

2018 Inspection Procedure Assessment Summary and Outline of Proposed Changes

Inspection Procedure (IP):	71152 “Problem Identification and Resolution” (Captured in RRPS/ISTAR as 71152 and 71152B)
Data Years Analyzed:	2013 - 2017
Inspection Procedure Lead:	Ross Telson
Estimated Hours to Complete Review:	80
Date Review Completed:	12/7/18
Date Review Updated:	1/8/19

Summary of Principle Observations & Recommendations by Section

1. Results and assessment of review of IMC 308, ROP basis document review

a. Root Cause Analysis – Few attributes of PI&R are more important to safety and security than the effectiveness with which licensees analyze the cause(s) of significant adverse conditions (i.e. significant conditions adverse to quality, greater-than-green findings, performance indicators, & escalated violations) to determine and implement prompt corrective actions to preclude repetition.

10 CFR 50 App. B Crit. XVI establishes quality assurance (QA) regulatory obligations for corrective action. In the case of significant conditions adverse to quality (SCAQs), Crit. XVI requires licensees to assure the cause of the SCAQ is determined and corrective action taken to preclude repetition (CAPR).

NEI initiatives, such as NEI 16-07 [CAP-002] reduce industry reliance on root cause analysis (RCA) to analyze SCAQs and identify CAPRs. Likewise, NEI 16-07 reduces reliance on RCA for significant adverse conditions (SACs) –issues yielding greater-than-green (GTG) findings and performance indicators (PIs) but which are not subject to Part 50 App. B.

The ROP is a voluntary oversight and assessment process designed to improve transparency, predictability, objectivity, and scrutability while preserving reasonable assurance of public safety and security. Compared to its predecessor, SALP, the ROP reduces regulatory burden in exchange for the shared expectation that participants will voluntarily establish and operate facilities in accordance with certain self-imposed standards that enable the regulatory burden reduction.

Self-imposed standards are not regulatory obligations and cannot be enforced. However, a licensee’s more-than-minor failure to meet a self-imposed standard that reasonably could and should have been satisfied constitutes a finding regardless of whether a violation occurred. If the significance of a finding is greater-than-green per the SDP, the licensee will be moved across the action matrix and subjected to supplemental inspection.

If the finding reflects the licensee’s failure to satisfy a fundamental ROP expectation / self-imposed standard necessary for continued full participation in the ROP and the licensee fails to correct the performance deficiency, the licensee’s participation in the ROP may be modified or terminated along with the benefits of participation.

Examples of ROP expectations / self-imposed standards might include (a) the periodic submittal of performance indicator (PI) data in support of reduced baseline inspection, (b) the

establishment and maintenance of an effective quality-related problem identification and resolution (PI&R) program enabling the NRC to issue NCVs instead of NOV's for most non-escalated low significance violations, and (c) the routine application of RCA to reliably identify causal information enabling the implementation of CAPRs following SACs and SCAQs in support of timely and efficient NRC inspection, issue closure, and licensee return to Column I of the Action Matrix following SAC- and SCAQ-triggered supplemental inspections.

RCA has been integral to ROP inspection of SCAQs and SACs since its origin almost 20 years ago. The ROP's broad reliance on RCA is evidenced in the **26** references to "**root cause**" in SRM 99-007, **14** references in IMC 0308 Att. 2, **6** references in IMC 0308-proper, **52** references in IP 95001, 58 references in IP 95002, **10** references in IP 95003, and **2** references in IP 71152. For NRC to explicitly accept reduced reliance on RCA for SACs and SCAQs (i.e. to eliminate the above references from NRC governance or to endorse NEI 16-07) is for the NRC to accept reduced assurance that the cause of SCAQs (and SACs) will be determined and corrective action taken to preclude repetition.

Licensees benefit from RCA in that, when multiple root causes exist, RCA tends to identify most if not all of them. This enables licensees to select the CAPR that can be most promptly and cost-effectively implemented. Licensee and NRC both benefit from RCA in that, in addition to being more reliable, it tends to be more transparent, objective, and scrutable than other cause determination methods. As such, RCA can be more efficiently and effectively validated by licensee management and NRC inspectors.

b. Other IMC 0308, ROP basis document, & IP Alignment Issues – Misalignments between IP 71152, IMC 0308, and other ROP bases were identified in a 2013 IP 71152 self-assessment. Since then, some of the conflicts have been addressed. Those that remain will require coordination and integration with more recent initiatives to enhance ROP efficiency and reduce regulatory burden.

RECOMMENDATION 1a: Carefully consider cost-benefit and regulatory requirements *before* altering NRC expectations or endorsing altered industry expectations that bypass RCA for *significant* issue resolution (including any NRC-endorsed definition or re-definition of *significant*). Exercise the mandated "Top-Down" approach, engaging Commission, public, and industry before significant basis amendment or departure from the bases. Study carefully lessons-learned *prior to* implementing substantive changes to RCA expectations that could negatively influence (a) licensee PI&R program performance in resolving SCAQs and SACs, (b) compliance with 10 CFR 50 Appendix B, and (c) conformance with core tenants of the ROP, the Enforcement Policy, the Action Matrix, PI&R-related baseline inspection, and/or supplemental inspection programs.

RECOMMENDATION 1b: IP lead and ROP enhancement lead should coordinate with management and other internal and external stakeholders to develop input on PI&R for a SECY that addresses (a) remaining identified alignment issues between current SRMs, ROP Bases, and IP 71152, (b) current challenges, and (c) recommendations of proposed changes to ROP Bases, IP 71152, and impacted procedures for Commission approval. Upon receipt of the Commission's determination regarding recommendations, IMC 0308, IP 71152, and other impacted ROP governance should be revised to realign with each other and with updated Commission SRM(s).

2. Results and assessment of review of any applicable changes to PIs

Licensees maintain a variety of PI&R program performance metrics. These metrics and the licensee's response to them are periodically reviewed by inspectors for PI&R program assessment insights during biennial PI&R inspections. The industry seeks to eliminate baseline PI&R baseline inspection. While this is not permissible in the context of Commission SECYs & SRMs pertaining to PI&R in the ROP, it might be possible to reduce baseline inspection through the incorporation of PI&R performance indicators (PIs) that provide objective measures of PI&R effectiveness attributes.

RECOMMENDATION 2: Consistent with ROP principles, explore the potential to incorporate PI&R PIs to enhance PI&R assessment and support IP 71152 baseline inspection reduction,.

3. Results and assessment of review of any applicable changes to Rules or STSs

A review of approved changes to STS over the past three years and rule changes did not reveal any significant changes that would impact IP 71152. However, industry initiatives have sought NRC endorsement. Others have not. The industry has largely adopted NEI 16-07 / CAP-002 to streamline corrective action programs. NEI did not seek NRC endorsement of NEI 16-07 and NRC did not endorse nor reject it but did conduct an informal review which identified potential concerns and made clear that NRC would continue to inspect licensee PI&R programs in accordance with regulatory requirements and ROP governance. A recent industry initiative addressing non-conservative TS sought NRC endorsement. The initiative guidance document referenced and established reliance on NEI 16-07 to address non-conservative TS.

RECOMMENDATION 3: NRC has *not* endorsed NEI 16-07 and *must not* endorse any industry position that references- or otherwise relies upon NEI 16-07 or any other non-endorsed industry guidance documents in a manner that may be reasonably be interpreted as endorsement without exercising appropriate agency review and endorsement processes and stakeholders. Likewise, changes must not be allowed to ROP governance documents that create, in effect or appearance, the endorsement of an unendorsed industry guidance documents.

4. Results and assessment of review of recent Operating Experience

IMC 040 describes the Operating Experience Smart Sample (OpESS) as a document that may be employed to integrate operating experience (OpE) into the ROP inspection process. The OpESS makes relevant OpE more accessible to inspectors in the form of a detailed synopsis of selected issues determined to have potential generic safety implications. OpESS are only employed when an inspection can be accomplished within existing ROP inspection requirements and level of effort. Issues that cannot be addressed within existing ROP inspection requirements and level of effort should be considered for a one-time inspection under a Temporary Instruction.

IMC 040 describes a Temporary Instruction (TI) as a temporary inspection procedure used for a one-time inspection or collection of information associated with a current safety issue or concern not currently addressed by established IPs or IMCs. TI requests must be approved by the DIRS Division- or Deputy Division Director. TI requests must provide the necessary background to understand why a TI is warranted including why the information should not be obtained by other means (e.g., OpESS or generic communication), an estimate of required resources and

site applicability, an assessment of the safety or security significance providing justification for such resource expenditures, and the estimated dates for start and completion. When the stated purpose of the TI has been accomplished, the originating organization will prepare a final report documenting the TI results.

In November 2018, an OpESS titled “Evaluation of Licensee Actions Taken in Response to 10 CFR Part 21 Notification of the Potential Existence of Defects Related to Control Rod Drive Mechanism (CRDM) Thermal Sleeves” (ADAMS [ML18263A261](#)) was issued to supplement IP 71152. The OpESS addressed several sites subject to the referenced 10 CFR Part 21 notification.

While the OpESS did not *explicitly* mandate exceeding IP 71152-related inspection objectives, requirements, or level of effort, its intent – established through back channels – was to assure inspection satisfying the objectives of the OpESS at all referenced sites the and to capture information exceeding IP 71152 and IMC 0611 requirements. This raised at least two questions: (a) Did the OpESS circumvent the TI process and exceed OpESS constraints and (b) Was IP 71152 inappropriately employed to conduct what was, in effect, temporary inspection (TI).

Inappropriate employment of ROP IPs can contribute to mismatched objectives and requirements that may compromise the effectiveness of the inspection program, reduce transparency, objectivity, scrutability, and result in unnecessary regulatory burden.

RECOMMENDATION 4: Determine the answers to the two questions (a and b) above. If it is determined that this and/or similar future scenarios like this should not occur, make appropriate changes to IMC 040 and other governance documents and consider training to reduce the likelihood of recurrence. Examples of changes might include streamlining the TI approval process, enhancing controls over inappropriate use of the OpESS process, employing TI vs. OpESS selection decision diagram, enhanced training of staff and managers who initiate OpESS and Tis, and periodic audits of OpESS and TIs to verify appropriate use.

<p>5. Results and assessment of review based on RRPS data (see separate IP 71152 Assessment Data file for details of RRPS data).</p>

Adverse Trends and Outliers: No noteworthy adverse trends in 71152 and 71152B findings or hours were identified during the 5-year period of review. However, an outlier in 71152B regional samples and hours was observed and is discussed below.

In examining the regional hours and samples documented against 71152B, the IP lead observed that Region III hours and samples, while well aligned to 71152B governance, were outliers when compared to the other three regions. Restated, Regions I, II, and IV hours and samples were not aligned with 71152B or Region III.

71152B budgets 0.5 samples per year (one biennial team inspection every other year). IP 28 lists “normalized” sample data but does not articulate the meaning of “normalized” or how the number is calculated. The IP lead interpreted the normalized samples by region to reflect the calculated average number of biennial team inspections per site per 2-year period. Based on this interpretation, the 71152B normalized requirement would be 1.0 and, according to IP 28, Region 3 showed a value of 1.0 normalized samples (1 biennial team inspection every other year). Regions 1, 2, and 4 showed 1.7, 1.6, and 1.7, respectively. 71152B budgets 212 to 288 hours of direct inspection per biennial team inspection. Region 3 showed 246 hours whereas Regions 1, 2, and 4 reported 147, 160, and 151 hours respectively.

RECOMMENDATION 5: Validate and clarify IP 28 reporting to confirm the validity of the assumptions and analysis above. If validity is confirmed, consult regions to determine (a) why 3 of 4 regions do not appear to be conforming to the IP-specified 71152B sample rate and (b) why the same three regions are reporting completion of 71152B team inspections in approximately 100 fewer hours than budgeted (while Region 3 is reporting effort in the budgeted range). Consider substantial changes to 71152B to streamline and enhance the efficiency and effectiveness of ROP baseline inspection in this area. Specific changes recommended for consideration include:

- A. **Streamline 71152B biennial team baseline inspections** (i.e. Reduce scope, resource estimate, requirements, possibly team size, frequency, and/or duration) by eliminating those items that overlap and can be completed within existing (or slightly modified) 71152 semi-annual trend or annual follow-up inspection samples and do not require a specialized biennial team inspection to achieve IP 71152 objectives. Some elements of 71152B should be re-evaluated for deletion and/or enhancement in 9500X supplemental inspections
- B. **Eliminate IMC 0305 direction to consider IP 71152 “supplemental” implementation** (i.e. exceeding IP-specified sample frequency) each time a plant enters Column 3 or 4 of the Action Matrix and for the two-year period following the quarter in which the plant entered Column 3 or 4.
- C. **Enhance compliant implementation of IP 71152** (i.e. Inspection consistent with IP-specified sample frequency range, objectives, and requirements – or as approved in ROP deviation) and accurate resource reporting (i.e. actual resources expended) through improved accountability measures (e.g. periodic audits, field validations, metrics, and other oversight mechanisms).
- D. **Restore clarity to the line dividing screening and inspection** by returning daily CAP screening (resources, objectives, requirements, and commitments) from IP 71152 to IMC 2515D Plant Status. Inspectors will continue to screen all daily CAP documents as before but follow-up of CAP screening issues of concern, like issues identified in other plant status activities will be prioritized for potential inspection in accordance with the risk-informed, performance-based baseline inspection process. Those issues warranting inspection must be directed to the appropriate baseline IP with available samples.
- E. **Continue to streamline and improve IP 71152 focus on core objectives** (i.e. relocate previously-added requirements and reject new requirements that do not directly support IP 71152 objectives to hold the line in inspection objectives, requirements, and frequency.)
- F. **Enhance IP 71152-related inspection documentation** in inspection reports and RRPS/ISTAR to support efficient and effective periodic licensee PI&R program assessment and/or validation of potential future PI&R PI(s) to justify future IP 71152 inspection scope or sample frequency reductions.
- G. **Clarify ROP deviation requirements** and assure deviations are reconciled with subsequent permanent IP/IMC changes (i.e. Detail those instances in which program deficiencies may warrant deviations from the IP-specified baseline sample range, objectives, or requirements).

6. Feedback Forms

As of November 19, 2018, the [FBF Tracking System \(Pilot\)](#) SharePoint site shows 27 open ROP IP 71152 feedback forms. The submittal dates range from 2011 to 2018 with 23 FBFs submitted prior to the current IP 71152 revision date (February 26, 2015). 24 of 27 FFs were submitted prior to the 2016 IP 71152 PI&R Assessment Report (ADAMS [ML16091A367](#)).

The current draft revision of IP 71152 (ADAMS [ML15322A104](#)), if issued as drafted, should fully address and close 8 of the 27 FFs and partially address some of the remaining 19 FFs. Others might be closed with no further action depending on management decisions limiting the IP 71152 change scope. Further stakeholder collaboration will be necessary to resolve differing stakeholder positions regarding the open FFs.

Additional discussion and detail regarding open FFs may be found in multiple documents including the December 2015 Reactor Oversight Process Problem Identification and Resolution Working Group Charter – Phase I (Public ADAMS [ML15290A004](#)) and a September 2016 PI&R Enhancement Matrix (ADAMS [ML18323A111](#)). Additional perspectives may be viewed in other tracking systems including [ROP Self-Assessment](#) and [ROP Lessons Learned Tracker](#) SharePoint sites.

The IP lead prepared a Draft White Paper (ADAMS [ML18360A492](#)) addressing a September 19, 2018, NEI letter (ADAMS [ML18262A322](#)) Recommendation 1E to Remove PI&R From Baseline Inspection Program.

7. Other Considerations

RRPS SELF-ASSESSMENT NUMERICAL / GRAPHICAL ANALYSIS CHALLENGES

The RRPS query-, reporting-, and export structures created challenges in the analysis effort. Specifically, the IP lead found it difficult to extract and output usefully-structured data to all products including MS word, Excel, and Adobe to support of generation of data plots or efficient visual tabular analysis.

- Report 28 limits analysis period to 5-years which precludes analysis of ROP lifetime trends if/when required such as when questioned by a congressional oversight committee or to validate/refute assertions that baseline inspection hours increased substantially over the life of the ROP.
- Report 28 Word exports used non-standard (non-existent) paper sizes, truncated unnecessarily wide tables and awkwardly split tables across pages
- Report 28 Excel exports exhibited awkwardly merged columns that required substantial editing to convert into tables from which useful plots could be generated.
- Report 28 PDF exports wrapped unnecessarily wide tables making visual trending difficult.
- Report 28 provided calculated values under the heading “normalized” without providing sufficient information to assure clear understanding of the meaning of “normalized” in the report context or how the normalized value was calculated.
- Report 28 provided numeric values without including appropriate context (i.e. When reporting hours expended, it would be appropriate to provide the IP-budgeted range;

likewise, when reporting samples or normalized samples, it would be appropriate to provide the IP-specified range of samples.)

RECOMMENDATION 7a: Substantially improve RRPS data capture, validation, query, reporting, and export tools to support flexible, necessary, efficient, and effective analysis quantitative analysis.

RECURRING IP 71152 REVISION PROCESS DEFERMENTS

Perhaps no baseline IP is more important to the ROP and to assuring safety than IP 71152. Nevertheless, achieving internal stakeholder alignment regarding changes to IP 71152 and an agency commitment and ability to reserve staff resources necessary to complete an effective revision have been particularly challenging, contributing to recurring delays in the revision process. Improved mechanisms are needed to address and resolve contentious issues related to IP 71152 and a few other IPs at the appropriate staff, management, or Commission level in order to prevent continuing IP 71152 revision deferrals and delayed ROPFF closures as illustrated below:

In a 2013 IP 71152 analysis report (ADAMS [ML18323A072](#)), the IP lead documented several recommendations to address a variety of inputs to correct and enhance IP 71152. A February 26, 2015, IP 71152 revision (ADAMS [ML14316A042](#)) partially resolved some but not all of the identified issues. These issues were further discussed in the April 4, 2014 ROP Enhancement Project – Baseline Inspection Program, Enclosure 6 (ADAMS Package [ML14017A338](#)), the December 2015 ROP Problem Identification and Resolution Working Group Charter – Phase I (ADAMS [ML15290A004](#)), the May 2016 IP 71152 PI&R Assessment Report (ADAMS [ML16091A367](#)), and were consolidated and summarized in a September 2016 Matrix (ADAMS [ML18323A111](#)).

A draft revision of IP 71152 was developed with an intended effective date of January 2017. The effort was suspended in September 2016 at management direction prioritizing other (perhaps less contentious) activities. The effort was resumed in early 2017 but suspended again for the IP lead to chair a team tasked to evaluate draft NEI 16-07, develop an NRC response (See ADAMS [ML17319A140](#)), and to develop and deliver regional PI&R / CAP-002 training (see ADAMS [ML17337A057](#) and [ML17291A191](#)). IP 71152 revision efforts were resumed in early 2018 but again suspended when the IP lead was appointed to chair a team tasked with developing a SECY and related documents to enhance Resident Inspector Program Recruiting and Retention. Most recently, late in 2018, having moved the SECY sufficiently forward, the IP lead prepared an updated draft revision to IP 71152 (ADAMS [ML15322A104](#)) with an intended January 2019 effective date. As discussed under Current Draft Revision of IP 71152 (ADAMS [ML15322A104](#)), below, this draft would further address some but not all of the pending issues. The effort was suspended again in November 2018 at management direction. The next revision will likely be deferred again pending resolution of global issues pertaining to ROP enhancement as proposed in a September 19, 2018 letter from NEI (ADAMS [ML18360A492](#)).

RECOMMENDATION 7b: Establish improved mechanisms to resolve contentious issues and to prevent continuing deferral of IP revisions and ROPFF closures – Especially in connection with IP 71152.

ROP (PI&R) Enhancement / Transformation Initiative

NEI and NRC Senior Management have expressed a mutual desire to enhance ROP effectiveness, efficiency, and to reduce regulatory burden. One such initiative is discussed in a December 26, 2018, White Paper (ADAMS [ML18360A492](#)) containing the IP Lead's Input for

Consideration in Responding to NEI's September 19, 2018 ROP Enhancement Letter, Subj: ROP Enhancement, Proj: 689 (ADAMS [ML18262A322](#)), Proposal 1E to Remove PI&R from Baseline Program. Proposed response to NEI's 19 September 2018 ROP Enhancement proposal 1E to remove PI&R Inspection from the baseline inspection program.

It is too early to determine how this initiative will impact IP 71152 and NRC oversight of licensee PI&R but changes are anticipated. It creates uncertainty regarding the path forward for IP 71152. As such, the potential to further delay IP 71152 revision and ROPFF closure continues.

NRC oversight of licensee PI&R remains fundamental to the ROP. However, several challenges associated with current biennial team inspection governance, its implementation, and the team's ability to meaningfully assess licensee PI&R program effectiveness, and the ROP's ability to integrate that assessment into the action matrix or elsewhere in the ROP assessment process and Action Matrix. IP 71152 biennial team inspection remains an area of opportunity for improving ROP effectiveness and efficiency and reduction of unnecessary regulatory burden. Consideration of changes to the biennial team inspection should be integrated into Recommendation 1, above, to assure a more holistic review and revision process outcome.

NEI 16-07 (CAP-002)

Much of the nuclear industry has standardized site corrective action programs on the governance contained in NEI Technical Report 16-07 "Improving the Effectiveness of Issue Resolution to Enhance Safety and Efficiency."

Changes in site corrective action programs are expected to impact licensee PI&R performance as well as the NRC's inspection of those programs. No associated changes to IP 71152 have yet been identified.

NEI provided a draft for NRC review but did not seek nor receive NRC endorsement (See ML17319A140). The IP 71152 lead and DIRS Director presented PI&R training and reference materials during each of the four regions December 2017 inspector counterpart meetings (ML17337A057). NEI was invited to the meetings at which they gave presentations and answered questions.

As part of Recommendation 1, consider both positive and potentially adverse impact(s) of changes to licensee CAPs in connection with any changes to IP 71152-related baseline inspection and assessment processes.

Proposed Aging Management Changes

The pending draft revision to IP 71152 (ADAMS [ML15322A104](#)) incorporates several changes to address aging management. These changes were requested by the Division of Material and License Renewal outside of the IMC 040 feedback process. The proposed changes include the mandatory use of one of the budgeted PI&R annual follow-up samples. A recent OpESS effectively mandates use of another of the budgeted PI&R samples. One of the principle recommendations in the April 4, 2014 Enclosure 6: Reactor Oversight Process Enhancement Project - Baseline Inspection Program; Inspection Area - Problem Identification and Resolution report (ADAMS [ML14017A391](#)) was to better focus the procedure on inspection of corrective action as opposed to the variety of issues that had found their way into IP 71152 over the years. Proposed changes associated with aging management and future additions to IP 71152 should be routinely assessed as part of IMC 0307B to assure that proposed additions align with the basis and objectives of IP 71152.

IMC 040-Directed Restructuring of All IPs

IMC 040, "Preparing, Revising, and Issuing Documents for the NRC Inspection Manual," was revised in January 2018. The revision substantially altered requirements for the formatting of all baseline inspection procedure governance. The change required all IP's to be reissued to alter their structure from one that grouped all REQUIREMENTS (mandatory governance) into one section and all GUIDANCE (optional governance) into a separate section with a parallel structure to the REQUIREMENTS section. The IMC 040 revision substantially impacted all IP stakeholders. However, it was issued without: (a) training, (b) 30-day comment period, or (c) Issuing ROP Feedback Forms against all IPs to assure their respective leads were fully aware and addressed the change in pending revisions. In the case of IP 71152, a draft had already been developed with numerous proposed technical content changes. IMC 040 requires the use of change bars and red-line techniques to promote increased awareness among stakeholders (including reviewers of changes during the 30-day comment process and inspectors who must adjust their implementation accordingly). Implementing a major structural change in conjunction with technical content changes results in a "reissue" of the IP without red-line or change bars. Structural changes that require "reissue" of ROP governance should be separated from significant technical content changes to promote effective review, understanding, and inspector recognition and implementation of technical content changes.

RECOMMENDATION 7c: Conduct two revisions of IP 71152: (a) one revision to implement the IMC 040-required structural changes without incorporating technical content changes and (b) a second revision to the previously restructured IP to incorporate technical content changes with associated redline markups. Revise IMC 040 to prohibit revisions that concurrently incorporate substantial technical content changes and substantial structural changes that would constitute a "document reissue" and thus negate the benefit of change markings. Also consider incorporating, into the IMC 0307B periodic IP review, the examination of impacts on the IP that may have been created by changes to related ROP governance documents such as in the scenario above.

Current Draft Revision of IP 71152 (ADAMS [ML15322A104](#))

If issued as presently edited, draft IP 71152 would:

- a. Partially implement the 1/5/18 revision of IMC 0040: (a) Replacing text in INSPECTION BASIS with a hyperlinked reference to IMC 0308 Attachment 2, (b) replacing former sections 71152-04 RESOURCE ESTIMATE and 71152-05 PROCEDURE COMPLETION with SAMPLE REQUIREMENTS table, but (c) deferring elements of subparagraph 07.03 Baseline Inspection Procedures governance that restructure sections 71152-02 INSPECTION REQUIREMENTS and 71152-03 INSPECTION GUIDANCE.
- b. Address elements of "Reactor Oversight Process Problem Identification and Resolution Working Group Charter – PHASE I" ([ML15290A004](#)). Specifically: (a) Requires annual follow-up of completed significant planned corrective actions, (b) addresses and closes ROPFF 71152-1833 (reference plant risk information e-book), (c) -1841 (replace App. A guidance for gathering SCWE and PI&R insights), (d) -1842 (enhanced SCWE assessment guidance), (e) -1870 (enhanced OWA guidance), (f) -1987 (periodic review of generic concerns), (g) -2155 (better address SL-III, -II, and -I NOVs);(h) required annual follow-up of long-term generic issues, when not pursuing (2)(a), above.
- c. Address and close ROPFF 71152-1987 (periodic review of generic concerns) and -2021 (2014 ROP Enhancement Project – review past reactive inspection issues, long-standing CAP issues, dated generic communications).

- d. Relocate daily corrective action document screening commitment, requirements, guidance, and resources from the Routine Review subsection of this IP to IMC 2515 Appendix D Plant Status
- e. Address concerns raised in 2013 in Enclosure 6: Reactor Oversight Process Enhancement Project - Baseline Inspection Program ([ML14017A391](#)) and 2016 IMC 0307 B Reactor Oversight Process Baseline IP Reviews [NP]. Governance pertaining to “routine review” was updated accordingly.
- f. Address additional enhancements: (1) Incorporates aging management considerations into PI&R inspections, mandating application of at least one of the Annual Follow-up samples to PEO-related issues, (2) integrates IMC 2201 “Security Inspection Program for Commercial Nuclear Power Reactors” [NP], adding IMC 2201A to PROGRAM APPLICABILITY to address inclusion of IP 71152 routine reviews in IMC 2201A IPs and closes ROPFF 71152-1988, (3) improves use of plain language (e.g. shall, must, should, may, etc.) and applicable regulatory language (e.g. prompt vs. timely), and (4) corrects issues with- and improves document formatting.

8. Results of discussions with regions

The IP lead scheduled a conference call and invited the following regional IP 71152 points of contact (POCs).

- Len Cline (R1)
- S. Sandal (R2)
- R. Ruiz (R3)
- Eric Ruesch (R4)

The call was conducted from 1:00 to 1:45 PM EST on November 29, 2018. One regional POC participated. The IP lead’s understanding of the call’s purpose, in accordance with IMC 0307B, was to obtain regional inspectors’ perspectives on flexibility and on IP implementation. However, the IP lead accepted other inputs and conducted a general review of the IP 71152 assessment. Specifically:

One regional perspective was that agency efforts to reduce inspection documentation and raise the minor vs. MTM threshold (reduce the number of findings) may have a significant adverse impact on biennial PI&R inspection and assessment efforts.

Another observation that was shared was the perception that current efforts to document IP 71152 observations for issues that did not rise to the level of findings reflected an inefficient use of inspection resources for those sites in column 1 of the action matrix. It was not clear to the regional POC if or how anyone inside or outside the NRC was using these observations.

The IP lead reviewed much of the IP 71152 assessment with the POC who expressed general agreement with the assessment and did not object to any of the discussed elements or recommendations.

POST-CALL UPDATE:

At the time of the call, the IP lead had only completed a cursory assessment of the RRPS data due, in part, to challenges addressed in Section 5 and, in part, to other priority tasking. A more detailed review identified an RRPS data “outlier” that may warrant further regional engagement.

In addition, the IP lead had not yet been tasked to prepare a Draft White Paper (ADAMS [ML18360A492](#)) addressing a September 19, 2018, NEI letter (ADAMS [ML18262A322](#)). The white paper addressed NEI's recommendation 1E to remove IP 71152 from the baseline inspection program.

Following the call, additional scope and detail were incorporated into the IP 71152 self-assessment including but not limited to a more detailed RRPS analysis and references to NEI's letter and associated white paper. In addition, the IP lead became aware of his oversight in interpreting IMC 0307B governance regarding the scope of the regional call. In reviewing IMC 0307 Appendix B Attachment 1 following the call, the IP lead recognized that the intended scope of the call was broader than he had previously interpreted. This was his first implementation of the revised IMC 0307B.

RECOMMENDATION 8: Share the updated analysis with the regional stakeholders listed above and provide an opportunity for further dialogue if regional interest is expressed.

9. Recommendations Roll-up

RECOMMENDATION 1a: Carefully consider cost-benefit and regulatory requirements *before* altering NRC expectations or endorsing altered industry expectations that bypass RCA for *significant* issue resolution (including any NRC-endorsed definition or re-definition of *significant*). Exercise the mandated "Top-Down" approach, engaging Commission, public, and industry before significant basis amendment or departure from the bases. Study carefully lessons-learned *prior to* implementing substantive changes to RCA expectations that could negatively influence (a) licensee PI&R program performance in resolving SCAQs and SACs, (b) compliance with 10 CFR 50 Appendix B, and (c) conformance with core tenants of the ROP, the Enforcement Policy, the Action Matrix, PI&R-related baseline inspection, and/or supplemental inspection programs.

RECOMMENDATION 1b: IP lead and ROP enhancement lead should coordinate with management and other internal and external stakeholders to develop input on PI&R for a SECY that addresses (a) remaining identified alignment issues between current SRMs, ROP Bases, and IP 71152, (b) current challenges, and (c) recommendations of proposed changes to ROP Bases, IP 71152, and impacted procedures for Commission approval. Upon receipt of the Commission's determination regarding recommendations, IMC 0308, IP 71152, and other impacted ROP governance should be revised to realign with each other and with updated Commission SRM(s).

RECOMMENDATION 2: Consistent with ROP principles, explore the potential to incorporate PI&R PIs to enhance PI&R assessment and support IP 71152 baseline inspection reduction,.

RECOMMENDATION 3: NRC has *not* endorsed NEI 16-07 and *must not* endorse any industry position that references- or otherwise relies upon NEI 16-07 or any other non-endorsed industry guidance documents in a manner that may be reasonably be interpreted as endorsement without exercising appropriate agency review and endorsement processes and stakeholders. Likewise, changes must not be allowed to ROP governance documents that create, in effect or appearance, the endorsement of an unendorsed industry guidance documents.

RECOMMENDATION 4: Determine the answers to the two questions (a and b) above. If it is determined that this and/or similar future scenarios like this should not occur, make appropriate changes to IMC 040 and other governance documents and consider training to reduce the

likelihood of recurrence. Examples of changes might include streamlining the TI approval process, enhancing controls over inappropriate use of the OpESS process, employing TI vs. OpESS selection decision diagram, enhanced training of staff and managers who initiate OpESS and TIs, and periodic audits of OpESS and TIs to verify appropriate use.

RECOMMENDATION 5: Validate and clarify IP 28 reporting to confirm the validity of the assumptions and analysis above. If validity is confirmed, consult regions to determine (a) why 3 of 4 regions do not appear to be conforming to the IP-specified 71152B sample rate and (b) why the same three regions are reporting completion of 71152B team inspections in approximately 100 fewer hours than budgeted (while Region 3 is reporting effort in the budgeted range). Consider substantial changes to 71152B to streamline and enhance the efficiency and effectiveness of ROP baseline inspection in this area. Specific changes recommended for consideration include:

- A. **Streamline 71152B biennial team baseline inspections** (i.e. Reduce scope, resource estimate, requirements, possibly team size, frequency, and/or duration) by eliminating those items that overlap and can be completed within existing (or slightly modified) 71152 semi-annual trend or annual follow-up inspection samples and do not require a specialized biennial team inspection to achieve IP 71152 objectives. Some elements of 71152B should be re-evaluated for deletion and/or enhancement in 9500X supplemental inspections
- B. **Eliminate IMC 0305 direction to consider IP 71152 “supplemental” implementation** (i.e. exceeding IP-specified sample frequency) each time a plant enters Column 3 or 4 of the Action Matrix and for the two-year period following the quarter in which the plant entered Column 3 or 4.
- C. **Enhance compliant implementation of IP 71152** (i.e. Inspection consistent with IP-specified sample frequency range, objectives, and requirements – or as approved in ROP deviation) and accurate resource reporting (i.e. actual resources expended) through improved accountability measures (e.g. periodic audits, field validations, metrics, and other oversight mechanisms).
- D. **Restore clarity to the line dividing screening and inspection** by returning daily CAP screening (resources, objectives, requirements, and commitments) from IP 71152 to IMC 2515D Plant Status. Inspectors will continue to screen all daily CAP documents as before but follow-up of CAP screening issues of concern, like issues identified in other plant status activities will be prioritized for potential inspection in accordance with the risk-informed, performance-based baseline inspection process. Those issues warranting inspection must be directed to the appropriate baseline IP with available samples.
- E. **Continue to streamline and improve IP 71152 focus on core objectives** (i.e. relocate previously-added requirements and reject new requirements that do not directly support IP 71152 objectives to hold the line in inspection objectives, requirements, and frequency.)
- F. **Enhance IP 71152-related inspection documentation** in inspection reports and RRPS/ISTAR to support efficient and effective periodic licensee PI&R program assessment and/or validation of potential future PI&R PI(s) to justify future IP 71152 inspection scope or sample frequency reductions.
- G. **Clarify ROP deviation requirements** and assure deviations are reconciled with subsequent permanent IP/IMC changes (i.e. Detail those instances in which program deficiencies may warrant deviations from the IP-specified baseline sample range, objectives, or requirements).

RECOMMENDATION 7a: Substantially improve RRPS data capture, validation, query, reporting, and export tools to support flexible, necessary, efficient, and effective analysis quantitative analysis.

RECURRING IP 71152 REVISION PROCESS DEFERMENTS

Perhaps no baseline IP is more important to the ROP and to assuring safety than IP 71152. Nevertheless, achieving internal stakeholder alignment regarding changes to IP 71152 and an agency commitment and ability to reserve staff resources necessary to complete an effective revision have been particularly challenging, contributing to recurring delays in the revision process. Improved mechanisms are needed to address and resolve contentious issues related to IP 71152 and a few other IPs at the appropriate staff, management, or Commission level in order to prevent continuing IP 71152 revision deferrals and delayed ROPFF closures as illustrated below:

In a 2013 IP 71152 analysis report (ADAMS ML18323A072), the IP lead documented several recommendations to address a variety of inputs to correct and enhance IP 71152. A February 26, 2015, IP 71152 revision (ADAMS ML14316A042) partially resolved some but not all of the identified issues. These issues were further discussed in the April 4, 2014 ROP Enhancement Project – Baseline Inspection Program, Enclosure 6 (ADAMS Package ML14017A338), the December 2015 ROP Problem Identification and Resolution Working Group Charter – Phase I (ADAMS ML15290A004), the May 2016 IP 71152 PI&R Assessment Report (ADAMS ML16091A367), and were consolidated and summarized in a September 2016 Matrix (ADAMS ML18323A111).

A draft revision of IP 71152 was developed with an intended effective date of January 2017. The effort was suspended in September 2016 at management direction prioritizing other (perhaps less contentious) activities. The effort was resumed in early 2017 but suspended again for the IP lead to chair a team tasked to evaluate draft NEI 16-07, develop an NRC response (See ADAMS ML17319A140), and to develop and deliver regional PI&R / CAP-002 training (see ADAMS ML17337A057 and ML17291A191). IP 71152 revision efforts were resumed in early 2018 but again suspended when the IP lead was appointed to chair a team tasked with developing a SECY and related documents to enhance Resident Inspector Program Recruiting and Retention. Most recently, late in 2018, having moved the SECY sufficiently forward, the IP lead prepared an updated draft revision to IP 71152 (ADAMS ML15322A104) with an intended January 2019 effective date. As discussed under Current Draft Revision of IP 71152 (ADAMS ML15322A104), below, this draft would further address some but not all of the pending issues. The effort was suspended again in November 2018 at management direction. The next revision will likely be deferred again pending resolution of global issues pertaining to ROP enhancement as proposed in a September 19, 2018 letter from NEI (ADAMS ML18360A492).

RECOMMENDATION 7b: Establish improved mechanisms to resolve contentious issues and to prevent continuing deferral of IP revisions and ROPFF closures – Especially in connection with IP 71152.

ROP (PI&R) Enhancement / Transformation Initiative

NEI and NRC Senior Management have expressed a mutual desire to enhance ROP effectiveness, efficiency, and to reduce regulatory burden. One such initiative is discussed in a December 26, 2018, White Paper (ADAMS [ML18360A492](#)) containing the IP Lead's Input for

Consideration in Responding to NEI's September 19, 2018 ROP Enhancement Letter, Subj: ROP Enhancement, Proj: 689 (ADAMS [ML18262A322](#)), Proposal 1E to Remove PI&R from Baseline Program. Proposed response to NEI's 19 September 2018 ROP Enhancement proposal 1E to remove PI&R Inspection from the baseline inspection program.

It is too early to determine how this initiative will impact IP 71152 and NRC oversight of licensee PI&R but changes are anticipated. It creates uncertainty regarding the path forward for IP 71152. As such, the potential to further delay IP 71152 revision and ROPFF closure continues.

NRC oversight of licensee PI&R remains fundamental to the ROP. However, several challenges associated with current biennial team inspection governance, its implementation, and the team's ability to meaningfully assess licensee PI&R program effectiveness, and the ROP's ability to integrate that assessment into the action matrix or elsewhere in the ROP assessment process and Action Matrix. IP 71152 biennial team inspection remains an area of opportunity for improving ROP effectiveness and efficiency and reduction of unnecessary regulatory burden. Consideration of changes to the biennial team inspection should be integrated into Recommendation 1, above, to assure a more holistic review and revision process outcome.

NEI 16-07 (CAP-002)

Much of the nuclear industry has standardized site corrective action programs on the governance contained in NEI Technical Report 16-07 "Improving the Effectiveness of Issue Resolution to Enhance Safety and Efficiency."

Changes in site corrective action programs are expected to impact licensee PI&R performance as well as the NRC's inspection of those programs. No associated changes to IP 71152 have yet been identified.

NEI provided a draft for NRC review but did not seek nor receive NRC endorsement (See ML17319A140). The IP 71152 lead and DIRS Director presented PI&R training and reference materials during each of the four regions December 2017 inspector counterpart meetings (ML17337A057). NEI was invited to the meetings at which they gave presentations and answered questions.

As part of Recommendation 1, consider both positive and potentially adverse impact(s) of changes to licensee CAPs in connection with any changes to IP 71152-related baseline inspection and assessment processes.

Proposed Aging Management Changes

The pending draft revision to IP 71152 (ADAMS [ML15322A104](#)) incorporates several changes to address aging management. These changes were requested by the Division of Material and License Renewal outside of the IMC 040 feedback process. The proposed changes include the mandatory use of one of the budgeted PI&R annual follow-up samples. A recent OpESS effectively mandates use of another of the budgeted PI&R samples. One of the principle recommendations in the April 4, 2014 Enclosure 6: Reactor Oversight Process Enhancement Project - Baseline Inspection Program; Inspection Area - Problem Identification and Resolution report (ADAMS [ML14017A391](#)) was to better focus the procedure on inspection of corrective action as opposed to the variety of issues that had found their way into IP 71152 over the years. Proposed changes associated with aging management and future additions to IP 71152 should be routinely assessed as part of IMC 0307B to assure that proposed additions align with the basis and objectives of IP 71152.

IMC 040-Directed Restructuring of All IPs

IMC 040, "Preparing, Revising, and Issuing Documents for the NRC Inspection Manual," was revised in January 2018. The revision substantially altered requirements for the formatting of all baseline inspection procedure governance. The change required all IP's to be reissued to alter their structure from one that grouped all REQUIREMENTS (mandatory governance) into one section and all GUIDANCE (optional governance) into a separate section with a parallel structure to the REQUIREMENTS section. The IMC 040 revision substantially impacted all IP stakeholders. However, it was issued without: (a) training, (b) 30-day comment period, or (c) Issuing ROP Feedback Forms against all IPs to assure their respective leads were fully aware and addressed the change in pending revisions. In the case of IP 71152, a draft had already been developed with numerous proposed technical content changes. IMC 040 requires the use of change bars and red-line techniques to promote increased awareness among stakeholders (including reviewers of changes during the 30-day comment process and inspectors who must adjust their implementation accordingly). Implementing a major structural change in conjunction with technical content changes results in a "reissue" of the IP without red-line or change bars. Structural changes that require "reissue" of ROP governance should be separated from significant technical content changes to promote effective review, understanding, and inspector recognition and implementation of technical content changes.

RECOMMENDATION 7c: Conduct two revisions of IP 71152: (a) one revision to implement the IMC 040-required structural changes without incorporating technical content changes and (b) a second revision to the previously restructured IP to incorporate technical content changes with associated redline markups. Revise IMC 040 to prohibit revisions that concurrently incorporate substantial technical content changes and substantial structural changes that would constitute a "document reissue" and thus negate the benefit of change markings. Also consider incorporating, into the IMC 0307B periodic IP review, the examination of impacts on the IP that may have been created by changes to related ROP governance documents such as in the scenario above.

Current Draft Revision of IP 71152 (ADAMS [ML15322A104](#))

If issued as presently edited, draft IP 71152 would:

- a. Partially implement the 1/5/18 revision of IMC 0040: (a) Replacing text in INSPECTION BASIS with a hyperlinked reference to IMC 0308 Attachment 2, (b) replacing former sections 71152-04 RESOURCE ESTIMATE and 71152-05 PROCEDURE COMPLETION with SAMPLE REQUIREMENTS table, but (c) deferring elements of subparagraph 07.03 Baseline Inspection Procedures governance that restructure sections 71152-02 INSPECTION REQUIREMENTS and 71152-03 INSPECTION GUIDANCE.
- b. Address elements of "Reactor Oversight Process Problem Identification and Resolution Working Group Charter – PHASE I" ([ML15290A004](#)). Specifically: (a) Requires annual follow-up of completed significant planned corrective actions, (b) addresses and closes ROPFF 71152-1833 (reference plant risk information e-book), (c) -1841 (replace App. A guidance for gathering SCWE and PI&R insights), (d) -1842 (enhanced SCWE assessment guidance), (e) -1870 (enhanced OWA guidance), (f) -1987 (periodic review of generic concerns), (g) -2155 (better address SL-III, -II, and -I NOVs);(h) required annual follow-up of long-term generic issues, when not pursuing (2)(a), above.
- c. Address and close ROPFF 71152-1987 (periodic review of generic concerns) and -2021 (2014 ROP Enhancement Project – review past reactive inspection issues, long-standing CAP issues, dated generic communications).

- d. Relocate daily corrective action document screening commitment, requirements, guidance, and resources from the Routine Review subsection of this IP to IMC 2515 Appendix D Plant Status
- e. Address concerns raised in 2013 in Enclosure 6: Reactor Oversight Process Enhancement Project - Baseline Inspection Program ([ML14017A391](#)) and 2016 IMC 0307 B Reactor Oversight Process Baseline IP Reviews [NP]. Governance pertaining to “routine review” was updated accordingly.
- f. Address additional enhancements: (1) Incorporates aging management considerations into PI&R inspections, mandating application of at least one of the Annual Follow-up samples to PEO-related issues, (2) integrates IMC 2201 “Security Inspection Program for Commercial Nuclear Power Reactors” [NP], adding IMC 2201A to PROGRAM APPLICABILITY to address inclusion of IP 71152 routine reviews in IMC 2201A IPs and closes ROPFF 71152-1988, (3) improves use of plain language (e.g. shall, must, should, may, etc.) and applicable regulatory language (e.g. prompt vs. timely), and (4) corrects issues with- and improves document formatting.

NEI and NRC Senior Management have expressed a mutual desire to enhance ROP effectiveness, efficiency, and to reduce regulatory burden. One such initiative is discussed in a December 26, 2018, White Paper (ADAMS ML18360A492) containing the IP Lead’s Input for



STOP HERE – The following contains original analysis [Additional detail that have been condensed from ~20 to ~10 pages above]:

1. Results and assessment of review of IMC 308, ROP basis document review

Based on prior detailed reviews of related IMC 0308 bases vs IP 71152 and an examination of changes made since those reviews, the IP lead noted that some previously-identified ROP Basis vs IP alignment issues have not been resolved. Additionally, recent industry CAP program changes, regulatory change proposals, and senior management ROP enhancement initiatives under consideration, have raised additional issues that may warrant staff engagement of the Commission to propose ROP bases changes along with associated IP 71152 and other governance changes.

Among the changes proposed or under consideration are the elimination of explicit references to root cause analysis. Currently, SRM 99-007, IMC 0308, and associated ROP governance documents make multiple explicit references to **root cause analysis**. For example, there are 26 references to **root cause** in SECY 99-007, 14 references in IMC 0308 Attachment 2. Another change proposed by industry is the elimination of baseline IP 71152 inspection (or at least the biennial team portion).

IMC 0308-05.05 excerpts:

The effectiveness of licensee PI&R as an element of licensee performance potentially impacts more than one cornerstone and therefore "cross-cutting". While not identified as a specific cornerstone, effective licensee PI&R is important to meeting the agency's safety mission. The scope of PI&R programs includes processes for self-assessment, **root cause analysis**, safety committees, operating experience feedback, and corrective action.

The staff concluded that deficiencies in licensee PI&R generally manifests itself as the **root causes** of performance problems and that ineffective PI&R programs, including poor conduct of **root cause analysis** of self-identified or self-revealing issues, has been a common theme among problem plants in the past.

In the Commission's SRM addressing SECY-99-007, the Commission directed the staff to consider ways to ensure that the assessment process is sufficiently robust to address programmatic breakdowns (e.g., breakdown of a corrective actions program or aspects of a particular quality assurance program).

Adequate licensee performance in PI&R would be assessed either explicitly in each cornerstone area or will be inferred through cornerstone performance results from both PIs and inspection results. Defining and implementing an effective PI&R program is a key element underlying licensee performance in each cornerstone area.

Routine baseline inspections of licensee PI&R programs are conducted to ensure that human performance (and those factors such as training, procedures, and the like that influence human performance) is specifically and appropriately investigated through licensees' **root cause analyses** and corrective action programs, including the investigation of potential common cause failures caused by human actions.

All safety culture common language attributes, including those described as the supplemental cross-cutting aspects, should be considered by the licensee when performing **root cause**, extent of condition, and safety culture evaluations.

Because inspection of licensee PI&R and corrective action programs will be included in the baseline inspection program through IP 71152, some indirect assurance will be gained as to the health of a licensee's safety culture. No separate and distinct assessment of licensee safety culture is needed because it is subsumed by either the PI's or baseline inspection activities.

With regard to licensee PI&R effectiveness, there are several areas that are not specifically evaluated by either the individual cornerstone PIs 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 a licensee's corrective action programs is necessary for the NRC to:

- a. Conduct reviews of precursors to events which occur relatively infrequently but could have significant consequences;
- b. Independently identify potentially "generic" concerns that a licensee may have missed, including specific problems involving safety equipment, procedure development, design control, etc.; and
- c. 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 SCWE 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 SDP.

ADDITIONAL BACKGROUND: Specific issues regarding the alignment of IP 71152 with IMC 0308 were documented by the IP lead in a 2013 IP 71152 analysis (ADAMS [ML18323A072](#)).

The issues were further discussed in the April 4, 2014 ROP Enhancement Project – Baseline Inspection Program, Enclosure 6 (ADAMS Package [ML14017A338](#)), the December 2015 Reactor Oversight Process Problem Identification and Resolution Working Group Charter – Phase I (ADAMS [ML15290A004](#)), a September 2016 Matrix (ADAMS [ML18323A111](#)), and the 2016 IP 71152 Problem Identification and Resolution Assessment Report (ADAMS [ML16091A367](#)). A February 26, 2015, revision to IP 71152 (ADAMS [ML14316A042](#)) partially addressed, but did not fully resolve, the issues. A pending draft revision to IP 71152 (ADAMS [ML15322A104](#)) further addresses, but still does not fully resolve, the alignment issues.

In accordance with IMC 040, the NRR DIRS Division Director or Deputy will approve major revisions and policy changes to an existing document. Further coordination will be necessary between the IP lead and various stakeholders (e.g. the ROP enhancement lead, the IRIB BC, and DIRS senior management, regional stakeholders, and possibly the public) to restore alignment and/or alter the ROP bases and governance associated with PI&R.

RECOMMENDATION 1: Task IP lead should coordinate with ROP enhancement lead, management, and other internal and external stakeholders to develop input on PI&R for a SECY that addresses (a) remaining identified alignment issues between current SRMs, ROP Bases, and IP 71152, (b) current challenges, and (c) recommendations of proposed changes to ROP Bases, IP 71152, and impacted procedures for Commission approval. Upon receipt of the Commission's determination regarding recommendations, IMC 0308, IP 71152, and other impacted ROP governance should be revised to realign with each other and with updated Commission SRM(s).

2. Results and assessment of review of any applicable changes to PIs

A three year review by the PI lead did not identify any significant changes to PIs that would impact IP 71152.

However, the IP lead noted that licensees maintain numerous licensee PI&R program performance metrics. These metrics and the licensee's response to them are periodically reviewed by inspectors for insights during biennial PI&R inspections. The industry has expressed a desire to substantially reduce or eliminate PI&R baseline inspection. NRC leadership have expressed a desire to make transformative changes in the ROP to improve its effectiveness and reduce unnecessary burden on licensees. Perhaps, consistent with core principles of the ROP, PI&R inspection *might* be reduced through increased reliance on- and validation of- future PI&R-related PIs derived from existing licensee metrics.

3. Results and assessment of review of any applicable changes to Rules or STSs

A review of approved changes to STS over the past three years and rule changes did not reveal any significant changes that would impact IP 71152.

However, an ongoing industry initiative to leverage licensee corrective action programs (which are already being impacted by NEI 16-07-related CAP changes) to address deficient technical specifications could create challenges to the effectiveness and efficiency of IP 71152 and/or TS-related inspection. These may warrant inclusion into Recommendation 1, above.

4. Results and assessment of review of recent Operating Experience

A review of recent Operating Experience Notes did not identify any issues warranting revisions to IP 71152. One new Operating Experience Smart Sample (OpESS) has been published in connection with IP 71152 since 2010.

In November 2018, an OpESS titled "Evaluation of Licensee Actions Taken in Response to 10 CFR Part 21 Notification of the Potential Existence of Defects Related to Control Rod Drive Mechanism (CRDM) Thermal Sleeves" (ADAMS [ML18263A261](#)) was issued. It supplemented IP 71152.

The IP lead noted that, while not explicitly stated in the document, the OpESS was used to "informally mandate" (through back channels), the application of an IP 71152 baseline

inspection sample at several sites subject to the referenced 10 CFR Part 21 notification and to achieve a level of documentation and communication not required by IP 71152. Informally, stakeholders volunteered that an OpESS was used in lieu of a Temporary Instruction (TI) because the issue reflected a safety concern of sufficient urgency to merit the expedited inspection and issuance of associated governance sooner than would be possible given the requirements for issuing a TI.

IMC 2515 Appendix C, "Special and Infrequently Performed Inspections," provides governance and lists inspection procedures used to examine, among other things, emergent generic technical issues not related to licensee performance but not required to be inspected by the baseline inspection program. TIs generally impose additional inspection burden beyond baseline inspection but do not directly impact baseline inspection whereas the subject informally mandated OpESS clearly impacted IP 71152 baseline inspection. TIs are governed by IMC 2515 Appendix C whereas IP 71152 is governed by IMC 2515 Appendix A, "Risk-Informed Baseline Inspection Program."

Per IMC 040, "Preparing, Revising and Issuing Documents for the NRC Inspection Manual," OpESSs may be employed to inform and enhance ROP inspection of selected OpE issues determined to have potential generic safety implications. They are only developed when an inspection can be accomplished within existing ROP inspection requirements and level of effort. Issues that cannot be addressed within ROP baseline inspection requirements and level of effort should be considered for a one-time inspection under a TI. In contrast, TIs are temporary inspection procedures that are focused on current safety issues or concerns not addressed by established baseline IPs. TIs are carried out in accordance with IMC 2515 Appendix C "Special and Infrequently Performed Inspections." TIs impose requirements that are not imposed by OpESSs.

Neither TIs nor properly-executed OpESSs should result in the displacement of IP 71152 baseline inspection samples of higher site-specific urgency or potential safety significance nor alter baseline inspection effort or its documentation. An informally mandated PI&R OpESS (used in lieu of a TI) could negatively impact the performance of IP 71152.

When last assessed for the period from 2012 to 2015, IP 71152 suffered from significant site-to-site variability in terms of samples and hours and multiple instances of excessive samples and hours (See ADAMS [ML16167A362](#)).

While the precise cause(s) of the site-to-site variability discussed above have not been definitively established, possible causes include:

- a. The June 2006 transfer of licensee CAP document screening from IMC 2515 Appendix D "Plant Status" into the IP 71152 "Routine Inspection" module which blurred the line dividing plant status screening and inspection occurrences,
- b. IMC 0305 direction to consider supplemental implementation of additional IP 71152 (beyond the budgeted baseline inspection occurrences and hours - contrary to IP 71152, IMC 2515, and associated bases) each time a plant enters Column 3 or 4 of the Action Matrix and for the two-year period following the quarter in which the plant entered Column 3 or 4,

- c. Regional governance (written or verbal) that deviates from and diminishes the authority of program office governance. (E.g. “There are many valid reasons for exceeding the recommended range of inspection hours listed in IP 71152.”),
- d. In addition, this assessment identifies the potential use of OpESSs in lieu of TI’s to informally-mandate IP 71152 sample occurrences.

A review of the associated governance, the practice, and the perceived need to substitute an informally mandated PI&R OpESS for a TI may warrant further independent review.

RECOMMENDATION 2: Consider, in the context of the objective evidence, whether the current mechanisms controlling IP 71152 implementation are providing too much, too little, or just the right level of “flexibility” and governance in implementing IP 71152. Consider amending ROP bases, governance, metrics, and self-assessment governance accordingly until all align. Consider explicitly incorporating periodic review of IMC 2515 Appendix B, C, and D inspection into the IMC 0307B periodic review process to assure this ROP governance is being effectively and consistently implemented in a manner so as not to interfere with IMC 2515 Appendix A-directed implementation of IP 71152 (and other baseline IPs).

5. Results and assessment of review based on RRPS data (see separate IP 71152 Assessment Data file for details of RRPS data).

Administrative Notes:

- RRPS/ISTAR Report 28 data for IP 71152 is provided in 10 tables: (a) 5 tables under “71152” consolidating baseline inspection data from Routine Review, Semiannual Trend Review, and Annual Follow-up of Selected Issues inspection activities, and (b) 5 tables under “71152B” containing baseline inspection data from Biennial Team Inspection. These data tables could not be effectively analyzed in the tabular form provided. The IP lead reformatted the data tables and generated the charts necessary to complete the specified analysis in an Excel workbook (See ADAMS MLXXXX).
- The RRPS/ISTAR Report 4 PDF containing all Final PIM issues for 71152 and 71152B for all sites over the analyzed 5-year period from 2013 to 2017 yielded 533 pages of PIM data (see ADAMS as MLXXXX) – too much information to complete detailed analysis at this time. The IP lead generated filtered reports showing only (a) issues flagged as TE (42 pages - MLXXXX), (b) non-green issues (68 pages - MLXXXX), and (c) 71152B issues (xx pages - MLXXXX). The IP lead noted that, unlike the old RPS, some filters applied to generating the associated reports were not indicated in the report itself (i.e. Although the report was clearly filtered from 533 to 68 pages and contained no green issues, the IP lead found no explicit indication this filter was applied).
- The IP lead notes that there has been discussion of the elimination of green issues. Applying that filter to the five-year period from 2013-2017 would reduce the volume of PIM reporting “objective evidence” by 87% to 13% of the current PIM content shown (i.e. 68/533). Likewise, the fraction of green issues to issues of all colors (including no-color issues) is 530/586. We can see that elimination of greens would reflect a 90% reduction of PIM issues. The elimination of green issues would reflect an 87-90% reduction in

documented inspection insight which could raise numerous questions and challenges regarding the remaining value and effectiveness of baseline inspection.

- The word “Findings” is inappropriately and inconsistently applied in IMC 0307B, RRPS/ISTAR, and associated reports to reflect data that includes non-findings. To avoid unnecessary confusion, this assessment will refer to an issue as a “Finding” only when the issue is understood to both (a) meet the IMC definition: “A performance deficiency determined to be More-than-Minor in accordance with IMC 0612, Appendix B,” and (b) the issue is assigned a color per the SDP. Traditional Enforcement (TE) violations and Observations may- or may not be associated with findings.

Adverse trends or outliers noted:

- a. In regional hours / sample, Region 3 was an outlier with a reported 220.1 hours per 71152B sample whereas Regions 1, 2, and 4 reported between 130.4 and 139.4 hours per sample. Interesting, however, is that the biennial team inspection is estimated to take an average of 212 to 288 hours of direct inspection effort. Assuming the Report 28 data is correct, this would suggest that Region 3 conducted IP 71152B inspection in the budgeted range while Regions 1, 2, and 4 were well below the IP 71152B budget. Further analysis is warranted.

The IP lead reviewed RRPS Report 28 for IP 71152 and 71152B over the period 2013 to 2017 with the following assessment results:

(0) NRC Total PIM Entries

Overall: The count of NRC total 71152 PIM entries remained relatively stable throughout the period with year-to-year variations between 75 and 90 per year while the count of NRC total 71152B PIM entries varied widely, fluctuating between 25 and 57. Total PIM entry counts for 71152 and 71152B were both dominated by green NCVs, followed by green FINs, together making up approximately 90% of the total count.

71152: Nationally, the number of PIM entries attributed to NCV Green has remained relatively stable overall, varying from a low of 54 in 2014 to a high of 68 in 2015. Green FIN has fluctuated more significantly, relative to the number of these items with a 2013 high of 17 to a 2014 low of 7.

71152B: Nationally, the number of PIM entries attributed to NCV Green has fluctuated significantly from a high of 41 in 2015 to a low of 20 in 2017. The second most dominant group, FIN Green fluctuated from a high of 5 in 2015 to a low of 2 in 2016. Of note was the trend in FIN N/A which, in 2013, contributed 8 PIM entries, declined to 4 entries in 2014 and 2015 after which there were no such entries in 2016 and 2017.

ASSESSMENT: While the count of NRC total 71152 PIM entries remained relatively stable, between 75 and 90, throughout the period, fluctuations in the count of NRC total 71152B PIM entries were comparatively large, varying between 25 and 57 in the same period. The IP lead identified several potential contributors to the comparatively higher variability of the 71152B PIM count relative to 71152:

- 71152 is relatively well-structured in terms of the number occurrences to be completed each year and the amount of effort budgeted per occurrence whereas 71152B is comparatively loosely structured with one occurrence every other year and a comparatively large effort budgeted to that occurrence. These structural differences lend themselves to greater variability (reduced transparency, objectivity, predictability, and scrutability) in the execution and outcome of 71152B compared to 71152.
- IMC 0305 authorizes implementation of 71152B in a supplemental manner, contrary to the IP 71152 specified applicability.
- A change in 71152B FIN N/A PIM entries that reflect a probable change in non-IP-71152 (or non-program) governance regarding documenting FIN N/A PIM entries during biennial team inspections.

(1) NRC total and regional “PIM Items per 1000 Inspection Hours.”

Overall: The NRC overall 71152 and 71152B PIM item count per 1000 inspection hours has remained relatively stable during the period from 2013 through 2017. 71152B showed greater variability than 71152.

71152: The NRC overall 71152 PIM item count per 1000 inspection hours has remained relatively stable during the period from 2013 through 2017. Region 4, at 5.8 PIM items per 1000 hours has the highest average and is stable while Region, at 2.8 PIM items per 1000 hours has the lowest but has the greatest upward trend of 0.17 PIM items per 1000 hours per year. Region 2 is below average (3.7 vs. 4.3) and declining.

71152B: The NRC overall 71152B PIM item count per 1000 inspection hours has remained relatively stable with an annual average of 3.0 during the period from 2013 through 2017 with Regions 1 and 4 slightly above average at 3.3 and 3.6 but trending downward, and with Region 2 substantially below average at 1.9 but trending upward.

ASSESSMENT: Overall, regions 3 and 4 documented substantially more 71152 PIM items per 1000 hours (5.7 and 5.8) than did Regions 1 and 2 (2. And 3.7). Overall, regions 1 and 4 documented more 71152B PIM items per 1000 hours (3.3 and 3.6) than Regions 2 and 3 (1.9 and 2.8). Over the 5-year period 71152 documented more PIM items per 1000 hours (4.3) than 71152B (3.0).

(2) NRC total and regional “Inspector Identified Findings per 1000 Inspection Hours.”

Overall: The NRC overall 71152 and 71152B Inspector Identified PIM Item count per 1000 hours have both declined slightly during the period from 2.8 and 2.5, respectively, in 2013 to 2.2 and 1.8 in 2017. Year-to-year and Region to Region variability has been notably higher for 71152B than for 71152.

71152: The average value for inspector identified 71152 PIM issues per 1000 inspection hours across all regions for the period 2013 to 2017 was 2.6 with a downward trend

ending at 2.2 in 2017. Regions 3 and 4 had the highest average values, at 3.1 and 3.3 vs. Regions 1 and 2 at 2.0 and 2.5.

71152B: The average value for inspector identified 71152B PIM issues per 1000 inspection hours across all regions for the period 2013 to 2017 was 2.3 with a greater downward trend ending at 1.8 in 2017. Region 4 showed the highest average value, at 3.1 whereas Region 2 showed the lowest at 1.4. Regions 1 and 3 were at 2.6 and 2.4 respectively.

ASSESSMENT: Inspector identified PIM issues per 1000 hours are declining for both 71152 and 71152B. Regional decline, regional variability, year to year variability are all greater for 71152B than 71152. The rankings between regions differ notably between 71152 and 71152B.

(3) NRC total and regional "Hrs./Sample,"

Overall: Nationally, over the 5-year period, 71152 baseline inspection consumed 98.3 thousand hours to complete 2,160 inspection occurrences, an average of 46 hours per sample occurrence. 71152B consumed 39.8 thousand baseline inspection hours to complete 238 biennial team sample occurrences, an average of 167 hours per baseline inspection occurrence.

71152: Nationally, the reported Hrs./Sample for the 5-year period was 46. Regional variance was minimal with Region 1 logging the highest at 46 hours per occurrence whereas Region 4 logged only 42 hours per occurrence.

71152B: Nationally, the reported Hrs./Sample for the 5-year period was 167. Notable regional variance was observed. At 240, Region 3 expended the highest number of hours per biennial team inspection; Region 1, at 145, expended the least.

ASSESSMENT:

At 167 hours/occurrence, IP 71152 produced 3 times more findings per hour than IP 71152B at 46 hours per occurrence. While this should be expected if inspectors implementing IP 71152B are focusing on PI&R assessment rather than identifying and documenting more findings. This focus would be appropriate if the hours spent in PI&R assessment enhanced PI&R regulatory oversight and licensee PI&R effectiveness consistent with the objectives and requirements of IP 71152B. Whether that is occurring remains a topic for further discussion as there is not uniform cross-regional alignment.

Additionally, regarding regional hours per IP 71152B sample, Region 3 was an outlier with a reported 240 hours / sample in comparison to Regions 1, 2, and 4 who reported between 145 and 158 hours per sample. Given that the biennial team inspection is estimated to take an average of 212 to 288 hours of direct inspection effort and assuming the Report 28 data is correct, this data suggests that Region 3 conducted IP 71152B inspection within the procedure-budgeted range whereas Regions 1, 2, and 4 were well below the IP 71152B budget.

Further analysis is warranted. This issue cannot be resolved from the IP 28 report alone. Additional discussion is warranted with regard to IP 71152B in general.

(4) Traditional enforcement violations identified in the “Summary of PIM Findings.”

Background

IMC 0612 defines the following applicable terms:

- Finding: A performance deficiency determined to be More-than-Minor in accordance with IMC 0612, Appendix B.
- Observation. A factual detail noted during an inspection.
- Traditional Enforcement (TE). An Enforcement Policy process used to disposition violations of NRC requirements that are not dispositioned through the ROP SDP. Violations receiving traditional enforcement are assigned a Severity Level and may include the imposition of a civil penalty as appropriate. Traditional enforcement is applied to violations associated with (a) actual consequences, (b) willfulness, and (c) impeding the regulatory process. Additionally traditional enforcement is used to disposition violations receiving enforcement discretion or violations without a performance deficiency. Independent spent fuel storage installations (ISFSI), and nuclear materials facilities are not subject to the SDP and, thus, traditional enforcement will be used for these facilities.
- Severity Level (SL). The significance of a violation evaluated under traditional enforcement.
- Significance Determination Process (SDP). The process described by IMC 0609 and associated appendices that is applied to an inspection finding to determine its safety or security significance as either Green (very low), White (low-to-moderate), Yellow (substantial), or Red (high).

Additionally, RPS (and presumably RRPS) utilized the following terms to convey specific meanings as described:

- FIN – A non-violation finding.
- NCV – A non-cited violation – typically characterized as green (non-TE) or SL-IV (TE)
- VIO – A cited violation – typically characterized as white, yellow, or red (non-TE) or SL-III, II, or I (TE)
- N/A – An uncolored FIN, AV, NCV, or NOV.

Per IMC 0612, ALL Findings MUST be colored using the SDP including Findings associated with TE Violations. TE Violations, themselves, CANNOT be colored. Consequently, the presence of a color establishes the presence of an ROP finding while

the presence of a SL establishes the presence of a TE violation and there can be no TE violation absent a SL and no Finding absent a color. Finally, the IP lead considers Report 28 PIM issues coded FIN N/A to reflect poorly-coded non-Finding Observations or Inspection Report-documented Assessments.

The IP lead applied the above information in determining which items in the Report 28 Summary of PIM issues constituted TE violations.

71152: The IP lead characterized 37 (9%) of the 415 PIM-Identified issues during the 5-year period from 2013 thru 2017 as TE violations on the basis of the issues having been coded NCVIV N/A (14), NCVIV Green (10), VIO N/A (5), NOV N/A (4), NCV N/A (3), or AV N/A (1). The remaining 378 (91%) of PIM issues, coded as NCV Green (303), FIN Green (54), VIO Green (8), VIO White (6), NOV White (3), AV Preliminary White (1), AV White (1), NOV Green (1), and VIO Yellow (1) were characterized by the IP lead as non-TE items.

71152B: The IP lead characterized 15 (8%) of the 184 PIM-Identified issues as TE violations on the basis of the issues having been coded NCVIV N/A (7), NCVIV Green (3), VIO N/A (2), AV N/A (1), NOV N/A (1), or NOVIV Green (1). The remaining 169 (92%) of PIM issues, coded as NCV Green (130), FIN Green (18), and FIN N/A (16) were characterized by the IP lead as non-TE items.

ASSESSMENT:

From a trending perspective, the IP lead determined that 71152 TE dispositions peaked in 2015 at 11 TE violations (12% of 90 total 2015 PIM issues) and has declined since, reaching a low of 3 TE violations (4% of 83 total 2017 PIM issues). In contrast, 71152B TE trending revealed an upward trend in TE violations with the highest number of TE dispositions in 2017 with 6 of the 15 (40%) of the 71152B TE violations and 21% of all 71152B PIM issues occurring in 2017. This suggests that a closer examination may be warranted to determine why 71152B TE violations peaked significantly in 2017.

Insufficient data was presented in Report 28 to evaluate regional differences in the identification and dispositioning of TE vs non-TE issues.

Though anecdotal, historical observations by the IP lead suggests that TE characterization is not uniformly understood or applied across the agency. The absence of explicit "TE" vs "Non-TE" coding in Report 28 illustrates our reluctance (or inability) to make such explicit determinations on the basis of the data captured in inspection reports and RRPS and/or on the basis of staff understanding of what fundamentally distinguishes TE from non-TE PIM issues. It might be illustrative to examine differences in how IP leads completed their respective evaluations in this section.

Perhaps the greater potential concern, which cannot be determined from the Report 28 data but could potentially be determined by properly qualified auditors through use of tabletop exercises or inspection report audits, is the degree to which greater-than-green findings are being increasingly overlooked or omitted from inspection reports, action matrix inputs, supplemental inspection, and other regulatory responses in lieu of documenting, assessing, and launching quasi-supplemental inspections against licensees that remain in Column 1 of the action matrix.

Though anecdotal, objective evidence exists to support the assertion that such scenarios have occurred without resolution. Likewise, quasi-supplemental inspection procedures exist and are in use. Currently, no periodic self-assessment examines the implementation of non-baseline (i.e. reactive and supplemental) inspection procedures.

(5) Color of findings identified in the “Summary of PIM Findings.”

71152: 388 of 415 (93%) of the documented 71152 PIM issues were colored during the period from 2013 thru 2017. Presumably all were all ROP findings colored by the SDP. However, there have been anecdotal instances in which non-finding TE violations have been incorrectly assigned SDP colors. Of the colored issues, 376 (91% of all 71152 issues and 97% of all colored 71152 issues) were green. 11 issues (3%) were white and 1 issue (<1%) was yellow. A total of 27 (7%) of the 71152 issues were uncolored. The frequency of uncolored issues peaked at 7 in both 2015 and 2016 but declined to a low of 3 in 2017. 71152 white issues showed a peak of 4 occurrences in 2017 from typical annual values of 2 or less. This may warrant further examination.

71152B: 157 of 184 (85%) of the documented 71152B issues were colored during the period from 2013 thru 2017. All colored issues were green. Colored issues peaked at 49 (86%) of 57 PIM items in 2015 and have declined since with 25 (86%) of 29 PIM issues in 2017. All of the colored issues At 85%, the percentage of colored PIM items is lower for 71152B than for 71152 which is 93%.

ASSESSMENT:

During the period 2013 thru 2017, members of staff, management, and industry have discussed resetting the screening and inspection report documentation threshold from the current minor-vs-green threshold to the green-vs-white threshold.

The IP lead notes that, if green issues were eliminated at the start of 2013, 91% of the colored 71152 PIM issues and 100% of the colored 71152B PIM issues would not exist. Calculations of Findings per 1000 inspection hours be reduced accordingly – a greater than 10-fold reduction.

As discussed elsewhere, the exclusion of green items significantly reduces the combined 71152 + 71152B IP4 Report PIM items from:

- 533 pages summarizing the five year period into 4 Apparent Violations, 85 Findings, 466 Non-Cited Violations, 26 Violations, and 37 Traditional Enforcement Violations.

To:

- 68 pages summarizing the five year period into 4 Apparent Violations, 13 Findings, 22 Non-Cited Violations, 14 Violations, and 22 Traditional Enforcement Items.

Such a change would substantially increase the visibility and regulatory gravity of the remaining issues including the Traditional Enforcement Violations to which the Action Matrix which governs ROP assessment and regulatory response to assure regulatory

responses to degrading performance in a transparent, objective, predictable, and scrutable manner.

Five years of IP 71152B would have yielded no (zero) findings and the reduction in information flow could delay NRC and licensee awareness of declining licensee performance and growing issues in cross-cutting areas including but not limited to PI&R.

6. Feedback Forms

As of November 19, 2018, the [FBF Tracking System \(Pilot\)](#) SharePoint site shows 27 open ROP feedback forms assigned to IP 71152. The submittal dates range from 2011 to 2018 with 23 submitted prior to the current revision of IP 71152 (February 26, 2015). 24 of 27 FFs were submitted prior to the last (2016) IP 71152 assessment.

The current draft revision of IP 71152 (ADAMS [ML15322A104](#)), if issued as drafted, should fully address and close 8 of the 27 FFs. Of the remaining 19 FFs, the change would partially address some; some would be closed with no further action based on management decisions limiting the IP 71152 change scope, and some would be carried forward to the next revision. Further stakeholder collaboration will be necessary to resolve differing stakeholder positions regarding the open FFs.

Additional discussion and detail regarding open FFs may be found in multiple documents including the December 2015 Reactor Oversight Process Problem Identification and Resolution Working Group Charter – Phase I (Public ADAMS [ML15290A004](#)), a September 2016 PI&R Enhancement Matrix (ADAMS [ML18323A111](#)), and the 2016 IP 71152 Problem Identification and Resolution Assessment Report (ADAMS [ML16091A367](#)). Additional perspectives may be viewed in other tracking systems including [ROP Self Assessment](#) and [ROP Lessons Learned Tracker](#) SharePoint sites.

Given potential changes in Commission direction and ROP bases (see discussion associated with Recommendation 1), the IP lead recommends that final disposition of pending non-urgent ROPFFs associated with potential IP 71152-related ROP basis changes be addressed in connection with Recommendation 1. Those that are unrelated to potential ROP bases changes may be preliminarily dispositioned pending issuance of the next IP 71152 revision.

Although not necessarily or entirely captured in FFs, the IP lead reviewed the February 16, 2017, EFFECTIVENESS REVIEW OF THE RECOMMENDATIONS FROM THE BROWNS FERRY INSPECTION PROCEDURE 95003 LESSONS LEARNED REPORT (ADAMS [ML17005A186](#)) for additional insights.

The IP lead noted that the effectiveness review documented numerous open issues pertaining to IP 71152. Some of these issues would be addressed upon issuance of the current IP 71152 draft. Others would not. Of those that would not, some are likely related to FF's that would not be addressed by the current draft. The IP lead notes that it would be prudent (a) to open the IMC 0307B IP assessment with a required examination of relevant lessons-learned documents such as the one listed above and (b) to require all self-assessments and ROP change initiatives to translate agreed-upon corrective actions and

enhancements into ROPFFs to assure that a common-system is used to track and resolve issues pertaining to the ROP.

7. Other Considerations

RESTRICTIONS & LIMITATIONS

RRPS query- and export structure-imposed impediments to outputting usefully-structured data to MS word, Excel, and PDFs in support of appropriate data plots or efficient visual tabular analysis.

- Report 28 limits analysis period to 5-years which precludes analysis of ROP lifetime trends such as those questioned by a congressional oversight committee.
- Report 28 Word exports did not fit standard paper sizes, truncated unnecessarily wide tables and awkwardly split tables across pages
- Report 28 Excel exports exhibited awkwardly merged columns that required substantial editing to convert tables to useful plots.
- Report 28 PDF exports wrapped unnecessarily wide tables making visual trending difficult.

IP 71152 Recurring Revision Process Deferments

In his 2013 IP 71152 analysis report (ADAMS [ML18323A072](#)), the IP lead documented several recommendations to address a variety of inputs to correct and enhance IP 71152. A February 26, 2015, IP 71152 revision (ADAMS [ML14316A042](#)) partially resolved some but not all of the identified issues. These issues were further discussed in the April 4, 2014 ROP Enhancement Project – Baseline Inspection Program, Enclosure 6 (ADAMS Package [ML14017A338](#)), the December 2015 Reactor Oversight Process Problem Identification and Resolution Working Group Charter – Phase I (ADAMS [ML15290A004](#)), the May 2016 IP 71152 PI&R Assessment Report (ADAMS [ML16091A367](#)), and summarized in a September 2016 Matrix (ADAMS [ML18323A111](#)).

A draft revision of IP 71152 was developed with an intended effective date of January 2017. The effort was suspended in September 2016 at management direction. The effort was resumed in early 2017 but suspended again in order for the IP lead to chair a team tasked to evaluate draft NEI 16-07, develop an NRC response, and to develop and deliver regional PI&R / CAP-002 training. The efforts were resumed in early 2018 but again suspended when the IP lead was appointed to chair a team tasked with developing a COMSECY and related documents to enhance Resident Inspector Program Recruiting and Retention. Most recently, late in 2018, having moved the COMSECY sufficiently forward, the IP lead prepared an updated draft revision to IP 71152 (ADAMS [ML15322A104](#)) with an intended January 2019 effective date. As discussed under Current Draft Revision of IP 71152 (ADAMS [ML15322A104](#)), below, this draft would further address some but not all of the pending issues. The effort was suspended again in November 2018 at management direction.

Perhaps no baseline IP is more important to the ROP and to assuring safety than IP 71152. Nevertheless, achieving internal stakeholder alignment regarding changes to IP 71152 and an agency commitment and ability to reserving staff resources necessary to an effective revision have been particularly challenging, contributing to recurring delays in the revision process. Improved mechanisms are needed to address and resolve contentious issues at the appropriate staff, management, or Commission level in order to prevent continuing IP 71152 revision deferrals and delayed ROPFF closures.

RECOMMENDATION 3: Establish improved mechanisms to address and resolve contentious issues at appropriate staff, management, or Commission level in order to prevent continuing IP 71152 revision deferrals and delayed ROPFF closures.

ROP (PI&R) Enhancement / Transformation Initiative

The Commission and senior management have expressed interest in the enhancement of ROP effectiveness, efficiency, and in the reduction of regulatory burden. Industry has put forth a number of recommendations along these lines including the proposed elimination or reduction of IP 71152 baseline inspection with a focus on IP 71152 biennial team inspections. An ROP Enhancement team has been assembled to move this initiative forward. It is too early to determine how this initiative will impact IP 71152 and NRC oversight of licensee PI&R but changes are anticipated.

The IP lead notes that NRC oversight of licensee PI&R remains fundamental to the ROP but acknowledges several challenges associated with current biennial team inspection governance, its implementation, and the team's ability to meaningfully assess licensee PI&R program effectiveness, and the ROP's ability to integrate that assessment into the action matrix or elsewhere in the ROP assessment process and Action Matrix. IP 71152 biennial team inspection remains an area of opportunity for improving ROP effectiveness and efficiency and reduction of industry burden. Consideration of changes to the biennial team inspection should be integrated into Recommendation 1, above, to assure a more holistic review.

Root Cause Analysis

Root cause analysis (RCA) has long been and remains an area of substantial industry and NRC focus. It is referenced extensively throughout (a) Commission Staff Requirements (SRMs) and SECYs forming the staff requirements fundamental to the ROP, (b) the ROP bases, and (c) baseline and supplemental inspection procedures in connection with PI&R. RCA is also referenced indirectly in regulations and enforcement guidance addressing recurrence prevention.

In the context of the ROP, RCA is simply a systematic analysis of significant violations, findings, or events with sufficient rigor to enable the associated cause or causes to be determined so that the "root" cause(s), which, addressed effectively, will prevent recurrence of the cause, violation, finding, and/or event reliably and with reasonable assurance.

Because root cause analysis generally requires increased rigor and a more systematic approach than, say, a "broke-fix" or "apparent cause" analysis (which, in some instances, amount to a "trial-and-error" approach to problem resolution), it may be more costly to perform. However, the ability of RCA to reasonably assure recurrence prevention can, in

some instances, reduce PI&R costs and improve safety over the long run compared to “trial-and-error” approaches.

To reduce operating costs associated with PI&R, the industry has largely adopted NEI 16-07 (CAP-002) which reduces industry reliance on RCA. Also, NEI has lobbied the NRC to reduce or eliminate reference to RCA throughout ROP governance.

To move away from or to otherwise reduce RCA is to reduce the population of issues for which recurrence prevention might be reliably and reasonably assured. Because ROP governance is constrained by Commission staff requirements and the Enforcement Policy, the outcome of efforts to reduce reliance on RCA will be largely determined by what changes occur (or do not occur) in Commission Staff Requirements, the Enforcement Policy, and/or associated governance. This issue should be addressed under Recommendation 1.

NEI 16-07 (CAP-002)

Much of the nuclear industry has standardized site corrective action programs on the governance contained in NEI Technical Report 16-07 “Improving the Effectiveness of Issue Resolution to Enhance Safety and Efficiency.”

Changes in site corrective action programs are expected to impact licensee PI&R performance as well as the NRC’s inspection of those programs. No associated changes to IP 71152 have yet been identified.

NEI provided a draft for NRC review but did not seek nor receive NRC endorsement (See ML17319A140). The IP 71152 lead and DIRS Director presented PI&R training and reference materials during each of the four regions December 2017 inspector counterpart meetings (ML17337A057). NEI was invited to the meetings at which they gave presentations and answered questions.

As part of Recommendation 1, consider both positive and potentially adverse impact(s) of changes to licensee CAPs in connection with any changes to IP 71152-related baseline inspection and assessment processes.

Proposed Aging Management Changes

The pending draft revision to IP 71152 (ADAMS [ML15322A104](#)) incorporates several changes to address aging management. These changes were requested by the Division of Material and License Renewal outside of the IMC 040 feedback process. The proposed changes include the mandatory use of one of the budgeted PI&R annual follow-up samples. A recent OpESS effectively mandates use of another of the budgeted PI&R samples. One of the principle recommendations in the April 4, 2014 Enclosure 6: Reactor Oversight Process Enhancement Project - Baseline Inspection Program; Inspection Area - Problem Identification and Resolution report (ADAMS [ML14017A391](#)) was to better focus the procedure on inspection of corrective action as opposed to the variety of issues that had found their way into IP 71152 over the years. Proposed changes associated with aging management and future additions to IP 71152 should be routinely assessed as part of IMC 0307B to assure that proposed additions align with the basis and objectives of IP 71152.

IMC 040-Directed Restructuring of All IPs

IMC 040, "Preparing, Revising, and Issuing Documents for the NRC Inspection Manual," was revised in January 2018. The revision substantially altered requirements for the formatting of all baseline inspection procedure governance. The change required all IP's to be reissued to alter their structure from one that grouped all REQUIREMENTS (mandatory governance) into one section and all GUIDANCE (optional governance) into a separate section with a parallel structure to the REQUIREMENTS section. The IMC 040 revision substantially impacted all IP stakeholders. However, it was issued without: (a) training, (b) 30-day comment period, or (c) Issuing ROP Feedback Forms against all IPs to assure their respective leads were fully aware and addressed the change in pending revisions. In the case of IP 71152, a draft had already been developed with numerous proposed technical content changes. IMC 040 requires the use of change bars and red-line techniques to promote increased awareness among stakeholders (including reviewers of changes during the 30-day comment process and inspectors who must adjust their implementation accordingly). Implementing a major structural change in conjunction with technical content changes results in a "reissue" of the IP without red-line or change bars. Structural changes that require "reissue" of ROP governance should be separated from significant technical content changes to promote effective review, understanding, and inspector recognition and implementation of technical content changes.

RECOMMENDATION 4: Conduct two revisions of IP 71152: (a) one revision to implement the IMC 040-required structural changes without incorporating technical content changes and (b) a second revision to the previously restructured IP to incorporate technical content changes with associated redline markups. Revise IMC 040 to prohibit revisions concurrently incorporating substantial technical content changes and structural changes that would constitute a "reissue" of the document and thus negate the benefit of change markings. Also consider incorporating, into the IMC 0307B periodic IP review, the examination of impacts on the IP that may have been created by changes to related ROP governance documents such as in the scenario above.

February 2015 Limited Revision of IP 71152

Subsequent to the 2014 ROP Baseline Inspection Enhancement Initiative Report, IP 71152 underwent a limited revision which:

- a. Relocated Operator Work-around inspection requirement to IP 71111.15;
- b. Enhanced alignment of 71152-01 OBJECTIVES with IMC 0308 Att. 2 Fig. 37;
- c. Enhanced IP organization;
- d. Aligned language to updated IMC 0310 nomenclature;
- e. Enhanced communications with the NRC Vendor Inspection Center of Expertise for vendor or supplier deficiencies;
- f. Updated references to external IP's and IMC's;
- g. Eliminated reference to retired RIS 2005-20;
- h. Eliminated use of undefined terminology;
- i. Enhanced integration of OpE Smart Samples into inspection sample population, and
- j. Addressed or partially addressed FBF's 71152-1787, -1836, -1946, -1964, -2012, -2013, and -2022.

However, some pending issues were not addressed in the 2015 revision.

Current Draft Revision of IP 71152 (ADAMS [ML15322A104](#))

If issued as presently edited, draft IP 71152 would:

- g. Partially implement the 1/5/18 revision of IMC 0040: (a) Replacing text in INSPECTION BASIS with a hyperlinked reference to IMC 0308 Attachment 2, (b) replacing former sections 71152-04 RESOURCE ESTIMATE and 71152-05 PROCEDURE COMPLETION with SAMPLE REQUIREMENTS table, but (c) deferring elements of subparagraph 07.03 Baseline Inspection Procedures governance that restructure sections 71152-02 INSPECTION REQUIREMENTS and 71152-03 INSPECTION GUIDANCE.
- h. Address elements of “Reactor Oversight Process Problem Identification and Resolution Working Group Charter – PHASE I” ([ML15290A004](#)). Specifically: (a) Requires annual follow-up of completed significant planned corrective actions, (b) addresses and closes ROPFF 71152-1833 (reference plant risk information e-book), (c) -1841 (replace App. A guidance for gathering SCWE and PI&R insights), (d) -1842 (enhanced SCWE assessment guidance), (e) -1870 (enhanced OWA guidance), (f) -1987 (periodic review of generic concerns), (g) -2155 (better address SL-III, -II, and -I NOVs);(h) required annual follow-up of long-term generic issues, when not pursuing (2)(a), above.
- i. Address and close ROPFF 71152-1987 (periodic review of generic concerns) and -2021 (2014 ROP Enhancement Project – review past reactive inspection issues, long-standing CAP issues, dated generic communications).
- j. Relocate daily corrective action document screening commitment, requirements, guidance, and resources from the Routine Review subsection of this IP to IMC 2515 Appendix D Plant Status
- k. Address concerns raised in 2013 in Enclosure 6: Reactor Oversight Process Enhancement Project - Baseline Inspection Program ([ML14017A391](#)) and 2016 IMC 0307 B Reactor Oversight Process Baseline IP Reviews [NP]. Governance pertaining to “routine review” was updated accordingly.
- l. Address additional enhancements: (1) Incorporates aging management considerations into PI&R inspections, mandating application of at least one of the Annual Follow-up samples to PEO-related issues, (2) integrates IMC 2201 “Security Inspection Program for Commercial Nuclear Power Reactors” [NP], adding IMC 2201A to PROGRAM APPLICABILITY to address inclusion of IP 71152 routine reviews in IMC 2201A IPs and closes ROPFF 71152-1988, (3) improves use of plain language (e.g. shall, must, should, may, etc.) and applicable regulatory language (e.g. prompt vs. timely), and (4) corrects issues with- and improves document formatting.

8. Results of discussions with regions

The IP lead scheduled a conference call and invited the following regional IP 71152 points of contact (POCs).

- Len Cline (R1)
- S. Sandal (R2)

- R. Ruiz (R3)
- Eric Ruesch (R4)

The call was conducted from 1:00 to 1:45 PM EST on November 29, 2018. One regional POC participated. The purpose, in accordance with IMC 0307B, was to obtain regional inspectors' perspectives on flexibility and on IP implementation. However, the IP lead accepted other inputs and conducted a general review of the IP 71152 assessment. Specifically:

One regional perspective was that agency efforts to reduce inspection documentation and raise the minor vs. MTM threshold (reduce the number of findings) may have a significant adverse impact on biennial PI&R inspection and assessment efforts. Another observation that was shared was the perception that current efforts to document IP 71152 observations for issues that did not rise to the level of findings reflected an inefficient use of inspection resources for those sites in column 1 of the action matrix. It was not clear to the regional POC if or how anyone inside or outside the NRC was using these observations.

The IP lead reviewed much of the IP 71152 assessment with the POC who expressed general agreement with the assessment and did not object to any of the discussed elements or recommendations

RECOMMENDATIONS

RECOMMENDATION 1: Task IP lead should coordinate with ROP enhancement lead, management, and other internal and external stakeholders to develop input on PI&R for a SECY that addresses (a) remaining identified alignment issues between current SRMs, ROP Bases, and IP 71152, (b) current challenges, and (c) recommendations of proposed changes to ROP Bases, IP 71152, and impacted procedures for Commission approval. Upon receipt of the Commission's determination regarding recommendations, IMC 0308, IP 71152, and other impacted ROP governance should be revised to realign with each other and with updated Commission SRM(s).

RECOMMENDATION 2: Consider, in the context of the objective evidence, whether the current mechanisms controlling IP 71152 implementation are providing too much, too little, or just the right level of "flexibility" and governance in implementing IP 71152 (sample selection, number of samples, hours, etc.). Consider amending ROP bases, governance, metrics, procedure, metrics, and self-assessment governance accordingly until everything aligns. Consider explicitly incorporating periodic review of IMC 2515 Appendix B, C, and D inspection into the IMC 0307B periodic review process to assure this ROP governance is being effectively and consistently implemented in a manner so as not to interfere with IMC 2515 Appendix A-directed implementation of IP 71152 (and other baseline IPs).

RECOMMENDATION 3: Establish improved mechanisms to address and resolve contentious issues at appropriate staff, management, or Commission level in order to prevent continuing IP 71152 revision deferrals and delayed ROPFF closures.

General IP 71152 & Associated Bases Revision Approach

1. Complete structure-only revision to IP 71152 in parallel with the following

2. Brief DIRS senior management (establish alignment on change plan):
 - a. Confirm the pending draft IP 71152 constitutes a major revision to IP 71152
 - b. Ensure DIRS senior management are aligned in principle with proposed changes and retained IP 71152 bases and requirements and training:
 - i. I.e. Retention of the ROP expectation that licensees complete and document Quality-Related Cause Determination and Recurrence Prevention (AKA Root Cause Analysis (RCA) and Corrective Actions to Prevent Recurrence (CAPRs)) for all Significant Adverse Conditions (not just those subject to 10 CFR 50 Appendix B), GTG PIs and non-violation Findings, and all NOV.s.
 - ii. Internal stakeholders shall be trained to reinforce the understanding that voluntary NRC and Licensee participation in the ROP represents an alignment between the participants with regard to certain fundamental NRC expectations and licensee self-imposed standards that, by necessity, extend beyond regulatory obligations. As a consequence, inspectors may document findings against licensees that fail to satisfy associated licensee self-imposed standards. I.e.:
 - (a) A licensee participating in the ROP fails to submit PI data. As there is no regulatory obligation, the failure does not constitute a violation but, unless the licensee withdraws from or is removed from the ROP, the failure does constitute a finding because PI submittal reflects an ROP fundamental NRC expectation and licensee self-imposed standard necessary to ROP participation.
 - (b) Likewise, a licensee failure (a) to complete a quality-related cause determination to identify the (root) cause(s) (AKA an RCA) with sufficient rigor and (b) to implement associated CAPRs to reasonably assure recurrence prevention of a significant adverse condition constitutes a finding. It may or may not constitute a violation depending on the applicability of regulatory obligations to the condition.
 - iii. On Aging Management
 - iv. On Plant Status vs. Current Daily Screening of CAP Documents
 - v. On Managed Follow-up of Significant Planned Completion Actions
 - c. Align on approach to updating IP 71152:
 - i. Two revision approach – Rev 1: Format changes only;
 - ii. Stakeholder alignment meetings to align on principle issues to be addressed and excluded from content changes (FFs addressing excluded content changes to be accordingly closed without action)

- iii. Prepare and receive necessary authorization for associated revisions to basis documents, including SRMs
- 3. Issue revised basis documents
- 4. Realign the restructured IP 71152 to basis documents as revised (Rev. 2 - Content change)
- 5. Conduct training after Rev 2 issued but before Effective Date
 - i. Effective Date (1 July 19 if possible; 1 Jan 20 if not)