

## **Enclosure 2**

Handouts and Presentations Discussed during the  
May 18, 2017 ROP WG Public Meeting

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# Updating Public and Occupational Radiation Safety Significance Determination Process

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# Agenda

- Review current Significance Determination Process (SDP) for the Radiation Protection (RP) Cornerstones
- Justification for updates
- Describe the process for updating the RP SDPs
- Questions/Comments

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# Significance Determination Process

- Risk-informed process for determining safety significance of inspection findings
- Findings are an input to the reactor assessment process
- Objectives of an SDP
  - Characterize significance using best available risk insights
  - Provide an objective and common framework for communicating significance
  - Provide basis for timely assessment and enforcement
  - Used to risk-inform the inspection program

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# SDP – Radiation Protection Cornerstones

- IMC 0609 Appendix C – Occupational Radiation Safety SDP
  - IMC 0308 Appendix C – Technical Basis for Occupational Radiation Safety SDP
- IMC 0609 Appendix D – Public Radiation Safety SDP
  - IMC 0308 Appendix D – Technical Basis for Public Radiation Safety SDP

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# Occupational Radiation Safety SDP

- IMC 0609 Appendix C
- Focus Areas
  - Planning and work controls associated with as low as is reasonably achievable (ALARA) efforts
  - Occupational Overexposures
  - Substantial potential for occupational overexposures
  - Compromised ability to assess occupational dose

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# Public Radiation Safety SDP

- IMC 0609 Appendix D
- Focus Areas
  - Radioactive Effluent Release Program
  - Environmental monitoring program
  - Radioactive material control program
  - Transportation-related findings

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# Justification for Change

- Occupational Radiation Safety SDP
  - Administrative updates to reflect current program
- Public Radiation Safety SDP
  - Administrative updates to reflect current program
  - Transportation SDP does not address the possibility of incorrect packaging being used for radioactive material shipments
    - Assumption that correct packaging is used and then a performance deficiency occurs
    - Leads to undesired reliance on IMC 0609 Appendix M (Qualitative Criteria) to determine significance

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# Process for Updating an SDP

- Described in IMC 0609
  - Similar to the original development of the SDP
  - Input considered from multiple stakeholders
    - NRC Staff (HQ and Regional Staff)
    - Public
    - Regulated Industry
- Participation will be primarily through internal workshops, public meeting(s) and letters

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# Plan/Schedule for Updating RP SDPs

May – June 2017	Develop draft SDP Publish public meeting notice with draft of SDPs (early June)
July 2017	Internal workshop Public meeting (~ week of 17 July)
August 2017	Internal workshop to tabletop new SDP
September 2017	Inspector training at internal HP counterpart meeting at NRC RIII Publish new IMC 0609 and IMC 0308 App C and D

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# Questions/Comments?

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**Comment Resolution – NEI Comments on Transition Plan from Construction to the ROP**

No.	Section	Comment	Incorporated	Proposed Resolution
1	III.E	<p>This section states:</p> <p>“If there is a greater-than-green finding identified before the 10 CFR 52.103(g) finding, the staff is required to conduct the required supplemental inspection specified in the cROP Action Matrix. If the supplemental inspection is successfully completed prior to the 10 CFR 52.103(g) finding, the staff will close the greater-than-green finding, and the finding will also be considered closed for future assessment purposes under the ROP Action Matrix. However, if the required supplemental inspection is not completed before the 10 CFR 52.103(g) finding, the greater-than-green finding will remain open and will be assigned to the ROP cornerstone that is most closely related to the finding and the finding will be considered as an input to the ROP Action Matrix upon initial implementation of the ROP.”</p> <p>While we would not want to see the 103(g) finding delayed to resolve a construction greater-than-green finding, the NRC’s proposal seems contradictory. The 103(g) finding means that the commission has concluded that the ITAAC have been completed, the plant is completed in accordance with design, and is ready for fuel load. How, then, would a construction inspection finding apply to evaluating performance of the operating plant?</p>	No, in part	<p>This section refers to findings related to development of operational programs during the construction process, not “construction findings.” The staff position is that the significance of findings related to development of operational programs would best be characterized using IMC 2519, while those related to implementation of those programs would be characterized by IMC 0609. IMC 2519 directs staff to use IMC 0609 for all inspection findings related to the Security program, and for all programs that reach their respective implementation milestone. IMC 0609 is the operational SDP; therefore, these findings should carry over to the ROP if still open after the 10 CFR 52.103(g) (hereafter referred to as 103(g)) determination.</p> <p>Many of these operational programs are not subject to ITAAC, and therefore are not considered when making the 103(g) determination.</p> <p>For greater-than-Green (GTG) findings related</p>

		<p>In addition, it is not clear how the NRC would judge the resolution of a greater-than-green construction-related finding held open past the 103(g) finding. The significance of the construction-related finding would be evaluated using the construction SDP (IMC 2519). The NRC proposes to map the open finding to a corresponding cornerstone of the ROP, where the basis for significance determination (IMC 0609) is completely different. Adding to this complexity, different inspection procedures would apply (IP 9500X vice IP 9000X) to the supplemental inspection needed to resolve the greater-than-green finding.</p> <p>We would suggest that the NRC choose a different path for closing a greater-than-green construction finding that remains open at the time of the 103(g) finding. We suggest the following: (a) treat the construction-related finding outside of the operational ROP; (b) conduct the supplemental inspection using the applicable construction inspection procedure; (c) close the construction-related finding in accordance with the criteria of the construction inspection procedure. If NRC remains on its proposed path of rolling over construction-related findings past the 103(g) finding and re-mapping them to the operational ROP, the NRC should invoke the Action Matrix deviation process to recognize that construction-related findings are not additive to operations-related findings.</p>	<p>to development of operational programs, the staff agrees that the technical basis for IMC 2519 is not exactly the same as for IMC 0609. However, a GTG finding for the development of an operational program is indicative of a significant deficiency in the program that, if still open after the 103(g) determination, will have an impact on the operation of the facility. Therefore, the staff recommends that those findings be carried over into the operational ROP until corrected and inspected. If a finding is an ROP Action Matrix input, then that finding will be subject to the regulatory actions assigned to the applicable column. That includes conduct of supplemental inspection 9500X. The inspection objectives are identical to the supplemental 9000X inspection procedures.</p> <p>The staff will revise this section to state that for any GTG finding that remains open after the 103(g) determination and is mapped to the cornerstones more reliant on probabilistic risk assessment (PRA) (i.e., initiating events, mitigating systems, barrier integrity), the staff may treat the</p>
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				<p>finding the same way it treats old design issues under the ROP. The finding will not be an input into the Action Matrix, but the licensee will still be required to have a supplemental inspection completed to close out the finding. The staff will also state that any finding still open after 103(g) and mapped to the ROP cornerstones will not be required to remain open for four full quarters; they will be closed upon satisfactorily meeting all of the objectives of the supplemental inspection.</p>
2	III.F	<p>As in the comment above, the NRC states:</p> <p>“If the supplemental inspection is successfully completed prior to the 10 CFR 52.103(g) finding, the staff will close the greater-than-green finding, and the finding will also be considered closed for future assessment purposes under the ROP Action Matrix. However, if the required supplemental inspection is not completed before the 10 CFR 52.103(g) finding, the greater-than-green finding will remain open and will be assigned to the ROP cornerstone that is most closely related to the finding and the finding will be considered as an input to the ROP Action Matrix upon initial implementation of the ROP.”</p> <p>The industry comment on section III.E applies to section III.F as well.</p>	No	<p>Inspection findings associated with implementation of operational programs should be treated the same, whether before or after the 103(g) determination. These are not “construction findings,” even though they may be identified during construction. Significance of these findings is determined using IMC 0609, which is the SDP for operating plants. Therefore, if they are not closed prior to the 103(g) determination, they should remain inputs in the applicable ROP cornerstone.</p> <p>If the finding is identified prior to the 103(g) determination, the finding will not be</p>

				required to remain open for four full quarters.
3	III.G	<p>This section makes the following statement:</p> <p>“Inspections of the development of operational programs <u>after</u> the 10 CFR 52.103(g) finding will be conducted using applicable inspection procedures specified by IMC 2504.” [emphasis added]</p> <p>It is unclear what inspections are referred to, as IMC 2504, states: “To specify the inspection policies for reviewing, <u>prior to the</u> Commission’s 10 CFR 52.103(g) finding, the operational programs described in the FSAR, for a plant licensed in accordance with 10 CFR Part 52.” [emphasis added]</p> <p>And</p> <p>“The purpose of these inspections is determine the status of the operational programs prior to the Commission’s 10 CFR 52.103(g) finding and to determine the adequacy of the preoperational testing portion of the initial test program conducted by the licensee.” [emphasis added]</p>	No	<p>IMC 2504 Appendix B provides a list of inspection procedures to be used for inspecting licensee operational programs. While IMC 2504 states the purpose of the inspections is to determine the status of the operational programs prior to the Commission’s 103(g) finding, Section 09.02 states, “It is recognized that some operational programs may not be fully implemented at the time of the 10 CFR 52.103(g) finding. These programs will be inspected at the first available opportunity subsequent to the 10 CFR 52.103(g) finding.” The inspection procedures identified in App. B are the appropriate procedures to use for those inspections.</p>
4	III.G	<p>This section states:</p> <p>“The significance of operational program development findings identified after the 10 CFR 52.103(g) finding will be determined using the guidance in IMC 2519. The operational program development findings identified after the 10 CFR 52.103(g) finding will be</p>	No	See Comment 1.

		<p>assigned to the ROP cornerstone most closely related to the finding, and significance of the finding will be considered for determining the appropriate ROP Action Matrix column in accordance with IMC 0305.”</p> <p>As noted in the previous comments on Section III.F, resolving a greater-than-green finding that was evaluated using the construction SDP (IMC 2519) and was re-mapped into the operational ROP, where a different SDP (IMC 0609) is applicable, is problematic.</p>		
5	III.L III.M	As noted in previous comments, resolving a greater-than-green finding that was evaluated using the construction SDP (IMC 2519) and has been re-mapped into the ROP where a different SDP (IMC 0609) applies, is problematic.	No	See Comment 1.
6	III.O Table 1, for MSPI	This paragraph does not reflect previous discussions on applicability of MSPI to AP1000 that occurred at several ROP public meetings in 2015-2016. From those ROP public meetings, we understood that the staff had concluded that further pursuit of PI modifications for the AP1000, particularly an MSPI modification, would not likely bear fruit. Therefore, the staff concluded that it should pursue inspection modifications to cover the areas in which performance indicators would not be practical.	Yes	The staff will revise section III.O to reflect the current path forward on developing new PIs.
7	III.P	<p>This section proposes to treat certain performance indicators as invalid until “...sufficient time has passed to accumulate enough representative data to provide a valid assessment result.”</p> <p>What would happen if a unit has not reached 7,000 critical hours in the first four calendar quarters (first year) after initial criticality?</p>	Yes	PIs will be considered valid after four full quarters have elapsed following transition to the ROP, whether or not the licensee has accumulated 7000 critical hours of operation. If a licensee has fewer than 7000

		<p>How would NRC treat Unplanned Scrams per 7,000 Critical Hours and Unplanned Power Changes per 7,000 Critical Hours for a unit in this situation?</p> <p>On page 12, the NRC states, "To establish the necessary baseline of critical hours to prevent falsely inflating the <u>data</u>, these indicators will become valid after four full calendar quarters have passed once critical hours have occurred." [emphasis added.]</p> <p>We suggest replacing the word "data" with the word "indicator value".</p>		<p>critical hours, then the PIs for Unplanned Scrams per 7000 critical hours and Unplanned Power Changes per 7000 critical hours will be reported using the actual hours, and converted to a number per 7000 hours.</p> <p>The staff will revise III.P to replace "data" with "indicator value."</p>
8	Figure 1	<p>Note 2 says, "Significance determination for findings associated with operational program development inspections and ITAAC subject to a hearing in accordance with IMC 2519."</p> <p>IMC 2519, "Construction Significance Determination Process", does not mention the word "hearing". Please explain what hearing is referred to in Note 2 or revise Note 2 to clarify that hearing is being referred to.</p> <p>Interestingly, Figure 1 does not depict what Section III labors to describe, i.e., the closure of greater-than-green construction findings that may not be closed prior to the 103(g) finding.</p>	Yes	<p>Note 2 will be revised to clarify that IMC 2519 will be used to determine significance of findings associated with operational program development inspections and ITAAC subject to a hearing.</p> <p>Figure 1 is a simplified timeline depicting major milestones.</p>
9	Table 1 for SSFF	<p>The entry under "When PI becomes Valid" states, "This PI becomes valid when the mitigating systems cornerstone becomes valid." The entry under "Comments" states, "...the PI should become valid the first quarter in which 10 CFR 50.73, 'Licensee event report system,' becomes applicable after the MS</p>	Yes	<p>Table 1 will be revised to ensure the comments are consistent with the statement under when the PI becomes valid.</p>

		<p>cornerstone has been transitioned to the ROP.”</p> <p>If the above entries are equivalent, why are they written differently? If the above entries are not equivalent, why is conflicting direction presented in this table?</p>		
10	Enclosure 2	<p>Several items in this table state “None specified” under Implementation Milestone when there is a milestone. For example the milestone for Item 5, Reactor Vessel Material Surveillance Program is “before initial criticality” (VCS COL).</p>	Yes	<p>Staff will revise the enclosure to provide a listing of the operational programs subject to the transition, and will remove reference to the milestones and due dates.</p>

## Draft Implementation Plan to Ensure NRC Staff Readiness for AP1000 Operations

### Section III.E

All green findings associated with operational program development inspections will be closed prior to the implementation of the ROP. If there is a greater-than-green finding identified before the 10 CFR 52.103(g) finding, the staff is required to conduct the required supplemental inspection specified in the cROP Action Matrix. If the supplemental inspection is successfully completed prior to the 10 CFR 52.103(g) finding, the staff will close the greater-than-green finding, and the finding will also be considered closed for future assessment purposes under the ROP Action Matrix. However, if the required supplemental inspection is not completed before the 10 CFR 52.103(g) finding, the greater-than-green finding will remain open and will be assigned to the ROP cornerstone that is most closely related to the finding and the finding will be considered as an input to the ROP Action Matrix upon initial implementation of the ROP.

For any greater-than-green inspection finding that remains open after the 10 CFR 52.103(g) determination and is mapped to the cornerstones more reliant on probabilistic risk assessment (PRA) (i.e., initiating events, mitigating systems, barrier integrity), the staff may treat the finding in the same manner as an old design issue under the ROP. The finding will not count in the ROP Action Matrix, but the licensee will be required to have the appropriate supplemental inspection completed in order to close the finding. Any greater-than-green inspection finding documented prior to the 10 CFR 52.103(g) determination will not be required to remain open for four full quarters; it will be closed upon satisfactorily meeting all of the objectives of the applicable supplemental inspection.

### Section III.G

Certain operational programs have implementation milestones that will occur after the 10 CFR 52.103(g) finding (including but not limited to in-service inspection, in-service testing, and preservice testing programs). Therefore, the required inspections of the **development** of these operational programs may be completed after to the 10 CFR 52.103(g) finding, depending on the licensee's readiness for the inspections. Inspection planning will need to take into account the implementation of these and other operational programs as described in Exhibit 5 to IMC 2506. Inspections of the **development** of operational programs after the 10 CFR 52.103(g) finding will be conducted using applicable inspection procedures specified by IMC 2504. The significance of operational program **development** findings identified after the 10 CFR 52.103(g) finding will be determined using the guidance in IMC 2519. The operational program **development** findings identified after the 10 CFR 52.103(g) finding will be assigned to the ROP cornerstone most closely related to the finding, and significance of the finding will be considered for determining the appropriate ROP Action Matrix column in accordance with IMC 0305.

For any greater-than-green inspection finding that is mapped to the cornerstones more reliant on probabilistic risk assessment (PRA) (i.e., initiating events, mitigating systems, barrier integrity), the staff may treat the finding in the same manner as an old design issue under the ROP. The finding will not count in the ROP Action Matrix, but the licensee will be required to have the appropriate supplemental inspection completed in order to close the finding.

These findings will not be required to remain open for four full quarters; they will be closed upon satisfactorily meeting all of the objectives of the applicable supplemental inspection.

### Section III.L

After the 10 CFR 52.103(g) finding, ITAAC may be the subject of an ongoing hearing (ITAAC hearings and interim operations are discussed in detail in the Background and in Section V.D). If inspections are required after the 10 CFR 52.103(g) finding for ITAAC that are subject to a hearing during interim operations, they will be conducted using applicable inspection procedures specified by IMC 2503. Findings identified during these inspections will be dispositioned using the cROP SDP in IMC 2519 and will be assigned to the ROP cornerstone that is most closely related to the finding for consideration in the ROP Action Matrix.

For any greater-than-green inspection finding that is mapped to the cornerstones more reliant on probabilistic risk assessment (PRA) (i.e., initiating events, mitigating systems, barrier integrity), the staff may treat the finding in the same manner as an old design issue under the ROP. The finding will not count in the ROP Action Matrix, but the licensee will be required to have the appropriate supplemental inspection completed in order to close the finding. These findings will not be required to remain open for four full quarters; they will be closed upon satisfactorily meeting all of the objectives of the applicable supplemental inspection.

### Section III.O

There are no PIs under the cROP. Certain PIs under the ROP (e.g., mitigating systems performance indicator) are not applicable to new AP1000 reactors in their current format because of the AP1000's passive design features. In SRM-SECY-13-0137, the Commission directed the staff to develop appropriate PIs and thresholds for new reactors, specifically for those PIs in the initiating events and mitigating systems cornerstones, or develop additional inspection guidance to address identified shortfalls to ensure that all cornerstone objectives are adequately met. ~~The staff must submit the new PIs and/or inspection plans to the Commission for approval before power operation of the first new reactor units. The staff is in the process of reviewing existing PIs under this SRM and Recommendations RI-09A and 09B. This work must be completed before the first AP1000 unit receives its 10 CFR 52.103(g) finding, and the final set of new reactor PIs will be identified as part of these actions.~~ has determined that new PIs would not be practical, and will recommend revising inspection procedures to cover those areas, specifically in the Mitigating Systems cornerstone of the ROP, that will not be addressed by PIs.

### Section III.P (4<sup>th</sup> paragraph)

However, IE01 (Unplanned Scrams per 7,000 Critical Hours) and IE03 (Unplanned Power Changes per 7,000 Critical Hours) will be invalid when oversight is transitioned to the ROP. Performance Indicators IE01 and IE03 measure the rate of initiating events over the total number of critical hours in the previous four quarters. To establish the necessary baseline of critical hours to prevent falsely inflating the data indicator value, these indicators will become valid after four full calendar quarters have passed once critical hours have occurred. For example, if the unit first reaches criticality in December 2019, the data for IE01 and IE03 in the subsequent four quarters would be collected and reported, but the first quarter information used as an active input into the action matrix for assessment purposes would be for the fourth quarter 2020 (data submitted in January 2021).

### Figure 1

Note 2: IMC 2519 will be used for significance determination for findings associated with operational program development inspections and ITAAC subject to a hearing in accordance with IMC 2519.

Table 1

Performance Indicator	When PI Becomes Valid	Comments	Additional Inspection
MS05: Safety System Functional Failures	This PI becomes valid when the mitigating systems cornerstone becomes valid.	This indicator monitors the number of events or conditions that prevented or could have prevented the fulfillment of the safety function of structures or systems in the previous four quarters. For a new plant, the PI should become valid <del>the first quarter in which 10 CFR 50.73, "Licensee event report system," becomes applicable after</del> when the MS cornerstone has been transitioned to the ROP.	No

Enclosure 2

**Enclosure 2 - Operational Programs Required by NRC Regulation**

- Inservice Inspection Program
- Inservice Testing Program
- Environmental Qualification Program
- Preservice Inspection Program
- Reactor Vessel Material Surveillance Program
- Preservice Testing Program
- Containment Leakage Rate Testing Program
- Fire Protection Program
- Process and Effluent Monitoring and Sampling Program
  - Radiological Effluent Technical Specifications/Standard Radiological Effluent Controls (RETS/SREC)
  - Offsite Dose Calculation Manual (ODCM)
  - Radiological Environmental Monitoring Program (REMP)
  - Process Control Program (PCP)
- Radiation Protection Program
- Non-licensed Plant Staff Training Program
- Reactor Operator Training Program
- Reactor Operator Requalification Program
- Emergency Planning
- Security Program

- Physical Security Program
- Safeguards Contingency Program
- Training and Qualification Program

Quality Assurance Program Operation

Maintenance Rule

Motor-Operated Valve Testing

Initial Test Program