

# **NRC INSPECTION MANUAL**

CIPB

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## **MANUAL CHAPTER 2504**

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**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 programs not directly related to Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) that support construction of a plant licensed in accordance with 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, prior to the Commission's 10 CFR 52.103(g) finding, the operational programs described in the FSAR, for a plant licensed in accordance with 10 CFR Part 52.

## 2504-02 OBJECTIVES

02.01 To assess whether the licensee has a construction program that addresses quality assurance (QA), reporting of defects and failures to comply in accordance with 10 CFR 50.55(e), fitness for duty (FFD), and a process for completion and closure of ITAAC.

02.02 To assess whether management controls and procedures, including QA and corrective action programs, necessary for construction of the facility have been effectively implemented.

02.03 To determine the status of the operational programs prior to the Commission's 10 CFR 52.103(g) finding. 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). The CIP will remain applicable until the Commission issues a finding, in accordance with 10 CFR 52.103(g), that the COL acceptance criteria have been met.

The CIP includes those inspection activities directed toward assessing a licensee's construction (including preoperational testing) and operational programs. Start-up Testing activities will be assessed under Inspection Manual Chapter 2514, "Light Water Reactor Inspection Program - Start-up Testing Phase." This manual chapter is not applicable to operational programs that are addressed by ITAAC. 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 New Reactors (NRO).

- 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, along with the Director, Office of Nuclear Reactor Regulation (NRR) and the host region Regional Administrator, with the decision of the Regional Administrator, Region II, to allow a plant to transition to the oversight of the host region.

##### 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, NRO, 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, NRO.
- d. Makes the decision, with the concurrence of the Directors, NRO and NRR; and the host region Regional Administrator, to allow a plant to transition to the oversight of the host region.

##### 05.03 Construction Inspection Staff, Region II.

- a. Implements the construction inspection program.
- b. Coordinates development and review of the site specific inspection plan and schedule (IP&S).

- 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, Division of Construction Inspection and Operational Programs, NRO (NRO/DCIP).

- 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.

05.05 Regional Administrator, Host Region.

- a. Provides support, as necessary, to the construction inspection staff, Region II, to conduct inspections of construction and operational programs.
- b. Concurs, along with the Directors, NRO and NRR, with the decision of the Regional Administrator, Region II, to allow a plant to transition to oversight by the host region.

05.06 Director, Office of Nuclear Reactor Regulation (NRR). Concurs, along with the Director, NRO, and the host region Regional Administrator, with the decision of the Regional Administrator, Region II, to allow a plant to transition to oversight by the host region.

## 2504-06 BACKGROUND AND OVERVIEW

This manual chapter establishes policy for the construction inspection program for the following:

- Construction Programs (including the Preoperational Testing portion of the ITP)
- Operational Programs

The NRC staff will evaluate the implementation of the licensee's construction programs to ensure that programs meet regulatory requirements, as well as construction program commitments (See Appendix A to this manual).

Inspections will be performed under this manual chapter to determine the status of the licensee's implementation of its operational programs. Operational programs are listed in Chapter 13 of the FSAR and are fully described in the COL application. Any operational program without implementation requirements in the regulations is subject to a license condition that requires the licensee to provide implementation milestones and to maintain an updated implementation schedule. The majority of operational programs, listed in Appendix B to this

manual, will be established prior to the Commission's 10 CFR 52.103(g) finding. Exhibit 4 of IMC 2506, Construction Reactor Oversight Process General Guidance and Basis Document, identifies who (Region II or the host region) has the inspection lead for each program.

Region II and the host regions, with potential NRO technical staff support, will (1) determine the status of the operational programs listed in Appendix B of this manual chapter and (2) verify that the appropriate preoperational testing has been completed. The results of these inspections will provide the basis for communicating to the Commission the status of a licensee's operational programs.

## 2504-07 GENERAL INSPECTION POLICY

### 07.01 Inspection Program Scheduling and Planning.

- a. The construction inspection staff will develop and implement an IP&S to accomplish the Inspection Procedures (IPs) in this Inspection Manual Chapter.
- b. The construction inspection staff must remain aware of the status of construction and testing activities in order to achieve appropriate inspection planning and to update the IP&S that will coordinate NRC inspection activities with licensee construction activities.
- c. The construction inspection staff establishes the appropriate inspection effort in the IP&S with consideration of the estimated resources identified in the IPs. The IPs listed in this manual identify in the Procedure Completion section what needs to be accomplished in order to meet the objectives of the procedures.

### 07.02 Construction Inspection Policy and Scope.

- a. The staff will implement the construction inspection program to evaluate construction programs, preoperational testing, and the status of operational programs.
- b. The staff will inspect the construction activities and programs listed in this manual chapter. The staff will use sampling inspections that make use of the sample size and frequency of implementation identified in each IP. This will establish the overall scope of the portion of the construction inspection program governed by this manual chapter.
- c. The staff will periodically assess previous inspection findings to determine if the current level of inspection effort should remain at the levels specified in the IPs, or be modified in accordance with IMC 2505, "Periodic Assessment of Construction Inspection Program Results."
- d. Completion of construction inspection requirements relative to the observation of work activities and the review of quality records is required for each unit of the plant under construction.

- e. When NRC personnel identify unsafe work practices or violations which could lead to an unsafe situation, they shall make every reasonable attempt to prevent them from occurring or continuing in their presence. When such situations are identified, a licensee representative shall promptly be notified so that corrective or preventive measures can be taken. A goal of the NRC inspection program is to witness licensee activities in as close to a normal environment as possible. From the assessment of these observations, conclusions are drawn 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 DISCUSSION

This chapter provides guidance for implementing the construction and operational programs portion of the construction inspection program. It establishes uniform inspection methodology, but leaves sufficient latitude for the construction inspection staff to optimize the use of inspection resources. This chapter defines the inspection program for the evaluation of the licensee's construction programs, including QA, ITAAC closure, and FFD; operational programs prior to fuel load; and preoperational testing. In addition, both Appendices A and B also include IPs, 92701, "Followup," and 92702, "Followup on Corrective Actions for Violations and Deviations," to conduct followup inspection activities.

08.01 Construction Programs. The inspection of the licensee's construction program will focus on its programmatic elements using the IPs provided in Appendix A. Additionally, inspection of construction and preoperational testing will be conducted using IPs in this portion of the IMC. In addition, there may be instances where the staff determines that license conditions or licensee commitments require inspection. These will be addressed on a plant-specific case-by-case basis.

- a. Construction QA Program - Sound construction and testing controls are assured by the licensee establishing and implementing a construction QA program that complies with the requirements of Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." NRC inspections of QA program implementation by licensees and their subcontractors will be performed during construction activities for safety-related SSCs, focusing on the 18 criteria contained in Appendix B to 10 CFR Part 50. NRC will continually review the licensee's QA program to verify that the appropriate corrective measures for identified problems are achieved through successful implementation of the licensee's corrective action program.

The NRC will observe implementation of the construction QA program during the performance of most NRC inspections. These inspections of the licensee construction QA program will also include the licensee's oversight of the QA programs of its contractors.

For sites at which more than one unit is to be built, and using a common QA program without substantive changes, the QA program inspection may be adjusted to reduce programmatic review and increase focus on inspection of the implementation of the QA program for subsequent units. This will ensure sufficient inspection will be conducted to verify the adequacy of the common QA program.

- b. Inspection of 10 CFR 50.55(e) Programs for Reporting Defects and Noncompliance during Construction - The NRC will examine licensee procedures for evaluating and reporting defects and noncompliances, to determine that those programs meet the requirements of 10 CFR 50.55(e). The NRC places emphasis on the reporting of defects and noncompliances because of the potential of such defects and noncompliances to create substantial safety hazards, as defined by 10 CFR 50.2.
- c. Fitness for Duty Program – The NRC will assess and evaluate licensee processes and implementation of Fitness for Duty for Construction in accordance with 10 CFR Part 26, Subpart K. With regard to additional security-related inspections, as stated in SRM SECY-10-0137 dated March 30, 2011, the Commission disapproved the staff recommendation to publish for public comment a proposed rule to add requirements related to access authorization and physical protection during the construction of new nuclear power plants. The Commission said the staff should communicate NRC's support for industry's voluntary implementation of the access authorization controls and physical protection measures during construction as described in NEI 09-01, "Security Measures during New Reactor Construction" (formerly NEI 03-12, Appendix F). Therefore, there are no IMC 2504 construction security program IPs. However, because the operational security program has multiple milestones, some of which will occur before construction is complete, and there are security ITAAC, the staff has developed an Inspection Manual Chapter, IMC 2200 (Official Use Only – Security Related Information), "Security Inspection Program during Construction," which describes the policy for conducting inspections of the security program while construction is ongoing.
- d. ITAAC Management Program - The NRC will verify the adequacy of the licensees program for developing and managing ITAAC closure notification submittals. This inspection will evaluate the process used to ensure information accuracy and completeness when submitted by the licensee. The level of NRC review of individual ITAAC will be based on staff knowledge of a licensee's program for controlling and submitting ITAAC notifications.
- e. Preoperational Testing - Regulatory Guide 1.68, Initial Test Programs for Water-Cooled Nuclear Power Plants, describes the general scope and depth that the NRC staff considers acceptable for ITPs for light-water-cooled nuclear power plants. The ITP consists of preoperational and initial startup tests. "Pre-operational testing" consists of those tests conducted following completion of construction and construction-related inspections and tests, but prior to fuel loading, to demonstrate, to the extent practical, the capability of SSCs to meet the performance requirements to satisfy the design criteria. "Initial startup testing" consists of those test activities that are scheduled to be performed during and following fuel loading. These activities include fuel loading,



precritical tests, initial criticality, low-power tests, and power-ascension tests. Preoperational testing and the programmatic aspect of the initial startup testing will be inspected under IMC 2504. The implementation of the initial startup testing will be evaluated under IMC 2514, Light Water Reactor Inspection Program - Startup.

Appendix A to this document identifies the general inspection procedures to be used for evaluating the preoperational test program. Design-specific inspection procedures will also be used to verify that a sample of important-to-safety systems and components are tested fully and meet their design requirements. Appendix A also identifies the procedure for each reactor design that specifies which tests will be inspected. Those preoperational tests that contain targeted ITAAC will be inspected and additional tests, informed by risk, will also be inspected.

08.02 Operational Programs. 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."

- a. A listing of inspection procedures to be conducted to determine the status of Operational Programs is provided in Appendix B of this manual.
- b. Implementation of Operational Programs - Licensees must implement the operational programs necessary to support each milestone of plant preparation for operation before the program is required by regulations or by a license condition in the COL. For those operational programs that include ITAAC based on the COL application (Security and EP), ITAAC inspection will be covered by IMC 2503. Emphasis is placed on the QA program because of its interaction and impact on all other operational programs.
- c. Inspection of Operational Programs - Using the inspection procedures in Appendix B of this manual, the NRC will assess each program's development and the effectiveness of implementation as each program is activated. 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. This would be especially true for those aspects of programs which are similar to one another such as management involvement or corrective action. As discussed in Section 08.01.c above, the staff has developed an 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.
- d. Evaluation of the QA Program for Operations - Implementation of the licensee's QA program for operations is important since the safe operation of the plant is predicated on the establishment of a program that meets the requirements of Appendix B to 10 CFR Part 50. Particular emphasis will be placed on identification of problems by the licensee's QA program and timely correction of problems through the licensee's corrective action program. These inspections will emphasize procedural development, review, approval and control along with document control. The NRC will verify that the licensee's QA program for operations is established prior to fuel load. The NRC may

observe QA activities for some construction activities to verify the implementation of activities common to both the construction and operations QA programs. Any QA program deficiencies that are relevant to QA for operations can then be resolved before the NRC makes a determination about the QA program for operations.

The NRC's inspection of the construction QA program will verify the effectiveness of the licensee's QA audit function, which will be considered when assessing the QA program for operations.

- e. Confirmation of Operational Programs - The staff will inform the Commission of the status of these programs before the Commission makes the determination that the licensee can load fuel. The report to the Commission will convey whether the status of operational programs is consistent with applicable regulations, license conditions, licensee commitments, and/or the FSAR. As discussed further in Section 09.02 below, some operational programs may not be fully implemented at the time of the 10 CFR 52.103(g) finding.

## 2504-09 TRANSITION TO HOST REGION INSPECTION ACTIVITIES

09.01 Transition Milestone. 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 (milestone) where the construction inspection program will end and IMC 2514, "Light Water Reactor Inspection Program – Startup" will be implemented.

### 09.02 Plant Transition to the Host Region.

- a. Inspections of operational programs pursuant to this Manual Chapter prior to the 10 CFR 52.103(g) finding will be conducted by Region II inspectors or the host region, as identified in Exhibit 4 of IMC 2506, and will be considered part of the construction inspection program. It is recognized that some operational programs may not be fully implemented at the time of the 10 CFR 52.103(g) finding. These programs will be inspected at the first available opportunity subsequent to the 10 CFR 52.103(g) finding. Operational programs that require additional inspection after the 10 CFR 52.103(g) finding will be identified during the turnover from construction inspection to the host region. Completion of these inspections will be the responsibility of the host region.
- b. 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, Director NRO and the host region Regional Administrator.

## 2504-10 INSPECTION FINDINGS AND ENFORCEMENT

Construction inspection observations of the licensee's construction programs, operational programs, preoperational testing portion of the initial test program, operational readiness, and the transition to the host region will be assessed and documented using the criteria in IMC 0613, "Construction Inspection Reports."

The NRC will inform the licensee of all inspection findings whether identified for onsite construction activities or for offsite fabrication activities. On a sampling basis, the NRC will verify that the licensee adequately corrects identified deficiencies.

Enforcement actions will be in accordance with IMC 2505, IMC 0613, and the Commission's Enforcement Policy related to construction.

The NRC will address programmatic findings commensurate with their impact on the successful completion of ITAAC, the quality of plant construction and testing, and operational readiness.

## 2504-11 RESPONSE TO NON-PERFORMANCE RELATED ISSUES OR EVENTS

During the course of 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, non-performance related, 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 NRO.

END

Appendix A, Inspection of Construction Programs  
Appendix B, Inspection of Operational Programs  
Appendix C, Response to Non-Performance Related Issues/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, as outlined in Section 08.01.

The purpose of these inspections is to verify that the licensee has programs established and implemented to:

1. Address quality assurance (QA)
2. Provide management controls and procedures, including QA and corrective action programs, necessary for construction of the facility
3. Report defects and failures to comply in accordance with 10 CFR 50.55(e)
4. Address Fitness for duty (FFD)
5. Ensure the adequacy of ITAAC closure packages for submittal to the NRC.

This Appendix is applicable to all types of advanced reactor designs. The listing of IPs in this Appendix may not be all inclusive and changes may be required to the listing at a later date.

<b>CONSTRUCTION PROGRAM INSPECTIONS</b>			
<b>Program</b>	<b>Requirement</b>	<b>IP No.</b>	<b>IP Title</b>
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)
Fitness for Duty - Construction	Part 26, Subpart K	81504	Fitness for Duty Program for Construction

<b>CONSTRUCTION PROGRAM INSPECTIONS</b>			
Preoperational Testing portion of Initial Test Program	50.34 52.79(a)(28)	70367	Reserved for Part 52 Preoperational Test Program Implementation
		70701	Reserved for Preoperational Testing for ABWR
		70702	Reserved for Preoperational Testing for AP 1000
Inspection Followup		92701	Followup
		92702	Followup on Corrective Actions for Violations and Deviations

## APPENDIX B

### INSPECTION OF OPERATIONAL PROGRAMS

This Appendix lists the Inspection Procedures (IPs) to be conducted to determine the status of operational programs, as outlined in Section 08.02.

The purpose of these inspections is determine the status of the operational programs prior to the Commission's 10 CFR 52.103(g) finding and to determine the adequacy of the preoperational testing portion of the initial test program conducted by the licensee.

This Appendix is applicable to all types of advanced reactor designs. The listing of IPs in this Appendix may not be all inclusive and changes may be required to the listing at a later date.

<b>OPERATIONAL PROGRAM INSPECTIONS</b>			
<b>Program</b>	<b>Requirement</b>	<b>IP No.</b>	<b>IP Title</b>
Inservice Inspection	50.55a(g)	73054	Part 52, Preservice and Inservice Inspection - Review of Program
		73757	Part 52, Inservice Inspection - Data Review and Evaluation
Inservice Testing	50.55a(f)	73758	Part 52, Preservice and Inservice Testing
Environmental Qualification	50.49	51080	Part 52 Environmental Qualification (EQ) Under 10 CFR 50.49
Preservice Inspection	50.55a(g)	73054	Part 52, Preservice and Inservice Inspection - Review of Program
		73754	Part 52 - Preservice Inspection - Non-Destructive Examination
Reactor Vessel Material Surveillance	50.60, App. H	50054	Reactor Vessel Material Surveillance Program

**OPERATIONAL PROGRAM INSPECTIONS**

<b>Program</b>	<b>Requirement</b>	<b>IP No.</b>	<b>IP Title</b>
Preservice Testing	50.55a(f)	73758	Part 52, Preservice and Inservice Testing
Containment Leak Rate Testing	50.54(o)	70368	Part 52 Containment Leakage Rate Testing Program (Programmatic)
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
		84528	Reserved for Part 52, Liquid Waste Management
		84529	Reserved for Part 52, Gaseous Waste Management
		80522	Part 52, Radiological Environmental Monitoring Program (REMP)
		83746	Part 52, Offsite Dose Calculation Manual (ODCM)
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

**OPERATIONAL PROGRAM INSPECTIONS**

<b>Program</b>	<b>Requirement</b>	<b>IP No</b>	<b>IP Title</b>
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) 55.59	71111.11	Licensed Operator Requalification
		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 and safeguards contingencies)	50.34(c) 50.34(d) 50.34(e) 50.54(p)(1) 50.54(v) Part 26, Subpart K	IMC 2200	Security Inspection Program for Construction
		71130	Attachments .06, .08, .10, and .14
		81000	Attachments .01 - .11
		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



**OPERATIONAL PROGRAM INSPECTIONS**

<b>Program</b>	<b>Requirement</b>	<b>IP No</b>	<b>IP Title</b>
Maintenance Rule	50.65	62712	Reserved for Part 52, Maintenance Rule
Motor-Operated Valves	50.55a(b)(3)(ii)	73758	Part 52, Preservice and Inservice Testing
Initial Startup Testing portion of Initial Test Program	50.34 52.79(a)(28)	TBD	TBD
Status of Operational Programs	SECY-06-0114	93813	Part 52, Operational Programs Implementation Inspection
Inspection Followup		92701	Followup
		92702	Followup on Corrective Actions for Violations and Deviations

## APPENDIX C

### RESPONSE TO NON-PERFORMANCE RELATED ISSUES/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, non-performance related, issues or events occur at reactor construction sites. Performance related issues are addressed through periodic assessment of construction inspection program results and the use of supplemental inspections to follow up on these performance issues as discussed in IMC 2505, "Periodic Assessment of Construction Inspection Program Results."

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 non-performance related 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 Inspection 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, non-performance related, 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 Office of New Reactors (NRO). 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/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, non-performance related, 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 NRO 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 NRO 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 NRO management can be briefed on the issue/event. The PM will coordinate with the appropriate NRO 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 NRO 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, natural disasters, or man-made event (hurricanes/tornados, earthquakes, fire, flooding, etc.) that may have significant impact on structures, systems, and components (SSCs) or other program elements with ITAAC (Inspections, Tests, Analysis, and Acceptance Criteria) that are in some phase of construction (ongoing or completed). The use of either an SI or AIT should be considered 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/theft of SNM, potential tampering/sabotage, multiple fitness-for-duty (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 (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 (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/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 thorough 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/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

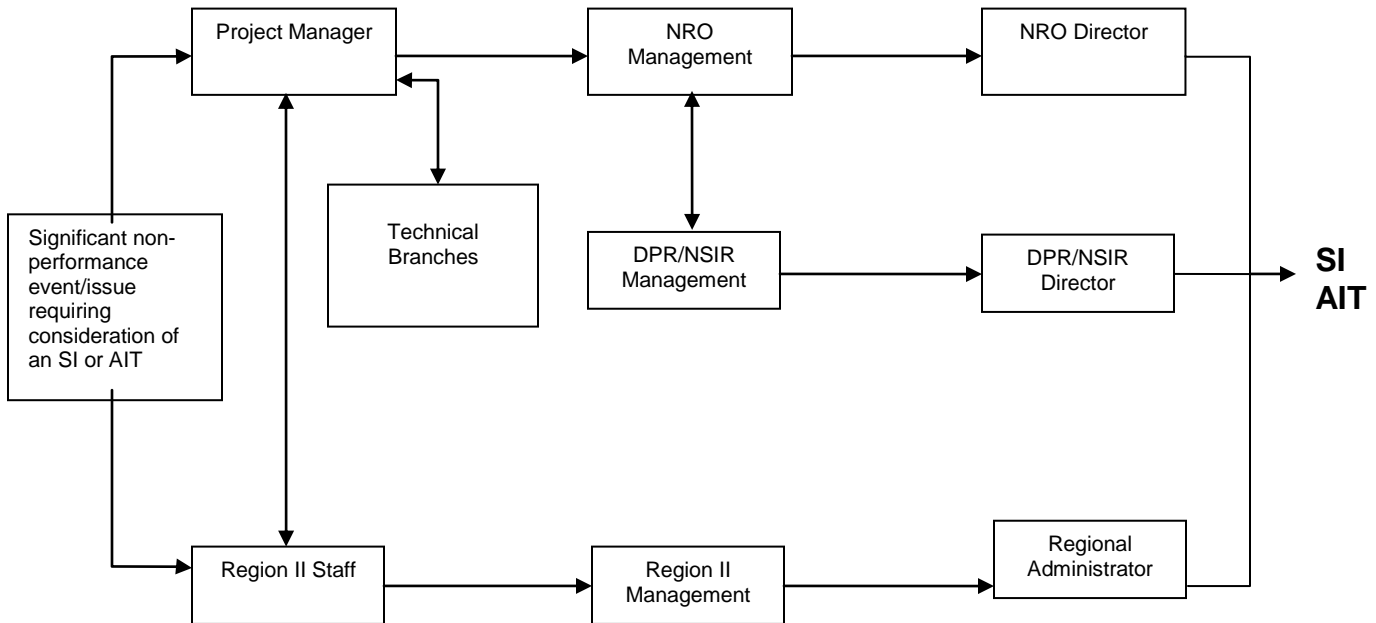
impacted the operating facility close coordination with the Division of Reactor Projects (DRP) in the appropriate region is important so that resources are used in an efficient manner. Inspectors responding to an event at a construction site also need to be sensitive to looking for any potential impacts 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 ADAMS. Then generate an e-mail to the Director, Division of Construction and Operational Programs, Office of New Reactors 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 Non-Performance Related Issues/Events At Reactor Construction Sites

**Figure 1: Flow Chart for Deciding an SI or AIT**



**Table 1: Construction Event Response**

Issue/Event	Response level
Significant weather-related or man-made 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 (loss/theft of SNM, potential tampering, multiple FFD issues, etc.)	SI or AIT
Onsite accidents resulting in significant damage to SSCs (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/quality of work	SI
Significant SCWE issues, allegations, etc	SI
Significant issue(s) not covered above but judged by management to warrant additional inspection or oversight.	SI

Exhibit 1 to Appendix C– Decision Documentation for Non-Performance Related Issues/Events At Reactor Construction Sites

Decision Documentation for a Construction SI/AIT		
PLANT:	EVENT/ ISSUE DATE:	EVALUATION DATE:
Brief Description of the Event/Issue:		
<b>Significant Weather-Related, Natural Disaster, or Man-Made Event</b>		
<b>Y/N</b>	<b>SI Deterministic Criteria</b>	
	Significant damage to SSCs having ITAAC	
	Remarks:	
<b>Y/N</b>	<b>AIT Deterministic Criteria</b>	
	Extensive damage to SSCs having ITAAC	
	Remarks:	
	Involved the loss or damage of SNM or sources	
	Remarks:	
<b>SIGNIFICANT SECURITY-RELATED ISSUE</b>		
<b>Y/N</b>	<b>SI Deterministic Criteria</b>	
	Potential tampering or sabotage	
	Remarks:	
	Unauthorized, actual discharge of a weapon	
	Remarks:	
	Multiple FFD issues	
	Remarks:	
	Other (explain in remarks)	
	Remarks:	
<b>Y/N</b>	<b>AIT Deterministic Criteria</b>	
	Loss or theft of SNM	
	Remarks:	
	Confirmed tampering or sabotage	
	Remarks:	
	Other (explain in remarks)	
	Remarks:	

Exhibit 1 to Appendix C– Decision Documentation for Non-Performance Related Issues/Events At Reactor Construction Sites

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



Exhibit 1 to Appendix C– Decision Documentation for Non-Performance Related Issues/Events At Reactor Construction Sites

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

<b>RESPONSE DECISION</b>	
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 and Feedback Resolution Accession Number
N/A	04/25/2006	Initial Issuance	N/A	N/A
N/A	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.	N/A	ML072620276 ML072620292 ML072620283 ML072620289
N/A	10/15/2009 CN 09-024	Complete rewrite to reflect substantial changes in program scope as well as revised and new IPs.	N/A	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.	N/A	ML12261A398