NRC INSPECTION MANUAL

CIPB

MANUAL CHAPTER 2506

CONSTRUCTION REACTOR OVERSIGHT PROCESS
GENERAL GUIDANCE AND BASIS DOCUMENT

2506-01 PURPOSE

01.01 This Inspection Manual Chapter (IMC) describes the Construction Reactor Oversight Process (cROP) for commercial nuclear power plants under construction, with the exception of Watts Bar Unit 2, which is covered by IMC 2517, “Watts Bar Unit 2 Construction Inspection Program.”

01.02 This IMC provides the basis for the significant decisions made in developing the cROP.

01.03 This IMC serves as the source information for all applicable program documents such as manual chapters and assessment guidance.

2506-02 OBJECTIVES

02.01 To generally describe the cROP including the interactions of various programs and processes associated with the cROP, and provide guidance for cROP implementation.

02.02 To provide the bases for the cROP.

2506-03 APPLICABILITY

03.01 cROP Programs. The cROP consists of the following programs that are implemented to provide oversight for applicant/licensee activities during the development of the application for and the subsequent construction of a new reactor facility:

a. Construction Inspection Program (CIP)
b. Construction Assessment Program
c. Construction Enforcement Program

Several additional programs/processes interact with the cROP, including:

a. Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Closure Verification Process
b. Vendor Inspection Program
c. NRC Allegation Program
d. Construction Experience Program (ConE)
e. NRC Open Government Plan (Communications)

An overview of the cROP and how each of the individual programs/processes interacts can be found in Exhibit 1, “Construction Reactor Oversight Process Flowchart.”

The cROP is expected to be dynamic and to respond to changes in the nuclear power industry and construction experience. Therefore, the program office expects the regions and inspectors to identify challenges in implementing the program, and to recommend improvements to the

program for consideration by the program office. Any such feedback and recommendations should be submitted to the Construction Inspection Program Branch (CIPB) using the IMC/Inspection Procedure (IP) Revision Process which can be accessed via the internal Office of New Reactors (NRO) CIP Sharepoint site.

Management involvement and oversight of inspections, operator licensing examinations, audits, and other on-site inspection related activities at reactor facilities that are under construction shall be conducted in accordance with IMC 0102, "Oversight and Objectivity of Inspectors and Examiners at Reactor Facilities." The feedback obtained from licensees by regional managers must be forwarded to the Office of Nuclear Reactor Regulation (NRR) Division of Inspection and Regional Support (DIRS), Reactor Inspection Branch, with a copy forwarded to NRO_cROP.Resource@nrc.gov.

03.02 cROP Implementation. The cROP is implemented when an applicant announces its intent to submit an application for an early site permit (ESP), a limited work authorization (LWA), a construction permit and/or a combined construction permit and operating license (COL). The cROP will remain in effect until regulatory oversight for the plant is transitioned to the Reactor Oversight Process (ROP).

The degree to which the cROP is implemented depends on the application/license status and the amount of ongoing activities that are associated with applications/licenses. For instance, only inspections pursuant to IMC 2501, "Construction Inspection Program: Early Site Permit" may be necessary in the case where an applicant only requests an ESP. On the other hand, if the Nuclear Regulatory Commission (NRC) issues a COL, and there is sufficient activity occurring, all aspects of the cROP will be implemented.

2506-04 DEFINITIONS

04.01 General.

a. Act. The Atomic Energy Act of 1954 (68 Stat. 919) including any amendments thereto.

b. Annual Assessment Cycle. The assessment period from January 1st through December 31st of each year.

c. Assessment Inputs. Information considered in the assessment process to determine appropriate NRC actions.

d. Assessment Letter. A letter from the NRC to a licensee that communicates assessment-related information. Assessment letters include assessment follow-up letters, mid-cycle letters, and annual assessment letters.

e. Assessment Period. A period that contains four full consecutive calendar quarters.

    1. A mid-cycle assessment period starts from July 1st of the previous year and ends on June 30th of the current year.

2. An end-of-cycle assessment period is the annual assessment cycle.

f. Applicant. A person or an entity applying for a license, permit, or other form of Commission permission or approval under 10 CFR Part 50 or Part 52.

g. Basic Component. See definition in 10 CFR 21.

h. Combined license (COL). A combined construction permit and operating license with conditions for a nuclear power facility issued under subpart C of Part 52.

i. Construction. See definitions in 10 CFR 50.2 and 10 CFR 50.10. The application of these definitions to NRC construction assessment and enforcement programs is described in the details of applicable inspection manual chapters.

j. Construction Action Matrix (CAM). A table that categorizes various levels of licensee construction performance and identifies the range of NRC and licensee actions and the appropriate level of communication for these various levels of performance.

k. Construction Action Matrix Deviation. Any regulatory action taken that is inconsistent with those discussed in Inspection Manual Chapter 2505, Section 07.02.

l. Construction Action Matrix Inputs. Inspection findings that are used to determine a plant's CAM column.

m. Construction Action Matrix Summary. A description of a plant's CAM column assignment, the basis for a plant being in Columns 2, 3, 4, or 5, and a brief description of the NRC's current level of regulatory oversight at the plant.

n. Construction Activities. See definition in 10 CFR 50.10.

o. Construction Assessment Program. The NRC's construction assessment program is implemented at each plant that is under construction to allow for the NRC to arrive at objective conclusions about a licensee's effectiveness in assuring construction quality, provide for predictable responses to performance issues, and to clearly communicate performance assessment results to the public.

p. Construction Deficiency Report. As described in 10 CFR 50.55(e), an official notification to the NRC of a construction defect or failure to comply that could create a substantial safety hazard, were it to remain uncorrected. A "substantial safety hazard" means a loss of safety function to the extent that there is a major reduction in the degree of protection provided to public health and safety from the facility.

q. Construction Inspection Program (CIP). The inspections that will be conducted in accordance with IMCs 2501, 2502, 2503, 2504, and 2507.

r. Construction Inspection Program Information Management System (CIPIMS). The database that provides the means to plan, document, report, and track NRC construction inspection activities and their results.

s. Contractor. Any organization or individual under contract to furnish items or services to a licensee engaging in an NRC-regulated activity. It includes the terms consultant, vendor, supplier, fabricator, constructor, and sub-tier levels of these organizations.

t. Counterfeit or Fraudulently Marketed Items. Items that are deliberately manufactured or altered in such a way as to misrepresent the actual quality of the item with intent to defraud or deceive the purchaser.

u. Degraded Cornerstone. A cornerstone that has two or more white inputs or one yellow input.

v. Design Acceptance Criteria (DAC). A set of prescribed limits, parameters, procedures, and attributes upon which the NRC relies, in a limited number of technical areas, in making a final safety determination to support a design certification. DAC are part of the ITAAC inventory for a given design.

w. Design Control Document (DCD). A repository of information comprising the Standard Plant Design. The DCD also provides the design-related information to be incorporated by reference into the 10 CFR Part 52 Appendices containing the design certification rules (i.e., Appendices A, B, C and D). .

x. Documentation. Any written, pictorial, or electronic information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, or results.

y. Early site permit (ESP). Commission approval, issued under subpart A of Part 52, for a site or sites for one or more nuclear power facilities. An early site permit is a partial construction permit.

z. Engineering Design Verification (EDV) Inspection. An inspection that is conducted to: (1) verify that the design authority (e.g., the organizations contracted by an NRC applicant to provide engineering, procurement, and construction support) has developed processes that allow for the complete and accurate transfer of the high level design information and performance requirements specified in the Final Safety Analysis Report (FSAR) into detailed procedures, specifications, calculations, drawings, procurement, and/or construction documents, in a manner consistent with the requirements of Appendix B to 10 CFR Part 50; (2) verify that the design authority has developed processes to ensure changes to the design are adequately controlled; and (3) verify, through a detailed technical review of selected systems, that the design authority's implementation of its design and design control processes has produced detailed procedures, specifications, calculations, drawings, procurement, and/or construction documents that are consistent with NRC regulations, the FSAR, and the NRC's Safety Evaluation Report (if issued).

aa. Family of ITAAC. A grouping of ITAAC that are related through similar construction processes, resulting products, and general inspection attributes.

ab. Final Safety Analysis Report. A report that is included in an application for an operating license that presents information describing the facility, presents the design bases and

the limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole.

ac. Held-Open Finding. A safety-significant finding that is considered a Construction Action Matrix input for more than two quarters.

ad. Inspection. (1) An NRC activity consisting of examination, observation, or measurement to determine applicant/licensee/contractor/vendor conformance with requirements and/or standards. (2) Applicant/licensee/contractor/vendor activity consisting of examination, observation, or measurements to determine the conformance of materials, supplies, components, parts, systems, processes or structures to pre-determined quality requirements.

ae. Inspection Document. Any material obtained or developed during an inspection that is considered to be an NRC record. (Inspectors should review IMC 0620, "Inspection Documents and Records," for clarification on how materials become agency records.)

af. Integrated Inspection Report. A construction inspection report that combines inspection items from multiple inspections (resident, regional, etc.) conducted during a specific time period.

ag. Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC). Those inspections, tests, analyses, and acceptance criteria identified in the combined license that if met by the licensee are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, as amended, and the Commission's rules and regulations.

ah. ITAAC Attributes. A number of common, descriptive characteristics for each ITAAC that can be analyzed and weighted by a methodology that allows the ITAAC to be prioritized for inspection planning.

ai. ITAAC Closeout. The process by which the licensee affirms that an ITAAC has been satisfactorily completed.

aj. ITAAC Closeout Verification. The NRC process which evaluates the licensee's affirmation of satisfactory ITAAC completion.

ak. ITAAC Matrix. An inspection planning tool that identifies groups (i.e., "families") of ITAAC, based upon common characteristics, which facilitate the ITAAC sampling process and provide a consistent model for the targeting of ITAAC at plants of a similar design.

al. Licensee. A person or entity authorized to conduct activities under a license (e.g., early site permit, construction permit, combined license, or limited work authorization) issued by the Commission.

am. Licensee Agent. An entity to which a licensee has delegated the work of establishing and executing its Quality Assurance program, or parts thereof. For example, a contractor who does not have a license who conducts construction activities does so as an agent of the licensee who holds the applicable license. This term also applies to applicants prior to the issuance of a COL. Per 10 CFR Part 50, Appendix B, Criterion I, the applicant or licensee may delegate to others, such as agents, the work of establishing and executing the quality assurance program, or any part thereof, but shall retain responsibility for the quality assurance program.

an. Limited Work Authorization. The authorization provided by the Director of New Reactors or the Director of Nuclear Reactor Regulation under 10 CFR 50.10 allowing that person to perform the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of the foundation, including placement of concrete, any of which are for an SSC of the facility for which either a construction permit or combined license is otherwise required.

ao. Long-standing Construction Substantive Cross-Cutting Issue (cSCCI). A cSCCI that has been open for six or more consecutive quarters.

ap. Multiple Degraded Cornerstones. Two or more cornerstones that are degraded in any one quarter.

aq. NRC Quality Assurance Guidance. Guidance either developed or endorsed by the NRC through issuance of regulatory guides, review standards, or national standard documents that discusses acceptable methods of implementing a QA program consistent with Appendix B to 10 CFR Part 50 requirements. Standard Review Plan (SRP) 17.5, "Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants," provides QA guidance for COL application reviews.

ar. NRC Record. Any written, electronic, or photographic record under legal NRC control that documents the policy or activities of the NRC or an NRC licensee (see also the definition in 10 CFR Part 9).

as. Objective Evidence. Any documented statement of fact, other information, or record, either quantitative or qualitative, pertaining to the quality of an item or activity, based on direct observations, measurements, or tests that can be verified.

at. Observation. For the cROP, a factual detail noted during a power reactor construction inspection. Observations not directly related to a finding may only be documented if prescribed by an appendix to IMC 0613, “Power Reactor Construction Inspection Reports,” or by a specific inspection procedure.

au. Plant Performance Summary (PPS). A document prepared by Region II and used during the mid-cycle, end-of-cycle, and Agency Action (if applicable) review meetings that describes assessment inputs and other pertinent information used to develop a conclusion about a plant’s safety performance.

av. Pre-construction activity. Any activity conducted prior to issuance of a COL or LWA by the applicant or contracted suppliers on behalf of the applicant associated with a proposed ITAAC for safety-related components or portions of the proposed facility and occurring at other than the final, in-place location at the facility.

aw. Pre-operational Tests. Tests performed by or under the direction of the applicant to demonstrate the proper functioning and conformance to design requirements of systems, structures, and components. Containment leak rate tests may fall in this category or may be combined with the containment integrity test. Preoperational testing frequently forms the contractual basis for custody transfer from the constructor to the operator.

ax. Program element. Program element refers to the means that exist to implement elements (e.g., procedures, facilities, equipment, or training) of the licensee's emergency preparedness program.

ay. Quality Assurance. Quality Assurance (QA) comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform satisfactorily in service. QA includes quality control.

az. Quality Assurance Manual. A compilation of quality assurance documents that defines the quality assurance policy and program, describes the method(s) by which the policy will be implemented through procedures and instructions, and identifies the parties responsible for implementation.

ba. Quality Assurance Program Description. A description of the quality assurance program to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility. 10 CFR Part 50, Appendix B (Appendix B), "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," sets forth the requirements for quality assurance programs for nuclear power plants and fuel reprocessing plants. The description of the quality assurance program for a nuclear power plant or a fuel reprocessing plant shall include a discussion of how the applicable requirements of Appendix B will be satisfied.

bb. QA Program/QA Commitments. These terms relate to the description of the QA program, or any part thereof, as required by 10 CFR 52.79(a)(25) in each application for a COL for a nuclear power facility. The description of the QA program must include a discussion of how the applicable requirements of Appendix B to 10 CFR Part 50 have been and will be satisfied, including a discussion of how the QA program will be implemented.

bc. Quality Control (QC). QC comprises QA actions related to the physical characteristics of an SSC. This provides a means to control the quality of the SSC to applicant-predetermined requirements.

bd. Reactive Vendor Inspection. Inspections performed for the purpose of obtaining additional information and/or verifying adequate corrective actions on reported

problems or deficiencies involving vendor supplied products or services. Reactive inspections are typically performed in response to a specific problem identified by any group within the NRC (e.g., including headquarters, the regional offices), or in response to allegations or other identified problems (e.g., 10 CFR Part 21 or 10 CFR 50.55(e) reports) from outside sources.

be. Regulatory Performance Meeting. A meeting held between a licensee and the NRC to discuss corrective actions associated with safety-significant CAM inputs.

bf. Repetitive Degraded Cornerstone. A cornerstone that is degraded for more than four consecutive quarters with at least one of the quarters having: (1) three or more white inputs (the additional white input(s) can be from any cornerstone), or (2) one yellow and one white input (the additional white input can be from any cornerstone).

bg. Routine Vendor Inspection. Inspections performed to verify effective implementation of a facility's QA program used to furnish basic components to the nuclear industry.

bh. Safety Evaluation Report. The safety evaluation report (SER) provides the technical, safety, and legal basis for the NRC's disposition of a license request (i.e., COL, early site permit, and design certification) or license amendment request.

bi. Safety-related structures, systems and components (SSC). Those structures, systems and components that are relied upon to remain functional during and following design basis events to assure:

1. The integrity of the reactor coolant pressure boundary

2. The capability to shut down the reactor and maintain it in a safe shutdown condition; or

3. The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the applicable guideline exposures set forth in § 50.34(a)(1) or § 100.11 of this chapter, as applicable.

bj. Standard Design. A design that is sufficiently detailed and complete to support certification in accordance with Subpart B of 10 CFR Part 52 and that is usable for a multiple number of units or at a multiple number of sites without reopening or repeating the review.

bk. Standard Design Certification. Standard design certification, design certification, or certification means a Commission approval, issued under Subpart B of 10 CFR Part 52, of a final standard design for a nuclear power facility. This design may be referred to as a certified standard design.

bl. Startup Testing. The testing program conducted after the authorization to load fuel. It includes initial fuel loading and pre-criticality tests, and continues until the plant reaches commercial operating status at or near its licensed power rating. The Startup Test Program includes low power, physics, and power ascension testing.

bm. Supplier. For the purposes of this manual chapter, any organization that supplies basic components to a vendor, applicant, or holder of a 10 CFR Part 52 license.

bn. Surveillance. Applicant and contractor activities such as reviews, observations, inspections, and audits to determine if an item or activity conforms to QA Program commitments.

bo. Tier 1 Information. The portion of the design-related information contained in the generic DCD that is approved and certified by the applicable 10 CFR Part 52 appendix. The design descriptions, interface requirements, and site parameters are derived from Tier 2 information. Tier 1 information includes:

1. Definitions and general provisions;

2. Design descriptions;

3. Inspections, tests, analyses, and acceptance criteria (ITAAC);

4. Significant site parameters; and

5. Significant interface requirements.

bp. Tier 2 Information. The portion of the design-related information contained in the generic DCD that is approved but not certified by the applicable 10 CFR Part 52 appendix. Compliance with Tier 2 is required, but generic changes to and plant-specific departures from Tier 2 are governed by Section VIII of the applicable 10 CFR Part 52 appendix. Compliance with Tier 2 provides a sufficient, but not the only acceptable, method for complying with Tier 1. Compliance methods differing from Tier 2 must satisfy the change process in Section VIII of the applicable 10 CFR Part 52 appendix. Regardless of these differences, an applicant or licensee must meet the requirement in Section III.B of the applicable 10 CFR Part 52 appendix to reference Tier 2 when referencing Tier 1. Tier 2 information includes:

1. Information required by 10 CFR Parts 52.47(a) and 52.47(c), with the exception of generic technical specifications and conceptual design information;

2. Supporting information on the inspections, tests, and analyses that will be performed to demonstrate that the acceptance criteria in the ITAAC have been met; and

3. Combined license (COL) action items (COL license information), which identify certain matters that must be addressed in the site-specific portion of the FSAR by an applicant who references the applicable 10 CFR Part 52 appendix. These items constitute information requirements but are not the only acceptable set of information in the FSAR. An applicant may depart from or omit these items, provided that the departure or omission is identified and justified in the FSAR. After issuance of a construction permit or COL, these items are not requirements for the licensee unless such items are restated in the FSAR.

4. The investment protection short-term availability controls in Section 16.3 of the DCD.

bq. Tier 2* means the portion of the Tier 2 information, designated as such in the generic DCD, which is subject to the change process in Section VIII.B.6 of the applicable 10 CFR Part 52 appendix. This designation expires for some Tier 2* information under paragraph VIII.B.6 of the applicable 10 CFR Part 52 appendix.

br. Type Test. A test on one or more sample components of the same type and manufacturer to qualify other components of the same type and manufacturer. A type test is not necessarily a test of the as-built structures, systems or components.

bs. Unannounced Inspection. The organization or any member of the organization is not notified by the inspector or any member of the NRC staff until the inspector arrives at the organization's facility or at the site where the inspection is to be conducted.

bt. Vendor. Any company or organization that provides products such as material, equipment, components or services to be used in an NRC-licensed facility or activity. In certain cases the vendor may be an NRC licensee (e.g., a nuclear fuel fabricator) or the product may have NRC certificates (e.g., a transportation cask).

bu. Verification of ITAAC Closure, Evaluation and Status (VOICES). The database that provides the means to verify, evaluate and track ITAAC closure request reviews.

04.02 Terms Associated With Safety Culture.

a. Construction Cross-Cutting Area. Fundamental performance attributes that extend across all of the cROP cornerstones of safety. These areas are human performance, problem identification and resolution, and safety conscious work environment (SCWE).

b. Construction Cross-Cutting Aspect. A performance characteristic of a finding that is the most significant causal factor of the performance deficiency as described in IMC 0613.

c. Construction Cross-Cutting Theme. For the cross-cutting areas of problem identification and resolution and human performance, a cross-cutting theme exists when at least four inspection findings are assigned the same cross-cutting aspect during a mid-cycle or end-of-cycle assessment period. The findings should be representative of more than one cornerstone; however, given the significant inspection effort applied to the Construction/Installation Cornerstone, a cross-cutting theme can exist consisting of inspection findings associated with only this one cornerstone. A cross-cutting theme exists in the area of safety conscious work environment if at least one of the following three conditions exists in an 18-month period (i.e., the current mid- or end-of-cycle assessment period and the two quarters preceding that period): (1) a finding with a documented cross-cutting aspect in SCWE and the impact on SCWE was not isolated, or (2) the licensee has received a chilling effect letter, or (3) the licensee has received correspondence from the NRC that transmitted an enforcement action

with a Severity Level (SL) I, II, or III, and that involved discrimination, or a confirmatory order that involved discrimination.

d. Construction Substantive Cross-Cutting Issue (cSCCI). An cSCCI is a cross-cutting theme about which the NRC staff has a concern with the licensee's scope of efforts or progress in addressing.

e. Safety-Conscious Work Environment (SCWE). An environment in which personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment, or discrimination.

f. Nuclear Safety Culture. The set of core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

g. Safety Culture Assessment. A comprehensive evaluation of the assembly of characteristics and attitudes related to all of the cross-cutting aspects described in IMC 0613. Individuals performing the evaluation can be qualified through experience and formal training.

1. An independent safety culture assessment is one performed by qualified individuals that have no direct authority and have not been responsible for any of the areas being evaluated (for example, staff from another of the licensee's facilities, or corporate staff who have no direct authority or direct responsibility for the areas being evaluated).

2. A third-party safety culture assessment is one performed by qualified individuals who are not members of the licensee's organization or utility operators of the plant (licensee team liaison and support activities are not team membership).

04.03 Enforcement Terms.

a. Accept-as-is. A hardware disposition which may be imposed for a nonconformance when it can be established that the discrepancy will result in no adverse condition and that the item under consideration will continue to meet all engineering functional requirements including performance, maintainability, fit, and safety. A design change may be required as a result of the accept-as-is disposition. For the purposes of this definition, a nonconformance is a deficiency in characteristics, documentation, or procedures which renders the quality of an item unacceptable or indeterminate. Examples of a nonconformance include physical defects, test failures, incorrect or inadequate documentation or deviation from prescribed manufacturing processing, inspection, or test procedures.

b. Apparent Violation (AV). A violation of regulatory requirements that is being considered for potential escalated enforcement action.

c. Closed Item. A matter previously reported as an inspection finding, a deviation, a non-conformance, an item reported by the licensee (e.g., 10 CFR Part 21 report, an ITAAC

maintenance item, 10 CFR Part 50.55(e) construction deficiency report or licensee event report), or an unresolved item that the inspector concludes has been satisfactorily resolved based on information obtained during the current inspection.

d. Common Cause. Multiple failures (i.e., two or more) of proper installation of equipment, construction of structures or processes attributable to a shared cause.

e. Consequence. The actual or potential outcome of an identified problem or condition.

f. Construction Issue. An inspection result that is dispositioned in accordance with the guidance in IMC 0613 (also referred to as Issue of Concern).

g. Contributing Cause. The cause(s) that by themselves would not create the problem but are important enough to be recognized as needing corrective action. Contributing causes are sometimes referred to as causal factors. Causal factors are those actions, conditions, or events which directly or indirectly influence the outcome of a situation or problem.

h. Escalated Enforcement Action. Severity Level I, II, and III Notice of Violation (NOV); civil penalties; NOVs to individuals; Orders to modify, suspend, or revoke NRC licenses or the authority to engage in NRC-licensed activities; and Orders issued to impose civil penalties.

i. Extent of Cause. The extent to which the root causes of an identified problem have impacted other plant construction processes, equipment, or human performance.

j. Extent of Condition. The extent to which the actual condition exists with other plant construction processes, equipment, or human performance.

k. Finding. A performance deficiency of more than minor significance. A finding may or may not be associated with regulatory non-compliance and, therefore, may or may not result in a violation. There are two types of findings that can be identified through the implementation of the construction inspection program: ITAAC Finding and Construction Finding.

    1. An ITAAC Finding is a finding that is identified through the implementation of the construction inspection program that is associated with a specific ITAAC and is material to the ITAAC acceptance criteria.

    2. A Construction Finding is a finding that is identified through implementation of the construction inspection program that is not an ITAAC finding.

l. Issue of Concern. An inspection result that is dispositioned in accordance with the guidance in IMC 0613.

m. Licensee-Identified. For cROP, licensee-identified findings are those findings that are not NRC-identified or self-revealing. Most, but not all, licensee-identified findings are discovered through a licensee program or process. Some examples of licensee

programs or processes that will likely result in such findings are the identification and documentation of findings (e.g., procedural violations, procedure inadequacies, etc.) by craft workers and/or licensee/contractor supervision during routine construction activities, construction quality assurance activities, self-assessments, independent assessments, audits and surveillances. Additional examples may include preoperational testing, start-up testing, hydrostatic testing, non-destructive testing, EP drills, and critiques conducted by or for the licensee.

n. Minor Violation. A violation that is less significant than a SL IV violation. Minor violations do not warrant enforcement action and are not normally documented in inspection reports. However, minor violations must be corrected.

o. Non-Cited Violation (NCV). A non-recurring, typically non-willful, Severity Level IV violation that is not subject to formal enforcement action if, for a reactor licensee, the licensee places the violation in a corrective action program to address recurrence and restores compliance within a reasonable period of time and, for all other licensees, the licensee corrects or commits to correcting the violation within a reasonable period of time.

   The use of NCVs for self-revealing and NRC-identified violations as part of the enforcement process is predicated on a licensee having an adequate CAP into which identified issues are entered and effectively resolved in a timely manner. Because the CAP at construction sites will be new and implemented initially by individuals with limited experience with the new program and because construction will involve program implementation by contractors, the NRC will delay the use of NCVs for self-revealing and NRC-identified violations pending confirmation that the new program is adequate and being effectively implemented.

p. Notice of Deviation (NOD). A written notice describing a licensee's failure to satisfy a commitment where the commitment involved has not been made a legally binding requirement. An NOD requests that a licensee provide a written explanation or statement describing corrective steps taken (or planned), the results achieved, and the date when corrective action will be completed.

q. Notice of Nonconformance (NON). A written notice describing the failure of a licensee's contractor to meet commitments that have not been made legally binding requirements by the NRC (e.g., a commitment made in a procurement contract with a licensee or applicant as required by 10 CFR Part 50, Appendix B). (If the contractor deliberately fails to meet the terms of a procurement contract, the NRC may issue a violation under the Deliberate Misconduct Rule in 10 CFR 50.5). NONs request that non-licensees provide written explanations or statements describing: (1) the reason for the noncompliance, or if contested, the basis for disputing the noncompliance; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when corrective actions will be completed.

r. Notice of Violation. A formal, written citation in accordance with 10 CFR 2.201 that sets forth one or more violations of a regulatory requirement.

s. NRC-Identified. For the cROP, NRC-Identified findings are those that are found by NRC inspectors that the licensee was not previously aware of or had not been previously documented in the licensee's corrective action program. NRC-identified findings also include previously documented licensee findings to which the inspector has significantly added value. Added value means that the inspector has identified a previously unknown significant weakness in the licensee's classification, evaluation, or corrective actions associated with the licensee's correction of a finding.

t. Performance Deficiency (PD). An issue that is the result of a licensee not meeting a requirement or standard where the cause was reasonably within the licensee's ability to foresee and correct, and therefore should have been prevented. A performance deficiency can exist if a licensee fails to meet a self-imposed standard or a standard required by regulation, thus a performance deficiency may exist independently of whether a regulatory requirement was violated. Additional discussion can be found in Appendix B, 'Issue Screening,' of IMC 0613.

u. Program critical attribute. An element of a program that is established to ensure that a regulatory requirement is met. Program descriptions are contained in the final safety analysis report.

v. Regulatory Commitment. An explicit statement of "intent" or "agreement" to take a specific action agreed to or volunteered by a licensee, where the statement has been submitted in writing on the docket to the NRC. This may include a commitment in the licensee's application, a response to a Notice of Violation, etc.

w. Repetitive Violation. See definition in the NRC Enforcement Policy.

x. Requirement. A legally binding obligation such as a statute, regulation, license condition, technical specification, or an order.

y. Root Cause. The basic reason(s) (i.e., hardware, process, or human performance) for a problem, which if corrected, will prevent recurrence of that problem.

z. Safety-Significant. Having greater than very low (i.e., green) safety significance.

aa. Self-Revealing. For the cROP, self-revealing findings are those that become self-evident and require no active and deliberate observation by the licensee or NRC inspectors to determine whether a change in process or equipment capability or function has occurred. Self-revealing findings become readily apparent to either NRC or licensee personnel through a readily detectable degradation in the material condition, capability, or functionality of equipment and require minimal analysis to detect. Some examples of self-revealing findings include failure of equipment or instrumentation to operate properly during testing that was not related to the purpose of the test (e.g., inadequate foreign material controls cause the failure) and violation of radiography exclusion area requirements that are subsequently identified through an electronic dosimeter alarm.

ab. Significance Determination Process (SDP). A characterization process that is applied to inspection findings to determine their safety significance.

ac. Unresolved Item (URI). An issue of concern about which more information is required to determine (a) if a performance deficiency exists, (b) if the performance deficiency is More-than-Minor, or (c) if the issue of concern constitutes a violation. Such a matter may require additional information from the licensee or cannot be resolved without additional guidance or clarification/interpretation of the existing guidance.

ad. Violation. The failure to comply with a legally binding requirement, such as a statute, regulation, order, license condition, or technical specification.

ae. Work activity. Processes implemented during the construction of the facility in areas such as but not limited to structural, piping, electrical, and foundations.

2506-05 RESPONSIBILITIES AND AUTHORITIES

05.01 Director, Office of New Reactors (NRO).

a. Provides overall program direction for the cROP.

b. Develops and directs the implementation of policies, programs, and procedures for inspecting applicants, licensees, and other entities subject to NRC jurisdiction.

c. Assesses the effectiveness, uniformity, and completeness of implementation of the cROP.

d. Provides overall direction for the NRC vendor inspection program.

e. In the event of a pandemic, concurs on the regions' recommendations to the modification to the inspection program in accordance with the direction provided under Appendix A of this IMC.

05.02 Director, Division of Construction Inspection and Operational Programs (DCIP).

Manages inspection program development within NRO, develops and prepares revisions to the cROP, oversees regional implementation, and serves as the NRO contact with the regional offices for program development and implementation.

05.03 Directors, Technical Divisions, NRO.

a. Assists the Director, DCIP in developing the technical content of and reviewing periodic revisions to the requirements and guidance contained in inspection procedures related

to their areas of technical expertise.

b. Ensures their staff inspects technical documents in support of ITAAC closure and other inspection activities.

05.04 Deputy Regional Administrator for Construction, Region II.

a. Provides program direction for management and implementation of the cROP elements performed by Region II.

b. Ensures, within budget limitations, that the regional office staff includes adequate numbers of inspectors in the various disciplines necessary to carry out the inspection program described in this chapter, including that which may be needed for regional supplemental and reactive inspections.

c. Directs the implementation of the supplemental inspection program.

d. Applies inspection resources, as necessary, to deal with significant issues and problems at specific plants.

e. Ensures that line managers assign inspectors who are appropriately trained and have the necessary knowledge and skills to successfully implement inspection procedures.

f. Determines that a pandemic situation which affects inspection resource availability has occurred and recommends modification to the inspection program.

05.05 Regional Administrators, Host Regions.

a. Provides assistance with construction inspections to Region II for plants in their respective region within budgeted resources.

b. Ensures, within budgeted resources, that their staff leads inspections of select operational program inspections at facilities under construction in their respective region as assigned by this IMC.

2506-06 CONSTRUCTION REGULATORY OVERSIGHT FRAMEWORK

The staff used a top down, hierarchical approach to develop the concept for a construction regulatory oversight framework that addresses the agency's regulatory principles. The regulatory oversight framework developed by the staff is shown in Exhibit 2. This framework starts at the highest level, with the NRC's overall mission to license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety. The staff then identified those aspects of licensee performance that are important to the mission and therefore merit regulatory oversight.

The fundamental building blocks that form the framework for the cROP are six cornerstones of safety: design/engineering, procurement/fabrication, construction/installation, inspection/testing, operational programs, and security programs for construction inspection and operations. These cornerstones have been grouped into three strategic performance areas: construction reactor safety, operational readiness, and safeguards programs.

For the construction reactor safety area, the objectives of the cornerstones of safety are defined as follows:

Design/Engineering: The objective of this cornerstone is to ensure that licensees' programs and processes are adequately developed and implemented for design and engineering controls.

Procurement/Fabrication: The objective of this cornerstone is to ensure that licensee's programs and processes are adequately developed and implemented for procurement and fabrication activities.

Construction/Installation: The objective of this cornerstone is to ensure that licensee's programs and processes are adequately developed and implemented to ensure the construction and installation of facilities and structures, systems, and components are in accordance with the design.

Inspection/Testing: The objective of this cornerstone is to ensure that licensees' programs and processes are adequately developed and implemented to inspect and test programs, facilities, and structures, systems, and components.

For the operational readiness area, the objective of the cornerstone of safety is defined as follows:

Operational Programs: The objective of this cornerstone is to ensure that licensees' adequately develop and implement the operational programs required by a license condition or regulation.

For the safeguards programs area, the objective of the cornerstone of safety is defined as follows:

Security programs for construction inspection and operations: The objective of this cornerstone is to provide assurance that (1) construction activities are not adversely impacted due to fitness-for-duty issues; and (2) the licensee's security programs use a defense-in-depth approach and can protect against the design basis threat of radiological sabotage from internal and external threats.

In addition to the cornerstones, the cROP features three "cross-cutting" areas, so named because they affect and are therefore part of each of the cornerstones. The cross-cutting areas are Human Performance, Problem Identification and Resolution, and Safety Conscious Work Environment. Cross-cutting aspects are defined for each of the cross-cutting areas.

This framework is based on the principle that the agency's mission of assuring public health and safety is met when the agency has reasonable assurance that licensees are meeting the objectives of the six cornerstones of safety. The construction inspection program is an integral part, along with assessment, and enforcement, of the construction reactor oversight process. Along with the verification that all ITAAC have been completed, acceptable performance in the cornerstones, as measured by the risk-informed baseline inspection program, provides reasonable assurance that the facility has been constructed and will be operated in conformity with the license and thus, assures the public health and safety.

Another principle of the framework is that there is a level of licensee performance in the cornerstones above which the NRC does not need to engage the licensee beyond some minimum level. When this level of licensee performance is reached, the risk-informed baseline inspection is sufficient to provide reasonable assurance of public health and safety.

The supplemental portion of the inspection program provides more diagnostic inspections of identified problems and issues beyond the baseline. Supplemental inspections will be planned in response to issues that result in crossing a CAM threshold. These changes to the inspection program are factored into the inspection program through the assessment program as further discussed in Section 2506-09.

10 CFR Part 50, Appendix B, Criterion 1, states that the applicant/licensee may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part thereof, but shall retain responsibility for the quality assurance program. If the licensee has contracted all or portions of the construction of the nuclear power plant, then the licensee has delegated to the contractor(s), agents, or consultants, the work of establishing and executing the QA program, or parts thereof. In these cases the contractor(s) is/are acting as an agent(s) of the licensee. It is NRC policy to hold licensees and applicants responsible for the acts of their employees, contractors, or vendors and their employees, and the NRC may cite the licensee or applicant for violations committed by its employees, contractors, or vendors and their employees. Consequently, citations against the contractor/constructor (agent of the licensee) instead of the licensee would be very unusual. As such, situations where this approach is considered should be reviewed by senior agency management during a Significance and Enforcement Review Panel (SERP) or other similar process.

In 72 FR 49352, the agency made clear the difference between suppliers and contractors performing construction, or the functional equivalent of construction. A supplier provides basic components and does not perform construction as defined in 10 CFR Part 50.10. Suppliers are inspected via the vendor inspection program. Contractors performing construction, or the functional equivalent of construction, do so as agents of a licensee by assembling or installing basic components that eventually are installed in their final resting place. Inspections of licensee agents are conducted by Region II as part of the baseline inspection program and enforcement actions are taken against the licensee, who retains ultimate responsibility for the quality assurance program.

2506-07 CONSTRUCTION INSPECTION PROGRAM (CIP)

The CIP is an integral part of the NRC's cROP and supports the goals and objectives of that process. The objectives of the CIP are to:

a. Determine whether or not appropriate quality controls are implemented in the development of applications that will be or have been submitted to the NRC; and

b. Provide reasonable assurance that the facility has been constructed and will operate in conformity with the license, the provisions of the Act, and the Commission's rules and regulations.

The CIP is conducted to support a licensing decision for an ESP application; to support a licensing decision for a COL application; and to support construction activities and the preparations for operation. In addition, prior to and during plant construction, inspections will be conducted to review vendor activities and licensee oversight of these activities.

Since the assignment of construction inspection responsibility to Region II and the formation of NRO in late 2006, the staff has evaluated the roles and responsibilities for the inspections needed to support the successful implementation of the CIP. A combined effort by the Region II construction inspection staff, the NRO vendor inspection staff, the NRO technical staff, and host region staff will be needed to ensure adequate inspection of construction and construction-related activities. NRO-COM-108, "NRO Construction Inspection Interfaces with Region II," provides guidance to staff and managers concerning construction inspection interactions between NRO and Region II that should be implemented as necessary to facilitate communications between the two offices.

07.01 Early Site Permit Audits/Inspections. IMC 2501, "Construction Inspection Program: Early Site Permit (ESP)," provides policy and guidance for the implementation of the inspection program during licensee preparation and NRC review of ESP applications submitted under 10 CFR Part 52. IMC 2501 also provides guidance for the inspection, assessment, and documentation of QA program implementation during geotechnical and site characterization activities (Site Exploration and Data Collection/Analysis) performed by the applicant and its contractors. IMC 2501 is initially applied when an applicant tenders an application for an ESP and will continue to be applied during the review process until the NRC issues the ESP. The NRC will implement this IMC to inspect and assess the applicant's implementation of applicable 10 CFR Part 50, Appendix B quality assurance requirements by the applicant or contractor's on behalf of the applicant during the performance of geotechnical and site characterization activities.

07.02 Pre-Combined License (Pre-COL) Inspections. IMC 2502, "Construction Inspection Program: Pre-Combined License (Pre-COL) Phase," provides policy and guidance for the implementation of the inspection program during NRC review of COL applications submitted under 10 CFR Part 52 and guidance for the inspection, assessment, and documentation of pre-construction activities performed by the applicant and contracted suppliers of the applicant. NRC will conduct inspections of an applicant once the COL application is tendered.

These inspections will continue to be applied during the application review process until a COL is issued. This timeframe is referred to as the pre-COL phase. In addition to pre-COL inspections conducted in support of the COL licensing process, the NRC staff will inspect the applicant's oversight of pre-construction activities that may support the NRC's future verification of ITAAC completion. The specific inspections required during the pre-COL phase are listed in IMC 2502.

NRO vendor inspection staff has the lead responsibility for the inspections conducted:

a. To verify quality processes used in the development of the COL application are adequately described, and that technical, quality, and administrative requirements important to public health and safety are effectively implemented during the design and procurement phases of pre-COL activities.

b. To verify effective implementation of the quality assurance (QA) program, as described in the application for a COL, to provide reasonable assurance of the integrity and reliability of the COL data or analyses that would affect the performance of safety-related systems, structures, and components (SSCs).

c. To verify that the applicant's and contracted suppliers' offsite pre-construction activities are being effectively implemented in accordance with the applicable 10 CFR Part 50 Appendix B QA requirements. The results of these inspections may support the NRC's future closure verification of ITAAC.

Region II has the lead responsibility for the inspections conducted to verify that the applicant's and contracted suppliers' onsite pre-construction activities are being effectively implemented in accordance with the applicable 10 CFR Part 50 Appendix B QA requirements. The results of these inspections may support the NRC's future closure verification of ITAAC.

Exceptions to these inspection responsibilities should be rare and shall be approved by the NRO DCIP Division Director and the responsible Region II DCI or DCP Division Director.

07.03 Inspections Subsequent to LWA/COL Issuance. The development of the 10 CFR Part 52 COL regulatory and inspection framework introduced the concept of ITAAC as a codified, pre-approved set of performance standards that a COL licensee is required to certify as acceptable and complete. Subsequent to LWA/COL issuance, the NRC staff conducts inspections to review the licensee's construction activities as the licensee completes the ITAAC. Guidance for these inspections is contained in IMC 2503, "Construction Inspection Program: Inspections of Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) Related Work."

It is anticipated that the vast majority of ITAAC-related work inspections will occur at licensee owned and operated facilities and will be led by Region II staff. Coordination of inspection activities at licensee-controlled locations (e.g., onsite or corporate headquarters) with DCIP is not necessary. It is anticipated that the vast majority of construction-related inspections that occur at offsite facilities that are not owned and operated by a licensee will be led by NRO vendor inspectors.

On rare occasions, Region II staff may lead ITAAC-related work inspections at offsite facilities that are not owned and operated by a licensee. The following conditions must be met for these inspections to occur:

a. direct observation of work is required (receipt inspection and/or document review is not enough) to provide reasonable assurance that the ITAAC is met;

b. enforcement can be attributed to a specific licensee; and

c. the inspection is approved by the NRO DCIP Division Director and the responsible Region II DCI or DCP Division Director.

Inspections at facilities that are not controlled by the licensee shall be planned in coordination with vendor inspection branch chiefs to ensure that inspection is properly staffed.

The nature of the acceptance criteria of some of the ITAAC targeted for inspection under IMC-2503 will result in Region II requiring technical assistance from NRO in assessing some inspection issues that arise. For example, some ITAAC have design commitments requiring that the components be designed and constructed in accordance with the requirements of Section III of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code. Although the inspection program can collect information about the installation practices, the NRO technical staff may be needed to evaluate the as-built design to ensure that required detailed design or changes that might have been needed to accommodate field conditions continue to meet the acceptance criteria. Region II support requests will be made using the TAR process. In addition, on occasion, Region II will request the host region to conduct certain ITAAC-related work inspections; however, Region II will maintain overall lead for the inspection.

Subsequent to LWA/COL issuance, the NRC staff also conducts inspections to review the development and implementation of construction and operational programs. Guidance for these inspections is contained in IMC 2504, "Construction Inspection Program – Inspection of Construction and Operational Programs." Region II has the overall lead for IMC 2504 construction program and operational program inspections. Region II will request the host region to conduct certain construction and/or operational program inspections; however, Region II will maintain overall lead for the inspection and the host region will report the results to Region II for consideration in the overall assessment of licensee construction performance. Exhibit 4, "Construction Program Inspections," and Exhibit 5, "Operational Program Inspections," lists the required program inspections and the organization that is planned to conduct the inspections.

It is recognized that some operational programs may not be fully implemented at the time of the 10 CFR Part 52.103(g) finding. These programs will be inspected at the first available opportunity subsequent to the 10 CFR Part 52.103(g) finding. Operational programs that require additional inspection after the 10 CFR Part 52.103(g) finding will be identified during the turnover from the construction inspection organization to the host region. Completion of these inspections will be the responsibility of the host region.

IMC 2503 and 2504 inspections continue until an affirmative 10 CFR Part 52.103(g) finding is made. Completion of these inspections is intended to provide the NRC with reasonable assurance that the facility is constructed and will operate in conformity with the license.

07.04 Vendor Inspection Program. The Vendor Inspection Program is implemented by the vendor inspection center of expertise (COE) which resides in NRO/DCIP. Further details on the purpose, organization, and responsibilities of the vendor inspection COE are provided in the COE's charter (ML12045A064).

IMC 2507, "Construction Inspection Program: Vendor Inspections," establishes the inspection program for vendors providing safety-related materials, equipment, and services in support of new reactor construction and provides requirements and guidance to NRC inspectors for conducting inspections at vendor facilities. The vendor inspection staff is responsible for implementing the vendor inspection program. Routine and reactive inspections are conducted to examine whether vendors of safety-related components or services have complied with the requirements of Appendix B and 10 CFR Part 21 as required under vendor procurement contracts with applicants or licensees. In addition to IMC 2507, NRO/DCIP developed the "Vendor Inspection Program Plan (VIP Plan)," which establishes an overall approach, including goals, priorities, performance metrics, and resource management strategies for vendor inspection program activities.

On occasion, Region II inspection staff will accompany the vendor inspection staff during the inspection of vendors that provide safety-related materials, equipment, and services in support of new reactor construction. The following steps are implemented to ensure new reactor construction vendor inspections are properly coordinated:

a. The vendor inspection branches develop inspection targets following the guidance in the VIP Plan. When a scope of supply includes ITAAC related items, vendor inspection branch chiefs will request support from Region II construction inspection branch chiefs.

b. Independent of the VIP Plan, Region II branch chiefs may provide a recommendation for the inspection of a vendor that is conducting ITAAC-related work.

c. The vendor inspection schedule will be published on the vendor inspection SharePoint site. Notes on this schedule will be included to provide inspection plans.

d. Weekly calls will be conducted between vendor inspection and Region II branch chiefs to discuss vendor inspections and resources.

Vendor inspection reports may support future closure verification of ITAAC. To the extent possible, Region II will use the results of vendor inspections to inform its inspections at specific sites. By maintaining a broad awareness of vendors and their activities, Region II will be improving their ability to effectively and efficiently conduct the CIP inspections for which they have assigned responsibility.

The vendor inspection staff will also conduct Engineering Design Verification (EDV) inspections. These inspections verify that the design authority (1) has developed processes that allow for the complete and accurate transfer of the high level design information and performance requirements specified in the FSAR in a manner consistent with the requirements of Appendix B, (2) has developed processes to ensure changes to the design are adequately controlled, and

(3) has produced detailed procedures, specifications, calculations, drawings, procurement, and/or construction documents that are consistent with NRC regulations, the FSAR, and the NRC's Safety Evaluation Report (if issued). EDV inspections are conducted pursuant to IMC 2507 and IP 37805, "Engineering Design Verification Inspections."

At the conclusion of each fiscal year, the vendor inspection staff will provide a consolidated report to the NRO/DCIP assessment program lead comparing the completed vendor inspections for the year to the budgeted vendor inspections for the year.

07.05 Baseline Inspection Program. The baseline inspection program is to be completed at all reactors under construction prior to the Commission's affirmative 10 CFR Part 52.103(g) decision. It requires inspections of licensee performance in the six cornerstones of safety. Region II has the responsibility to complete the baseline inspection program.

The overall objectives of the baseline inspection program are (1) to provide a sufficient basis to support the finding, in accordance with 10 CFR Part 52.103(g), that the acceptance criteria in a combined license have been met; and (2) to develop confidence in the licensee's programmatic controls. Thus, the baseline inspection program consists of ITAAC inspections and construction and operational program inspections.

ITAAC inspections are conducted to provide confidence that licensee's ITAAC completion and verification processes are effective and provide reasonable assurance that licensee ITAAC completion notifications are sufficient and accurate. Construction program inspections confirm that an adequate level of quality in construction products is provided. Operational program inspections verify that operational programs are consistent with their description in the FSAR.

In implementing these objectives, the program allows for flexible scheduling to permit the adjustment, including expansion or reduction of inspection scope, and includes ITAAC across a full range of significance with effort being weighted toward those with higher significance.

a. ITAAC Inspections.

   There are two key elements to ITAAC inspections. The first element is inspection of a broad range of ITAAC-related activities. This includes inspection of activities and SSCs associated with the following ITAAC:

   1. Targeted DCD ITAAC

   2. If there are no targeted ITAAC in a family, at least one ITAAC from that family will be selected for inspection.

   3. DAC ITAAC

   4. Emergency Preparedness ITAAC

   5. Security ITAAC

6. Targeted Site Specific ITAAC (the Site Specific Targeted ITAAC are selected by a separate panel after the COL is issued)

The second element of ITAAC inspections is inspection of ITAAC-related construction processes. This is accomplished through implementation of the top level (i.e. numbered) steps from the ITAAC inspection procedures. The staff developed inspection procedures for each of the rows and columns in the ITAAC matrix. These procedures constitute the construction baseline inspection procedures applicable to ITAAC inspections and are written to provide inspection requirements and guidance for a wide range of SSCs from all reactor types. Therefore, not every step will apply to every SSC nor will every step apply to each reactor type. Focus on the top level steps ensures that all applicable processes are inspected. During the planning for ITAAC inspections, inspectors will identify those steps related to a given ITAAC and include them in their inspections.

Each ITAAC will be assigned to a lead Region II inspection branch. The assigned branch chief is required to plan inspections of targeted ITAAC and verify that these inspections are completed.

The process of identifying targeted ITAAC is not intended to limit or restrict the inspection of non-targeted construction activities by inspection staff. Although not required for completion of the baseline inspection program, non-targeted ITAAC may be inspected if a reason for inspection in this area exists. Examples of situations when an inspection of non-targeted ITAAC may occur include: an inspection to review the work of a specific supplier that only works on non-targeted ITAAC; allegation follow-up; known deficiencies or construction issues; extent of condition reviews; and bundling activities to maximize inspection coverage in an efficient and effective manner. Inspection staff should consult their supervisor before inspecting non-targeted ITAAC or bundling ITAAC for inspection.

To maximize NRC resources and capitalize on inspection efficiencies, bundling ITAAC for inspection purpose should be considered whenever there are opportunities to witness multiple ITAAC during the same inspection or inspection trip, especially if the activities are being conducted at a distant or foreign location. Though each individual ITAAC comprising the bundle might not be targeted, the chance to review several ITAAC items at one time makes the choice an efficient use of NRC resources.

b. Construction Program Inspections (including Pre-operational Testing Inspections).

Guidance for construction program inspections is contained in IMC 2504. As described in IMC 2504, construction program inspections must be completed in accordance with the governing inspection procedure as part of the construction baseline inspection program. These inspections will be coordinated by Region II and, with the exception of the security construction program inspections (i.e., fitness for duty and protection of safeguards information inspections) will be conducted by Region II. The security construction program inspections will usually be conducted by the host region DRS.

c. Operational Program Inspections.

Program guidance for operational program inspections is contained in IMC 2504. Operational program inspections are, in general, one-time inspections to verify that the program has been developed in accordance with regulatory requirements and license conditions. The respective operational program inspection should be conducted after the program has been developed by the licensee and before the program implementation milestone contained in the license has been met. Region II has overall responsibility to ensure that operational program inspections are completed for operational programs required to be implemented prior to the 10 CFR Part 52.103(g) finding.

The host region will conduct selected operational program inspections and will closely coordinate their efforts with and report inspection results to Region II so that the results can be considered in the assessment of licensee performance. Certain operational programs have implementation milestones that occur after the 10 CFR Part 103(g) decision. Therefore, it is probable that some operational programs will not have been fully developed and/or implemented at the time of the 10 CFR Part 52.103(g) finding. Those programs that have not been fully developed and/or implemented at the time of the 10 CFR Part 52.103(g) finding will be turned over to and become the responsibility of the host region. The staff is committed to inform the Commission on the status of operational programs at the time of the 10 CFR Part 52.103(g).

07.06 Baseline Inspection Program Completion. The baseline inspection program will be considered complete when both the ITAAC inspections and the construction and operational program inspections meet the following criteria:

a. ITAAC-related Work Inspections

All Targeted ITAAC have been inspected, and the appropriate high level IP steps have been addressed. For each targeted ITAAC the lead Region II branch chief will make the determination that:

1. A sufficient number of SSCs related to the ITAAC have been inspected.

2. No Regional or HQs vendor branch ITAAC-related open inspection items (e.g. URIs, FIN, VIO, NCV, NON) exist.

The conclusion of this assessment will be reviewed by Region II management and the completion of the ITAAC inspections will be documented in CIPIMS. These recommendations will be rolled up by the assessment process in IMC 2505 as part of making the final recommendation that the acceptance criteria in the COL have been met.

b. Construction Program Inspections

The construction program inspections are conducted with a cyclic frequency over the course of construction. The construction program inspections provide insight into the

construction processes and procedures, but do not, necessarily, have a completion point. Construction program inspections are ongoing up to the point when the 10 CFR Part 52.103(g) finding is made. Following that point, any open issues are transferred to the host region. The appropriate high level IP steps and sample requirements contained in each of the construction program inspection procedures shall be completed as required by the respective IP. If a high level step in the respective IP is not completed, an analysis will be provided to document the reason for not conducting the step.

c. Operational Program Inspections

The operational program inspections, in general, are one time inspections that are completed prior to the 10 CFR Part 52.103(g) finding. Some operational programs will not be in place prior to the time of the 10 CFR Part 52.103(g) finding. These inspections are not considered to be part of the construction baseline inspection program. Responsibility to conduct the inspection for these operational programs will be transferred to the host region after the 10 CFR Part 52.103(g) finding. An operational program inspection is considered complete when all high level steps in the respective IP have either been completed or an analysis has been conducted accepting the reason for not conducting the steps. All inspections of operational programs with an implementation milestone at or before the 10 CFR Part 52.103(g) finding shall be completed.

At the conclusion of each calendar year, Region II will provide a consolidated report to the NRO/DCIP assessment program lead containing the number of targeted ITAAC for which the planned inspections were completed during the year (i.e., marked as completed in CIPIMs); the construction program inspections completed during the year, including whether or not annual inspection requirements were completed; the operational program inspections completed during the year; and the remaining required operational program inspections.

Upon completion of the construction baseline inspection program, as part of the staff's 10 CFR Part 52.103(g) recommendation, Region II will provide to the NRO/DCIP Division Director certification that the construction baseline inspection program has been completed. If a high level step in an ITAAC matrix row or column procedure that has been used is not completed at least once during construction of the respective unit, documentation stating the reason for not conducting the step will be provided in this certification.

07.07 Plant Specific Supplemental and Reactive Inspections. Plant performance will be assessed using IMC 2505. Plants whose performance is outside the licensee response band in the CAM will receive plant specific supplemental inspections based on their assessed performance. The depth and breadth of specific supplemental inspections chosen for implementation will depend upon the significance of the identified issues and will be conducted pursuant to the inspection procedure specified in the CAM. Region II has the lead for conducting plant specific supplemental inspections.

In addition, Region II staff may conduct reactive inspections in response to non-performance events and issues that occur at the facility. Reactive Inspections include inspections required for allegation response and event follow-up. Guidance for reactive inspections is contained in IMC 2504, Appendix C, “Response to Non-Performance-Related Issues or Events."

07.08 Inspection Planning. Region II has responsibility for developing an inspection plan for each unit under construction. This process is accomplished through the development and maintenance of a site specific baseline inspection plan. The baseline inspection plan contains entries for all targeted ITAAC inspections, and the required construction and operational program inspections for the specific unit under construction. The baseline inspection plan is updated as necessary to align with the construction activities ongoing at the site.

As part of the inspection planning process, Region II identifies a sample of construction activities and SSCs that are planned to be inspected for a given ITAAC. The construction activities and their associated SSCs planned to be inspected for each ITAAC are documented in a plan for the ITAAC.

Completing an inspection of these planned activities for each ITAAC provides reasonable assurance that the licensee has met the ITAAC. These activities do not need to be specific to a single SSC or time frame. They can be as general or specific as necessary to fulfill the intent of the plan as determined by the lead branch team. These plans should outline the following:

a. Inspection activity’s description

b. Explanation of when the inspection should take place

c. The type of activity (pre-op test, short term, long-term)

d. Estimate of hours

e. Desired inspection resource (Resident inspector, Regional inspector, HQ support, etc.)

f. Intent of each inspection activity. This can include quantitative or qualitative goals, a description of mandatory inspection aspects, etc.

The plans do not need to recommend inspection procedures for use during the inspection. Inspectors should use the inspection procedures that relate to the ITAAC family for which the inspection is being conducted (e.g. an inspection of an ITAAC in family 01A should be conducted using IPs 65001.01 and 65001.A).

The number of construction activities and SSCs planned for inspection can be increased or decreased based on inspection program results. The number of SSCs to be inspected will be reviewed and adjusted as part of the annual performance review assessment process described in IMC 2505, “Periodic Assessment of Construction Inspection Program Results,” and should be based on licensee performance or other ITAAC-related issues, such as generic items and allegations. This can be done at any stage of the annual assessment process, including during continuous, quarterly, mid-cycle or end-of-cycle reviews. Reasons for deviations from the

original plan(s) should be documented in CIPIMS.

07.09 Staff Evaluation of non-ITAAC Combined License Conditions. An issued combined license contains conditions that are part of the plant's licensing basis. Shortly after issuance of a combined license, the assigned NRO/DCIP Construction Operations Engineer will form a team with representatives from NRO/DCIP, NRO/DNRL, and Region II to perform an evaluation to determine if inspection is needed to verify the licensee's conformance with the COL license conditions. The team will accomplish the following actions:

a. Determine if an inspection should be conducted to determine whether or not a licensee meets a license condition(s), or to verify the licensee's conformance with a COL license condition(s).

b. Each license condition that is determined to require inspection will be evaluated to determine whether or not it is covered by an existing ITAAC inspection (IMC 2503), construction or operational program inspection (IMC 2504), or start-up testing inspection (IMC 2514) and the applicable inspection procedure will be identified.

c. For any remaining license conditions that should be inspected, the team will identify the applicable inspection procedure to be implemented for the inspection or will submit an IMC/IP change request if new or revised inspection guidance is necessary.

d. The DCIP Construction Operations Engineer will document the license condition evaluation results and provide a copy of the report to Region II for incorporation into the site inspection plan.

07.10 Staff Review of Regulatory Commitments. Explicit statements to take a specific action agreed to, or volunteered by, a licensee and submitted in writing on the docket to the NRC are referred to as regulatory commitments. Regulatory commitments are appropriate for matters that are of significant interest to the staff, but do not warrant either legally binding requirements or inclusion in Updated Final Safety Analysis Reports (UFSARs) or programs subject to a formal regulatory change control mechanism. Nevertheless, the regulatory process appropriately utilizes commitments in many instances and the NRC expects licensees to honor these commitments in good faith. Because regulatory commitments are implemented by the licensee, the licensee is responsible for creating and maintaining configuration control of all regulatory commitments made to the NRC. The NRC staff will manage regulatory commitments made by COL holders through the implementation of the latest revision of NRR Office Instruction LIC-105, "Managing Regulatory Commitments Made by Licensees to the NRC."

07.11 Staff Review of Licensee Actions to Address Orders. The NRC primarily exercises the authority to issue an order when deemed necessary to either gain compliance with existing regulations (Enforcement Orders) or to further provide reasonable assurance of adequate protection of public health and safety, and the common defense and security (Non-Enforcement Orders). Guidance for the issuance of orders is contained in the Enforcement Manual. Guidance for NRO roles and responsibilities in the processing of enforcement actions, including orders, is contained in NRO-COM-107, "NRO interfaces with the Office of Enforcement."

An order may or may not require follow-up inspection to verify completion of the specified licensee actions.

Whether the staff believes that an inspection is necessary to close an order will be determined on a case-by-case basis and will depend on the circumstances of the case. If follow-up and closure of an order is determined by the staff to be necessary, the responsible branch chief should ensure that the action items are included in the appropriate tracking system (e.g., CIPIMS) for future inspection and closure and the inspection results should be documented in the current inspection report for the respective licensee.

07.12 Changes during Construction. Interim Staff Guidance on Changes during Construction (CdC) Under 10 CFR Part 52 (COL-ISG-025) describes the license amendment request (LAR) preliminary amendment request (PAR) process. This process was developed for the purpose of maintaining licensing basis configuration control and in order to avoid unnecessary construction delays related to CdC arising after the issuance of the COL and before the 10 CFR 52.103(g) finding.

The assigned DCIP Construction Operations Engineer will review PARs to determine if there is an impact to inspections and/or to an ITAAC and will communicate the description of the proposed change and impact on associated ITAAC to Region II to inform their inspection process. To the extent possible, inspections will not be scheduled for in-process LARs.

07.13 Regulatory Treatment of Non-Safety Systems. Unlike the current generation of light-water reactors or the evolutionary advanced light-water reactors (ALWRs), the AP1000 plant design, uses passive safety systems that rely almost exclusively on natural forces, such as density differences, gravity, and stored energy, to supply safety injection water and provide core and containment cooling. These passive systems do not include pumps. However, they do include some active valves, but all the safety-related active valves require either dc safety-related electric power (supplied by batteries), are air operated (and fail safe on loss of air), or are check valves. All active systems (i.e., systems requiring ac power to operate) are designated as non-safety related, except for the instrumentation and control (I&C) systems, which use safety-related ac power converted from safety-related dc power. Passive systems should be able to perform their safety functions, independent of operator action or offsite support, for 72 hours after an initiating event. After 72 hours, non-safety or active systems may be required to replenish the passive systems or to perform core and containment heat removal duties directly.

The AP1000 includes active systems that provide defense-in-depth (or investment protection) capabilities for reactor coolant system makeup and decay heat removal. In existing plants, as well as in the evolutionary ALWR designs, many of these active systems are designated as safety related. The residual uncertainties associated with passive safety system performance increase the importance of active systems in providing defense-in-depth functions to back up the passive systems. Recognizing this, the NRC and EPRI developed a process to identify important active systems and to maintain appropriate regulatory oversight of those systems, called the Regulatory Treatment of Non-Safety Systems (RTNSS). This process does not require that the active systems brought under regulatory oversight meet all safety-related criteria, but rather that these controls provide a high level of confidence that active systems having a significant safety role are available when they are challenged.

07.14 Reliability Assurance Program. The Reliability Assurance Program (RAP) applies to those SSCs that are identified as being significant contributors to plant safety as determined by using probabilistic, deterministic, or other methods of analysis, including information obtained from sources such as the plant- and site-specific probabilistic risk analysis, industry operating experience, relevant component failure data bases, and expert panels. The RAP is implemented in two stages. The first stage applies to reliability assurance activities that occur before the initial fuel load, known as the Design Reliability Assurance Program (D-RAP). The second stage applies to reliability assurance activities for an operating plant. The D-RAP ensures that the reliability of SSCs within the scope of the RAP is properly considered and designed into the plant and is implemented through the reactor design, procurement, fabrication, construction, and preoperational test activities and programs. The SSCs included in the RTNSS are also included in the D-RAP. The RAP is initially verified during the COL application review phase via an audit conducted by the NRC staff in accordance with the guidance in the Standard Review Plan and the NRC safety evaluation review process. During construction, when conducting inspections to review a targeted ITAAC for the D-RAP, Region II will verify that the D-RAP has been properly implemented as follows:

a. For the safety-related systems within the scope of the RAP, determine whether the engineering design verification or other inspection performed by the NRC staff provides a sufficient basis for confirming that engineering issues for safety-related SSCs have been performed under a staff reviewed Quality Assurance Program that meets 10 CFR Part 50 Appendix B requirements.

b. For the non–safety-related systems within the scope of the RAP, determine whether the engineering issues for RAP SSCs has been performed under a reliability assurance program that the staff has reviewed.

Note that the D-RAP ITAAC inspection is meant to verify proper implementation of the program. Field inspections of SSCs within the scope of the RAP should be conducted pursuant to ITAACs that are associated with those SSCs and not under the D-RAP ITAAC.

07.15 Reportability Under 10 CFR Part 50.55(e) and 10 CFR Part 21. The regulatory requirements for reporting of defects that have been determined to be substantial safety hazards during construction are contained in 10 CFR Part 50.55(e) and 10 CFR Part 21, which are very similar and implement Section 206 of the Energy Reorganization Act (ERA). 72 FR 49352, dated August 28, 2007, provided a description of how Section 206 of the ERA is implemented through the regulations contained in 10 CFR Part 50.55(e) and 10 CFR Part 21 for plants licensed pursuant to Part 52. With regard to COL holders, 10 CFR Part 50.55(e) is applicable prior to an affirmative 10 CFR Part 52.103(g) finding and 10 CFR Part 21 is applicable after this finding. 10 CFR Part 50.55(e) is also applicable to entities that are performing construction or the functional equivalent of construction; however, when an entity is acting as agent of the licensee, the licensee retains ultimate reporting responsibility. Suppliers that provide basic components (parts) which the licensee and/or its constructors use to build the nuclear power plant are subject to 10 CFR Part 21, and not 10 CFR Part 50.55(e).

The FRN also addressed reportability for other aspects of regulatory life other than construction and operation, such as the early site permit (ESP) and the design certification/rule (DCD). The FRN position was that the ESP and design certification were the equivalent of a basic component that a licensee was going to use to construct a plant. As such, part 21 reporting requirements would be applicable for defects that could cause substantial safety hazards. These evaluations would be for items specific to the NRC approved document (ESP or DCD) referenced. For example, specific deviations in the revision of the AP1000 DCD approved by the NRC for the design certification contained in Part 52 Appendix D would be required to be evaluated under Part 21, and if determined to be a substantial safety hazard/defect, reported to the NRC by Westinghouse.

07.16 Documenting Inspection Results. The purpose of reporting inspection results is to document the inspection scope and the findings identified while conducting the inspection. The NRC does not have objective criteria for evaluating inspector observations. Therefore, inspector observations will not be documented in baseline inspection reports and are not incorporated into the assessment process. The scope of daily activities conducted by the resident inspectors does not require documentation in inspection reports. Issues identified during inspections will be documented in accordance with the guidance and requirements in IMC 0613, “Power Reactor Construction Inspection Reports,” and IMC 0617, “Vendor and Quality Assurance Implementation Inspection Reports,” as appropriate.

07.17 Construction Project Resource Estimate. The initial direct inspection effort estimate is 35,000 hours per unit over the life of the construction project. This number includes 15,000 hours for ITAAC-completion inspections, 10,000 hours for programmatic and operational program inspections, 5,000 hours for reactive inspections above the baseline program in response to licensee performance issues, allegations, and non-performance issues/events, and 5,000 hours for technical support for construction inspection. See the following table for a summation of the inspection effort estimate:

Inspection Activity	Hour Estimate Per Plant
ITAAC direct Inspections	15,000 hours
Program direct inspections (construction and operational programs	10,000 hours
Reactive and Allegation Inspections	5,000 hours
Headquarters Technical Staff Inspection Support	5,000 hours
TOTAL	35,000 hours

Notes:

a. ITAAC direct inspections include all the necessary vendor or field inspections, engineering analyses, technical assistance requests, report reviews needed to close the ITAAC, pre and post-COL inspections, DAC follow-up, and design change reviews (15,000 inspector hours).

b. Inspection of Construction and Operational Programs include QA verifications, IMC-2504 construction programs, pre-operational inspections, and operational program readiness reviews (10,000 hours).

c. Reactive and allegation inspections include inspections required for allegation response, baseline inspection sample expansion, or the follow-up of performance problems and non-performance issues/events.

d. Engineering resources for non-ITAAC inspections, reactive inspections, and design verification may be used, in part, to verify licensee compliance with post-COL FSAR commitments and/or license conditions. A panel of technical experts will provide a recommendation to management about which, if any, of these post-COL commitments warrant independent verification. If needed, the panel will also recommend what type of verification (e.g. direct inspection, engineering inspection) is most appropriate.

e. Direct inspection hours do not include hours for preparation, documentation, and inspector travel and which are also billed to the licensee.

2506-08 ITAAC CLOSEOUT PROCESS, ITAAC MAINTENANCE AND REQUIRED NOTIFICATIONS

08.01 ITAAC Closeout Process. An issued combined license contains ITAAC that must be performed by the licensee. Once the licensee has performed an ITAAC, the licensee will close that ITAAC. For each closed ITAAC, in accordance with 10 CFR Part 52.99(c)(1), the licensee is required to notify the NRC that the prescribed inspections, tests, and analyses have been

performed and that the prescribed acceptance criteria have been met. That notice must have sufficient information to support these two conclusions and is called an ITAAC closure notification (ICN).

All ICNs are reviewed by the staff to determine whether or not the ITAAC can be verified as completed. This process will be led by DCIP and closely coordinated with Region II, OGC, other NRO divisions, and NSIR.

During the ICN review, the staff will verify that the NRC inspections scheduled to review the respective ITAAC are completed and all related ITAAC inspection findings are closed, review all information that could bear on the completion of the ITAAC from other sources, and make a determination of whether or not the ITAAC should be verified as completed. As part of the ITAAC closure strategy, the staff plans to ensure that 50% of the ITAAC targeted for direct inspection have been verified as completed by the NRC prior to similarly verifying other ITAAC in the same family that were not directly inspected are completed. The results of the reviews of the ICNs by the staff and the documentation of the completion of the CIP for COL ITAAC facilitate the staff recommendation regarding the 10 CFR Part 52.103(g) finding on whether all of the COL acceptance criteria are met.

Upon receipt of an ICN, HQs staff will enter it into the information technology system called the Verification of ITAAC Closure, Evaluation, and Status (VOICES), which will automatically generate and send an email to the lead Region II Branch Chief. This email notification will serve as a prompt to the lead Branch Chief to update or verify the ITAAC inspection completion status in CIPIMS.

The lead Branch Chief will identify in CIPIMS whether or not the planned inspections for the given ITAAC have been completed. This acknowledgement will be accomplished by indicating [YES] in the “all inspections complete” block on the inspection planning/strategy page in CIPIMS. A YES in the block will be understood to indicate: 1) the lead Branch Chief has verified all planned inspections are complete and that there are no plans to conduct future inspections of the respective ITAAC (for non-targeted ITAAC, a YES in the block will indicate that planned inspections, if any, are complete and that there are no plans to conduct future inspections of the respective ITAAC); 2) no inspection-related open items affect the ITAAC’s closure; and 3) Region II concurs with initiating the ICN review process to close the given ITAAC. If the ITAAC should not be closed, the Region II lead Branch Chief shall notify the DCIP ITAAC Branch Chief.

An ITAAC can be re-opened or re-inspected even though it has previously been closed. If an ITAAC is re-opened and additional inspection is planned, then the responsible Region II branch chief should notify the ITAAC and Generic Communications Branch Chief and then uncheck the “all inspections complete” block on the inspection planning/strategy page in CIPIMS. Once the additional inspection is completed and a subsequent ICN is submitted, the responsible branch chief should follow the ITAAC Closeout instructions above.

In general, review of an ICN will not be delayed based on the existence of an allegation related to the respective ITAAC. However, if an allegation has been or appears most likely to be substantiated and the NRC has concluded that the issue will likely be an ITAAC Finding, then

processing of the ICN will be delayed. In this case, DCIP will coordinate the ICN response and subsequent NRC action with Region II (e.g., rejection of the ICN and documentation of the ITAAC Finding in an inspection report).

The staff is required to publish Federal Register Notices (FRNs) of successful ITAAC completion at intervals determined by the staff. The periodic FRNs will inform the public that the inspections, tests, and analyses of one or more ITAAC have been performed and their acceptance criteria have been met. The staff's determination that the acceptance criteria of all of the COL ITAAC are met precedes the 10 CFR Part 52.103(g) finding. In SRM-SECY-13-0033, "Allowing Interim Operation under Title 10 of the Code of Federal Regulations Section 52.103," dated July 19, 2013, the Commission delegated to the staff the making of the 10 CFR 52.103(g) acceptance criteria finding for all ITAAC, irrespective of the pendency of any hearing. In October 2009, the NRC issued Regulatory Guide 1.215, "Guidance for ITAAC Closure under 10 CFR Part 52." This guide describes a method that the staff considers acceptable for use in satisfying the requirements for documenting the completion of ITAAC. In particular, this guide endorses the methodologies described in NEI 08-01, "Industry Guideline for ITAAC Closure Process under 10 CFR Part 52," which provides an approach that COL holders may use to satisfy NRC regulatory requirements under 10 CFR Part 52.99 related to the completion and closure of ITAAC for new nuclear power plants. Regulatory Guide 1.215, Revision 1, was issued in September 2012, and captures ITAAC Maintenance Rule requirements.

In accordance with 10 CFR Part 52.99(c)(3), no later than 225 days prior to initial fuel loading, the licensee is required to notify the NRC that the inspections, tests and analyses will be performed and the acceptance criteria will be met for all uncompleted ITAAC prior to operation. The uncompleted ITAAC notification must provide sufficient information to demonstrate that the prescribed inspections, tests and analyses will be performed and the prescribed acceptance criteria will be met, including, but not limited to, a description of the specific procedures and analytical methods to be used for performing the ITAAC. The 225 day notifications are primarily for the public to review to provide prima facie evidence for a possible hearing on the completion of ITAAC that the acceptance criteria of affected ITAAC or other ITAAC are not met.

After all ITAAC have been completed, the Director of NRO, in consultation with the appropriate Regional Administrators, will inform the Commission that all ITAAC have been met. NRC inspection results, together with the information submitted by the licensee, will be the foundation of the staff's recommendation to the Commission in support of its finding on whether the acceptance criteria in the COL have been met.

08.02 ITAAC Maintenance. Completion of COL ITAAC will be accomplished by the licensee over a prolonged period. For some ITAAC, this will mean significant time will elapse between the initial determination that an individual ITAAC is closed and the Commission finding, in accordance with 10 CFR Part 52.103(g), on whether all of the acceptance criteria are met. An important aspect of the ITAAC maintenance process is to confirm that the acceptance criteria continue to be met for all ITAAC verified as completed until the Commission makes the 10 CFR Part 52.103(g) finding. The staff recognizes that normal maintenance will be needed on SSCs with associated closed ITAAC or program elements, and such SSCs may also need repairs. The inspection program will confirm, on a sampling basis, that the surveillance and post-maintenance testing performed in this interim period are focused not only on technical specification operability and similar operational concerns, but also on maintaining the validity of ITAAC determinations.

The licensee is responsible to identify when an ITAAC completion determination basis is in question and a post-closure notification to the NRC is required. The licensee will do that based on five maintenance thresholds identified in NEI 08-01. If one of the maintenance thresholds is exceeded, the licensee would submit a subsequent ICN following implementation of corrective actions to ensure the acceptance criteria of the affected ITAAC continue to be met or are met again. The NRC will review the ICNs that identify those corrective actions to determine if the ITAAC conclusion for those ITAAC is maintained or not. If that review determines that the ITAAC acceptance criteria are no longer met, the ITAAC will be reopened. The licensee will have to take further corrective actions in order to reclose the ITAAC. The ITAAC Maintenance Process inspection program and required notifications are described in detail in NEI 08-01, Inspection Procedure 40600, "Licensee Program for Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Management", and in Regulatory Guide 1.215.

08.03 10 CFR Part 52.103(g) Finding. The NRC will retain records of the final review for an ITAAC to determine if it can be verified as completed, and will also maintain records of all ICNs. These records will be retained in ADAMS for a potential hearing prior to the Commission's 10 CFR Part 52.103(g) finding. That potential hearing on ITAAC will require prima facie evidence that the acceptance criteria of specific ITAAC are not met.

The result of that hearing could be ITAAC contentions which must be closed by that hearing before those ITAAC can be considered as completed. The licensee will have to take some corrective actions for those ITAAC contentions, and the NRC will have to verify them before the ITAAC can be considered as successfully verified as completed. The completion of ITAAC and the results of the CIP as processed by the construction assessment program will be the basis for the Commission's 10 CFR Part 52.103(g) finding that the acceptance criteria of all COL ITAAC are completed.

2506-09 CONSTRUCTION ASSESSMENT PROGRAM

The NRC's assessment of a licensee's effectiveness in assuring construction quality is conducted in accordance with IMC 2505. In implementing the construction assessment program, the NRC staff integrates various information sources relevant to licensee safety performance, makes objective conclusions regarding the significance of inspection findings, takes actions based on these conclusions in a predictable manner, and effectively communicates these results to the licensees and to the public.

The construction assessment program consists of the following key principles:

a. Inspection results will be the input to the assessment program.

b. Inspection results will have established thresholds.

c. Crossing thresholds will result in the NRC considering a range of actions as defined in the CAM.

The significance of inspection results is determined in accordance with the construction SDP described in IMC 2519. The construction SDP is a risk informed approach to evaluating the significance of construction inspection program findings. The significance of inspection findings, as characterized by the SDP, is represented by a color scheme (i.e. green, white, yellow, red). The color of construction inspection findings is used as the input to the construction assessment program's CAM. Each finding is also evaluated to determine if the primary cause of the finding can be associated with one of the cross-cutting aspects. During the assessment of licensee performance, the NRC determines if a construction substantive cross-cutting issue exists per the guidance in IMC 2505.

A review system was developed that provides for continuous, quarterly, mid-cycle, and end-of-cycle (annual) reviews of licensee performance data (inspection results). The system is designed so that the continuous and quarterly reviews are informal reviews of performance data and are not resource intensive. The mid-cycle and end-of-cycle reviews are more formal and include licensee performance review meetings and an assessment report. An agency action review is generally reserved for plants requiring consideration of agency-wide actions as determined during the Agency Action Review Meeting.

The communication of assessment results involves quarterly updates of assessment data, semiannual inspection planning letters, and semiannual assessment reports. A public meeting with the licensee will be held near the licensee's facility after the conclusion of the annual assessment cycle. Annual assessment letters will be made publicly available prior to the public meetings and the annual Commission meeting.

2506-10 CONSTRUCTION ENFORCEMENT PROGRAM

The NRC Enforcement Policy governs the processes and procedures for the initiation and review of violations of NRC requirements and the NRC Enforcement Manual contains implementation guidance. Both documents are owned and issued by the Office of Enforcement (OE). In addition, for Part 52 new reactors, IMCs 0613, 2505, and 2519 provide guidance for assigning significance to findings and the NRC response to findings associated with new reactors under construction.

2506-11 NRC ALLEGATION PROGRAM

The NRC's allegations program is described in Management Directive (MD) 8.8, "Management of Allegations." The processing of allegations received by and/or assigned to the regions is coordinated by the respective region's Enforcement and Investigations Coordination Staff (EICS). Each region has developed and issued office instructions/procedures to implement the requirements of MD 8.8. The processing of allegations received by and/or assigned to

Headquarters staff is coordinated by the Allegations COE, which provides a centralized location for administering an effective program to manage allegations. Details on the purpose, organization, and responsibilities of the Allegations COE are provided in the COE's charter (ML12045A102).

2506-12 CONSTRUCTION EXPERIENCE PROGRAM (ConE)

The ConE program supplements and supports the agency's operating experience (OpE) program described in Management Directive 8.7, "Reactor Operating Experience Program" and IMC 2523, "NRC Application of Operating Experience in the Reactor Oversight Process." The ConE program is led by the OpE/ConE COE, which resides in NRR. The ConE process is documented in Office Instruction NRO-REG-112, "New Reactor Operating Experience Program." As described in NRO-REG-112, the ConE program collects, screens, and evaluates lessons learned from nuclear construction and operating experience for application into the NRC's new reactor licensing and inspection programs. The ConE program communicates design and construction lessons learned to NRC staff, and when necessary, to external stakeholders through generic communications. Region II Regional Office Instruction (ROI) No. 0608, "Handling of Operating Experience in Region II," provides regional guidance for using OpE in inspection planning and communicating potentially generic safety questions and construction deficiencies to cognizant headquarters personnel.

2506-13 ANNUAL cROP SELF-ASSESSMENT

In SRM SECY SECY-07-0047 – "Staff Approach To Verifying The Closure Of Inspections, Tests, Analyses, And Acceptance Criteria Through A Sample-Based Inspection Program," dated May 16, 2007, the staff was directed to provide the Commission with an annual self-assessment report of the implementation of the construction inspection program. In response, the staff has developed and conducts an annual cROP self-assessment in accordance with IMC 2522, "Construction Reactor Oversight Process Self-Assessment Program."

The cROP self-assessment process utilizes program evaluations and performance metrics to determine its success in meeting the goals and intended outcomes of the cROP. The level of effectiveness of the cROP is determined by considering whether the program goals are met and the intended outcomes are achieved. The intended outcomes of the cROP, which help form its basis and are incorporated into the various cROP processes, include to successfully:

a. Monitor and assess licensee performance

b. Identify performance issues through NRC inspection

c. Determine the significance of identified performance issues

d. Adjust resources to focus on significant performance issues

e. Evaluate the adequacy of corrective actions for performance issues

f. Take necessary regulatory actions for significant performance issues

g. Communicate inspection and assessment results to stakeholders

h. Make program improvements based on stakeholder feedback and lessons learned

Periodically, the cROP self-assessment program collects information from various sources, including CIPMS, the inspection program, periodic independent audits, stakeholder surveys, public comments, and other stakeholder interactions. The results of the annual self-assessment are reported to the Commission via a SECY paper in support of the Agency Action Review Meeting.

2506-14 TRANSITION FROM cROP TO ROP

By Regulation 10 CFR 52.103(g), license holders are not allowed to operate a new reactor facility until the NRC finds that all the acceptance criteria in the combined license are met. The appendices to Part 52 further define facility operation as beginning at fuel load (Appendix D, IX.B.2 for the AP1000). Also by Regulation 10 CFR 52.103(h), ITAAC are no longer requirements after the NRC has found the acceptance criteria to be met.

Because 10 CFR 52.103(h) removes ITAAC as regulatory requirements after all acceptance criteria are met, the operation of the facility will be governed by the technical specifications and all other applicable regulatory requirements from 10 CFR Parts 50 and 52, including license conditions. This then becomes the basis for the transition to the ROP. Once the Commission finds that all acceptance criteria in the license have been met the CIP will end and inspections under the ROP will begin. At that time the lead inspection responsibility will switch from Region II to the host region.

Implementation of the ROP for newly constructed facilities may involve changes from that used on current plants due to the lack of historical data for most performance indicators and the lower risk profile for the new plants. Inspections will be conducted under the guidance of IMC 2514, “Light Water Reactor Inspection Program -- Startup Testing Phase,” and IMC 2515, “Light-Water Reactor Inspection Program – Operations Phase”. Findings identified during these inspections would be handled under the provisions of the ROP and documented using IMC 0612, “Power Reactor Inspection Reports”. Assessment of the facility will transition from the construction assessment program described in IMC 2505 to the operating reactor assessment program described in IMC 0305.

It is recognized that some operational programs will not be fully implemented at the time of initial fuel loading. These are governed by license conditions with set implementation milestones and will be inspected under IMC 2514 before the program implementation date. The anticipated operational program inspection leads are contained in Exhibit 5 to this IMC.

END

Exhibits:
1. Construction Reactor Oversight Process Overview
2. Construction Regulatory Oversight Framework
3. Roles and Responsibilities Matrix for HQ, RII and Licensees
4. Construction Program Inspection Leads
5. Operational Program Inspection Leads

Appendices
A. Construction Inspection Program Guidance
B. Construction Inspection and Assessment Program Bases

Attachments:
1. Acronyms
2. Revision History for IMC 2506

Exhibit 1 - Construction Reactor Oversight Process Flowchart

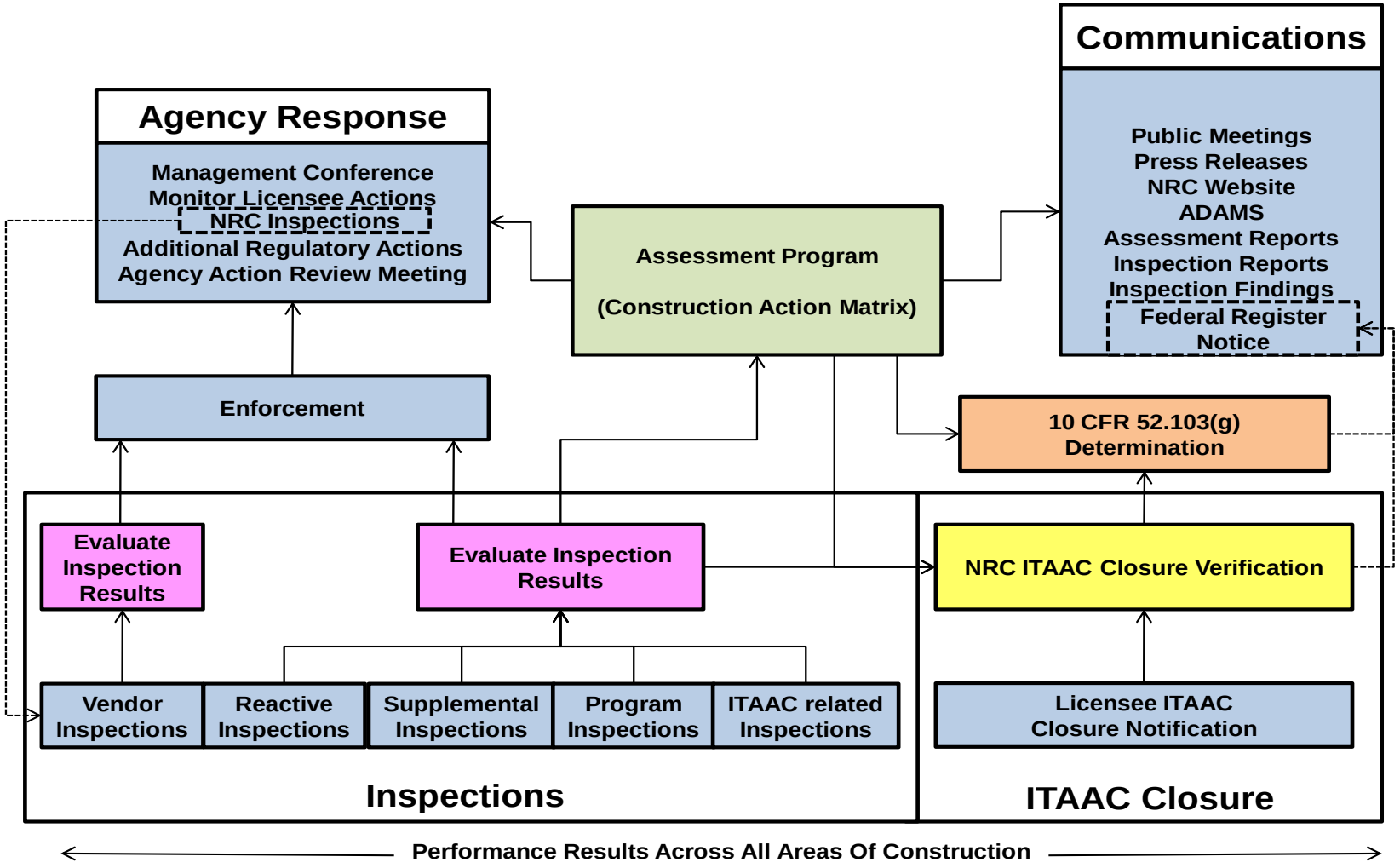

Exhibit 2 - Construction Regulatory Oversight Framework

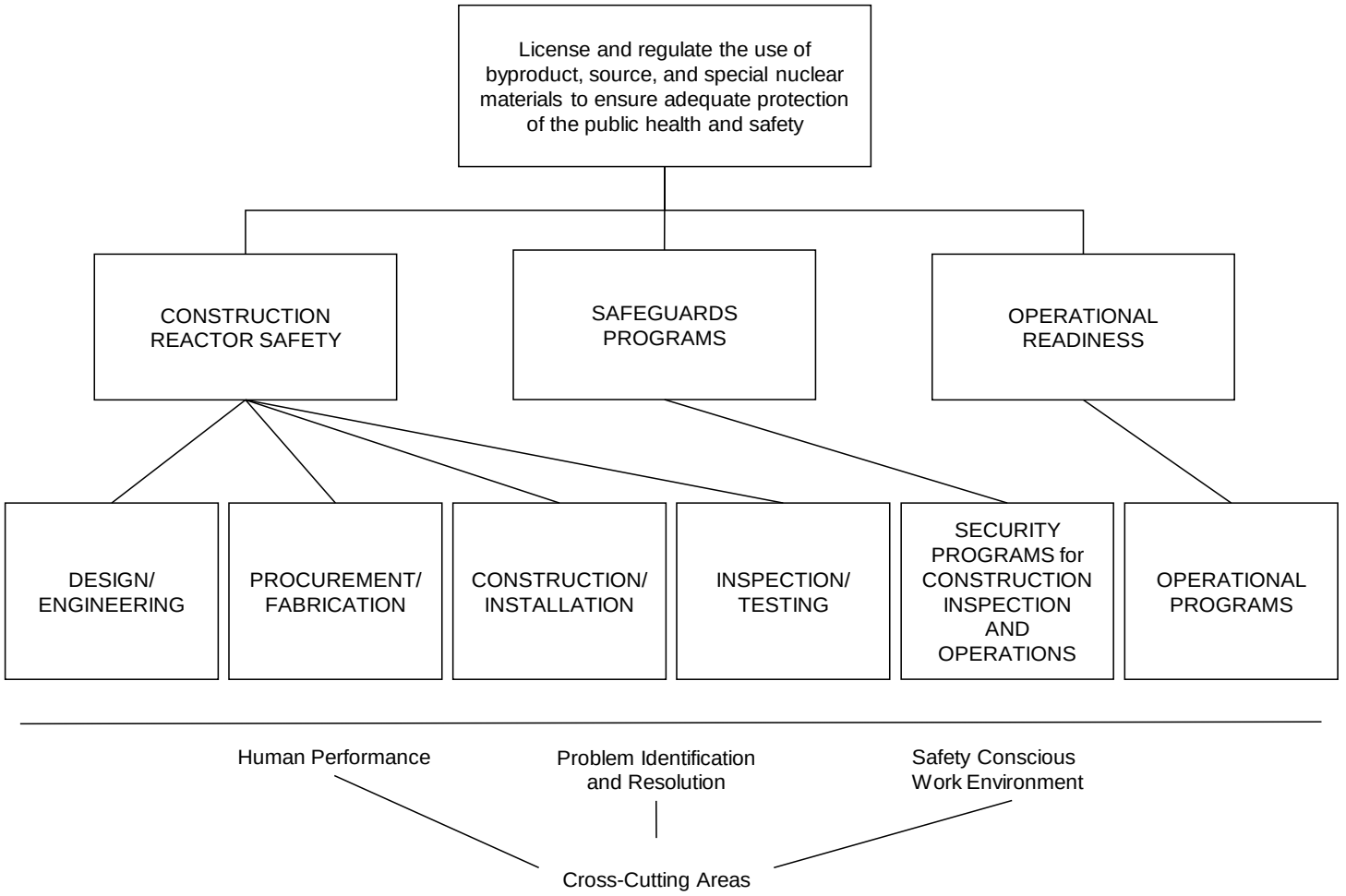

Exhibit 3 - Roles and Responsibilities Matrix for HQ, RII and Licensees

Lead/Spokesman Matrix	**RESPONSIBILITIES**				
	Region II	**NRO DCIP**	**NRO Tech Staff**	**NRO DNRL**	**Licensee/ Vendor**
Licensee Inspection*	Lead	Support	Support	Informed	Respond
ICN Review / Acceptance	Support	Lead[1]	Support	Lead[2]	Submit
Vendor Inspection/Allegation Follow-up	Support	Lead	Support		Respond
License Amendment	Informed[3]	Support[4]	Support	Lead	Submit
Vendor Inspection*	Support	Lead	Support		Respond
Construction Inspection Planning & Scheduling	Lead	Support[5]	Support[6]		Provide Construction Schedule
Vendor Inspection Planning & Scheduling	Support	Lead	Support		Support
Technical Assistance Request Region II --> HQ	Submit	Lead	Support	Informed	
Technical Assistance Request HQ --> Region II	Respond	Lead	Support	Informed	

* Any inspection (ITAAC, programmatic, vendor) can be used to inform the ITAAC closure verification process. The key will be documenting the issues in CIPIMS.

[1] DCIP/IGCB manages the actual ICN Verification Process
[2] Initial Receipt and Final Disposition to FRN by DNRL PM
[3] When PARs are approved and LARs are approved/rejected DCIP will communicate the details with RII/DCP to incorporate applicable changes to the inspection program.
[4] DCIP will evaluate approved LARs for impacts on the ITAAC and as necessary update the applicable licensee's ITAAC, prioritization and the CIPIMS database.
[5] LAR/PAR Communication & Strategy Documents
[6] Strategy Document

Exhibit 4 - Construction Program Inspection Leads

Program	Organization to Conduct Inspection
Quality Assurance (Construction)	Region II
Reporting of Defects and Non-Compliance	Region II
ITAAC Management	Region II
Security Construction Program	Host Region
Pre-operational Testing	Region II

Exhibit 5 - Operational Program Inspection Leads

Program	Milestone	Planned Organization to Conduct the Inspection
Inservice Inspection	Commercial Service	Host Region
Inservice Testing	Generator On-Line	Host Region
Environmental Qualification	Fuel Load	Region II
Preservice Inspection	Initial Plant Startup	Region II
Reactor Vessel Material Surveillance	Initial Criticality	Host Region
Preservice Testing	Fuel Load	Region II
Containment Leak Rate Testing	Mode 4	Region II
Fire Protection	Fuel Receipt/Load	Host Region
Process and Effluent Monitoring	Fuel Load	Host Region
Radiation Protection	Material or Fuel Receipt/Load	Host Region
Non-Licensed Plant Staff Training	18 Months Prior to Fuel Load	Host Region
Reactor Operator Training	18 Months Prior to Fuel Load	Host Region
Reactor Operator Requalification	Three Months After 103(g)	Host Region
Emergency Preparedness	Two Years Prior to Fuel Load	Host Region
Security	Fuel Receipt/Load	Host Region
Quality Assurance (Operations)	30 Days Prior to Fuel Load	Region II
Maintenance Rule	Prior to 103(g)	Host Region
Motor Operated Valves	Fuel Load	Region II

Note: Fire Protection, Radiation Protection and Security Programs have multiple implementation milestones.

Appendix A - Construction Inspection Program Guidance

A-01 PURPOSE

The purpose of this appendix is to provide detailed guidance for the construction inspection program (CIP).

A-02 BACKGROUND

As a general rule, inspections should be conducted in accordance with inspection procedures. However, it is not possible to anticipate all the unique circumstances that might be encountered during the course of a particular inspection and, therefore, individual inspectors are expected to exercise initiative in conducting inspections, based on their expertise, experience and risk insights, as needed, to assure that all the inspection objectives are met.

A-03 DISCUSSION

A.03.01 Inspector Policy

A03.01.01 Construction Resident Inspector (CRI) Policy

The CRIs provide the major onsite NRC presence for direct observation and verification of licensees' ongoing activities and shall be qualified under IMC-1252, "Construction Inspector Training and Qualification Program." CRIs are responsible for being aware of major activities and the status of construction activities. The CRIs also are primary NRC onsite evaluators for events or incidents. The greater part of initial event-related inspection effort will be performed by the resident inspectors, who may be augmented by other inspectors depending on the type and significance of the event. Regional managers will decide when normal inspection activities will be resumed by those involved with inspecting events.

A03.01.02 Regional and Vendor Inspector Policy

Inspectors conduct inspections as directed by their supervisors and shall be qualified under IMC-1252 or 1245. In addition to baseline inspection program procedures, inspectors often will conduct inspections under other program elements such as allegation follow-up, etc. Certain aspects of their inspection activities may be conducted in the office (e.g., portions of procedure review and administrative program inspection). Other aspects will be conducted on site.

A03.01.03 ITAAC Inspections

In the vast majority of cases, ITAAC inspections will take place onsite. Exceptions to this policy will be handled in accordance with IMC 2506, Section 07.03. If during the inspection planning process, the licensee requests that an ITAAC inspection be conducted at a licensee's agent's facility (e.g., at a Westinghouse facility), then, if practical, NRC inspectors should conduct the inspection at the agent's facility, provided the requirements in Section 07.03 are met. In this case, it is NRC's expectation that the licensee will ensure that all documentation that supports

process, design/development activities, testing, etc. is available at the agent's facility, and that the appropriate personnel will be present to facilitate responding to inspection issues.

A03.01.04 Inspection Coordination

The senior CRI and the Region II Division of Construction Projects must be kept advised of regional and headquarters inspectors' activities at the facility. The associated regional branch chief must ensure coordination of regional and headquarters inspection activities using the guidance for visits to operating sites provided in IMC 0301, "Coordination of NRC Visits to Commercial Reactor Sites."

Regional and headquarters-based inspectors should contact the senior CRI or the Senior Project Inspector before each inspection to get information concerning the availability of specific licensee personnel, the status of construction activities that may affect the planned inspection and the status of allegations at the facility. In addition, they should contact the senior CRI as soon as is convenient after they arrive at the site to ensure a coordinated NRC presence at the facility and the planned date and time for the exit interview with the licensee. The senior CRI should inform the regional and headquarters inspectors of any unique activities in progress and offer specific inspection suggestions. The regional and headquarters inspectors should brief the senior CRI about the results of their inspection before the exit meeting with the licensee's management. The senior CRI (or CRI in his/her absence) should attend all exit meetings where significant issues are expected to be discussed.

A03.01.05 Third Party Assistance

Refer to IMC 2515, "Light-Water Reactor Inspection Program Operations Phase," Section 11-04 for guidance regarding third party assistance requests.

A03.02 GENERAL INSPECTION POLICIES

A03.02.01 Management Entrance and Exit Meetings

Effective communication is critical for overall agency success. For NRC inspectors, the inspection entrance and exit meetings are the primary opportunities to communicate issues with licensees. Besides communicating effectively, inspectors, as Government officials, have additional requirements to follow during entrance and exit meetings to ensure that proprietary data and safeguarded information are not disclosed and that information is shared with the public when appropriate.

Refer to IMC 2515, Section 12-01 for guidance regarding management entrance and exit meetings.

A03.02.02 Findings Outside of Inspector's Qualifications

Refer to IMC 2515, Section 12-04 for guidance regarding findings outside of inspector's qualifications.

A03.02.03 Event Response

Licensees often notify inspectors of events or conditions in anticipation of the inspectors' interest in the issue, but such notifications do not exempt the licensee from reporting events and conditions through the required regulatory processes. The licensee should be made aware that documents that it gives to inspectors are subject to Freedom of Information Act requests and may be placed in the Public Document Room.

Refer to IMC 2504, Appendix C for guidance regarding the decision-making process for Regional and Headquarters staff to use in planning an appropriate response to potentially significant, non-performance related, issues or events at reactor construction sites.

A03.02.04 Communication With Local Public Officials

Refer to IMC 2515, Section 12-05 for guidance regarding communications with local public officials.

A03.02.05 Witnessing Unsafe Situations

Refer to IMC 2515, Section 12-06 for guidance regarding witnessing unsafe situations.

A03.02.06 Memoranda of Understanding with the Occupational Safety and Health Administration

In general, OSHA has jurisdiction over plant conditions that result in an occupational risk, but do not affect the safety of licensed radioactive materials. For example, in a construction environment, there might be exposure to toxic non-radioactive materials and other industrial hazards. IMC 1007, "Interfacing Activities Between Regional Offices of NRC and OSHA," contains specific guidance to be used to implement the Memorandum of Understanding between OSHA and the NRC.

A03.02.07 Inspector Functions During Period of Lapsed Appropriation.

NRC Management Directive 4.5, "Contingency Plan for Periods of Lapsed Appropriations," has defined the resident and selected region-based inspector functions as an excepted NRC activity that will continue during the period of restricted NRC operations. Both resident and region-based inspectors will continue with their respective functions as follows:

1. Resident inspection function which includes the following activities:

    - Completion of all of the following activities that are normally assigned to a resident inspector:

        - o IMC 2506, "Construction Reactor Oversight Process General Guidance and Basis Document," including completion of all baseline activities that have been assigned to a resident inspector for the site

- Completion of reactive inspection activities pursuant to NRC Management Directive 8.3, "NRC Incident Investigation Program," and IMC 2504, Appendix C, "Response to Non-Performance-Related Issues or Events." The decision to initiate a reactive inspection shall be made in consultation with the "excepted function" Regional and Program Office managers. If applicable, the requirement for Senior Risk Analyst participation in establishing the risk significance of an event that meets the deterministic criteria is waived. Residents and "excepted function" Regional managers are granted the discretion to use available tools (including SDP screening tools and the licensee's risk tools) as they may be available and appropriate.

- Completion of baseline, reactive, and supplemental inspection activities not covered above that had been/are approved by regional management as being within the technical expertise of the residents at the site and that have been scheduled for completion during the period of lapsed appropriation.

- Emergency response, incident response, allegation, enforcement, public communication, and support for emergency licensing action activities that are typically performed by resident inspectors.

The resident inspection function does not include Construction Reactor Oversight Process activities or other program activities in the applicable IMCs shown below that require substantial support or approval from the Regional Office or a Program Office.

- IMC 2505, "Periodic Assessment of Construction Inspection Program Results"
- IMC 2519, "Construction Significance Determination Process"
- IMC 0613, "Power Reactor Construction Inspection Reports"

2. Region-based inspection function which includes the following activities:

- Initial operator licensing activity
- Operator requalification licensing inspection
- Event response which would require regional specialist expertise

The region-based inspection function does not include Construction Reactor Oversight Process activities or other program activities in the applicable IMCs shown below that require substantial support or approval from the Regional Office or a Program Office.

- IMC 2505, "Periodic Assessment of Construction Inspection Program Results"
- IMC 2519, "Construction Significance Determination Process"
- IMC 0613, "Power Reactor Construction Inspection Reports"

A03.03 Construction Resident Inspector Program

The CRI program requires the selectees to be qualified under IMC 1252, "Construction Inspector Training and Qualification Program." The selection of CRIs will be made by Region II management personnel. Staffing levels at the construction resident offices will depend on many

factors but will largely be based on the amount and type of safety-related (ITAAC) activities occurring on-site.

Most construction sites will be co-located with an existing operating reactor site that will have its own resident inspection staff. The activities at the construction sites must not be allowed to detract from the safety oversight responsibilities the NRC has toward the nearby operating facilities. In addition, the inspection programs for construction and operating sites are significantly different from each other, and the training and qualifications for CRIs are different than for operating reactor resident inspectors. Thus, the NRC has committed to keeping the CIP separate from the operational inspection program.

The amount of official interaction between the construction and operating facilities should be minimal. There may be a need for both the construction and operational resident inspectors to be knowledgeable about issues that can affect both areas. Allegations, environmental issues, security and emergency response programs, etc., are examples of potentially common issues. Generally, the construction resident inspector will not be expected to provide backup site coverage for the operations resident inspector(s). The construction resident inspectors will not normally be expected to respond to a plant event and will not be designated as a back-up responder for the operating reactor. However, the construction residents (as well as any other qualified NRC inspectors) could be directed to provide coverage for a site event if they are on site and no operating resident inspectors are available, at least until the operating resident inspection staff can arrive on site.

Site coverage requirements and back shift inspections by resident and regional inspectors during construction will be determined by Region II management.

All CRIs will stipulate a seven-year maximum tour length. This policy does not preclude CRIs from relocating for promotions, voluntary reassignments, or management-directed reassignments.

CRIs are expected to relocate site assignment after 7 years. CRIs due to rotate during the winter months or early spring may be granted an extension to the summer months with Regional Administrator approval. CRIs may be extended to no later than one year beyond completion of start-up testing of the last unit completed at a construction site with Regional Administrator approval. Any extensions beyond one year after start-up testing of the last unit completed at the site must be approved by the Deputy Executive Director for Reactor and Preparedness Programs (DEDR).

As CRIs approach the 7-year point at a site, the agency will consider inspector requests for a lateral transfer. Earlier transfers can be made when consistent with agency needs. In either case, CRIs are encouraged to make their desires and career goals known to their management as far in advance as possible.

As CRIs approach the completion of construction, the agency will consider inspector requests for a lateral transfer or reassignment to an Operational Resident Inspector (ORI). In either case, CRIs are encouraged to make their desires and career goals known to their management as far in advance as possible.

CRIs should not normally be reassigned to the same facility (after having been an ORI or CRI) even after an intervening assignment. Reassignments may be made to co-located facilities that would cause CRIs to interact with different licensee management (e.g., reassignment from an operating unit to a unit under construction at the same facility). In this case, the 7-year site time would be reset. This policy applies to total site tour length and it is not affected by a promotion from resident inspector to senior resident inspector at an operating or construction site.

CRIs should not be assigned to a different location within the first four years after relocating unless specifically approved by the DEDR or based on identified agency needs.
This policy applies to the Resident and Senior Resident Inspectors assigned at any of the reactor sites (construction or operating), fuel facilities, and gaseous diffusion plants.

A03.04 INSPECTION PROGRAM MODIFICATIONS IN EVENT OF A PANDEMIC

In the event of a pandemic, the NRC's Pandemic Response Plan (PRP) requires that aspects of the inspection program, identified as priority functions, be maintained. Additionally, the NRC's PRP allows modifications to less critical aspects of the inspection program in order to address limited inspection resources.

Therefore, "supplemental" and "generic safety" inspections may be postponed when authorized by the regional administrator. Baseline inspection activities may be reduced commensurate with available inspection and licensee resources. Event response inspections will continue. If necessary, the baseline inspection program will be reduced such that only monitoring of key construction activities will be reviewed by inspectors, if available, or by remote means, if no inspectors are available. Normal inspection activities will resume once the pandemic has passed and reasonable efforts will be made to complete missed baseline inspection activities in a reasonable timeframe.

Appendix B - Construction Inspection and Assessment Program Bases

B-01 PURPOSE

The purpose of this appendix is to provide bases used in the development of the construction inspection and assessment programs.

B-02 BACKGROUND

The staff has interacted with stakeholders and the Commission in developing the construction licensing, inspection and assessment programs. This appendix captures the bases for the significant decisions made in developing the current programs in place for oversight and assessment of reactors under construction.

B-03 DISCUSSION

B03.01 Organizational Structure. The current fleet of operating reactors was constructed pursuant to regulations contained in 10 CFR Part 50. The Office of Nuclear Reactor Regulation (NRR) is responsible for the oversight of reactor construction activities under 10 CFR Part 50. Similarly, NRR had responsibility for oversight of construction activities under 10 CFR Part 52, which was first issued in 1989. Renewed interest in reactor construction was expressed by the industry in the late 1990's and early 2000's. As workload increased and to prepare for and manage future reactor and site licensing applications, the Future Licensing Organization was established as a temporary organization in NRR in March 2001. In July 2001, the organization was permanently established as the New Reactor Licensing Project Office.

On August 12, 2005, in SECY-05-0146, the staff proposed a reorganization of NRR to be in the best organizational (programmatic and technical) position to review new reactor license applications. In this proposal, which was approved by the Commission on August 25, 2005, the Division of New Reactor Licensing was created to place greater organizational emphasis in this area.

On February 26, 2006, in SECY-06-0041, the staff proposed strategies to support implementation of the new reactor construction inspection program. On April 21, 2006, the Commission approved the formation of a dedicated organization for new reactor construction inspection in the Region II Office in Atlanta, Georgia. The Commission stated that this organization will have total responsibility for all construction inspection activities across the country, including both the day-to-day onsite inspections and the specialized inspection resources needed to support NRC oversight of the construction of any new nuclear power plants. This approach is intended to ensure consistency in implementing the new inspection program and quickly incorporate ongoing lessons learned into the entire program.

On July 21, 2006, the Commission approved the staff's recommendation as described in SECY-06-0144 to reorganize the Office of Nuclear Reactor Regulation into two offices: the Office of New Reactors (NRO) with responsibility and authority for new reactor licensing and the Office of Nuclear Reactor Regulation (NRR) with responsibility for operating reactor licensing. The Commission also approved the staff's recommendation to create a Deputy Regional

Administrator for Construction in Region II. On April 16, 2012, the NRC implemented centers of expertise (COE) within NRO and NRR in the areas of allegations, operating experience/construction experience (OpE/ConE), electrical engineering, and vendor inspection.

The Allegations COE is led by NRR with a dedicated liaison supporting NRO to ensure allegations associated with Nuclear Regulatory Commission (NRC) regulated activities are processed in accordance with agency established policies and procedures. The Office Allegation Coordinator (OAC) resides in NRR, Division of Inspection and Regional Support (DIRS), and coordinates allegation activities for NRR, NRO, and the Office of Nuclear Security and Incident Response (NSIR). Executive responsibility for management/oversight of the Allegations COE is held by the DIRS Deputy Director. The NRR Allegations COE has the responsibility to coordinate with the NRO allegations liaison to ensure NRO technical staff is appropriately involved in initial screening, follow-up, ARBs, and closure of new reactor construction allegations.

The OpE/ConE COE is led by NRR. OpE/ConE staffs reside in both NRO and NRR. Both offices focus on knowledge sharing and coordination to systematically collect, screen, evaluate, and communicate domestic and international reactor operating and construction experience, and to apply lessons learned.

The Vendor Inspection COE is led by and fully resides in NRO/DCIP. The Vendor Inspection COE supports the Allegations COE and conducts inspections to verify the effective implementation of vendor quality assurance programs in order to assure the quality of materials, equipment, and services supplied to the commercial nuclear industry. The Vendor Inspection COE also leads efforts to address and deter the potential use of counterfeit, fraudulent, and suspect items in safety-related applications. Executive responsibility for management/oversight of the vendor inspection COE is held by the DCIP Director.

B03.02 Construction Licensing and Inspection Programs. In the aftermath of the accident at Three Mile Island in March 1979, the NRC suspended the granting of operating licenses for plants that were in the pipeline. The licensing pause for fuel loading and low-power testing ended in February 1980. In August 1980 the NRC issued the first full-power operating license (to North Anna-2 in Virginia) since TMI. In the following nine years it granted full-power licenses to over forty other reactors, most of which had received construction permits in the mid-1970s.

The lengthy and laborious licensing procedures that applicants had to undergo in the cases of Shoreham and Seabrook and other reactors stirred new interest in simplifying and streamlining the regulatory process. Specifically, obtaining an operating license after construction was complete (two-step process) increased the risk and complexity of the licensing process. This risk and complexity was a major deterrent to utilities who considered building nuclear plants. The NRC proposed to simplify the traditional two-step licensing process with a one-step process. After much deliberation the Commissioners, staff, and nuclear vendors, converged on the one-step licensing process (10 CFR Part 52) that was authorized in 1989.

NUREG-1055, “Improving Quality and the Assurance of Quality in the Design and Construction of Nuclear Power Plants: A Report to Congress,” was issued May 1984 and detailed lessons learned during the early days of construction under 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities”. This report concluded that the U.S. Nuclear Regulatory Commission (NRC) was slow to detect and take strong action on significant quality problems that developed during nuclear power plant construction projects. In addition, the NRC did not have a formal assessment process in place to evaluate the performance of construction permit holders.

Following the accident at Three Mile Island, the NRC initiated an effort to better address licensee performance through the Systematic Assessment of Licensee Performance (SALP) program. Under the SALP program, the NRC periodically reviewed the overall performance of each nuclear power plant licensee (both construction permit holders and operating license holders) in a number of different functional areas. Each functional area evaluated was assigned to one of three categories to indicate whether more, less, or about the same level of NRC inspection and licensee attention was appropriate for the coming period. The SALP assessment was intended to be sufficiently diagnostic to provide a rational basis for assessing licensee performance, allocating NRC inspection resources, and providing meaningful guidance to licensee management.

In 1991, the NRC began work to revise the construction inspection program (CIP) to address programmatic weaknesses that had been identified during the inspection and licensing of plants in the 1980s. This project had two purposes: to address NRC construction inspection programmatic weaknesses that had been identified during the licensing of several plants, and to develop an inspection program for evolutionary and advanced reactors. This project was suspended in late 1994 because of the lack of nuclear power plant construction activities. In October 1996, “Draft report on the Revised Construction Inspection Program,” was issued and presented a framework from which the CIP could be reactivated to support NRC inspections at future nuclear power plants. This framework included recommendations for continuous NRC onsite inspection presence that matches inspector expertise to inspection needs, an inspection procedure format that clearly defines the attributes and associated acceptance criteria that must be inspected, and a dedicated CIP Information Management System (CIPIMS) proposed to be used to implement the CIP in concert with the inspection manual.

Late in 2000, the NRC was informed through various channels of renewed industry interest in constructing new nuclear power plants. On February 13, 2001, the Commission issued a staff requirements memorandum (SRM) for COMJSM-00-0003, in which the staff was directed to assess its technical, licensing, and inspection capabilities and identify enhancements, if any, that would be necessary to ensure that the agency can effectively carry out its responsibilities associated with an early site permit application, a license application, and the construction of a new nuclear power plant.

The staff first responded to this SRM in a memorandum dated May 1, 2001, from the EDO to the Commission. This memo outlined several organizational changes, including the temporary establishment of the Future Licensing Organization in NRR, which was responsible for coordinating the preparations for the review of new applications (i.e., early site permits, design certifications, and combined licenses). This memo also informed the Commission that NRR

would reactivate the construction inspection program revision effort suspended in 1994, and that this effort would include review and revisions of applicable inspection manual chapters and development of the associated inspection guidance and training for inspection of critical attributes of construction processes and activities.

On October 12, 2001, the staff further responded to COMJSM-00-0003 by submitting SECY-01-0188, "Future Licensing and Inspection Readiness Assessment." This SECY paper included the "Future Licensing and Inspection Readiness Assessment Report," summarizing the efforts of an interoffice working group. This report included resource estimates for revising IMCs 2511, 2512, 2513, and 2514; indicated that the NRR Inspection Program Branch (IPB) would lead CIP revisions; and discussed the formation of the New Reactor Licensing Project Office in NRR. IPB formed the CIP team, composed of representatives from each region, new reactor licensing staff, and inspection program management, and tasked it with updating the inspection and assessment program for use in inspecting reactors to be licensed and constructed under 10 CFR Part 52. The work of this team is described in NUREG 1789, "10 CFR Part 52 Construction Inspection Program Framework Documents," which was issued in April 2004.

The CIP developed by this team has four phases. The first and second phases support a licensing decision for an early site permit (ESP) and the COL application. Inspections will initially be performed to confirm the accuracy of data submitted to the NRC in support of safety evaluations for an ESP and COL. The third and fourth phases support construction activities and the preparations for operation. Prior to and during plant construction, off-site inspections will be conducted to review vendor activities and licensee oversight of these activities. During plant construction, on-site inspections will focus on verifying satisfactory completion of ITAAC, as specified in the final safety analysis report (FSAR), and also on inspecting programs for operational readiness and transition to power operations.

B03.03 ITAAC and Operational Programs History. The history of ITAAC is coupled with the history of nuclear power plant standardization, particularly with the standardization of the processes for issuing combined construction permits and conditional operating licenses. Early in the commercial nuclear power industry, there were many first-time nuclear plant applicants, designers, and consultants, and many novel design concepts. Accordingly, the process was structured to allow licensing decisions to be made while design work was still in progress and to focus reviews on individual plant-specific and site-specific considerations. Construction permits were commonly issued with the understanding that open safety issues would be addressed and resolved during construction and that issuance of a construction permit did not constitute Commission approval of any design feature. Consequently, the operating license review was very broad in scope.

The fundamental premise of 10 CFR Part 52 Subpart C is that with a mature nuclear industry, it is possible to describe and evaluate plant designs on a generic basis, and to have designs essentially complete in scope and level of detail prior to construction. This makes it possible to combine the construction permit with much of the operating license. This concept was incorporated into 10 CFR Part 52 .97(b)(1), which states that the Commission shall identify within the combined license the inspections, tests, and analyses, including those applicable to emergency planning, that the licensee shall perform, and the acceptance criteria that, if met, are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Atomic Energy Act, and

the Commission's rules and regulations. Full-power operation can then be authorized under the combined license following an opportunity for a hearing on a more limited set of issues related to whether acceptance criteria for an ITAAC have not or will not be met.

It was not clear in 10 CFR Part 52 whether COLs should contain programmatic ITAAC. Concerns related to programmatic areas started in the early 1990s. Several SECY papers at this time address the ITAAC issue, as did several letters from industry. The issue of programmatic ITAAC is discussed in some of these papers and letters. This issue was formally discussed with the Commission when, on April 20, 2000, the staff submitted SECY-00-0092, "Combined License Review Process," which discussed requiring programmatic ITAAC in COLs. In the SRM for this SECY, the Commission directed the staff to interact with stakeholders on the need for and scope of programmatic ITAAC and formally provide the Commission with a recommendation as to how to proceed on programmatic ITAAC.

Subsequently, the staff submitted SECY-02-0067, "Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for Operational Programs (Programmatic ITAAC)," in which the staff requested the Commission's approval that COLs submitted in accordance with 10 CFR Part 52 contain programmatic ITAAC. In the SRM for this paper, the Commission disapproved the staff's proposal that the COL applications submitted in accordance with 10 CFR Part 52 contain ITAAC for a wide range of operational programs such as training, quality assurance, fitness for duty, and others.

On February 26, 2004, the staff submitted SECY-04-0032, "Programmatic Information Needed for Approval of a Combined License without ITAAC," which requested the Commission's approval of a staff proposal regarding the level of programmatic information needed for approval of a COL without ITAAC for any particular program. Specifically, the staff recommended that the Commission approve the categorization of operational programs into five different categories (A-E) and, that procedure-level information be provided or available to the NRC to support review of a COL application. The staff further stated that if such information cannot be provided or made available during the COL application review, ITAAC would be necessary for that program.

In the SRM associated with SECY-04-0032, the Commission approved the categorization of operational programs into five categories but disapproved the staff's recommendation concerning the need for procedure-level information to support review of a COL application. The Commission further stated that the staff should continue the practice of inspecting relevant licensee procedures and programs in a similar manner as was done in the past and consistent with applicable inspection programs. The Commission also stated that the staff should continue to ensure, consistent with the inspection and enforcement processes, that licensees address pertinent issues prior to fuel loading.

The Commission directed the staff to complete its work on the information necessary for the COL application for each of the programs for which the staff had previously assumed ITAACs would be required (fire protection, training, quality assurance during operation, fitness for duty, access authorization, radiation protection, physical security, licensed operator, and reportability programs) by December 31, 2005, and present its results to the Commission.

On October 28, 2005, the staff submitted SECY-05-0197, “Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria,” which requested Commission approval of a staff proposal to include license conditions for operational programs in a COL. The staff concluded that a COL applicant could fully describe all operational programs and their implementation in the COL application, with the exception of EP, and that, if these programs and their implementation are fully described, they would not require ITAAC. The staff stated its intentions to inspect operational programs and their implementation as they are developed and put into place. These inspections will verify that the program being implemented is consistent with the FSAR. In addition, these inspections would verify that any changes made to the programs as described have not adversely impacted the bases for the Commission's findings of reasonable assurance. Any adverse impacts discovered during inspection will be subject to enforcement action. In the SRM associated with SECY-05-0197, the Commission approved the use of license conditions for operational program development and implementation.

B03.04 ITAAC Inspection Philosophy. Complete coverage and direct inspection of the activities associated with the entire population ITAACs contained in an approved design is an inefficient and unnecessary use of dedicated NRC inspection resources. The ITAAC inspection philosophy contained in IMC 2503 recognizes that several ITAAC are expected to be closely related, thereby providing the NRC with the opportunity to evaluate a group of ITAAC (an ITAAC family) based upon an inspection of some representative ITAAC within the family. In order to facilitate the inspection of representative ITAAC within a family to confirm adequate licensee control and completion of the ITAAC, a high level inspection planning tool, identified as the ITAAC Matrix, was developed. Such an inspection approach allows for the efficient use of NRC inspection resources not only for the ITAAC inspections, but also for the routine evaluation of the construction processes that result in the ITAAC products and completion.

B03.05 ITAAC Matrix Structure. The ITAAC Matrix identifies the 25 core inspection procedures that comprise a comprehensive set of construction programs and construction processes that the NRC believes encompass those COL licensee activities involved in the quality construction of a nuclear power plant. A review of the six matrix column titles (i.e., the programmatic activities) and the 19 matrix row titles (i.e., the process activities) reveals those activities that represent the technical disciplines and programmatic controls that not only fabricate and install the structures, systems, and components (SSCs) inherent in the design, but also check, test, and confirm that the completed, as built facility will perform as designed as well as program elements that are required to be implemented by the licensees.

The matrix structure facilitates the process of inspecting the selected sample of ITAAC and ensures adequate coverage of all construction disciplines, whether directed to a specific category of construction products (e.g., [03] Piping), or more generally, to an interdisciplinary construction process (e.g., [B] Welding). For example, all ITAAC within a specific plant design that discuss instrumentation and control (I&C) components and systems in concert with specific as built inspection criteria would be "binned" in the matrix block formed at the intersection of row (10) and column (A). The ITAAC that are binned in any particular matrix block are considered to represent an ITAAC family. The ITAAC within a family are connected by their common characteristics. The use of a matrix format facilitates identification of common ITAAC families and provides a foundation for establishment of an efficient inspection sampling approach.

B03.06 ITAAC Matrix Contents. The grouping of the ITAAC for any particular plant design into the various matrix families is defined as the process of populating the matrix. In implementing this process, a panel of NRC experts reviewed all the ITAAC for the relevant plant design and selected the one, and only one, matrix family that best covers and envelopes the construction activities involved with each ITAAC by selecting the combination of row (programmatic functions) and column (process attributes) applicable to that ITAAC. The matrix population process would only need to be performed once for any certified design having codified ITAAC, with plant specific ITAAC reviewed as necessary for placement within the proper matrix families. The matrix should be reviewed and updated following each certified revision to a design. The process is summarized as follows:

(a) An NRC expert panel reviews all the ITAAC for each certified design and for each custom design. An expert panel generally consists of three NRC personnel with some combination of expertise in plant construction, reactor risk, and project licensing, including relevant plant design and ITAAC experience or knowledge.

(b) The expert panel convened to populate the matrix reviews each of the ITAAC and places it in one of the blocks of the ITAAC Matrix.

(c) Once the expert panel determines where in the matrix each of the ITAAC for a particular design should be placed, all facilities constructed with that particular design will use that specific, populated ITAAC Matrix.

This use of a single ITAAC Matrix format provides a consistent framework for developing the inspection programs for each of the different advanced reactor designs that are licensed and built under 10 CFR Part 52. Additionally, this also ensures a degree of consistency in the inspection program within any specific design.

B03.07 What the Matrix Provides. The Matrix is a mechanism for utilizing the guidance and knowledge base learned from the existing NRC inspection program successfully used for Part 50 operating plant inspections. The Matrix incorporates this knowledge base into a related Part 52 ITAAC inspection framework which provides:

(a) A high level NRC inspection planning tool for identifying related groups (i.e., "families") of ITAAC, based upon common characteristics.

(b) A logical, convenient basis to facilitate ITAAC sampling.

(c) A consistent model for the selection of targeted ITAAC at plants of similar design.

(d) A methodology that establishes a documented process for the NRC completion of ITAAC inspections.

(e) A framework for the determination of how many ITAAC require direct inspection through the ITAAC targeting process.

(f) Utilization of related program and process inspections to assess the quality of plant construction, with necessary focus on the ITAAC. This matrix set of 25 core inspection procedures, supplemented by some complementary supporting procedures, is a significantly smaller number of inspection procedures than were used as part of IMC 2512 for the NRC inspection of the existing operating plants licensed under 10 CFR Part 50.

B03.08 Matrix Implementation. The matrix row procedures focus on inspection of quality processes for specific construction disciplines which result in installation of various plant SSCs as well as program elements that are required to be implemented by the licensees. The matrix column procedures address inspection criteria, which transcend specific disciplinary boundaries, and represent ITAAC characteristics, which may be common to several of the row processes. When implementing this inspection philosophy, an NRC inspector conducts an inspection of an installation process and the resulting system, structure or component (SSC), as defined and controlled by one of the matrix row inspection procedures. Portions of other row and column procedures may be used as appropriate for an individual ITAAC.

The inspector can focus on the available ITAAC populating that matrix row. Similarly, when an inspector reviews the program attributes defined by one of the matrix columns, and is therefore guided by one of the column inspection procedures, the inspector can focus on the available ITAAC populating that matrix column. As the inspector evaluates the quality process and programmatic criteria identified by an intersection of a matrix row and column, that inspection is focused on the ITAAC within a specific family. This allows certain relevant inspection findings and conclusions to be extrapolated to the other ITAAC in that same family, which may not have received direct NRC inspection.

B03.09 ITAAC Matrix Summary. The ITAAC Matrix format for controlling 10 CFR Part 52 COL construction inspections was developed so that ITAAC can be grouped into families that cover all the relevant construction programs and processes involved in the construction of a quality facility. The matrix identification of ITAAC families that correspond to the rows and columns of the matrix provides the logical connectivity to the programmatic and process inspections necessary for efficient inspection of the entire range of ITAAC for advanced reactor designs. NRC inspections that verify the quality of the construction programs and processes (and the resultant SSC quality) are guided by the matrix row and column inspection procedures.

B03.10 ITAAC Ranking and Targeting Process. Recognizing that the CIP cannot reasonably inspect all licensee construction activities associated with completing each ITAAC, an ITAAC prioritization methodology was needed. The NRC contracted with Information Systems Laboratories, Inc. (ISL) to develop such a methodology (ML060740006). The concept was to develop a selection process that could work with the ITAAC Matrix to rank the ITAAC of any particular design. This rank would be based upon the value that NRC inspection provides to the assurance that the completed ITAAC could be accepted without need for additional confirmation.

The ITAAC prioritization methodology objective is to optimize NRC inspection resources, while providing reasonable assurance that a significant flaw in the completion of the ITAAC by the licensee will not go undetected. The prioritization process was described in SECY-07-0047, "Staff Approach to Verifying the Closure of Inspections, Tests, Analyses, and Acceptance Criteria Through a Sample-Based Inspection Program." On May 16, 2007, in the SRM for SECY-07-0047, the Commission approved the staff's approach for selecting ITAAC to be given priority for inspection.

The prioritization process requires that the ITAAC be classified and grouped based on the same activity required to satisfy the ITAAC. Judgment was needed to decide exactly what the "same activity" should involve and was determined to correspond to an intersection of the NRC ITAAC Matrix (ITAAC family). Once grouped into a family, the ITAAC may then be prioritized within the family. The overall approach is that observing licensee performance of the activity on one ITAAC provides insights on licensee performance regarding other ITAACs.

The first step in prioritization involves rank-ordering the ITAAC based upon certain defined attributes that make one ITAAC more or less important to inspect than the others. Attributes are considered to be some of the representative characteristics of any particular ITAAC. The following five attributes were selected for ranking consideration:

a. Complexity or Difficulty of Activity. The degree of likelihood of errors occurring in the process of fabrication, installation, or testing. As an example, a bimetallic weld on the reactor vessel safe end might be more difficult than welding structural steel for a seismic pipe support. The degree of training or certification required of the "doer" such as a Level III NDE technician is an indicator of the complexity. This typically is also related to the concept of a special process which has requirements associated with it per 10CFR50, Appendix B.

b. Construction and Testing/Training Experience. To the extent known, whether the testing or construction activity is a "first of a kind" for construction or a new test conducted by a group with little experience. Experience in this case may mean limited work in the nuclear field, in a field with quality assurance requirements, or in strict adherence to procedural controls. Additionally this includes whether there is a history of quality or other performance deficiencies associated with the company or the activity.

c. Difficulty of Verifying by Other Means. The degree that the activity can be verified by observing other functional, pre-operational tests, or performance tests. This would also include the degree to which the sequence is a factor; for example, the lack of access associated with buried piping or cables, coatings inside tanks, or physical interferences. This would result in a preference to inspect now while the opportunity exists, or to defer the inspection until later when it may be just as useful to witness the pre-operational test instead.

d. Safety Significance. The safety significance assigned to the system, component, or structure included in the ITAAC. This attribute will be defined by a PRA weighting factor which will be assigned separate to expert panel evaluation of the other attributes.

e. Licensee (or applicant) Oversight Attention. The amount and effectiveness of the applicant's or licensee's oversight attention and quality assurance efforts, including those of its contractors and suppliers. This also includes those self-assessment reviews or independent audits in addition to the specific QA effort. Note this may not be known early in the sequence of construction activities or until NRC has experience inspecting the licensee's QA efforts and other self-assessment activities and generated an opinion of their performance.

The attributes are weighted according to their impact on the overall objective. Then, each ITAAC is rated for each attribute by use of expert panels.

In November 2005, an expert panel of NRC managers with extensive nuclear construction and NRC inspection experience was convened to weight each of the five ITAAC attributes. The expert panel then chose utility values for the level of inspection related to each attribute. This attribute weighting/utility selection process is part of the Analytic Hierarchy Process, which was chosen by ISL as an integral part of the ITAAC prioritization process. The results of this expert panel were provided as input to the algorithm that was created by ISL to establish the basis for the subsequent evaluation of the ITAAC against each of the five attributes. This weighting/utility process was performed for the five pre-selected attributes and will apply to any reactor design; therefore, these expert panel deliberations do not have to be repeated.

This prioritization process is managed such that the rating given each ITAAC will correlate to the amount of assurance one can obtain from inspecting that ITAAC. In this way, it is not the ITAAC that are prioritized, but rather the value of inspecting that ITAAC to the overall objective of optimizing resources to ensure that no significant construction flaw is undetected.

The output of this process has been used to target for inspection those ITAAC that had a numerical ranking at or above a selected value and has been completed for the AP1000 and ABWR. These ITAAC are referred to as targeted ITAAC. It is expected that the numerical data for each reactor design will be different and therefore that the numerical cut off value will also be different. The selected value will be selected to provide reasonable coverage of all ITAAC for the planned NRC inspection activities for direct NRC inspection. The second step used in the methodology includes a portfolio perspective or a coverage check for all ITAAC. It requires that at least one ITAAC from every family be inspected.

B03.11 Site-Specific ITAAC. In addition to the ITAAC listed in the design certification rules for approved reactor designs, each combined license application (COLA) contains site-specific ITAAC that consist of systems that are outside the scope of the standard design. In SECY-08-0117, "Staff Approach to Verify Closure of ITAAC and to Implement Title 10 CFR 52.99, "Inspection During Construction," and Related Portion of 10 CFR 52.103(g) on the Commission Finding," the staff indicated that it will review and inspect work related to the site-specific ITAAC using a method similar to the prioritization methodology described in SECY-07-0047. Headquarters staff leads the effort to prioritize site-specific ITAAC contained in the COLs and the ITAAC contained in the design control documents (DCDs) for future reactor designs. The staff will form expert panels that will select the site-specific ITAAC samples based on safety significance and the ability to inspect. The COLAs also contain ITAAC for emergency preparedness (EP) and physical security. The staff will inspect work activities related to all physical security and EP ITAAC.

The staff based this decision on the relatively small number of physical security and EP ITAAC, the qualitative nature of the Security and EP ITAAC, and their high relative importance. In addition to the ITAAC-related work inspections, the staff is planning comprehensive inspections of the operational programs for security and EP. This will include force-on-force security inspections and NRC observations of EP exercises.

B03.12 Design Acceptance Criteria (DAC) ITAAC. An additional ITAAC inspection area concerns DAC, which are a subset of the ITAAC for a given design, which means they are considered ITAAC. The DAC are design details that were not provided at the time of DCD submittal, with the understanding that these design details would be available during construction and verified as part of the ITAAC to demonstrate that the system design and as-built configuration conformed to the licensing basis. The DAC is designated in three specific disciplines as outlined in SECY 92-053. They are: Digital I&C design; Piping design; and Human Factors engineering. Additionally, the ABWR design includes some limited Radiation Protection DAC.

It is the staff's intention that DAC associated with an ITAAC will be inspected as the design detail is made available by a COL applicant or licensee. The complexities of the DAC dictate that these inspections will normally be led by Region II with support from NRO technical staff, which will provide an inspection report feeder to Region II. Since DAC inspection will be required to satisfy the associated ITAAC, all DAC inspection will be required prior to the 10 CFR Part 52.103(g) finding.

B.03.13 Process for the Modification of the ITAAC Target Set. The overall objective of the original prioritization process was resource optimization while providing reasonable assurance that a significant flaw by the licensee would not go undetected. The ITAAC prioritization process implies that the prioritization process should be "adaptive" and use lessons learned or inspection history to modify the prioritization.

The targeted ITAAC set can be changed if the intent of the original prioritization is upheld. To accomplish this, for any modification to the targeted ITAAC set, the NRO staff will perform a technical review of the proposed change to ensure the following two principles are met:

a. The value of inspection is maintained. ITAAC are assigned a value based on several criteria and are given a ranking. If a targeted ITAAC is not performed, the NRC should assure that other ITAAC provide adequate, representative NRC inspection coverage. If a targeted ITAAC inspection is not performed, the NRC must ensure that the scope of the quality process or program represented by that ITAAC has been adequately covered by other ITAAC inspections.

b. Portfolio coverage is required. One of the underlying principles of intelligent sampling (or dynamic sampling) is the concept of portfolio coverage. This concept means that regardless of risk ranking, for the prioritization process to be considered valid, at least one sample must be taken from every ITAAC family or bin. A targeted ITAAC cannot be removed from planned NRC inspections if the activity that would have been inspected is not validly assessed by other ITAAC inspections within the family.

The staff should conduct these reviews by using an appropriate panel of experts. Upon completion of its review, the expert panel will provide recommended changes to the targeted ITAAC set to the Director, DCIP for approval.

B03.14 Construction and Operational Program Inspections. While the ITAAC will be the focus when selecting which activities to inspect, the NRC staff will inspect more than just ITAAC-related work. Licensees are required by regulation to develop and implement construction programs that are listed in IMC 2504. Construction program inspections that are conducted pursuant to IMC 2504 include inspection of the licensee's ITAAC management program and QA activities affecting systems, structures, and components (SSCs) that are installed in the plant. Therefore, ITAAC will be indirectly evaluated by programmatic inspections because such programs affect the quality of the SSCs that are the subject of the ITAAC. Additional construction program inspections address reporting of defects and non-compliances, fitness for duty, and the preoperational testing program. The staff's verification that the licensee has properly developed and implemented required construction programs is directly related to the NRC's use of sampling during inspections and is the foundation of the assumption that the specific construction activities inspected by NRC are representative of similar activities that did not receive direct NRC inspection.

As the project progresses, the NRC will inspect the development and implementation of operational programs. The scope and content of the operational programs will have been reviewed by the technical staff during the COL application review process and approved when the COL was issued. The COL will contain license conditions that include milestones by which operational programs must be developed and implemented. The approved operational programs must be developed and implemented prior to the milestones listed in the COL. The staff intends to inform the Commission of the status of operational programs at the time of the 10 CFR 52.103(g) decision.

B.03.15 Construction Assessment Program. A construction assessment program was developed by NRO through interactions with its stakeholders. Details regarding implementation of the construction assessment program are contained in IMC 2505, "Periodic Assessment of Construction Inspection Program Results," which was initially issued on October 20, 2008. The initial version of IMC 2505 included a CAM, which provided guidance for NRC response to degraded licensee performance. The significance of findings was determined using a traditional enforcement approach. A description of the construction assessment program was provided to the Commission in SECY-08-0155, "Update on the Development of the Construction Inspection Program for New Reactor Construction under 10 CFR Part 52," dated October 17, 2008. On December 5, 2008, the Commission issued SRM M081022, which directed the staff to reconsider the construction assessment process as presented in IMC 2505 and propose policy options to the Commission. The Commission further directed that the staff proposal should address the inclusion in the construction oversight process of objective elements such as construction program performance indicators (PIs) and significance determination processes (SDPs) analogous to those used in the ROP.

The staff issued IMC 2505, Revision 1, on December 24, 2009, to provide assessment program guidance to be implemented for construction activities ongoing while the Commission made a final determination of how the assessment program should be implemented. This revision retained much of the guidance from the initial issuance of IMC 2505, and added a safety culture approach which is similar to the approach taken in the ROP.

In response to SRM M081022, NRO, other program offices, and the regional offices formed an interoffice working group to develop construction assessment program options for Commission consideration. Extensive interactions occurred with external stakeholders in the development of construction assessment program options for Commission consideration. On October 26, 2010, the staff submitted SECY 2010-0140, "Options for Revising the Construction Reactor Oversight Process Assessment Program." In SECY 10-0140, the staff recommended that the Commission approve the development of a construction assessment program that includes a regulatory framework, the use of a construction significance determination process (SDP) to determine the significance of findings identified during the CIP, and the use of a CAM to determine the appropriate NRC response to findings. "In Staff Requirements Memorandum (SRM) SECY-10-0140, "Options for Revising the Construction Reactor Oversight Process Assessment Program," dated March 21, 2011, the Commission approved the staff's recommendation.

The staff developed a new cROP that consists of many of the same objective elements as those used in the ROP, starting with a construction regulatory framework and including a construction significance determination process, a construction action matrix, and a similar enforcement approach to that which is in use in the ROP. Beginning on January 1, 2012, the staff conducted a 12 month pilot program for the new cROP in accordance with the guidance in memorandum, "Pilot Program for the Construction Reactor Oversight Process Assessment and Enforcement Programs," dated January 5, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML113120210). The pilot was conducted at Southern Nuclear Operating Company's (SNC's) Vogtle, Units 3 and 4, and South Carolina Electric and Gas Company's (SCE&G's) Virgil C. Summer, Units 2 and 3. The staff reported the results of the pilot and planned program changes to the Commission in SECY Paper 13-0042, "Construction Reactor Oversight Process Self Assessment for Calendar Year 2012 and fully implemented the new programs on July 1, 2013.

Attachment 1 - Acronyms

ABWR - Advanced Boiling Water Reactor
AP1000 - Advanced Passive 1000
AV - Apparent Violation
CGIs - Commercial Grade Items
CIP - Construction Inspection Program
CIPB – Construction Inspection Program Branch
CIPIMs - Construction Inspection Program Information Management System
COL - Combined License
ConE - Construction Experience
CRIs - Construction Resident Inspectors
cROP - Construction Reactor Oversight Process
cSCCI - Construction Substantive Cross-Cutting Issue
DAC - Design Acceptance Criteria
DC - Design Certification
DCD - Design Control Document
DCI – Division of Construction Inspection
DCIP - Division of Construction Inspection and Operational Programs
DCP – Division of Construction Projects
DCRA - Design-Centered Review Approach
DEDR - Deputy Executive Director for Reactor and Preparedness Programs
DNRL – Division of New Reactor Licensing
EDV - Engineering Design Verification
EPR - Evolutionary Power Reactor
ESBWR - Economic Simplified Boiling Water Reactor
ESP - Early Site Permit
FEMA - Federal Emergency Management Agency
FIN - Finding
FRN – Federal Register Notice
FSAR - Final Safety Analysis Report
HQ - Headquarters
ICN - ITAAC Closure Notification
IGCB - ITAAC and Generic Communications Branch
IMC - Inspection Manual Chapter
IP - Inspection Procedure
ITAAC - Inspections, Tests, Analyses and Acceptance Criteria
ITP - Initial Test Program
LAR – License Amendment Request
LWA - Limited Work Authorization
MOU – Memorandum of Understanding
NCV - Non-Cited Violation
NOV - Notice of Violation
NRC - Nuclear Regulatory Commission
NRO - Office of New Reactors
NRR - Office of Nuclear Reactor Regulation
OE - Office of Enforcement
OpE - Operating Experience
OSHA – Occupational Safety and Health Administration

Attachment 1 - Acronyms

PAR – Preliminary Amendment Request
PM – Project Manager
PRP – Pandemic Response Plan
QA - Quality Assurance
QC - Quality Control
R-COL - Reference Combined License
ROP - Reactor Oversight Process
S-COL - Subsequent Combined License
SCWE - Safety Conscious Work Environment
SSCs - Structures, Systems, and Components
URI - Unresolved Item
VIO - Violation

Attachment 2 – Revision History for IMC 2506

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 (Pre-Decisional, Non-Public)
N/A	10/27/2010 CN 10-022	New Issue to support reactor licensing and construction oversight activities under 10 CFR Part 52. Incorporated guidance for: 1. Field Policy Manual (FPM) Chapter 8 - RI Relocation Policy 2. FPM Chapter 13 – Witnessing Unsafe Situations 2. FPM Chapter 18 - Guidelines for Granting Exceptions... Multi-Unit Reactors 3. FPM Chapter 19 - Guidance for Recommending Third-Party Assistance to Licensees (WITS item 201000103 (EDATS: OEDO-2010-0230)) Completed 4 year historical CN search – no commitments found.	N/A	ML102170345
N/A	10/29/2011 CN 11-026	Revision to document pilot of new assessment program and other minor revisions to reflect current program guidance	N/A	ML112590496
N/A	ML12297A077 11/19/2012 CN 12-026	Revision to address comments received in the IMC/IP revision process. Added definitions, clarified baseline inspection program planning, requirements and completion criteria, clarified pre-COL inspection roles and responsibilities, changed references from CCI to Region II, and added references to the creation of Centers of Expertise.	N/A	ML12297A079

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 (Pre-Decisional, Non-Public)
N/A	ML13247A090 10/03/13 CN 13-024	Revision to support full implementation of new cROP assessment and enforcement programs and incorporate enforcement guidance.	Yes 06/05/2013	ML13241A097
N/A	ML14262A443 10/15/2014 CN 14-024	Incorporated IMC/IP revision process suggestions and safety culture common language initiative	Provide training during the 12/2014 Region II Counterpart Meeting	ML14265A462
N/A	ML15055A477 03/16/2015 CN 15-004	Add guidance for inspection activities during a lapse in appropriations.	N/A	