review of Training and Qualification Programs |

| <u>OPERATIONAL PROGRAM INSPECTIONS</u> | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <u>Program</u> | <u>Requirement</u> | <u>IP No.</u> | <u>IP Title</u> |
| | 55.59 | 41502 | Nuclear Power Plant Simulation Facilities |
| Emergency Preparedness | 50.34(b)(6)(v), 50.47, 50.54(q), 50.54(t) | 82002 | Part 52, Emergency Preparedness Program |
| Security (including training, vehicle and personnel access control, FFD, safeguards contingencies, cyber security, SNM Material Control and Accounting, and Part 37) | 50.34(c) 50.34(d) 50.34(e) 50.54(p)(1) 50.54(v) Part 26, Subpart K 73.54(b) Part 74, Subpart B Part 37 | IMC 2200 | Security Inspection Program for Construction |
| | | 71130 | Attachment .08 |
| | | 81000 | Attachments .01 - .11 and .14 |
| | | 81431 | Fixed Site Physical Protection of Special Nuclear Material of Low Strategic Significance |
| Quality Assurance (Operation) | Part 21 50.54(a) Part 50, Appendix B | 35101 | QA Program Implementation Inspection for Operational Programs |
| | | 36100 | Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance |
| | | 36302 | Part 52, Operational Staffing |
| | | 42401 | Part 52, Plant Procedures |
| | | 42453 | Part 52, Operating Procedures Inspection |
| | | 42454 | Part 52, Emergency Procedures |
| | | 71303 | Part 52, Technical Specifications Review |
| Maintenance Rule | 50.65 | 62712 | Part 52, Maintenance Rule |
| Motor-Operated Valves | 50.55a(b)(3)(ii) | 73758 | Part 52, Functional Design and Qualification, and Preservice and Inservice Testing Programs for Pumps, Valves and Dynamic Restraints |

| <u>OPERATIONAL PROGRAM INSPECTIONS</u> | | | |
|-------------------------------------------------|-----------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Program</u> | <u>Requirement</u> | <u>IP No.</u> | <u>IP Title</u> |
| Startup Testing portion of Initial Test Program | 50.34 52.79(a)(28) | 72401 | Part 52, Inspection of Startup Test Program |
| | | | |
| Inspection Follow-up | 92702 | | Follow-Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, and Orders |
| | 92722 | | Follow Up Inspection for Any Severity Level I or II Traditional Enforcement Violation or for Two or More Severity Level III Traditional Enforcement Violations in a 12 Month Period |
| | 92723 | | Follow Up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period |

APPENDIX C

RESPONSE TO SIGNIFICANT ISSUES OR EVENTS

The purpose of this Appendix is to provide a structured decision-making process for Regional and Headquarters staff to use in planning how to respond appropriately when potentially significant, issues or events occur at reactor construction sites.

Because fuel has not yet been loaded into the reactor and there is no spent fuel, deterministic criteria should be used to determine how and when to respond to issues/events at reactor construction sites. Therefore, these incidents will be examined solely against deterministic criteria when deciding on the appropriate level of response. In addition, factors such as openness, public interest, and public safety should be appropriately considered when deciding whether to dispatch a Special Inspection (SI) or Augmented Inspection Team (AIT) (it is not envisioned that an Incident Investigation Team (IIT) would be appropriate for issues/events at reactor construction sites due to the low likelihood of public safety consequence). Management Directive 8.3, "NRC Incident Investigation Program," defines the authorities, responsibilities, and basic requirements of personnel investigating significant operational events. Management Directive 8.3 also characterizes the differences between an AIT, SI and IIT.

An AIT consists of technical experts augmented by personnel from headquarters or other regions or by contractors as necessary and performs an inspection of a significant, issue or event. AIT members may have had prior involvement with licensing and inspection activities at the affected facility. The AIT reports directly to the RII Deputy Regional Administrator for Construction (DRAC) (or designee). An SI is similar to an AIT inspection except that the group generally is smaller (the number of members is based on management's judgment) and is not generally augmented by personnel from headquarters or other regions or by contractors. The SI reports directly to the RII Director of Construction Projects (or designee). Regardless of the type of inspection (SI or AIT) the results should be documented in accordance with IMC 0613, "Documenting 10 CFR Part 52 Construction and Test Inspections." The guidance in Part III of Management Directive 8.3, "NRC Incident Investigation Program," for AITs should be followed to the extent practical. This guidance can also be used, in part, for SIs. For both AITs and SIs a charter should be issued to the team leader and should include guidance on what inspection procedure(s) are to be used.

Because of the large number of possible issues/events that the NRC may need to respond to during construction no specific guidance is provided on how to respond in any given situation. Rather, only general guidance is provided and the decision of how, and if, to respond will be made as a joint decision between Region II and the program office. The decision to dispatch an SI or AIT is a management decision that should be based on the specific circumstances and how significant and/or complex the issue or event is and considering all available information. These factors will determine if a response is warranted and whether it should be an SI or AIT. Additionally, the interests of stakeholders, such as the public and local communities, needs to be considered.

Upon notification of a potentially significant, issue or event, the Region II staff should perform the initial review to assess the significance of the issue or event in order to assess the level of response required. Region II staff should also ensure that the appropriate headquarters project manager (PM) is aware of the issue or event.

Following the staff's review, Region II management should be briefed on the outcome. If the initial review indicates that the issue or event warrants at most consideration of an SI (based on the deterministic criteria listed below), the Region II Regional Administrator (RA) makes the decision on whether or not to initiate an SI. In this case, regional management may consult with the program office and the Office of Nuclear Security and Incident Response (NSIR) but are not required to do so.

If the event or issue meets one or more of the AIT deterministic criteria this should be communicated to the appropriate PM so that program office management can be briefed on the issue or event. The PM will coordinate with the appropriate technical branches. If the issue or event has security-related aspects then the Division of Preparedness and Response (DPR) in NSIR should be consulted. The RA shall consult with the Director of the program office to decide if an SI or an AIT response is appropriate using their collective judgment and available information.

Figure 1 shows the flow of communication among the participating staff organizations and the decision making points.

The following are the deterministic criteria to be used in evaluating what type of response, if any, is appropriate:

- Any significant weather-related event or natural disaster (hurricanes/tornados, earthquakes, fire, flooding, etc.) or human error that may have significant impact on structures, systems, and components (SSCs) or other program elements with the Inspections, Tests, Analysis, and Acceptance Criteria (ITAAC) that are in some phase of construction (ongoing or completed). The staff should consider the use of either an SI or AIT depending on the type and amount of damage the facility sustained. The purpose of either would be to monitor and assess the licensee's actions to recover damaged or potentially damaged SSC's with ITAAC. If the event involves the loss or damage of special nuclear material (SNM) or sources, coordination with state and local governments should be part of the response and should generally result in an AIT. A review of the licensee's implementation of their emergency plan should be accomplished as appropriate to the circumstances.
- Any significant security-related issues (loss or theft of SNM, potential tampering/sabotage, multiple FFD issues, etc.). Either an SI or AIT should be considered depending on the complexity and significance of the issue. Issues such as the loss or theft of SNM or confirmed tampering or sabotage should generally result in an AIT. Issues such as potential tampering, multiple FFD issues, or an unauthorized, actual discharge of a weapon should generally result in an SI.
- Onsite accidents resulting in significant damage to SSCs having ITAAC (e.g., crane collapse, train or other significant vehicle accident). Consideration of either an SI or AIT is appropriate depending on the type and amount of damage sustained. As with responses to weather or man-made events discussed above the purpose of either would be to monitor the licensee's recovery from damaged SSCs with ITAAC.
- Significant offsite or onsite industrial events that impact the site (e.g., hazardous chemical spill, nearby chemical plant or refinery fire, etc.). An SI may be appropriate if there is a possibility of significant impact on constructed items or materials.

Consideration of whether or not airborne chemical fumes could have an adverse impact on SSCs or other program elements with ITAAC or material in storage should be given. For instance, chlorine gas that comes in contact with stainless steel items may be detrimental. The purpose of the inspection would be to ensure that the licensee has conducted an adequate evaluation of any potential impacts, including extent of condition. Generally, an AIT would not be warranted. A review of the licensee's implementation of their emergency plan should be accomplished as appropriate to the circumstances.

- Stop work order issued by the licensee for which the underlying issue(s) are not already fully understood. The use of an SI may be appropriate to ensure that the NRC fully understands the underlying issues. Generally, an AIT would not be warranted.
- Plant strike. The use of an SI may be appropriate to review and/or monitor licensee actions to ensure that malicious mischief is not taking place that could impact the quality of construction. Generally, an AIT would not be warranted.
- Potential financial impact on programs or quality of work. Augmented review of the licensee's quality oversight of construction activities with an SI may be appropriate to determine if degradation of quality or programs is occurring. Inspection or review of the licensee's finances is not appropriate. Generally, an AIT would not be warranted.
- Significant safety conscious work environment (SCWE) issues or allegations which do not have a specific performance aspect that could be addressed through the IMC 2505 process or independent licensee action. The use of an SI may be appropriate. Generally, an AIT would not be warranted.
- Any significant issue(s) not covered by the above that in the judgment of management warrants additional inspection or oversight. The use of an SI may be appropriate. Generally, an AIT would not be warranted.

Table 1 provides a summary outline of the different possible issues or events that could occur at a reactor construction site and the possible response level for each.

Because many new reactors under construction are co-located next to an operating facility appropriate coordination between inspectors responding to an event that impacts both a construction site and operating site is needed. Coordination is important to ensure that any response to an event at a construction site does not have an adverse impact on the operating site. Also, because a number of the possible types of events discussed above are likely to have impacted the operating facility close coordination with the Division of Reactor Projects (DRP) in the appropriate region is important so that resources are used in an efficient manner. Inspectors responding to an event at a construction site also need to be sensitive to looking for any potential impacts to the operating facility and promptly communicating those to the operating facilities resident inspector staff.

Exhibit 1 provides a form for regional personnel to use when documenting their decision whether or not to pursue a reactive inspection based on evaluation of the deterministic criteria listed above. This form should be completed once a response decision is made but can be completed while the decision process is ongoing. As noted in Exhibit 1, Region II may customize the form in order to fit regional protocols, but the deterministic criteria should not be

changed. The form, along with specific instructions for its completion by regional staff, should be included in regional office instructions or implementing procedures. Basic guidelines include:

- If none of the deterministic criteria were met, briefly document the key points of discussion in the Remarks section of the criteria that were the principal focus areas. Also, state that no deterministic criteria were met in the Response Decision section of the form.
- If one or more of the deterministic criteria were met, briefly indicate the basis for each in the Remarks section of the applicable criteria.
- Use the Response Decision section to provide the basis for deciding whether or not to conduct an inspection, and which level of inspection is recommended as specified in the guidance in this procedure. Document the decision by placing the evaluation results in [Agencywide Documents Access and Management System \(ADAMS\)](#). Then generate an e-mail to the Director, Vogtle Project Office, Office of Nuclear Reactor Regulations with the unique ADAMS Accession Number. This will notify headquarters staff of the region's intentions and will allow for process tracking.
- Whenever an SI or AIT is planned, the region should also notify the licensee of its intentions once a final decision is made.

Exhibit 1 to Appendix C– Decision Documentation for Significant Issues or Events at Reactor Construction Sites

Figure 1: Flow Chart for Deciding an SI or AT

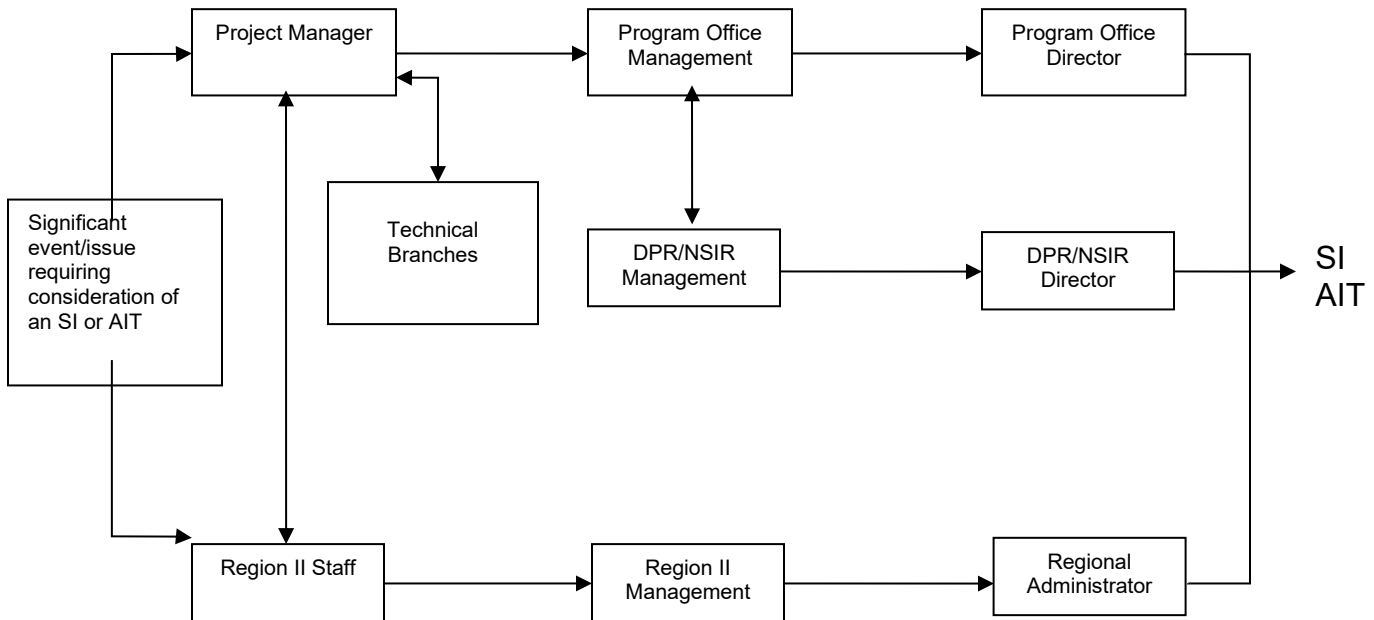


Table 1: Construction Event Response

| Issue/Event | Response level |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Significant weather-related or human error events which may have a significant impact on SSCs or other program elements such as hurricanes, tornados, fire, flooding, etc. | SI or AIT |
| Significant security-related issues (e.g., loss or theft of SNM, potential tampering, multiple FFD issues, etc.) | SI or AIT |
| Onsite accidents resulting in significant damage to SSCs (e.g., crane collapse, train or other significant vehicle accident). | SI or AIT |
| Significant offsite or onsite industrial events impacting the site (hazardous chemical spill (e.g., chlorine or ammonia), etc. | SI |
| Site wide stop work order | SI |
| Strikes | SI |
| Potential financial impact on programs or quality of work | SI |
| Significant SCWE issues, allegations, etc. | SI |
| Significant issues not covered above but judged by management to warrant additional inspection or oversight. | SI |

Decision Documentation for a Construction SI/AIT

PLANT:

EVENT/ ISSUE DATE:

EVALUATION DATE:

Brief Description of the Event/Issue:

Significant Weather-Related, Natural Disaster, or Man-Made Event

Y/N

SI Deterministic Criteria

Significant damage to SSCs having ITAAC

Remarks:

Y/N

AIT Deterministic Criteria

Extensive damage to SSCs having ITAAC

Remarks:

Involved the loss or damage of SNM or sources

Remarks:

SIGNIFICANT SECURITY-RELATED ISSUE

Y/N

SI Deterministic Criteria

Potential tampering or sabotage

Remarks:

Unauthorized, actual discharge of a weapon

Remarks:

Multiple FFD issues

Remarks:

Other (explain in remarks)

Remarks:

Y/N

AIT Deterministic Criteria

Loss or theft of SNM

Remarks:

Confirmed tampering or sabotage

Remarks:

Other (explain in remarks)

Remarks:

| <u>ONSITE ACCIDENT RESULTING IN SIGNIFICANT DAMAGE TO SSCs WITH ITAAC</u> | |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Y/N | <u>SI Deterministic Criteria</u> |
| | Significant damage to SSCs or other program elements with ITAAC |
| | Remarks: |
| Y/N | <u>AIT Deterministic Criteria</u> |
| | Extensive damage to SSCs with ITAAC |
| | Remarks: |
| <u>SIGNIFICANT OFFSITE OR ONSITE INDUSTRIAL EVENT</u> | |
| Y/N | <u>SI Deterministic Criteria</u> |
| | Possibility of significant impact on stored or constructed items or materials |
| | Remarks: |
| Y/N | <u>AIT Deterministic Criteria</u> |
| | Provide rationale in response decision block |
| | Remarks: |
| <u>STOP WORK ORDER ISSUED BY LICENSEE</u> | |
| Y/N | <u>SI Deterministic Criteria</u> |
| | Stop work order for which the underlying issues are not fully understood |
| | Remarks: |
| Y/N | <u>AIT Deterministic Criteria</u> |
| | Provide rationale in response decision block |
| | Remarks: |
| <u>PLANT STRIKE</u> | |
| Y/N | <u>SI Deterministic Criteria</u> |
| | Plant strike |
| | Remarks: |
| Y/N | <u>AIT Deterministic Criteria</u> |
| | Provide rationale in response decision block |
| | Remarks: |
| <u>POTENTIAL FINANCIAL IMPACT ON PROGRAMS/QUALITY</u> | |
| Y/N | <u>SI Deterministic Criteria</u> |
| | Potential financial impact on programs or quality |
| | Remarks: |
| Y/N | <u>AIT Deterministic Criteria</u> |
| | Provide rationale in response decision block |
| | Remarks: |

| SIGNIFICANT SCWE ISSUE OR ALLEGATION | |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Y/N | <u>SI Deterministic Criteria</u> |
| | Significant SCWE issue or allegation that cannot be addressed through IMC 2505 or independent licensee action |
| | Remarks: |
| Y/N | <u>AIT Deterministic Criteria</u> |
| | Provide rationale in remarks |
| | Remarks: |
| ANY OTHER SIGNIFICANT ISSUE | |
| Y/N | <u>SI Deterministic Criteria</u> |
| | Significant issue not covered above judged by management to warrant additional inspection or followup |
| | Remarks: |
| Y/N | <u>AIT Deterministic Criteria</u> |
| | Provide rationale in remarks |
| | Remarks: |

| RESPONSE DECISION | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| USING THE ABOVE INFORMATION AND OTHER KEY ELEMENTS OF CONSIDERATION AS APPROPRIATE, DOCUMENT THE RESPONSE DECISION TO THE EVENT OR ISSUE, AND THE BASIS FOR THAT DECISION | |
| DECISION AND DETAILS OF THE BASIS FOR THE DECISION: | |
| | |
| BRANCH CHIEF REVIEW: | DATE: |
| DIVISION DIRECTOR REVIEW: | DATE: |
| RA REVIEW: | DATE: |

Note: The above tables are provided as examples only. Region II has discretion to modify these tables in their implementing procedures or office instructions.

Attachment 1- Revision History for IMC 2504

| Commitment Tracking Number | Accession Number Issue Date Change Notice | Description of Change | Description of Training Required and Completion Date | Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information) |
|----------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| N/A | ML060460204 04/25/2006 CN 06-010 | Initial Issuance | None | N/A |
| N/A | ML072700605 10/03/2007 CN 07-030 | Revision 1, revised to reflect changes in program, IP revisions and editorial corrections. Researched commitments for 4 years and found none. | None | ML072620276 ML072620292 ML072620283 ML072620289 |
| N/A | ML092460453 10/15/2009 CN 09-024 | Complete rewrite to reflect substantial changes in program scope as well as revised and new IPs. | None | ML092460435 |
| N/A | ML12298A106 10/24/12 CN 12-025 | Revised throughout to reflect changes and refinements in program scope, updated IP versions and editorial corrections. | None | ML12261A398 |
| N/A | ML19056A212 04/02/19 CN 19-012 | Complete rewrite to make format consistent with revised IMC 0040. Provides further revisions to reflect changes and refinements in program scope, clarification regarding operational program implementation assessment, updated IP versions and editorial corrections. | None | ML19056A213 |
| N/A | ML20392A535 12/15/20 CN 20-072 | Revised to reflect the reunification of the Offices of Office of New Reactors and Nuclear Reactor Regulation and the creation of the Vogtle Project Office, to make IMC 2504 consistent with the Vogtle Readiness Group memorandum dated August 14, 2020 (ML20191A383), and to update Appendix A and B inspection procedures applicable to IMC 2504. | None | None |