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DATE OF MEETING  
  
**09/07/2001**

The attached document(s), which was/were handed out in this meeting, is/are to be placed in the public domain as soon as possible. The minutes of the meeting will be issued in the near future. Following are administrative details regarding this meeting:

Docket Number(s)	<u>NA</u>
Plant/Facility Name	<u>Nuclear Energy Institute</u>
TAC Number(s) (if available)	<u>NA</u>
Reference Meeting Notice	<u>August 17, 2001</u>
Purpose of Meeting (copy from meeting notice)	<u>To discuss ITAAC verification and related issues. The</u> <u>meeting is a continuation of a June 15, 2001, meeting</u> <u>with NEI</u>

NAME OF PERSON WHO ISSUED MEETING NOTICE  
**Joseph Sebrosky**

TITLE  
**Project Manager**

OFFICE  
**NRR**

DIVISION  
**NRLPO**

BRANCH

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Docket File/Central File  
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*DF03*

# ITAAC Verification Topics

NEI/NRC Meeting  
September 7, 2001



## MEETING PURPOSE

- Continue discussion of goals, principles and guidance for effective, efficient and predictable ITAAC verification:
  - To provide a complete understanding of this key Part 52 process and support informed business decisions
  - To serve as a platform for construction planning and detailed construction inspection program (CIP) development



## Discussion Topics

- Recap of June 15 discussions
- Key aspects of §§ 52.99 and 52.103 processes
- ITAAC determination bases
- Engineering design verification by NRC
- Operational program readiness inspections
- Related topics
- Next steps



3

## Key Points from June 15 Meeting

- Important distinction between ITAAC and QAP
- Allowance for early ITAAC findings
- Construction process inspections
- Safety-focused construction inspection by NRC
- More discussion needed



4

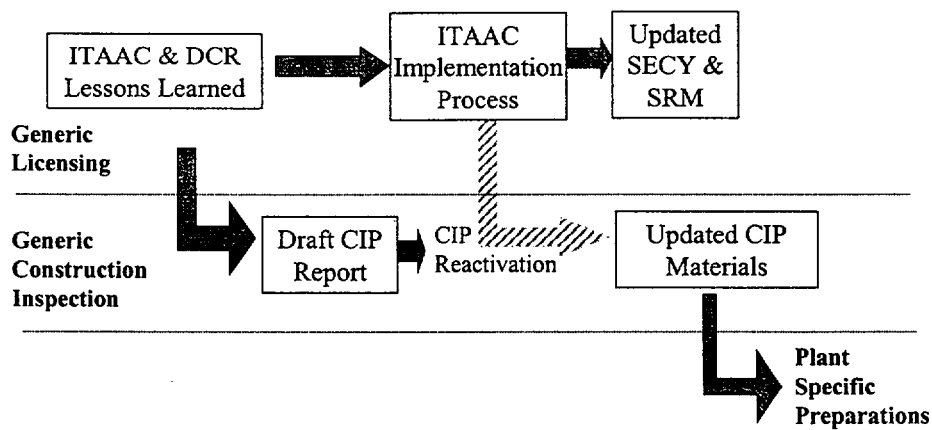
## Key Concepts

- Engineering design verification - NRC process for verifying that the detailed design and construction drawings are consistent with the design approved in the license.
- Construction QAP - Continuous licensee process for assuring that design and construction activities, including ITAAC ITA, are performed in accordance with the license, NRC regulations and applicable codes and standards, and that SSCs will perform intended functions
- Construction inspection program - The NRC process for assessing the effectiveness of the licensee's construction activities and QAP
- ITAAC verification - NRC process for confirming that the licensee has completed specified ITAAC inspections, tests and analyses and that associated acceptance criteria have been met



5

## CIP Development Process



6

## §§ 52.99 and 52.103 Process Issues

- ITAAC completed in the last six months before fuel load
- Handling of new information after a § 52.99 notice is issued
- Timing of the 52.103(c) and (g) findings
- § 52.99 ITAAC verification vs. § 52.103 hearing process



7

## PROPOSED SECTION 52.99 - INSPECTION DURING CONSTRUCTION

- (a) The licensee shall perform and demonstrate conformance with the ITAAC before fuel load. With respect to activities subject to an ITAAC, an applicant for a license may proceed at its own risk with design and procurement activities, and a licensee may proceed at its own risk with design, procurement, construction, and preoperational activities, even though the NRC may not have found that any particular ITAAC has been satisfied.
- (b) A designated officer or manager of the licensee shall notify the NRC that the required inspections, tests, and analyses in the ITAAC have been successfully completed and that the corresponding acceptance criteria have been met.
- (c) In the event that an activity is subject to an ITAAC, and the licensee has not demonstrated that the ITAAC has been satisfied, the licensee may either take corrective actions to successfully complete that ITAAC, or request an exemption from the ITAAC in accordance with the design certification rule or an amendment of the ITAAC under § 52.97(b) of this part, as applicable.
- (d) The NRC shall ensure that the required inspections, tests, and analyses in the ITAAC are performed. The NRC shall verify that the inspections, tests, and analyses referenced by the licensee have been successfully completed and, based solely thereon, find the prescribed acceptance criteria have been met. At appropriate intervals during construction, the NRC shall publish notices of the successful completion of ITAAC in the Federal Register.
- (e) After the Commission has made the finding required by § 52.103(g) of this subpart, the ITAAC do not, by virtue of their inclusion within the DCD or combined license, constitute regulatory requirements either for licensees or for renewal of the license; except for specific ITAAC, which are the subject of a § 52.103(a) hearing, their expiration shall not constitute a final Commission action in such proceeding.



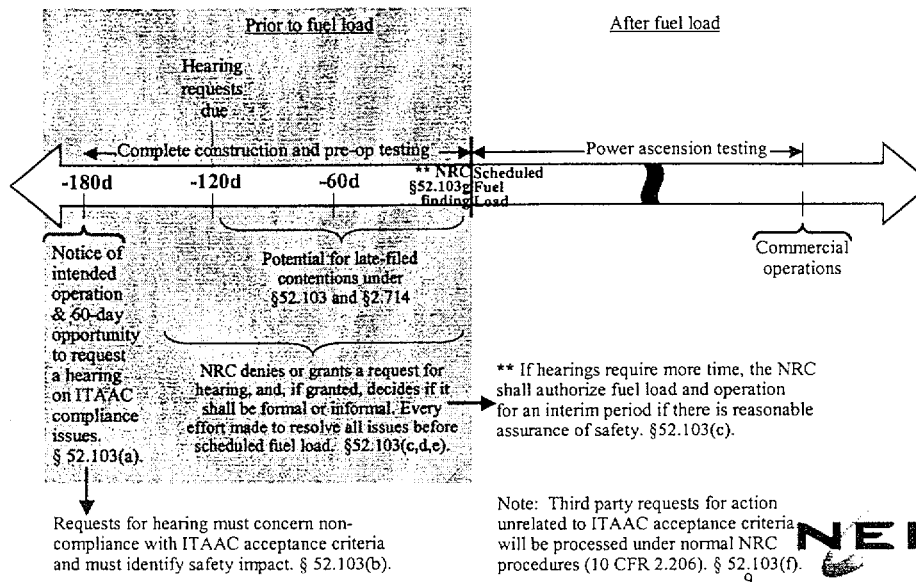
8

10 CFR 52.103\*

- (a) Not less than one hundred and eighty days before the date scheduled for initial loading of fuel into a plant by a licensee that has been issued a combined construction permit and operating license under subpart C of this part, the Commission shall publish in the Federal Register notice of intended operation. That notice shall provide that any person whose interest may be affected by operation of the plant, may within sixty days request the Commission to hold a hearing on whether the facility as constructed complies, or on completion will comply, with the acceptance criteria of the inspections, tests, analyses, and acceptance criteria (ITAAC) in the license.
- (b) A request for hearing under paragraph (a) of this section shall show, prima facie, that:
  - (1) One or more of the acceptance criteria of the ITAAC in the combined license have not been, or will not be met; and
  - (2) The specific operational consequences of nonconformance that would be contrary to providing reasonable assurance of adequate protection of the public health and safety.
- (c) After receiving a request for a hearing, the Commission expeditiously shall either deny or grant the request. If the request is granted, the Commission shall determine, after considering petitioners prima facie showing and any answers thereto, whether during a period of interim operation, there will be reasonable assurance of adequate protection of the public health and safety. If the Commission determines that there is such reasonable assurance, it shall allow operation during an interim period under the combined license.
- (d) The Commission, in its discretion, shall determine appropriate hearing procedures, whether informal or formal adjudicatory, for any hearing under paragraph (a) of this section, and shall state its reasons therefor.
- (e) The Commission shall, to the maximum possible extent, render a decision on issues raised by the hearing request within one hundred and eighty days of the publication of the notice provided by paragraph (a) of this section or the anticipated date for initial loading of fuel into the reactor, whichever is later.
- (f) A petition to modify the terms and conditions of the combined license will be processed as a request for action in accord with 10 CFR 2.206. The petitioner shall file the petition with the Secretary of the Commission. Before the licensed activity allegedly affected by the petition (fuel loading, low power testing, etc.) commences, the Commission shall determine whether any immediate action is required. If the petition is granted, then an appropriate order will be issued. Fuel loading and operation under the combined license will not be affected by the granting of the petition unless the order is made immediately effective.
- (g) Prior to operation of the facility, the Commission shall find that the acceptance criteria of the ITAAC in the combined license are met.
- (h) If the combined license is for a modular design, and if the modular reactors are being constructed on different schedules, each reactor module may require a separate notice and opportunity for hearing under paragraph (a) of this section and a separate finding that the ITAAC are met under paragraph (g) of this section. If an individual ITAAC has been met for all modules, the Commission will provide only one notice and opportunity for hearing, and will make only one finding, with respect to that ITAAC for all modules.

\* Includes highlighted clarifications proposed in NEI letter dated April 3, 2001.

## 10 CFR 52.103 Process



## § 52.99 Notice Basic Attributes

- Background and contextual information
- Identification of covered ITAAC
- Reference to ITAAC determination bases, relevant NRC inspection reports and supporting information considered by the staff
- NRC staff conclusion that the subject ITAAC have been successfully completed
- Identification that opportunity for hearing will be provided in accordance with § 52.103(a)
- Request that information contrary to the NRC conclusion be provided ASAP upon discovery so that appropriate corrective action can be taken

NEI

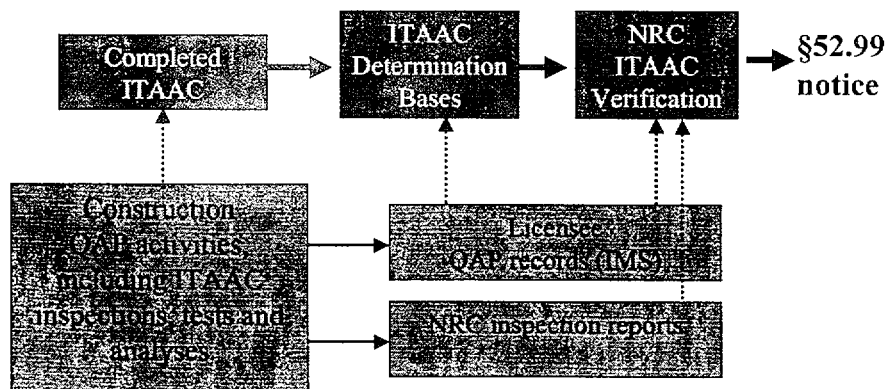
## §§ 52.99 and 52.103 Process Issues

- ITAAC completed in the last six months before fuel load
- Handling of new information after a § 52.99 notice is issued
- Timing of the 52.103(c) and (g) findings
- § 52.99 ITAAC verification vs. § 52.103 hearing process



11

## ITAAC Implementation Process



12



## KEY THEMES

- Licensee is responsible for implementing the QAP and determining ITAAC are met; NRC staff role is confirmatory
- ITAAC are a predetermined subset of normal construction inspection and test activities performed under the QAP
- ITAAC process adds to licensing, not to inspections
- CIP should be both ITAAC-focused and safety-focused
- CIP should provide for early NRC staff sign-off of satisfactory construction processes and completed ITAAC
- The CIP must preserve the vital distinction between ITAAC and QAP implementation, i.e., between Tier 1 and non-Tier 1 verifications so as to not complicate and confuse the post-construction hearing process

13



## NRC Inspection Reports – Construction Processes

Envisioned inspection reports:

- Site preparation
- Structures
- Welding
- Safety-related piping
- Measuring and test equipment
- Penetrations
- Many more

14



## NRC Inspection Reports – Engineering Design Verification

### Envisioned inspection elements

- EQ
- Seismic
- Separation/independence
- HELB analyses
- Fire protection
- Configuration management process
- Others



15

## Construction Process and Design Engineering Inspections

- Distinct from ITAAC verification
- Completed early vis-à-vis most ITAAC
- Federal Register notices envisioned upon inspection report completion

Other, more narrowly focused, NRC  
inspection reports also envisioned



16

## Federal Register Notices

- CIP & EDV FRNs – Identification that licensee construction and engineering processes are acceptable
- ITAAC/§52.99 FRNs – Identify that ITAAC acceptance criteria have been met

NRC need not revalidate processes to sign-off end-of-process ITAAC



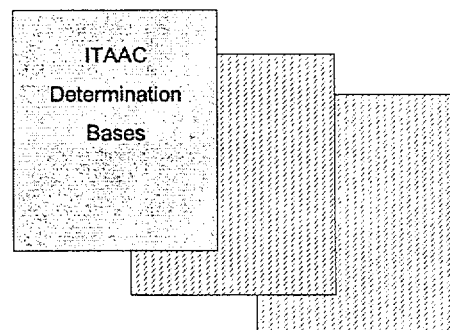
17

## Licensee ITAAC Determination

### Licensee ITAAC Determination

- Specifies scope of completed ITAAC
- Identifies that ITAAC determination bases are available for audit
- Requests NRC staff confirmation and §52.99 FRN

### QAP Records



18

## Licensee ITAAC Determination Process (cont.)

- ITAAC determination bases available on-site would:
  - Identify the ITA performed and acceptance criteria met (taken directly from the COL)
  - Identify the affected SSCs
  - Contain specific ITA results providing the basis for the ITAAC determination
- Licensee will maintain available for audit
  - ITAAC determination bases
  - Supporting QAP information
- Configuration management controls will preserve the validity of ITAAC determinations

} Readily  
retrievable  
via IMS



19

## NRC Staff ITAAC Finding Process

- NRC receives licensee ITAAC Determination Letter
- NRC staff may base ITAAC findings on one or more of the following:
  - Audit of ITAAC determination bases (IDB) and supporting QAP information
  - Reference to relevant NRC inspection reports
  - Prior observation of licensee performance of specific or representative ITA
  - Verification of specific physical plant condition
- *De novo* inspection by NRC staff not required



20

## **NRC Staff ITAAC Finding Process (cont.)**

- Discrepancies noted during audit of IDB, supporting QAP info, or in the field would be referred to the licensee's normal corrective action program
- Unless the discrepancy represents an ITAAC noncompliance, the staff would be expected to make the required § 52.99 finding
- At least 180-days before fuel load, the NRC staff would make a determination regarding the status of ITAAC completion to support the notice of intended operation required by §52.103(a)

21

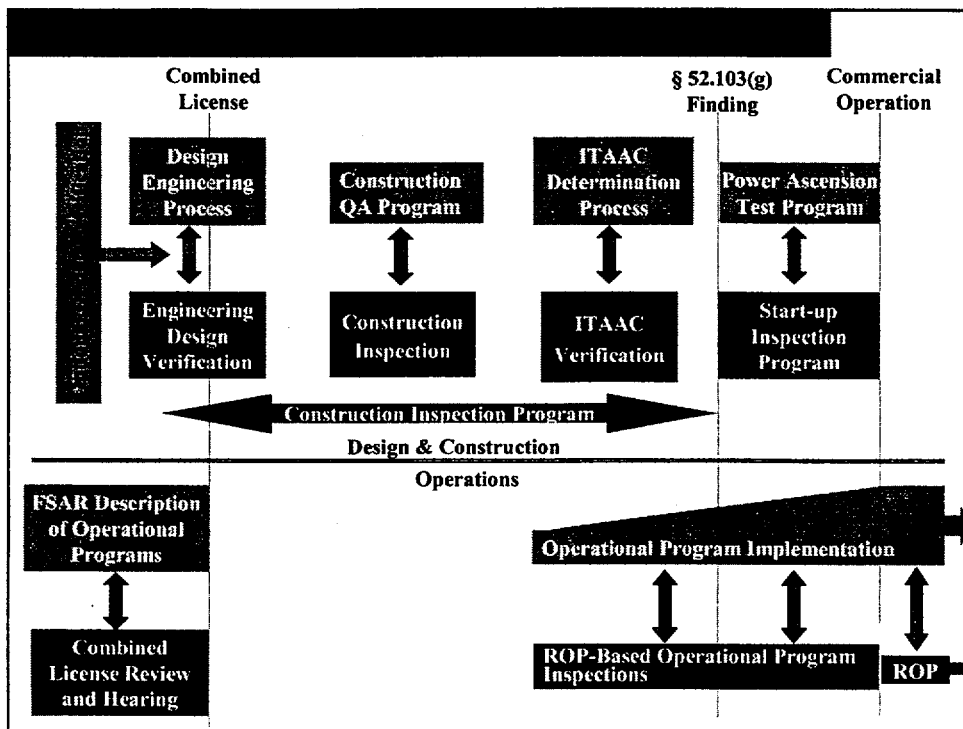


## **Engineering Design Verification**

- Purpose: To establish confidence that detailed design conforms to that approved in the COL
- Should be completed early in the project's life—independent of ITAAC

22





## Engineering Design Verification (cont.)

- Processes in place and detailed design information available to support early verification by NRC staff
- Safety-focused audits of design engineering process and detailed engineering products
- “Vertical slice” and related methods
- Federal Register notice of successful completion
- Spot checks after FRN of detailed engineering implementation
- License condition on fidelity of detailed design with respect to that approved



## NRC Inspection Guidance

- IM-2530, Integrated Design Inspections
  - NRC personnel
  - Specifications, drawings, calculations, procedures
  - Track criteria through the design process
  
- IM-2535, Design Verification Programs
  - Applicant or independent contractor
  - Formats: independent design verification, engineering assurance programs, and readiness reviews
  - Programs are reviewed by NRC
  - Performed late in construction process

25



## NRC Inspection Guidance (continued)

- Updated NRC inspection guidance needed to:
  - Comport with Part 52
  - Ensure EDV is safety focused and performance based
  - Ensure EDV is performed early

26



## Operational Readiness Part 50 vs. Part 52

### Part 50

- CP/OL
  - License conditions
  - TS compliance
- QAP implementation/  
oversight
- 10 CFR 50.57

### Part 52

- COL
  - License conditions
  - TS compliance
- QAP implementation/  
oversight
- ITAAC/10 CFR 52.103



27

## Part 52 Operational Readiness: Parallel Tracks

- Physical plant readiness assured via  
ITAAC process and underlying QAP
- Operational program readiness assured by  
required compliance with NRC regulations
  - Ensured by NRC inspection & enforcement
  - Documented via 94300-like process\*

\* NRC Inspection Procedure 94300, "Status of Plant Readiness for an OL"



28



## NRC Operational Program Readiness Inspections

- Concepts
- Safety focus
- Readiness determination
- NRC enforcement authority

29



## NRC Operational Program Readiness Inspections—Concepts

- **Safety Focused Operational Readiness Inspection Program**
- **Focuses Inspection Activities on Safety Significant Areas**
- **Inspections Balanced with Regulatory Compliance Areas**
- **Promotes Efficient Use of Inspection Resources**
- **Provides Systematic Transition to Operations Phase ROP**

30



## NRC Operational Program Readiness Inspections—Safety Focus

- Safety-focus based on ROP Baseline Inspection Program
- Inspections Focused on Cornerstones of Safe Operation
  - **Reactor Safety (Avoiding and Mitigating Accidents)**
    - Initiating Events
    - Mitigating Systems
    - Barrier Integrity
    - Emergency Preparedness
  - **Radiation Safety (Plant Personnel and Public)**
    - Occupational Radiation Safety
    - Public Radiation Safety
  - **Safeguards (Protection Against Sabotage and Other Threats)**
    - Security Program
    - Fitness for Duty Program



## NRC Operational Program Readiness Inspections—Safety Focus (cont.)

- Inspections Include "Cross Cutting" elements of ROP
  - ◆ **Human Performance (Personnel Errors)**
  - ◆ **Safety Conscious Work Environment (Management attention to safety and worker's ability to raise safety issues)**
  - ◆ **Corrective Action Program (Finding and fixing problems)**
- Balance of Inspections devoted to Underpinning Regulatory Compliance Areas
  - ◆ **Quality Assurance Program**
  - ◆ **Technical Specification Program**



## NRC Operational Program Readiness Inspections—Readiness Determination

Envisioned NRC Region letter to NRR:

- IP 94300-like process
- Prior to scheduled fuel load
- Summarizes completion status of NRC operational program inspections
- States that NRC knows of no adverse condition that would warrant enforcement action affecting fuel load
- Assumes no “programmatic ITAAC”



33

## NRC Operational Program Readiness Inspections— NRC Enforcement Authority

- Non-compliance with COL conditions or regulatory requirements may result in enforcement action:
  - ◆ Issuing an Order prohibiting fuel load
  - ◆ Imposing Requirements by Order
  - ◆ Issuing a Demand For Information
  - ◆ Imposing Civil Penalties



34

## Wrap-up and Next Steps

35



36

