

Reactor Oversight Process Enhancement Project
Baseline Inspection Program
Inspection Area – Problem Identification and Resolution

Background

A fundamental goal of the Reactor Oversight Process (ROP) is to establish confidence that a licensee is effectively detecting, correcting, and preventing problems which could impact cornerstone objectives. A key premise of the ROP is that weaknesses in the licensee's problem identification and resolution programs will manifest themselves as performance issues which will be identified during the baseline inspection program or by performance indicators crossing predetermined thresholds.

Inspection Procedure (IP) 71152, "Problem Identification and Resolution," is part of the baseline inspection program and provides a multi-faceted process for inspection of the licensee's corrective action program. This includes:

- Routine review of problem identification and resolution activities by the resident inspectors. The purpose of this review is to screen each item entered into the corrective action program to determine if there are any issues that require more detailed inspection. Annually, this portion of the procedure is expected to take 129 hours, 178 hours, and 225 hours for single-, dual-, and triple-unit sites, respectively.
- Semi-annual trend review. The purpose of this review is to identify trends that may indicate the existence of a more significant safety issue. This portion of the inspection procedure is expected to take approximately 16 – 24 hours per year, regardless of the number of units on site.
- Annual follow-up of selected issues. The purpose of this review is to ensure that the licensee has planned and/or implemented corrective actions commensurate with the significance of the selected issues. The annual effort for this review (four to eight samples) is approximately 61 – 81 hours for a single-unit site, 64 – 84 hours for a dual-unit site, and 67 – 87 hours for a triple-unit site.
- Biennial team inspection. The purpose of this team inspection is to assess the licensee's ability to identify, evaluate, and correct problems. This inspection also evaluates the licensee's use of operating experience, the safety conscious work environment at the station, and conduct of self-assessments and audits. This portion of the inspection procedure is unique in that it requires the inspectors to assess and document the adequacy of the licensee's corrective action program. This inspection is estimated to take an average of 212 – 288 hours of direct inspection effort.

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Enclosure 6

Analysis

1. Alignment with the ROP Basis Document

The region conducted a review of Inspection Manual Chapter (IMC) 0308, “Reactor Oversight Process Basis Document” (issued 11/08/2007), as it pertains to IP 71152, to verify that the current version of IP 71152 (issued 01/31/2013) meets the assumptions and objectives of the basis document. During this review, the staff noted that:

a. Section 05.05a.3 states,

With regard to licensee problem identification and resolution effectiveness, there are several areas that are not specifically evaluated by either the individual cornerstone performance indicators or the individual risk-informed inspections. As such, additional focused inspection is needed to evaluate licensee performance as it relates to this cross-cutting issue. Specifically, baseline inspection of licensee corrective action programs is necessary for the U.S. Nuclear Regulatory Commission (NRC) to:

- conduct reviews of precursors to events which occur relatively infrequently but could have significant consequences;
- independently identify potentially ‘generic’ concerns that a licensee may have missed, including specific problems involving safety equipment, procedure development, design control, etc.;
- have assurance that licensees adequately address potential ‘common cause’ equipment failure concerns, identified either by internal events and issues or by receipt of operating experience feedback from other licensees, vendors, etc.

Also, these inspections provide the NRC with early warning of potential performance issues that could result in crossing thresholds in the Action Matrix and help the NRC gauge supplemental response should future Action Matrix thresholds be crossed. The inspections provide insights into whether licensees have established a safety conscious work environment and allow for follow-up of previously identified compliance issues (e.g., non-cited violations). The inspections also provide additional information that can be used in the assessment process, beyond that which is provided by the significance determination process.

Analysis and Recommendations: Ensure Alignment of IP 71152 and IMC 0308. In comparing this information with the current revision of IP 71152, it is unclear how the inspection procedure allows the NRC to “conduct reviews of precursors to events which occur relatively infrequently but could have significant consequences.” The staff recommends either clarifying or revising this item in IMC 0308.

- b. Section 05.05c. states, “Specifically during the problem identification and resolution inspection the inspectors will consider all of the safety culture components while evaluating the adequacy of the licensee actions.”

Analysis and Recommendations: Ensure Alignment of IP 71152 and IMC 0308.
The NRC recently issued a major revision to IMC 0310, “Aspects Within the Cross-Cutting Areas,” and IMC 0308 will need to be revised to reflect the changes (e.g., discontinuation of the term “safety culture components.”) The staff recommends clarifying the intent of this statement and revising IMC 0308 and/or IP 71152 accordingly.

2. Inspection Procedure Objectives

The original objectives of this inspection were as follows (IP 71152, dated 03/06/2001):

- To provide an assessment of the effectiveness of licensee problem identification and resolution programs, including problem identification, evaluation, and resolution, based upon a performance review of specific issues.
- To look for instances where a licensee may have missed identifying potential “generic” concerns, including specific problems involving safety equipment, procedure development, design control, etc.
- To assess whether conditions exist that would challenge the establishment of a safety conscious work environment.

The objectives of the inspection, as documented in the current revision (01/31/2013) IP 71152, are as follows:

- To provide for early warning of potential performance issues that could result in crossing thresholds in the ROP Action Matrix described in IMC 0305, “Operating Reactor Assessment Program.”
- To help the NRC gauge supplemental response when ROP Action Matrix thresholds are crossed.
- To provide insights into whether licensees have established a safety conscious work environment.
- To allow for follow-up of previously identified compliance issues (e.g., non-cited violations).
- To provide additional information related to the cross-cutting areas that can be used in the assessment process.
- To determine whether licensees are complying with NRC regulations regarding corrective action programs.

- To verify that licensees are identifying operator workarounds at an appropriate threshold and entering them in the corrective action program.
- To verify that licensees are identifying and placing potential Title 10 of the *Code of Federal Regulations* Part 21 (Reporting of Defects and Noncompliance) issues into the Corrective Action Program and appropriately evaluating them.

Analysis and Recommendations: Alignment and Evaluation of Inspection Objectives.

The January 31, 2013, revision of IP 71152 does not accomplish the first objective related to providing early warning of issues that could result in transition across the action matrix. Current use of this IP is not predictive in that the NRC does not impose any regulatory actions based on the assessment of the licensee's corrective action program. The staff recommends developing regulatory actions for corrective action programs that are rated as marginally adequate/less-than-effective/ineffective in an effort to make this inspection more predictive.

Additionally, it is unclear how IP 71152 meets the intent of the second objective related to gauging supplemental inspection response. This is supported by the fact that IP 95002, "Supplemental Inspection for One Degraded Cornerstone or Any Three White Inputs in a Strategic Performance Area," currently states the following in the "Inspection Basis" section: "The baseline inspection procedure 71152, 'Problem Identification and Resolution,' is independent of the supplemental response." The staff recommends either deleting this objective or modifying the procedure accordingly.

Finally, the objective regarding generic issues has been removed and the primary objectives from the 2001 version have been diluted. The staff recommends refocusing the inspection procedure on the effectiveness of the licensee's corrective action program.

3. Procedural Guidance for Corrective Action Program Inspection

Analysis and Recommendations: Clarification and/or Expansion of Inspection Guidance

- Improve the safety conscious work environment portion of the biennial team inspection. This would include implementing a graded approach to conducting this portion of the inspection, improving the questions used during interviews, expanding guidance on how to review a licensee's Employee Concerns Program, utilizing a safety culture assessor, reviewing Nuclear Energy Institute 09-07 monitoring panel results, and/or inspector training on how to evaluate the safety conscious work environment at a site.
- Add exhibits to the procedure to be used as inspector aids. This could include such items as best practices for conducting the inspection, a sample document request list for the biennial inspection, etc.
- Add guidance on conducting a pre-inspection trip for the biennial team inspection. There is a potential for efficiencies to be gained during the on-site

weeks if the team leader accomplishes certain activities during the pre-inspection trip. This item could also be included in a 'best-practices' document.

- Determine the need for a semi-annual trend review and/or consider improving the guidance for conducting and documenting this portion of the inspection.
- Consider adding guidance to review reactive inspection (i.e., special and augmented inspection) reports issued nationwide since the last biennial problem identification and resolution inspection to inform sample selection for the team inspection (*external stakeholder input from July 17, 2013 public meeting*).
- Consider adding guidance to review corrective action program insights related to findings associated with long-standing issues (e.g., when reviewing long-standing issues, did the licensee take into account why the issue is long-standing or why it took so long to identify/resolve?) (*external stakeholder input from July 17, 2013 public meeting*).
- Consider adding guidance to review dated generic communications to ensure actions taken at the time of issuance/review remain in place and effective (*external stakeholder input from July 17, 2013 public meeting*).

Analysis and Recommendations: Focus Inspection Guidance on the Corrective Action Program. The staff recommends ensuring the procedure is written to focus on inspection of the licensee's corrective action program by removing inspection items that distract from inspection of the corrective action program. Specifically, the staff recommends review of inspection items that were placed in this procedure when other procedures were cancelled or revised. This includes inspection of operator workarounds, cross-cutting issues, maintenance rule (a) (1) systems, and aging management. These items can be moved to other existing procedures, or new procedures can be developed (e.g., Appendix C procedure for inspection of substantive cross-cutting issues.)

4. Assessment Guidance

Analysis and Recommendations: Expand Corrective Action Program Assessment Guidance.

The biennial team inspection is unique in that it requires the inspectors to assess and document the adequacy of the licensee's corrective action program. As such, the staff recommends improving procedural guidance related to assessment of the licensee's corrective action program during this inspection. This may include the following:

- Develop an IMC 0609, "Significance Determination Process," appendix for corrective action program assessment.
- Determine the criteria/attributes of a marginally adequate/less-than-effective corrective action program.

- Provide guidance on how to assess the site's safety conscious work environment.
- Determine a method to make the assessment more objective (e.g., use of screening worksheets). Depending on the method used, this may be a challenge given the percentage of corrective action program inputs reviewed during the biennial team inspection.
- Use the results of other inspections as an input into the overall corrective action program assessment. Though the biennial team inspection is informed by input from the resident inspectors and problem identification and resolution insights from other inspections, this input is typically not explicitly included in development of performance insights for the biennial inspection report. Additionally, it may be worth considering use of all inspection reports issued during the biennial inspection period (e.g., Component Design Basis Inspection report) as input into the assessment.

Analysis and Recommendations: Incorporate the Outcome of the Inspection into the Overall Assessment of Plant Performance. This may include the following:

- Determine regulatory actions for a marginally adequate/less-than-effective corrective action program. Increased management attention is warranted in these cases since defining and implementing an effective problem identification and resolution program is a key element underlying licensee performance in each cornerstone area. A fundamental goal of the NRC's reactor inspection and assessment process is to establish confidence that each licensee is detecting and correcting problems in a manner that limits the risk to members of the public.

Potential actions could include:

- Increasing team inspection frequency
- Discussion at the Agency Action Review Meeting
- Formal closure of non-cited violations. Per IMC 0308, Attachment 2, Section 3.2,

The NRC's confidence in the effectiveness of [the corrective action] programs is the basis for the NRC's policy of closing lower-level violations when they are entered into the licensee's corrective action program without independently verifying the final corrective actions. The inspection program verifies that our confidence in licensee's programs is still deserved and periodically verifies the final actions on some of the lower level violations are proper." If the inspection team determines that the overall program (or the problem resolution area) is marginally adequate/less than effective, this action may be appropriate.

- Opening a related substantive cross-cutting issue

- Keeping the team inspection 'open,' similar to a 'failed' supplemental inspection
- Opening a 'parallel' finding
- Transitioning out of the ROP, etc.
- Determine regulatory actions required if inspectors identify a safety conscious work environment issue
- Develop corrective action program performance indicator(s)

Recommendations

(Note: Recommendations in this subject area will require additional development before they can be implemented.)

- IP 71152 would benefit from some enhancements which can be divided into two broad categories: assessment and inspection.
- Recommended changes to the inspection process include clarification/expansion of inspection guidance and focusing the procedure on inspection of corrective action program implementation. A more detailed explanation of each of these areas can be found in the Analysis section above.
- Recommended changes to the assessment process include improving procedural guidance on how to assess a licensee's corrective action program and incorporating the outcome of the team inspection into the overall assessment of the plant. A more detailed explanation of each of these areas can be found in the Analysis section above.
- There appears to be some differences between the bases for the Problem Identification and Resolution inspection, as listed in IMC 0308, and the actual inspection procedure. These items are covered in detail in the Analysis section above.