



**U.S.NRC**

UNITED STATES NUCLEAR REGULATORY COMMISSION

*Protecting People and the Environment*

# **Role of the Assessment and Enforcement Programs**

August 30, 2007

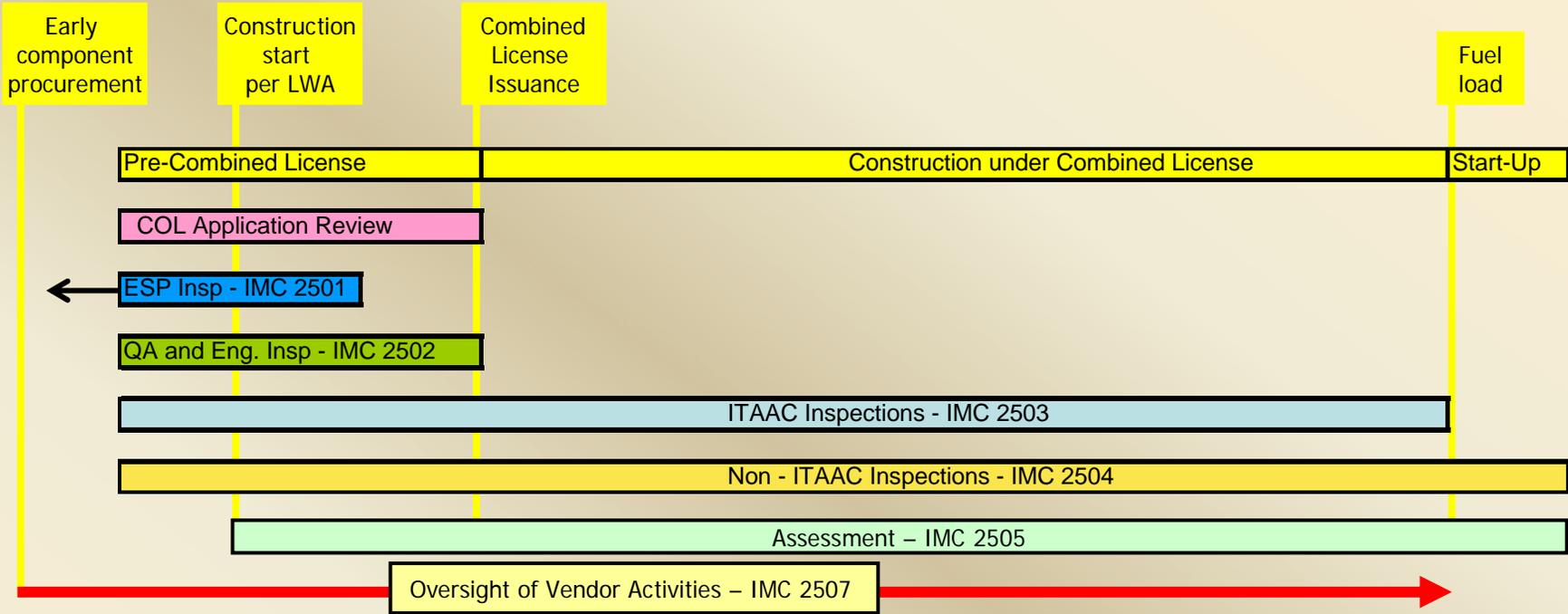


# Background

- 2001- CIP Team formed
- 2004 – CIP framework document issued
- May 2005 workshop
- January 2007 workshop
- CIPIMS database

# NRC CONSTRUCTION OVERSIGHT HAS MULTIPLE COMPONENTS

*Oversight will assure plants are constructed as designed.*



## Abbreviations

ESP – Early Site Permit  
 IMC – Inspection Manual Chapter  
 ITAAC – Inspections, Tests, Analyses, and Acceptance Criteria  
 LWA – Limited Work Authorization

## IMC 2501

-ESP QA controls on integrity & reliability of data collected for site characterization.  
 -ESP controls for application preparation

## IMC 2502

-QA for design, procurement, & construction  
 -Translation of certified design into design details  
 -COL controls for application preparation

## IMC 2503

Verification of successful performance of ITAAC-related activities

## IMC 2504

-QA for construction & operations  
 -Problem identification, reporting, & corrective action  
 -Work planning/control over work & contractors  
 -Translation of certified design into design details  
 -Design change process  
 -Pre-operational & startup testing  
 -Operational programs & operational readiness

## IMC 2505

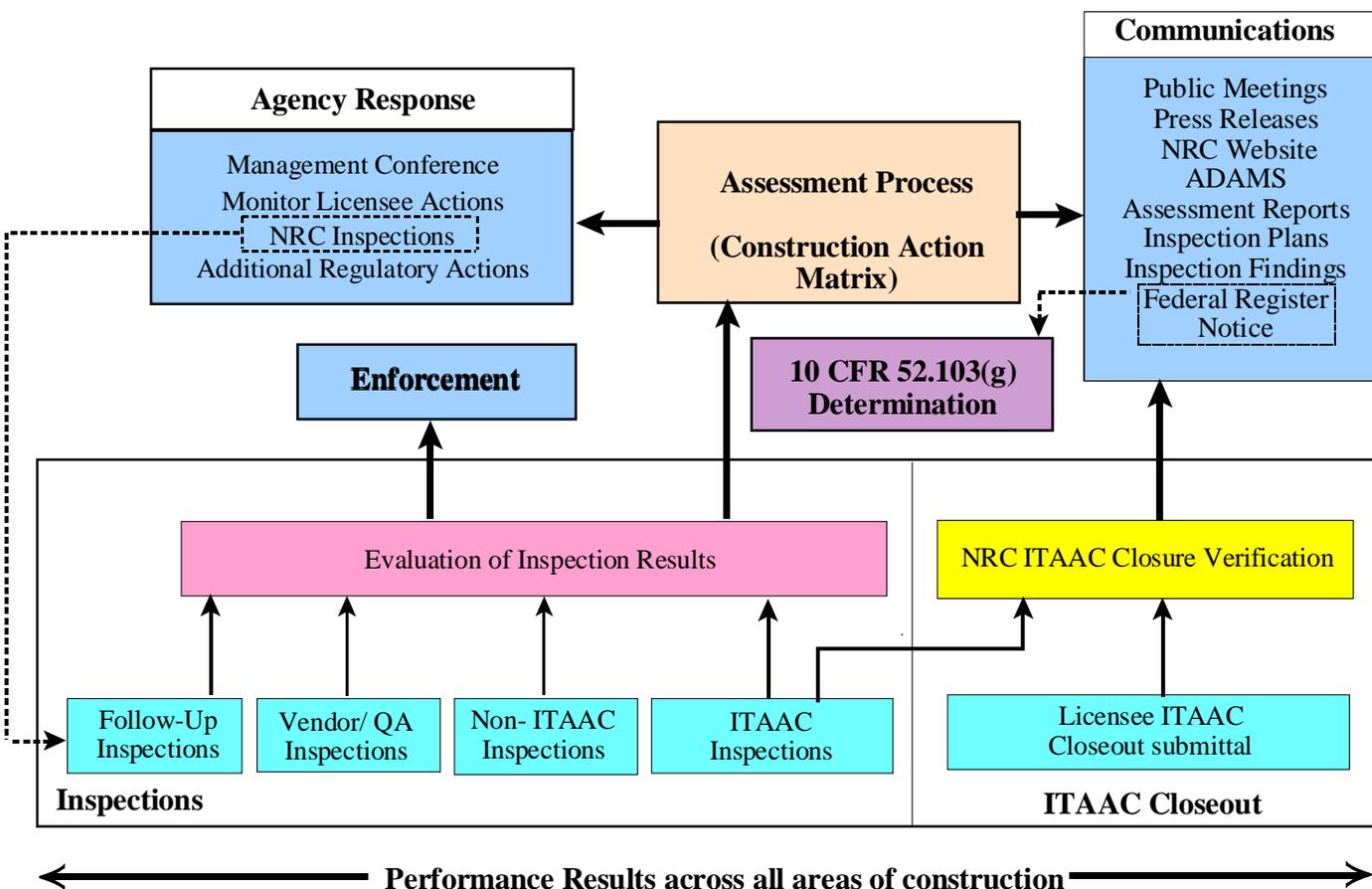
-Guides inspection planning  
 -Guides assessment of licensee performance

## IMC 2507

- Verification of QA program implementation, compliance, reporting and corrective action



# Construction Oversight Process





# Guiding Principles

- Keep it simple
- Appropriate for a construction environment
- Timely communication and resolution of identified issues
- Utilize appropriate ROP principles (transparent, predictable, scrutable)
- Public availability of inspection information



# Construction Inspection Program Objectives

- Collect data to support licensing decisions
- Monitor and evaluate construction activities supporting ITAAC completion
- Support NRC verification of ITAAC closure
- Monitor and evaluate the development and implementation of operational programs
- Evaluate operational readiness
- Communicate inspection results to stakeholders



# Assessment Program

- **Assessment Program Objectives**
  - Collect information from construction inspections
  - Objectively determine licensee performance
  - Guide timely and predictable decisions regarding Agency actions
  - Provide a process for informing stakeholders of the NRC's assessment
  - Provide a process to follow-up on areas of concern
- **Elements of Assessment Program**
  - Inspection insights
  - Process for evaluation of individual issues
  - Process for periodic assessment of licensee performance
  - Action levels for increasing regulatory oversight
  - Stakeholder involvement and meetings



# Enforcement Program

- Enforcement Program Objectives
  - Encourage prompt identification and prompt, comprehensive correction of violations of NRC requirements
  - Deter non-compliance by emphasizing the importance of compliance with NRC requirements

*Same as operating reactors licensed under Part 50*



# Workshop Goals

- Greater understanding and alignment at the conceptual level
- Feedback on improvements to workshop proposals
- Compile topics for next public meeting

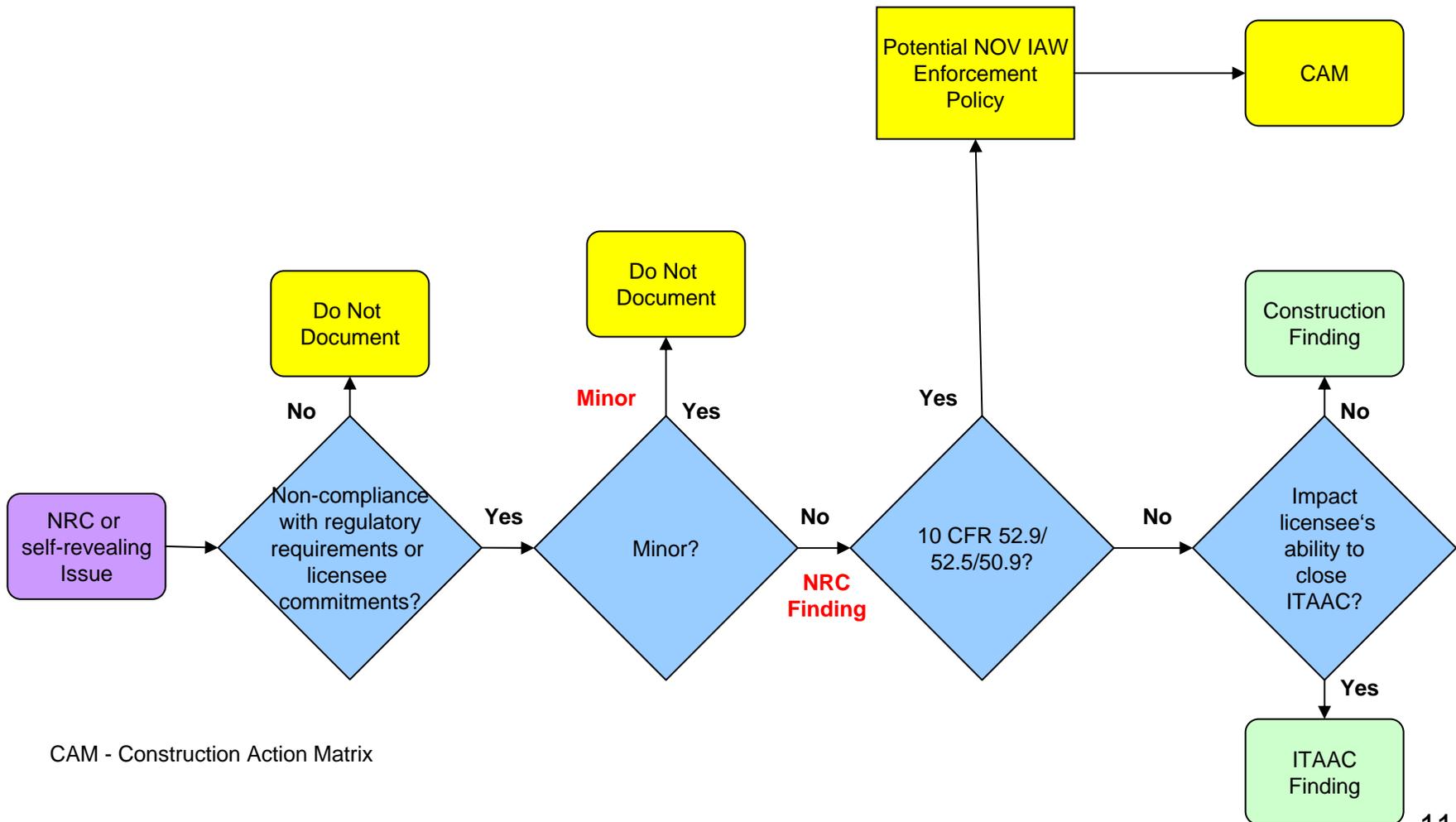


# Introduction of Concepts

- Types of findings
- Minor findings
- Cross-cutting issues
- Notice of ITAAC Non-Conformance
- Enforcement
- Assessment
- Licensee-identified issues



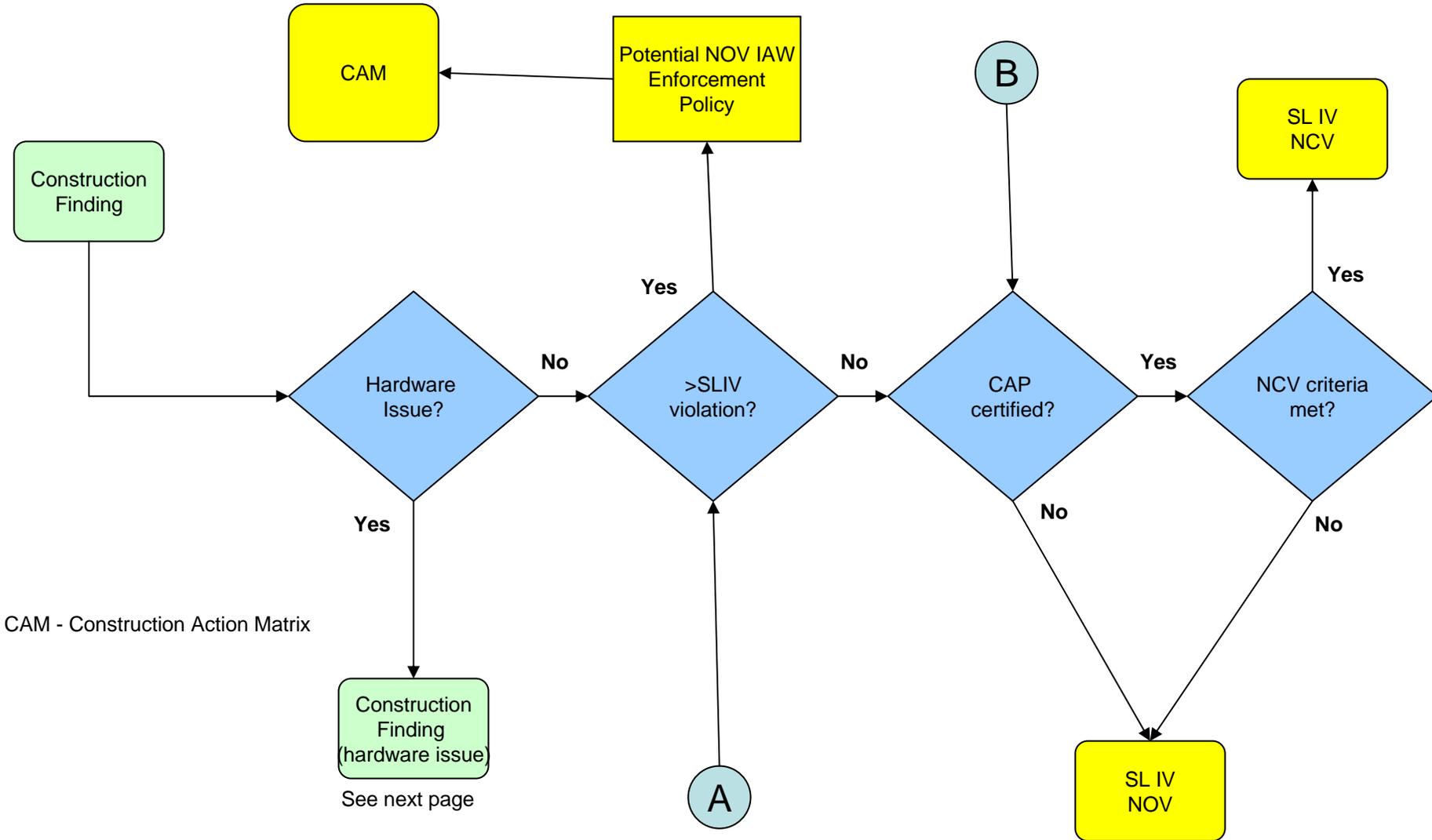
# Process Overview



CAM - Construction Action Matrix

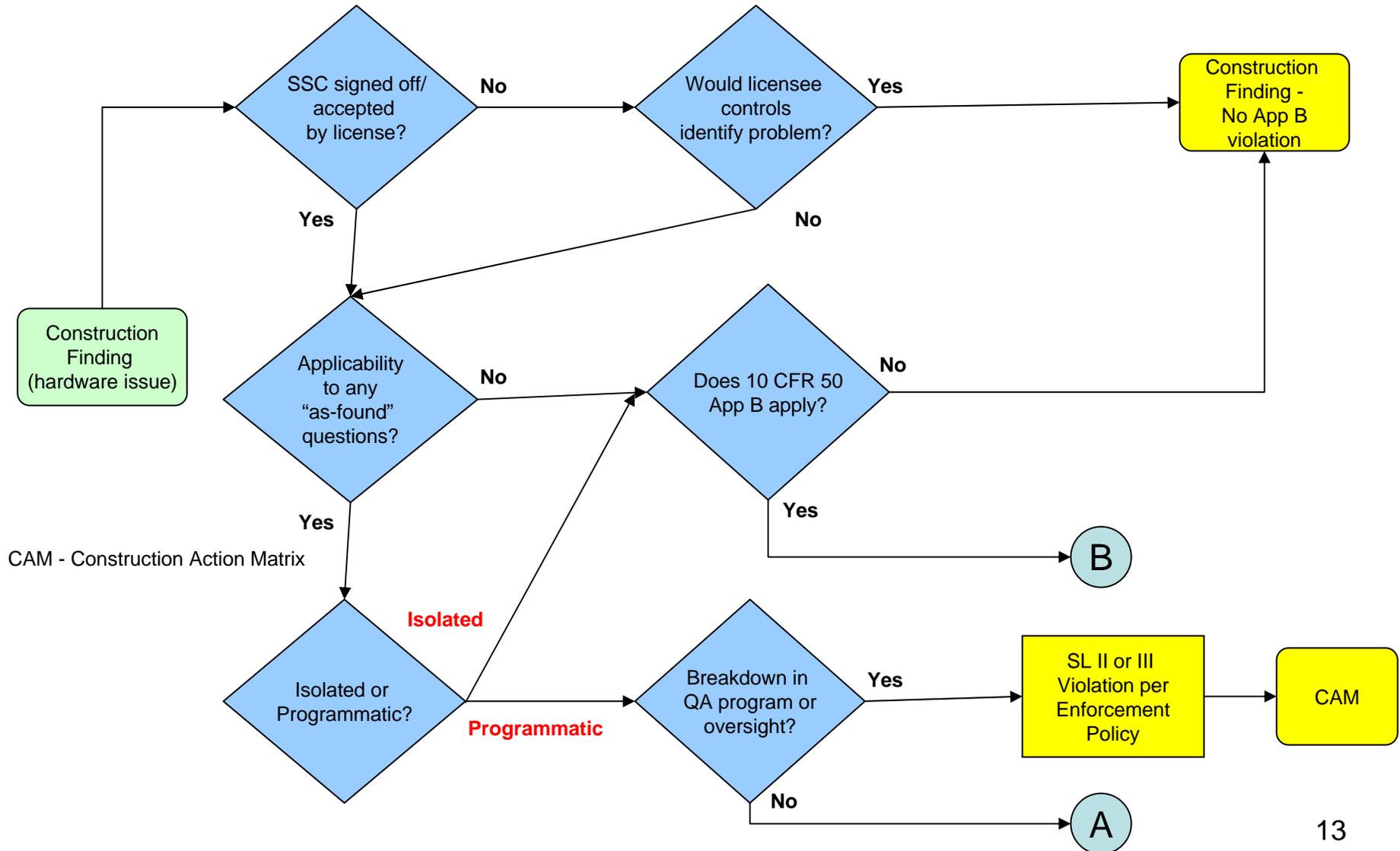


# Construction Findings



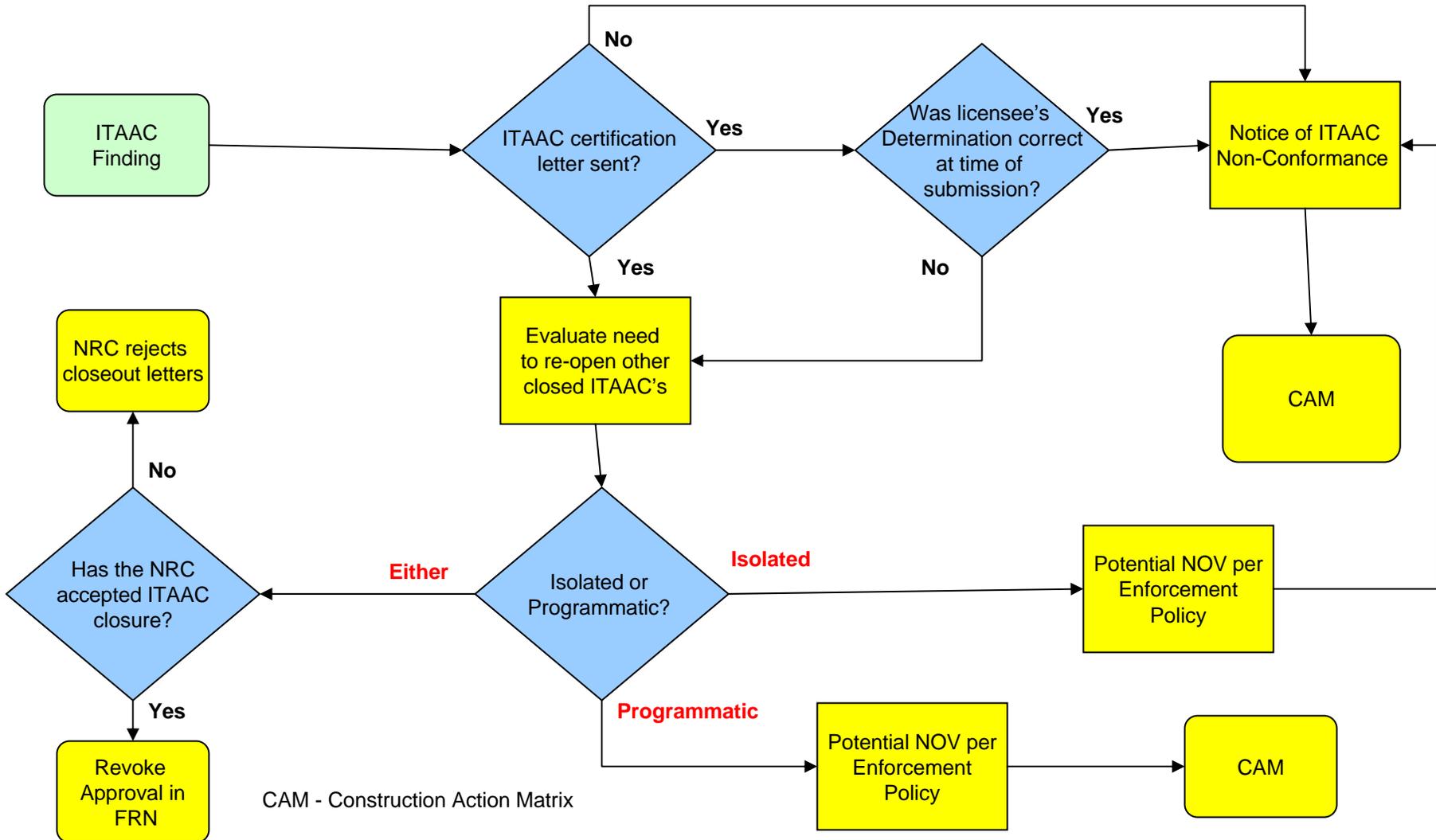


# Construction Findings





# ITAAC Findings



CAM - Construction Action Matrix



# Construction Finding Considerations

- Non-compliance with codes and standards
- Component not installed correctly
- Component damaged during construction
- Component not maintained properly
- Vendor problem (10 CFR 21 or 50.55 (e))
- Attribute no longer verifiable by records



# Example # 1 - Seismic Support

- A Seismic Class I support in the auxiliary building was fabricated using 4-inch tube steel, the inspector noted that the plan required the use of 3-inch tube steel for this particular support.
- The support design is such that the use of the larger structural shape does not degrade the final support, or affect the seismic qualification.



# Example # 2- Excessive Pull Force

- Procedures were not followed and excessive pull force was used in the installation of the ac electrical power cables for the main coolant pumps, resulting in damage to cable insulation that could fail unpredictably during heavy electrical loading.
- This system had been accepted by the licensee's QA program.



## Example # 3 – Audit Findings

- The NRC reviewed licensee audit reports of training and qualification of contractor's supervisors and construction workers, involved with installation of safety-related Class 1E electrical cabinets and circuit breakers. Some of the audit reports contained adverse findings and recommendations, but the reports had been filed away without appropriate follow-up and resolution.



## Example # 4 – Misidentified Duplicate Welds

- Misidentified duplicate weld radiographs were found in the official documentation package for an ASME Code Section III piping system inside containment. It was further determined that not all welds were radiographed, records were inaccurate, and welds are of unknown quality.
- ITAAC certification letter had been sent into NRC.



# Example # 5 – HVAC Supports

- Two HVAC supports were installed and final accepted by the licensee to an approved drawing yet both supports had configuration conditions that were not in compliance with the drawing, as follows:
- The drawing requires the duct be fastened to the support on 6-inch centers on three sides using 3/16-inch blind rivets. On both supports, two rivets were missing on the front view. The remaining installed rivets exceeded the 6-inch dimension by approximately 3-inches.
- The drawing requires a 24-inch maximum dimension from the block wall to the outer support beam. The actual dimension measured greater than 39-inches on both supports.
- On one support 1093, a 2-inch tube steel was welded to the top of a WT6 X 15.5 beam. That connection was not reflected on the drawing.



# Example # 6 – Welding Electrode

- During an inspection of structural and containment welding activities, the NRC found several instances where low-hydrogen covered electrodes were left unattended in unheated containers. The licensee procedure for the control of welding consumables requires that the welding material remain in the possession of a responsible welder during use and/or during the allowed out-of-oven check out time.
- The electrodes had been checked out at the beginning of the shift. The inspection occurred approximately 2 hours after the beginning of the morning shift and the electrodes had not exceeded the allowable out-of-oven exposure time.



# Example # 7 – Weld Repairs

- During an NRC review of the licensee's ITAAC closeout letter, numerous examples of field weld repairs conducted in proximity of the reactor pressure vessel and steam generator nozzles were identified. A review of the weld repair records revealed that the ASME Code, Section III requirements may not have been met, in that there was no recorded evidence that the Code criteria for control of the depth and area of each base metal repair cavity had been implemented; and no post weld heat treatment of the low-alloy steel base material had been performed.
- Further NRC review of the referenced weld repair procedures could not confirm adequate controls for the conduct of the nozzle (safe-end) weld repairs. Additionally, there was no evidence that repair cavity measurements had been taken to check and verify Code compliance.



# Example # 8 – Associated Circuits

- Two associated power circuits were directly connected to a Non-Class 1E transformer and other Non-Class 1E electrical circuits. Physical separation and electrical isolation of these associated circuits was not provided the same as those Class 1E circuits with which they were associated.
- The ITAAC Design Commitment requires that physical separation be maintained between Class 1E divisions and between Class 1E and non-Class 1E
- The licensee had submitted, and the NRC had accepted, that the ITAAC associated with this system had been satisfactorily completed. The licensee's extent of condition review revealed that this deficiency was isolated to this finding.



# Example # 9 – Circuit Isolation

- During walkdown inspections, the NRC identified numerous associated circuits that were not being color-coded as Class 1E division circuits and more than one division was impacted.
- Non-Class 1E power cables, which were associated with Class 1E Division 1 circuits were not identified as associated circuits.
- The licensee had submitted and the NRC had accepted that the ITAAC associated with this system had been satisfactorily completed. The licensee's extent of condition review revealed that this deficiency was programmatic in nature.



# Assessment Program

- Overall licensee performance will be determined by SLII and III violations, Notices of ITAAC Non-Conformances (ITAAC Findings), and substantive cross-cutting issues.
- NRC response will utilize a graded approach and may result in an increased percentage or number of ITAAC inspections in the areas of concern, CALs, DFI's, and/or Orders.
- Substantive cross-cutting issues will focus on quality, corrective action programs, and SCWE.



# Severity Level II Examples

Examples of Severity Level II violations include:

- ITAAC findings that include a widespread breakdown in the QA program as exemplified by deficiencies in construction QA related to **more than one** work activity (structural, concrete, electrical, etc).
- Inaccurate or incomplete information that likely would have resulted in a regulatory action such as a **show cause order or a different regulatory position.**
- An action by **plant management or mid-level management** involving discrimination against an employee while engaged in protected activities.



# Severity Level III Examples

Examples of Severity Level III violations include:

- ITAAC findings that include a deficiency in a licensee's QA program for construction related to a **single** work activity.
- Inaccurate or incomplete information that likely would have resulted in **reconsideration of a regulatory position or substantial further inquiry**.
- An action by **first-line supervision or low-level management** involving discrimination against an employee while engaged in protected activities.



# Inputs to Overall Assessment Program

- Weighting factors for individual issues
  - Severity Level II violations – 3
  - Severity Level III violations – 1
  - Notice of ITAAC Non-Conformance – 1
  - Substantive cross-cutting issues – 1
- Licensee-identified SL II and III violations



# Assessment Program – First Bin

- Criteria
  - No greater than construction findings or SLIV violations
- Licensee corrective action
- Nominal inspection program
- No additional regulatory actions



# Assessment Program – Second Bin

- Criteria
  - weighting factor of one
- Licensee root cause evaluation and corrective action with NRC oversight
- Focused NRC inspection in area of concern
- No additional regulatory actions if CA's are acceptable



# Assessment Program – Third Bin

- Criteria
  - weighting factor of three
- Moderate degradation in construction performance
- Licensee cumulative root cause evaluation and corrective action with NRC oversight
- Focused NRC team inspection in area of concern. ITAAC sample increased
- No additional regulatory actions if CA's are acceptable



# Assessment Program – Fourth Bin

- Criteria
  - weighting factor of seven
- Loss of confidence to construct adequately
- Licensee performance improvement plan with NRC oversight
- Reactive team inspection in area (s) of concern.
- DFI's, "show cause", and/or Orders
- Commission meeting with senior licensee management



# Backup Slide - > Minor Criteria

- Improper or uncontrolled work practice that can impact quality or safety, involving SSC's that have ITAAC
- Non-compliance with the requirements of a design or fabrication code required by 10 CFR 50.55 (a)



# Backup Slide - > Minor Criteria

- Inadequate process, procedure, or quality oversight function that if left uncorrected, could adversely affect the quality of the fabrication, construction, testing, analysis, or records of an SSC that has ITAAC requirements
- A deviation, that if left uncorrected, could adversely affect the environmental or seismic qualification of an SSC



# Backup Slide - NCV Criteria

A NOV will be issued if any of the following apply:

- Compliance was not restored within a reasonable amount of time
- Violation was not placed in CAP to address recurrence
- Violation was repetitive as a result of inadequate CA's and NRC identified
- Violation was willful



# Backup Slide - ROP Criteria

A substantive cross-cutting issue would exist in the human performance or PI&R cross-cutting areas if all of the following criteria were met:

- Four or more findings with cross-cutting aspects
- There is a cross-cutting theme
- The agency has a concern with the licensee's scope of efforts or progress in addressing the cross-cutting theme



# Backup Slide - ROP Criteria

A substantive cross-cutting issue would exist in the SCWE cross-cutting area if all of the following criteria were met:

- A finding with cross-cutting aspects in the SCWE cross-cutting area
- The licensee has received a chilling effect letter OR
- The licensee has received correspondence from the NRC for an enforcement action involving discrimination

And both of the following conditions were met:

- There is an impact on safety conscious work environment that was not isolated
- The agency has a concern with the licensee's scope of efforts or progress in addressing the individual and collective performance deficiencies