NRC INSPECTION MANUAL

APHB

MANUAL CHAPTER 0308 ATTACHMENT 3, APPENDIX M

TECHNICAL BASIS FOR NON-QUANTITATIVE SIGNIFICANCE DETERMINATION PROCESS (SDP) USING INTEGRATED RISK-INFORMED DECISION-MAKING

1.0 PURPOSE

The objective of this appendix to Inspection Manual Chapter (IMC) 0308, Attachment 3, "Significance Determination Process Technical Basis," is to provide a technical basis for a non-quantitative Significance Determination Process (SDP) using a formal Integrated Risk-Informed Decision Making (IRIDM) framework in determining the safety significance of an inspection finding.

2.0 BACKGROUND

Initially issued on December 22, 2006, Inspection Manual Chapter (IMC) 0609, Appendix M, "The Significance Determination Process Using Qualitative Criteria," was developed as an alternative SDP tool to determine the safety significance of inspection findings that are difficult to estimate using available quantitative risk tools and methods. Subsequent revision of IMC 0609 Appendix M, dated April 12, 2012 (ML101550365), provided guidance for making regulatory decisions using a deterministic framework of a small set of qualitative factors. Since then, feedback from both internal and external stakeholders indicated that usage of this guidance document may have resulted in less than optimal decision making with respect to risk-informed and reliable regulatory outcomes. The SDP Business Process Improvement initiative completed in 2014 (ML14318A512) provided recommendations to update IMC 0609 Appendix M to: (1) clarify entry conditions, and (2) develop a framework that takes the inputs and arrives at an integrated risk-informed decision. In addition, in the Staff Requirements Memorandum (SRM) on SECY 2013-0137, the Commission tasked the staff to "evaluate the need to provide additional clarity on the use of qualitative factors for operating reactors to provide more transparency and predictability to the process." These factors and ongoing NRC initiatives to improve the efficiency of SDP implementation provide the cogent needs to revise IMC 0609 Appendix M to add clarity and specificity to the conditions of its usage as a non-quantitative SDP tool for assessing significance of licensee performance deficiencies.

3.0 ENTRY CONDITIONS

As an alternative to existing quantitative SDP tools, IMC 0609 Appendix M was developed to determine the safety significance of inspection findings that are difficult to estimate using available quantitative risk tools and methods. This difficulty may arise in exceptional situations and circumstances where the unique complexities of an inspection finding may challenge or prevent decision makers from making an objective and reliable risk-informed decision in the most efficient manner. These situations and circumstances are the Entry Conditions for which

IMC 0609 Appendix M should be used when appropriate. The basis for each Entry Condition is discussed below.

- Entry Condition 2.a - A quantitative SDP tool is not available
    - No quantitative SDP tool is available to support the significance assessment of the inspection finding for a risk-informed decision making outcome. In addition, the inspection finding may not be amenable to quantitative assessments for risk-informed decision making. In these situations, NRC staff would need to develop a new SDP tool to address the specific type of inspection findings if these findings become more frequent. As a result, IMC 0609 Appendix M is the appropriate and efficient tool to use for making risk-informed decisions. Examples of when this entry condition would be used are inadvertent criticality or spent fuel pool issues.

- Entry Condition 2.b - The available quantitative SDP tools are not adequate to provide a preliminary significance determination due to complexities that affect an efficient quantitative assessment
    - This entry condition is to be applicable only under extreme circumstances when the available quantitative SDP tool is not adequate to provide a preliminary significance determination in an efficient manner due to complexities. The context of the term, "complexities," is related to the situation of large uncertainties of PRA modeling and other influential assumptions that affect efficiency in making an objective and reliable risk-informed decision. The uncertainties discussed in this entry condition are the inherent uncertainties that are characteristic of extreme and rare conditions (e.g., very rare initiating events), and not the uncertainties of the PRA output. The use of IMC 0609 Appendix M under this entry condition should be infrequent and not in situations when existing SDP tools yield a result that may be different than what is desired.

- Entry Condition 2.c - Additional SDP tools that involve extensive resources are needed to assess significance of inspection findings of unique complexities
    - This entry condition is to be applicable only under the circumstances where additional SDP tools that involve extensive resources are needed to handle inspection findings of unique complexities. The context of the term, "unique complexities," is related to the situation where additional SDP tools are needed to handle "first-of-a-kind" inspection findings, and/or extensive resources are needed to support the technical review of a broad range of analytical methods (including new methods) and data applicable for assessing significance of a finding. Examples of findings of unique complexities are findings associated with natural hazards such as flooding, high winds, seismic, etc.

4.0 APPLICABILITY

As a non-quantitative SDP tool, IMC 0609 Appendix M should be used appropriately in situations and/or circumstances where the significance of inspection findings are difficult to estimate using existing quantitative SDP tools and methods. Therefore, applicable Entry Conditions have been defined to ensure that IMC 0609 Appendix M is used to make objective and reliable risk-informed decisions in a most efficient manner. Each Entry Condition was defined to allow the use of IMC 0609 Appendix M only in unique situations where the existing quantitative SDP tools may not provide an efficient approach to the significance determination of inspection findings.

If an Entry Condition for the use of IMC 0609 Appendix M is met, IMC 0609 Attachment 1 provides guidance that the staff should conduct a planning Significance and Enforcement Review Panel (SERP) to determine if Appendix M is an appropriate tool for assessing the significance of a finding. Careful consideration is warranted in considering the use of this tool, especially if another quantitative SDP tool or method provides a suitable approach. For example, a degraded condition may be specifically modeled only in one or two accident sequences, or uncertainties associated with an initiating event frequency or failure rate probability may not significantly affect the decision outcome. In these cases, an existing SDP tool may provide an efficient assessment of significance; therefore, IMC 0609 Appendix M should not be used.

If a planning SERP has determined that IMC 0609 Appendix M is appropriate to use, the staff should use the framework described in IMC 0609 Appendix M to determine the significance of the finding. The IMC 0609 Appendix M framework enables decision makers to consider additional decision attributes, factors, and other relevant insights that may influence the significance of the inspection finding.

When assessing significance of a finding using IMC 0609 Appendix M, the intent is not to develop new risk models, perform experiments, or seek in-depth expert elicitation to support the decision making. As manifested in the IMC 0609 Appendix M framework, this objective facilitates an efficient approach to making objective and reliable risk-informed decisions.

5.0 TECHNICAL BASIS OF THE INTEGRATED RISK-INFORMED DECISION MAKING (IRIDM) FRAMEWORK

The primary objective of IMC 0609 Appendix M is to provide a systematic and disciplined approach to assessing significance of inspection findings with unique complexities using an Integrated Risk-Informed Decision Making (IRIDM) framework. The IRIDM process is based on existing methodology as described in NRC Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and NRR Office Instruction LIC 504, "Integrated Risk-Informed Decision Making Process for Emergent Issues." The IRIDM framework allows decision makers to combine insights from quantitative risk information (when available) with deterministic engineering judgment relying upon in-house engineering knowledge and expertise, regulatory oversight experience, and any additional relevant factors and insights, to provide objective and reliable risk-informed decisions.

As described in IMC 0609 Appendix M, the steps in the IRIDM framework to support a disciplined approach to making risk-informed decisions are as follows:

1. Characterize the Finding
2. Define the Effect on Each Decision Attribute
3. Perform Assessment of Each Decision Attribute

4. Integrate Assessment Results
5. Document the Decision

The technical bases for each step in the IRIDM framework for IMC 0609 Appendix M are provided in the following subsections:

5.01 Characterize the Finding.

Once a planning SERP has determined that an inspection finding meets the applicable Entry Condition for IMC 0609 Appendix M to be used, the first step requires an initial bounding assessment. The bounding assessment provides a bound on the significance outcome in the risk-informed decision making process.

The bounding evaluation can vary in scope and complexity depending on the nature of the inspection finding. In cases where there are tools available to provide quantitative estimates, the bounding evaluation can be comprehensive; but may require a significant amount of resources to complete if there are large uncertainties associated with the estimated parameters. In other cases where the available tools are not capable of providing a robust quantitative estimate, a simple quantitative approach supplemented with qualitative insights, as appropriate, can provide a reasonable bounding assessment. When the available tools are unable to provide any quantitative estimate, a completely qualitative approach is also an acceptable method. Once the bounding assessment results become available, additional decision attributes are reviewed for their applicability to the finding. Each decision attribute should have a basis, quantitative and/or qualitative, to justify its use as an input to the IRIDM framework. After all applicable decision attributes have been established with an appropriate basis, the bounding assessment and decision attributes should be evaluated as a whole to arrive at a risk-informed decision.

A bounding quantitative and/or qualitative evaluation provides an upper and lower limit (i.e., worse case and best case analysis) on the range of potential outcomes. This step in the IRIDM framework enables decision makers to focus on additional applicable decision attributes, factors, and other relevant insights that may influence the significance determination of the inspection finding.

5.02 Define the Effect on Each Decision Attribute.

This step in the IRIDM framework is implemented to identify the set of decision attributes that should be considered in making the risk-informed decision on the significance of an inspection finding. The selection of a relevant decision attribute is based on identifying the effect of the performance deficiency (PD) on one or more criteria associated with the applicable decision attribute. The set of decision attributes considered in the IRIDM framework for IMC 0609 Appendix M is listed below, and the associated criteria defined for each decision attribute are also provided.

5.02.01 Defense in Depth

The defense-in-depth philosophy has traditionally been applied in reactor design and operation to provide multiple means to accomplish safety functions and prevent the release of radioactive material. It has been and continues to be an effective way to account for uncertainties in equipment and human performance and, in particular, to account for unknown and unforeseen failure mechanisms or phenomena, which (because they are unknown or unforeseen) are not reflected in either the PRA or traditional engineering analyses (Ref 1). The use of PRA technology should be increased in all regulatory matters to the extent supported by the state-of-the-art in PRA methods and data and in a manner that complements the NRC's deterministic approach and supports the NRC's traditional defense-in-depth philosophy (Ref 2).

The introduction to the general design criteria in 10 CFR 50, Appendix A, asserts that designers of nuclear power plants consider (1) the need to design against single failures of passive components (as defined in 10 CFR 50, Appendix A) and (2) redundancy and diversity requirements for fluid systems (Ref 1). The concept of defense-in-depth from a mitigating systems perspective should take into account the expected frequency of applicable initiating events and associated uncertainties.

Defense-in-depth consists of a number of elements, and consistency with the defense-in-depth philosophy is maintained if the following factors are preserved:

1. A reasonable balance is preserved among the layers of defense that prevents events from progressing to core damage, containment failure, and consequence mitigation.

2. Adequate capability of design features is preserved without an over-reliance on programmatic activities as compensatory measures for deficiencies.

3. System redundancy, independence, and diversity commensurate with the expected frequency, consequences of challenges to the system, and uncertainties are preserved.

4. Adequate defenses against potential common-cause failures (CCF) are preserved. In addition, the potential for the introduction of new CCF mechanisms is avoided.

5. Multiple fission product barriers are maintained so that a complete failure of one barrier does not disable the next subsequent barrier.

6. Sufficient defense against human errors are preserved. This includes the ability of plant personnel to use all available human performance and error prevention tools. Configuration control of the plant is maintained, procedures and processes are accurate, supervisory oversight is intact, and plant personnel are fit for duty.

7. The intent of the plant's design criteria is maintained. The plant remains in operation within the bounds of the FSAR and licensing basis and not

operating in an unanalyzed condition. Systems, structures, and components (SSCs) are in compliance with Technical Specifications. Any deficiency that significantly compromise meeting the plant's design criteria is assumed to significantly reduce the effectiveness of one or more defense-in-depth layers.

5.02.02 Safety Margin

Safety margin is the extra capacity factored into the design of a SSC so that it can cope with conditions beyond the expected to compensate for uncertainty. In general, safety margins are considered sufficient if:

1. The codes and standards, or their approved alternatives, of the plant are met and are not being challenged.

2. The safety analysis acceptance criteria described in the licensing basis are met and provide sufficient margin to account for analysis and data uncertainty.

3. The Technical Specification Safety Limits are met and are not being challenged. These limits are required to be met at all times under all operating conditions.

5.02.03 Compliance with Regulatory Guidelines

The licensee is required to comply with all Regulatory Guidelines unless the licensee has a specific exemption directly related to the inspection finding under 10 CFR 50.12, "Specific Exemptions." It is important to note that the staff should define the licensee's regulatory compliance as it pertains to the current inspection finding. The licensee should not be further penalized for the current inspection finding on noncompliance or a history of noncompliance in unrelated areas. Conversely, the licensee should not receive credit for a history of compliance in other unrelated areas. Regulatory compliance is maintained if:

1. The licensee is in compliance with guidelines and standards prescribed in their site specific Technical Specifications.

2. The performance deficiency has not caused the licensee to enter an unanalyzed condition.

3. The licensee is fully able to operate within the bounds of codes, such as ASME, that are described in the licensing basis.

4. The performance deficiency does not place the licensee's SSCs into a configuration that is not described in the Final Safety Analysis Report and/or licensing basis.

5. The licensee is in full compliance with NRC commitments and guidance, as provided in documents such as Generic Letters, memos, etc., unless the licensee has a specific exemption related to the inspection finding

under 10 CFR 50.12.

5.02.04 Effective Performance Monitoring Strategies

Effective performance monitoring strategies are required for early detection of degrading conditions. With effective performance monitoring, the licensee can identify industry events, operating experience, and design changes that could eventually lead to significant public health issues. The licensee is then able to implement compensatory actions and perform necessary design modifications to ensure the risk to the public is eliminated or minimized. In addition, effective performance monitoring strategies ensures operating experience is reviewed in order to adequately communicate relevant issues within the plant, across the industry, and to the public. Effective performance monitoring strategies is maintained if:

1. The licensee has effectively reviewed, evaluated, and identified potential vulnerabilities from previous Operating Experience that is related to the current inspection finding.

2. The licensee has implemented appropriate performance monitoring strategies to detect and identify potential degradation that could result in significant public health issues.

3. For issues that have been identified, the licensee has implemented compensatory measures that improve or prevent further degradation to deficiencies that are related to the current inspection finding.

5.02.05 Extent of Condition

Extent of condition is defined as the extent to which a performance deficiency (PD) has the potential to impact other SSCs, programs, or processes. A degraded condition in one system train may affect the independence and redundancy of the SSC performing its intended functions, or a PD may affect separate SSCs performing diverse functions. When a PD has the potential to affect the performance of multiple SSCs, the aggregate degraded conditions have the potential for greater impact than the situation of a condition isolated to a specific SSC. Extent of condition should be in the scope of the risk-informed decision making if:

1. The PD has actual impact on multiple SSCs. The PD is not an isolated event and/or condition that does impact surrounding equipment or other systems.

2. The PD has the potential to impact the performance of separate SSCs, i.e. impact across systems. The PD is not an isolated event that will cause future degradation to surrounding equipment or other systems.

3. The PD has the potential to impact multiple procedures, processes, and/or operator actions. The PD is not isolated to a single procedure, process, or action, and does have the potential to impact other programmatic areas.

5.02.06 <u>Degree of Degraded Condition</u>

The degree of degraded condition (i.e., magnitude and associated consequences) has a direct effect on the safety significance of the inspection finding. Logically, the more a condition is degraded or a program is ineffective, the more safety significant is the finding. For example, a minor oil leak on an emergency diesel generator does not affect its operability during the expected mission time should have minimal risk significance. However, an inadequate ventilation modification that result in mission time failure for the diesel generator should be more risk significant. The degree of degradation factor should be in the scope of the risk-informed decision making if:

1. The PD results in a SSC being unavailable during the expected mission time of its required operation.

2. The PD causes significant degradation that impacts the operability/functionality of a SSC, and/or inhibits the ability to recover the degraded SSC to perform its intended function within an expected time frame.

5.02.07 <u>Exposure Time</u>

The exposure time refers to the duration period of the failed or degraded SSC being assessed that is reasonably known to have been existed. For SDP assessments, the maximum exposure time is limited to a one-year period to focus attention on the risk impacts of more recent prevailing conditions. Logically, the longer exposure time of a failed or degraded SSC, if left uncorrected, would place the plant in a more risk significant condition. The exposure time factor should be in the scope of the risk-informed decision making if:

1. The exposure time is more than six months, approximately one year, or exceeds more than one year.

5.02.08 <u>Recovery Actions</u>

The ability for plant personnel to recover degraded equipment has an impact on a risk significant condition. If plant personnel are readily available and trained on recovery actions, crediting established recovery actions and mitigating strategies should be appropriately considered in the significance determination of the finding. However, if plant conditions create an immediately dangerous hazard to life and health of workers, place the plant into an abnormal condition, and create high stress on personnel, then the credit for recovery actions may be limited or adjusted to account for the adverse conditions that affect the efficient implementation of recovery actions. Credit for recovery actions should be considered in the scope of the risk-informed decision making if:

1. The plant remains in a condition that enables personnel to perform all required mitigating and recovery actions. The plant is not operating

outside of its licensing basis and personnel have all available tools, equipment, and procedures to allow continued safe operation.

2. The plant is not in a condition that is outside of operating procedures and guidance. The plant is not in an unanalyzed condition where there is vague and interpretive guidance, or the condition of the plant is unstable and unknown.

3. The PD does not create any conditions in the plant that prevent physical access, or are immediately dangerous to life and health. Recovery actions are impossible in these adverse conditions.

4. The PD does not cause significant increase in the work load and/or stress levels of plant personnel. With increased work load, key specialists may not be conveniently available to perform recovery actions. High stress levels may affect the optimal performance of key personnel required to implement recovery actions.

5. Recovery actions that have been established through a traditional Human Reliability Analysis (HRA) methodology, and do not significantly rely on operator actions external to control room actions.

6. Recovery actions are directly related to mitigating the impact of the PD, and have not been created, or adjusted to compensate for the impact of the PD.

7. The recovery actions have been previously approved, documented, and validated through existing plant processes, and were not developed ad hoc to address mitigation of the PD.

5.02.09 Cross-Cutting Issues

Cross-cutting areas contain the fundamental performance characteristics that extend across all of the Reactor Oversight Process (ROP) cornerstones of safety. These areas are human performance (HU), problem identification and resolution (PI&R), and safety conscious work environment (SCWE). A cross-cutting issue (CCI) is identified to indicate concern with the licensee's performance in a specific cross-cutting area, and to encourage the licensee to take appropriate actions before more significant performance issues emerge. A specific cross-cutting area should be considered in the scope of the risk-informed decision making if a CCI has been assessed to exist for that licensee in accordance with IMC 0305.

5.02.10 Additional Relevant Attributes

Depending on the situation, the previously listed decision attributes may not be applicable to the finding. Therefore, additional qualitative attributes, as appropriate, may be considered in the risk-informed decision making process. Any additional qualitative attribute for consideration by the decision makers should have a clear and reasonable nexus to the safety significance of the finding.

5.03 Assessment of Each Decision Attribute.

The impact of the PD on each applicable decision attribute is determined by its importance (e.g., low, medium, or high) for consideration in making an objective and reliable risk-informed decision. The relative importance of a specific decision attribute can be evaluated by the consequential impact and number of criteria affected by the PD.

Each specific decision attribute may have low, moderate, or high influence, or is not applicable for consideration in making the risk-informed decision. Definitions for low, moderate, or high influence of a specific decision attribute are provided below to determine relative importance:

5.03.01 Definitions of LOW, MEDIUM, and HIGH Influence

1. Low Influence: The PD is relevant to the specific decision attribute and its criteria with no consequential impacts. The impact on the decision attribute and its associated criteria is **minor and limited** because of existing controls and/or processes such that the affected SSC remains fully able perform its function in compliance with regulations, or is able to achieve success within an expected mission time.

2. Medium Influence: The PD is relevant to the specific decision attribute and its criteria with potentially consequential impacts. The impact on the decision attribute and its associated criteria is **moderate, but not severe enough** to prevent the affected SSC to perform its function in compliance with regulations, or is able to achieve success within an expected mission time, because of degraded performance.

3. High Influence: The PD is relevant to the specific decision attribute and its criteria with significant consequential impacts. The impact on the decision attribute and its associated criteria is **significant** such that the affected SSC has lost its ability to perform its function in compliance with regulations, or is unable to achieve success within an expected mission time, because of degraded performance.

5.03.02 Importance of Decision Attribute by Number of Affected Criteria

1. Low Importance of Decision Attribute: If a decision attribute of low importance has only one criterion affected by the PD, it is reasonable to assume that the specific decision attribute remains as Low Importance for the overall risk-informed decision making. If the Low important decision attribute has two or three criteria affected by the PD, the relative importance of the specific decision attribute can be elevated to a Medium Importance. If the Low important decision attribute has more than three criteria affected by the PD, the relative importance of the specific decision attribute should be elevated to a High Importance.

2. Medium Importance of Decision Attribute: If a decision attribute of medium importance has only one criterion affected by the PD, it is reasonable to assume that the specific decision attribute remains as Medium Importance

for the overall risk-informed decision making. If the Medium important decision attribute has two or more criteria affected by the PD, the relative importance of the specific decision attribute can be elevated to a High Importance. If a Medium important decision attribute has only one affected criterion and another Low important decision attribute has two or more affected criteria, the overall importance of the specific decision attributes should remain as Medium Importance for the integrated risk-informed decision making.

3. High Importance of Decision Attribute: If a decision attribute of high importance has only one criterion affected by the PD, it is reasonable to assume that the specific decision attribute remains as High Importance for the overall risk-informed decision making. It is assumed that a High importance decision attribute with two or more affected criteria should indicate significant programmatic weaknesses.

5.04 Integrated Assessment of Applicable Decision Attributes.

When making a decision on the safety significance of an inspection finding, the decision maker(s) should consider the relative importance of each applicable decision attribute that would affect the safety of the plant, and how the applicable decision attribute(s) should be considered in making the final risk-informed decision. In the IRIDM framework for IMC 0609 Appendix M, each applicable decision attribute should be considered as having equal weight to avoid subjective judgment on the importance of one decision attribute from another. This approach allows the decision maker(s) to focus on the applicable decision attribute(s) itself and the importance of the impact of the PD.

After an initial bounding assessment and the applicable decision attribute(s) are established, the bounding assessment results provide an upper limit where the importance of the applicable decision attribute(s) is considered in an integrated assessment of the significance of the inspection finding. If a PD has a significant impact on the applicable decision attribute (i.e., High importance), any change to the significance determination should not exceed the upper bound of significance established by an initial bounding assessment. For example, a Yellow significance established by an initial bounding assessment should remain the same because of an implicit assumption that most or all of the associated decision attributes have negative influences that would reflect the significance for the Yellow finding. A single Low or a single Medium importance of the applicable decision attribute(s) may warrant a decreased change in significance color from the upper bound of preliminary assessment. In cases of initial risk assessment results that provide significance threshold values (i.e., Green-to-White, White-to-Yellow, or Yellow-to-Red), the importance of the applicable decision attribute(s) should be carefully considered in making the final risk-informed decision. If the PD has significant impact on the applicable decision attribute (i.e., High importance), it is logical to assign the higher significance color of the significance threshold value (e.g., White significance for Green-to-White). However, if the PD is not significantly affected by the applicable decision attribute (i.e., Low or Medium importance), it is logical to assign the lower significance color of the significance threshold value (e.g., Green significance for Green-to-White).

5.04.01 Integration of Results

The IRIDM framework facilitates the integration of the applicable decision attribute(s) and its associated importance into the overall significance determination of the inspection finding. General guidance for making an objective and reliable risk-informed decision by considering the impact of the applicable decision attribute(s) are provided below.

1. All Decision Attributes Not Applicable
   If all of the listed decision attributes are not applicable for the finding, the preliminary significance of the finding remains the same. If the preliminary significance is Green, the final significance color is also Green.

2. One or Two Decision Attributes of Low Importance
   If one or two applicable decision attributes have Low Importance, the preliminary significance of the finding remains the same. If the preliminary significance is White, the final significance color should also be White.

3. Two Decision Attributes of Low and Medium Importance
   If one decision attribute has Low Importance and another decision attribute has Medium Importance, the preliminary significance of the finding may remain the same. If two decision attributes have Medium Importance, the preliminary significance of the finding may be changed to a higher significance. For example, if the preliminary significance is White and the two applicable decision attributes are of Medium importance, the final significance color may be increased to Yellow significance color as long as the upper bound significance from the initial bounding assessment is not exceeded.

4. Decision Attributes of High Importance
   If one or more applicable decision attribute(s) has High Importance, the preliminary significance of the finding should be changed to a higher significance. For example, if the preliminary significance is White and the applicable decision attribute(s) has High importance, the final significance color may be increased to Yellow significance color as long as the upper bound significance from the initial bounding assessment is not exceeded.

REFERENCES

1. Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis", Revision 2, May 2011.

2. 60 FR 42622, "Use of Probabilistic Risk Assessment Methods in Nuclear Activities: Final Policy Statement," *Federal Register,* Volume 60, Number 158, p. 42622, Washington, DC, August 16, 1995.

3. The Office of Nuclear Reactor Regulation Office Instruction, LIC-504, "Integrated Risk-Informed Decision-Making Process for Emergent Issues," Revision 3, April, 2010.

4. Inspection Manual Chapter 0609, "The Significance Determination Process," April 2015.

5. Inspection Manual Chapter 0308, Attachment 3, "Significance Determination Process Technical Basis Document," June 2016.

6. Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," December 2015.

END

Attachment 1 – Revision History for IMC 0308, Attachment 3, Appendix M

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Training Required and Completion Date	Comment and Feedback Resolution Accession Number
N/A	ML13070A253 06/11/14 CN 14-012	Initial Issuance.	N/A	ML13263A300
N/A	ML16xxxAxxx xx/xx/16 CN 16-xxx	Revision to provide the basis for using Integrated Risk-Informed Decision Making (IRIDM) principles in SDP decision making to obtain objective and reliable risk-informed decisions.	Train all users of the SDP to include NRC management involved in SERP reviews. Specific NRC PRA training courses, e.g., P-109, etc. will be updated to include the topic on use of IMC 609 Appendix M and IMC 308, Attachment 3, Appendix M.	ML16xxxAxxx