December 19, 2002

NOTE TO: John Larkins, Executive Director
Advisory Committee on Reactor Safeguards

FROM: Cynthia Carpenter, Chief ***/RA/***
Inspection Program Branch
Nuclear Reactor Regulation

SUBJECT: STAFF RESPONSE TO ISSUES DISCUSSED DURING THE ACRS SUBCOMMITTEE BRIEFING ON THE REACTOR OVERSIGHT PROCESS ON SEPTEMBER 9, 2002

Please find attached 14 copies of our written response to the issues raised by the Advisory Committee on Reactor Safeguards (ACRS) Plant Operations Subcommittee during the Reactor Oversight Process (ROP) briefing on September 9, 2002.

We welcome the opportunity to further discuss this response and the subject staff requirements memorandum with the ACRS Plant Operations Subcommittee in January 2003. Please contact Mr. Ronald Frahm of my staff (at 301-415-2986, or via email to rkf@nrc.gov) if you have any questions prior to the January 2003 meeting.

December 19, 2002

STAFF RESPONSE TO ISSUES DISCUSSED
DURING THE ACRS SUBCOMMITTEE BRIEFING
ON THE REACTOR OVERSIGHT PROCESS
ON SEPTEMBER 9, 2002

Over the past several years, the staff of the U.S. Nuclear Regulatory Commission (NRC) has frequently interacted with the Advisory Committee on Reactor Safeguards (ACRS) on matters related to the Reactor Oversight Process (ROP). Most recently, the staff met with the ACRS Plant Operations Subcommittee on September 9, 2002, to discuss our plans to address issues raised in a Commission Staff Requirements Memorandum (SRM), which resulted from the ACRS briefing of the Commission on December 5, 2001. The resultant SRM, dated December 20, 2001, stated that "the staff, with ACRS input, should provide recommendations for resolving, in a transparent manner, apparent conflicts and discrepancies between aspects of the revised reactor oversight process that are risk-informed (e.g., the significance determination process) and those that are performance-based (e.g., the performance indicators)." As a result of the September 9 briefing, the staff decided to prepare this response to the issues raised at the September 9 ACRS briefing and in the ACRS letter dated February 13, 2002. We understand that a follow up ACRS briefing to further discuss this written response and the subject SRM will be held on January 21, 2003.

The staff has either addressed or is in the process of addressing the concerns noted in your previous correspondence of February 13, 2002. In that letter, you stated that although the ACRS concurs in general with the staff's responses to your previous concerns, the ACRS continues to believe that there are areas that require additional attention to address specific issues. Your specific remaining concerns are summarized below and include statements from your recent letter, as well as related statements from the previous letter dated October 12, 2001.

ACRS Comment 1 (Risk-Based Performance Indicator Thresholds)

February 13, 2002: Some of the threshold values for risk-based performance indicators (PIs) are not meaningful. It is important that the thresholds adequately reflect the levels at which the NRC will take action and the urgency with which this action will be taken. Some of the current thresholds do not do this.

October 12, 2001: A realistic assessment of the change in CDF cannot be related to the change in a single PI. This approach has produced threshold values that are too high to be meaningful. Specifically, the numerical values for the white-yellow and yellow-red thresholds for the Initiating Events and Mitigating Systems performance indicators are not useful and should be set by expert judgment to trigger the regulatory response associated with the particular threshold.

Staff Response

The staff acknowledges the ACRS's concern and is considering eliminating the yellow-red thresholds for the Initiating Events PIs. However, there is a basis for each of these thresholds, as discussed below, and any consideration of their elimination will require careful evaluation and implementation.

As noted in the staff's January 10, 2002, response to the ACRS's October 12, 2001, letter, the yellow-red thresholds for the Unplanned Scrams per 7,000 Critical Hours and Scrams with Loss of Normal Heat Removal PIs were risk-informed using the models available at the time. While it is highly unlikely that any plant would cross these yellow-red thresholds, the staff believes that these thresholds reflect the risk significance of the types of events monitored in these PIs individually. The green-white and white-yellow thresholds are set low enough to identify problems in individual plant areas that will trigger NRC engagement long before any serious decline in overall plant safety. The yellow-red thresholds provide a gauge of the relative risk of the number of plant scrams and show the safety margin available before reaching a high safety significance.

Nonetheless, the staff will consider eliminating the yellow-red threshold for these two Initiating Events PIs. The staff plans to discuss this option with the ROP working group during a future public meeting and will continue to evaluate whether the yellow-red thresholds should be eliminated (or adjusted).

Under the Mitigating Systems Performance Index (MSPI) pilot program, the Mitigating Systems PIs and associated thresholds are currently under review. At the conclusion of the MSPI pilot appropriate changes to those PIs will be made.

ACRS Comment 2 (Assessment of Concurrent Findings)

February 13, 2002: Further discussion is needed regarding the assessment of concurrent findings.

October 12, 2001: Concurrent performance deficiencies are assessed collectively, as applicable to determine the total change in CDF, but each performance deficiency is assigned a color individually. There may be instances in which conclusions could be altered if the results are considered collectively, and thus such collective results should be considered in the Action Matrix.

Staff Response

The staff agrees with the ACRS's concern regarding the handling of concurrent performance deficiencies. Accordingly, we clarified the Significance Determination Process (SDP) guidance to address this issue.

As stated in the staff's January 12 response, the staff agrees that Action Matrix response can differ depending on whether concurrent degradations in plant performance are viewed as probabilistically independent or are the result of a common performance deficiency. Under the SDP, concurrent findings with a common underlying cause are analyzed as a single finding and are assigned a single color appropriate to the combined risk. Concurrent findings that are determined to be the result of independent causes are analyzed separately, and each receives a color based on the calculation of its risk significance as if the other finding did not overlap. Similarly, the Action Matrix considers the SDP outcome of findings with a common underlying cause as a single input, while the results of independent concurrent deficiencies are considered as individual inputs.

To address this specific concern, the staff revised Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," on March 18, 2002. For more details, please see the attached excerpt (Enclosure 1) from Section III, "Concurrent Multiple Equipment or Functional Degradations," of IMC 0609, Appendix A.

ACRS Comment 3 (SRM Regarding Risk-Informed and Performance-Based Elements)

February 13, 2002: As requested in the SRM dated December 20, 2001, we need to discuss performance deficiencies and apparent conflicts and discrepancies between elements of the ROP which are risk-informed (e.g., significance determination process) and those that are performance-based (e.g., PIs).

SRM dated December 20, 2001: The staff, with ACRS input, should provide recommendations for resolving, in a transparent manner, apparent conflicts and discrepancies between aspects of the revised reactor oversight process that are risk-informed (e.g., significance determination process) and those that are performance based (e.g., performance indicators).

Staff Response

The staff agrees with the ACRS that we need to discuss the specifics of the subject SRM. We met with you to discuss these issues on September 9, 2002, and are providing this written response to address your concerns and to put forth our plan to address the subject SRM. The staff does not agree that there are apparent conflicts and discrepancies between elements of the ROP that are risk-informed and those that are performance-based. We recognize, however, the need for a more transparent basis for the PI and SDP thresholds and are developing a basis document. The staff believes the ROP appropriately addresses both risk-informed and performance-based issues, and the staff is taking reasonable actions to address identified issues.

<u>Background</u>

The ROP regulatory framework was developed by a task group with significant input from a variety of stakeholders. Seven cornerstones of safety were established across three strategic performance areas. These seven cornerstones were selected based on their importance in meeting the agency's mission to protect public health and safety. Each cornerstone was defined to be a significant contributor to the NRC's assessment of overall plant safety and performance.

Regulatory response to plant performance is determined by the ROP Action Matrix (Enclosure 2). Inputs to the Action Matrix include both PIs and inspection findings that have been given a color designation to represent their significance. Each of the seven cornerstones has both PIs and inspection findings to represent an indication of plant performance in each particular area. Several thresholds are based on expert judgement that degradation in performance associated with each color band is appropriately linked to a corresponding regulatory response. Risk insights were incorporated to the extent they were available. An underlying principle of the ROP is that crossing a PI or inspection finding threshold will have similar meaning with respect to subsequent NRC action. Therefore, by design the Action Matrix

treats an individual “white” as a “white” and an individual “yellow” as a “yellow,” regardless of the cornerstone or whether it is a PI or inspection finding. The Action Matrix logic is also structured to integrate at the cornerstone level (2 “whites” or 1 “yellow” degrades a cornerstone) and at the strategic performance area level (3 “whites” degrades the reactor safety area). Finally, highly significant issues (multiple “yellows” or a “red”) result in significant NRC/licensee actions by being placed in the multiple/repetitive degraded cornerstone column of the Action Matrix.

Plant performance is assessed for each operating reactor on a continuous, quarterly, semiannual, and annual basis as described in Inspection Manual Chapter (IMC) 0305, “Operating Reactor Assessment Program.” Plant performance for plants with significant performance deficiencies is also discussed with senior NRC managers annually during the agency action review meeting (AARM) to confirm the appropriateness of NRC actions. In addition to discussions of plant performance, the AARM and subsequent Commission briefing also include discussions of ROP self-assessment results and industry trends.

The built-in ROP self-assessment program is another important aspect of the ROP, as described in IMC 0307, “Reactor Oversight Process Self-Assessment Program.” In accordance with this program, the NRC routinely evaluates the effectiveness of the ROP in achieving the goals of being objective, risk-informed, understandable, and predictable, as well as the agency’s strategic performance goals of (1) maintaining safety; (2) enhancing public confidence; (3) increasing the effectiveness, efficiency, and realism of NRC activities and decisions; and (4) reducing unnecessary regulatory burden. The ROP self-assessment program also provides the process for developing recommended improvements to the ROP, and culminates in an annual ROP self-assessment report and Commission paper.

Discussion

All inputs to the assessment process (i.e., Action Matrix) are essentially performance-based, including both PIs and inspection findings, though some of these inputs are more risk-informed than others. There is an important distinction between being risk-based (i.e., using a probabilistic risk assessment (PRA)) and being risk-informed. Many aspects of the ROP are risk-informed, in that they consider risk insights in the decision making process, although they may not be based on specific PRA results.

The staff believes that having both risk-informed and performance-based thresholds provides a balanced approach. We acknowledge that the ROP is still in its infancy, having only completed 2 full years of implementation, but most would agree it is an improvement over the NRC’s previous oversight processes. Although we believe the existing processes are meeting the goals of the ROP, we recognize the need for continued improvements.

We have also designed and implemented the ROP self-assessment program to ensure that we continue to identify and strengthen potential ROP program weaknesses. As previously stated, this program provides a mechanism for the NRC to routinely evaluate the effectiveness of the ROP and a process for developing recommended improvements. We strive to continually improve the ROP through ongoing interactions with both internal and external stakeholders, including but not limited to our regional offices, the industry, the public, and advisory bodies like the ACRS. The staff is conducting both internal and external surveys of our stakeholders as part of the ROP self-assessment program in December 2002. Insights gained from these

surveys will be conveyed (along with the staff's response to the subject SRM) in our upcoming annual ROP self-assessment Commission paper.

As previously noted, an underlying principle of the ROP is that crossing a PI or inspection finding threshold will have similar meaning with respect to regulatory response. The thresholds are not necessarily equal with respect to a measurable risk significance, but we have incorporated risk insights in determining the threshold values to the extent that they were available and applicable. Nonetheless, certain aspects of the ROP cannot be directly measured and assigned a risk significance, but are still important in carrying out the agency's mission of protecting public health and safety. Accordingly, we established and continue to adjust the specific PI and SDP thresholds as necessary to ensure a consistent regulatory response for similar performance concerns. Enclosure 3 to this letter presents specific examples of greater-than-green inspection findings and PIs to demonstrate the basis for regulatory response for various performance deficiencies across several cornerstones. Many of these examples resulted in adjustments to certain PI and SDP thresholds based on lessons learned. As such, they demonstrate that we continue to evaluate and adjust the thresholds to ensure a consistent regulatory response. We look forward to discussing these examples with you in detail at the January 2003 ACRS Plant Operations Subcommittee Meeting.

We recognize the need for a more transparent basis for the PIs and SDPs, and are in the process of developing and issuing the ROP Basis Document. A draft copy of the ROP Basis Document was provided to the ACRS on October 10, 2002. We envision that the ROP Basis Document will provide background on ROP development, along with the staff's basis for key attributes of the program, including the PI and SDP thresholds. This document will also provide the basis for process changes and other considerations that were not incorporated into the ROP. The ROP Basis Document should go a long way toward consolidating the basis for staff positions.

The staff believes that plants have been receiving the appropriate level of oversight since the initial implementation of the ROP in April 2000. Senior NRC management has confirmed that the staff's actions were appropriate, and there have been no changes in regulatory response as a result of senior management discussions at either of the first two AARMs. In addition, having recently completed mid-cycle reviews for the third ROP assessment cycle, the regions stated that those plants in the columns furthest to the right of the Action Matrix are indeed the plants with the more significant safety issues that warrant increased regulatory attention. Therefore, the NRC appears to be appropriately focusing its attention and resources on those plants with performance problems.

The staff has also begun preliminary discussions with the NRC's Office of Nuclear Regulatory Research to consider the feasibility of developing a formal decision analysis to determine regulatory response. This long-term project could potentially involve weighting the assessment inputs through a deliberative, consensus-building process, and developing appropriate utility functions to process inputs and calculate the desire response. Before expending significant resources on this effort, we will need to evaluate the potential added value against the cost of developing and implementing such a process, as well as the pros and cons of moving toward such a structured decision theory. As previously noted, we also believe that the current Action Matrix process is working effectively and requires additional run time before making any significant changes.

It is also important to note that there are two significant activities underway, namely the Davis-Besse Lessons Learned Task Force and the SDP Task Group, that may have a substantial effect on the ROP. Once available, the staff plans to evaluate the results of these efforts, and will make appropriate changes to the ROP to further improve its efficiency and effectiveness, if necessary.

Staff Conclusion and Plans

Certain aspects of the ROP are more risk-informed than others, but the specific PI and SDP thresholds were established and continue to be adjusted as necessary to ensure a consistent regulatory response for similar performance concerns. The staff believes that the ROP is working effectively today, but also recognizes that continued incremental improvements are warranted. We will continue to evaluate and improve the ROP, including the current PI and SDP thresholds, as part of our ongoing self-assessment process. In addition, we are developing an ROP Basis Document to consolidate the basis for staff positions in a transparent manner. We will also evaluate the feasibility of using formal decision analysis as a long-term approach for determining regulatory response.

The staff plans to address the subject SRM in its upcoming annual ROP self-assessment Commission paper. That paper will include a brief summary and discussion of the staff's interactions with the ACRS. We expect to issue this Commission paper in early April 2003 and plan to brief the Commission on the results of the AARM (which includes a discussion of ROP self-assessment) in early May 2003.

Enclosures:
1. Excerpt from Section III of Appendix A to Inspection Manual Chapter 0609, Revised March 18, 2002
2. Action Matrix and Regulatory Framework Chart
3. Examples of Greater-than-Green Inspection Findings and Performance Indicators

EXCERPT FROM SECTION III OF APPENDIX A
TO INSPECTION MANUAL CHAPTER 0609,
REVISED MARCH 18, 2002

The Action Matrix response can differ depending on whether concurrent degradations in plant performance are viewed as probabilistically independent or are the result of a common performance deficiency. To address this specific concern, Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," was revised as illustrated in the following excerpt.

III. CONCURRENT MULTIPLE EQUIPMENT OR FUNCTIONAL DEGRADATIONS

The manner in which concurrent multiple equipment or functional degradations are evaluated using the SDP is a function of their cause. If the concurrent multiple equipment or functional degradations resulted from a common cause (e.g., a single inadequate maintenance procedure that directly resulted in deficient maintenance being performed on multiple components), then a single inspection finding will be written and characterized for significance by the total increase in core damage frequency (CDF) from these degradations, for the time periods during which they existed, using a reactor safety phase 3 SDP. If multiple cornerstones were affected, the single finding will be assigned to the cornerstone that best reflects the dominant risk influences. The justification for existence of a common cause must be a stronger causal relationship than poor management or cross-cutting programs (e.g., an inadequate problem identification and resolution program is an inadequate basis to justify a common cause finding).

If independent causes are determined to have resulted in the multiple equipment or functional degradations, then separate inspection findings will be written and individually characterized for significance, assuming that none of the other independent findings existed. This is necessary to account for the probabilistic independence of the findings. Such findings that are greater than green will be combined by the Action Matrix in IMC 0305, "Operating Reactor Assessment Program." However, the conditional core damage probability (CCDP) of the concurrent independent findings should be evaluated in accordance with the guidelines for initiating a special inspection (SI), augmented inspection team (AIT), or incident investigation team (IIT), in accordance with Management Directive (MD) 8.3, "NRC Incident Investigation Program." The decision to initiate such a reactive inspection should be based, in part, on a determination that further information is needed to either fully identify and characterize the licensee performance deficiencies or identify whether the issues have a common cause.

In all cases, the risk of concurrent multiple equipment or functional degradations and the staff's basis for treating these effects as either having a common cause or being independent should be documented in an inspection report or other appropriate public correspondence.

EXAMPLES OF GREATER-THAN-GREEN INSPECTION FINDINGS AND PERFORMANCE INDICATORS

EXAMPLE 1

AREA: Emergency Preparedness

ISSUE: Performance Indicator–Alert and Notification System (ANS) Reliability

The licensee's percentage of ANS sirens capable of performing their function, as measured by periodic siren testing in the previous 12 months, was 92.3%.

SIGNIFICANCE: The ANS siren reliability figure of 92.3% is below the green-white threshold of 94%, but is not below the white-yellow threshold of 90%. This white performance indicator is determined to have low to moderate safety significance. This indicates that 7.7% of the ANS sirens within the 10-mile plume exposure pathway emergency planning zone (EPZ) could not be relied upon to activate and provide prompt notification to the public (within 15 minutes) of a need to take protective actions during a radiological emergency at the plant.

ACTION: The single white performance indicator (PI) in the emergency preparedness (EP) cornerstone placed the licensee in the Regulatory Response Column of the Action Matrix. The licensee identified the issue, determined the causes, and developed comprehensive corrective actions to address the causes and prevent recurrence. The NRC performed a 95001 supplemental inspection and determined that the licensee's root cause evaluation and corrective actions were appropriate.

DISCUSSION : The staff believes that these actions were appropriate to address this issue because the licensee's program was unable to maintain a level of performance within the licensee response band. Additional NRC attention and resources were warranted to independently review the licensee's extent of root cause evaluation and subsequent corrective actions in order to ensure that further degradation of system performance to less than 90% did not occur. At that point, the, capability to promptly notify the public of a radiological emergency at the plant site is considered to no longer exist (and the yellow threshold is exceeded) per industry standards. No change was made to the PI threshold or baseline inspection program as a result of this event.

EXAMPLE 2

AREA: Reactor Safety / Mitigating Systems

ISSUE: Inspection Finding–Essential Service Water (ESW) Pump Failure

Essential service water pump "B" failed to achieve rated flow and discharge pressure during surveillance testing and was declared inoperable for approximately 132 hours. Foreign material used during routine pump maintenance was discovered wrapped around the first stage impeller, blocking a portion of the suction flow path. The ESW system functions in conjunction with the ultimate heat sink to remove heat from several plant components that are required for the safe shutdown of the reactor. The ESW system also provides emergency makeup to the spent fuel pool and component cooling water system, and is the backup water supply to the auxiliary feed water (AFW) system.

SIGNIFICANCE: The ESW pump failure was determined to have a low to moderate safety significance (white) using the SDP for Reactor Inspection Findings for At-Power Situations, as described in Appendix A to IMC 0609. A phase 2 SDP evaluation was conducted because the finding represented an actual loss of safety function of a single train for greater than the outage time allowed by the plant's technical specifications (TS). Using the risk-informed phase 2 SDP notebook, the outcome was white (LOOP Sequence 6). A confirmatory phase 3 analysis was also completed.

ACTIONS: The single white finding in the Mitigating Systems cornerstone placed the plant in the Regulatory Response column of the Action Matrix. The NRC is planning a 95001 supplemental inspection to assess the licensee's root cause evaluation, assessment of extended conditions, and corrective actions.

DISCUSSION : In crossing the green-white threshold, this issue indicates a performance deficiency, which resulted in a temporary loss of function of a single train of a multi-train mitigating system, as well as a reduction in the margin of safety defined in the licensing basis and relied upon during normal operations. The prescribed agency action also takes into consideration the slight increase in core damage frequency (CDF) and expert judgement based on engineering and inspection experience. The staff believes that these actions were appropriate.

EXAMPLE 3

AREA: Emergency Preparedness

ISSUE: Inspection Finding–Failure to Meet the Risk-Significant Planning Standard

The Risk-Significant Planning Standard defined in Title 10, Section 50.47(b)(5), of the *Code of Federal Regulations* (10 CFR 50.47(b)(5)) requires, in part, that a means to provide early notification to the populace within the plume exposure pathway EPZ have been established. Contrary to this, proper siren activation could not be verified because of problems with the licensee's ANS siren feedback system. In addition, a review of the procedures in place identified that no procedural guidance existed regarding timeliness for initiating backup route alerting or how long to wait to identify failed sirens. Thus, the ability to notify the public in a timely manner (i.e., 15 minutes) was compromised.

SIGNIFICANCE: This failure to meet the Risk-Significant Planning Standard (10 CFR 50.47(b)(5)) was initially determined to have a substantial safety significance (yellow) using the Emergency Preparedness SDP, as described in Appendix B to IMC 0609. However, it was subsequently determined that the problems with the ANS siren feedback system did not have a substantial impact on the EP cornerstone objective and, therefore, the finding was more appropriately characterized as low to moderate safety significance (white) because the function of the planning standard was degraded as opposed to being inoperable. Although procedures, processes, and equipment to conduct route alerting were in place, there was a potential that the populace within the 10-mile EPZ may not be promptly notified in the event of a radiological emergency at the plant site.

ACTION: The single white finding in the EP cornerstone placed the plant in the Regulatory Response column of the Action Matrix and a 95001 supplemental inspection was conducted. The licensee entered this finding into its corrective action program and implemented interim corrective measures to address the issue.

DISCUSSION: The NRC believes that these actions were appropriate to address this issue because the licensee's implementation of its program did not ensure that the populace within the 10-mile plume exposure pathway EPZ would be promptly notified of a radiological emergency at the plant. The EP SDP specifically allowed for downgrading in certain circumstances because EP by its nature is somewhat subjective, and it was not intended to be rigid until lessons learned could be experienced. Currently, Appendix B to IMC 0609 is being revised, and the lessons learned from this finding will be incorporated. Specifically, the Risk-Significant Planning Standards will provide for the degradation of the planning standard function when it is not fully lost and more definitions of the planning standard thresholds will be provided (in the form of examples for each planning standard and risk significance). Concurrent with these changes, the allowance for downgrading will be removed.

EXAMPLE 4

AREA: Occupational Radiation Safety

ISSUE: Inspection Finding–As Low As Reasonably Achievable (ALARA)

The licensee's ALARA planning and job controls performance during a refueling outage indicated multiple performance deficiencies that resulted in unnecessary radiation exposure to the workers.

SIGNIFICANCE: These failures to maintain radiation doses ALARA were determined to each have a low to moderate safety significance (white) using the Occupational Radiation Safety SDP, as described in Appendix C to IMC 0609. A single work activity that contributes more than the 25 person-rem or three or more activities that contribute 5 person-rem each result in white findings.

ACTIONS: These inspection findings in the Occupational Radiation Safety (ORS) cornerstone placed the licensee in the Degraded Cornerstone column of the Action Matrix. The licensee entered these findings into its corrective action program and performed an evaluation of the root and contributing causes. The NRC performed a 95002 supplemental inspection and determined that the licensee performed a thorough evaluation of the causes of radiation doses that were not ALARA and correctly identified the extent of the conditions that led to the doses. The licensee objected to, and appealed, these findings.

DISCUSSION: The staff believes that these actions were appropriate to address this issue. The licensee's appeal highlighted some confusion regarding the threshold criteria, and some of the terminology, used in the ALARA portion of the SDP. The appropriateness of the ALARA SDP was the subject of a special breakout session of the ROP Lessons Learned Public Workshop and resulted in a series of four public stakeholder meetings to develop an SDP revision. Several changes were made to the ORS SDP and its supporting text in IMC 0609 as a result of the Lessons Learned Workshop. Although changes were made to the ORS SDP, most of the changes were clarifications of the process, and the original basis for a finding in this area remained.

EXAMPLE 5

AREA: Public Radiation Safety

ISSUE: Inspection Finding–Radioactive Material Control

The licensee identified 11 contaminated items which were inadvertently released from the radiologically controlled area because of their failure to perform adequate radiation surveys. The failure to perform adequate radiological surveys was determined to be a violation of Technical Specification 5.4.1.a. Of the 11 items, nine were determined to be more than minor inspection findings that would be assessed as occurrences by the SDP.

SIGNIFICANCE: The failure to control radioactive material was determined to have a low to moderate safety significance (white) using the Public Radiation Safety SDP, as described in Appendix D to IMC 0609.

ACTIONS: The single white finding in the Public Radiation Safety (PRS) cornerstone placed the plant in the Regulatory Response column of the Action Matrix and a 95001 supplemental inspections was conducted. The licensee entered this finding into its corrective action program and implemented appropriate corrective measures to address the issue. In addition, the licensee appealed the validity of the assessment of the white finding. The white finding was upheld through the NRC appeal process, which included an appeal to the EDO.

DISCUSSION: The staff believes that the white finding was appropriate based on the SDP used to classify the finding. However, the staff agreed with the licensee that this finding did not result in any actual or potential consequence or increased risk to the public because the 11 items were found on the licensee's site. As a result of stakeholder input, the staff agreed that there were unintended consequences associated with this branch of the SDP and held a series of public meetings to discuss changes to the SDP. The meetings resulted in a change in the Public Radiation Safety SDP in that a contaminated item found within the Protected or Restricted area would be assessed through the SDP, but would not be counted by the "greater than 5 occurrence counter." However, the counter would continue to apply for contaminated items found beyond the licensee's Protected or Restricted areas because they have the potential to be transported offsite since there are no further licensee controls to prevent such a release, The "greater than 5 occurrence loop" is designed to balance risk to the public from multiple occurrences of exposure to licensed radioactive material and public confidence in the licenses ability to control radioactive material.

EXAMPLE 6

AREA: Public Radiation Safety

ISSUE: Inspection Finding–Transportation of Radioactive Material

The licensee incorrectly characterized and under-classified a Class B shipment of radioactive waste material as Class A. Upon receipt of the shipment, the burial facility operator notified the licensee that the description of the material on the shipping documents was incorrect based on a measured radioactivity level being greater than 1 rem/hr at 3 meters from the unshielded container. The facility operator also noted that the transport index was incorrectly stated in the shipping paper, although it was correctly specified on the Yellow III package label. With the exception of these errors in the shipping documentation, the package was properly prepared and packaged for shipment.

SIGNIFICANCE: The failure to properly classify and characterize a shipment of radioactive waste in a manner to meet the regulatory requirements in 10 CFR 61.55 was determined to have a low to moderate safety significance (white) using the Public Radiation Safety SDP, as described in Appendix D to IMC 0609. The Transportation SDP specified that any licensed radioactive material that was shipped and was under-classified in accordance with 10 CFR Part 61 requirements would be a white finding.

ACTIONS: The single white finding in the Public Radiation Safety (PRS) cornerstone placed the plant in the Regulatory Response column of the Action Matrix and a 95001 supplemental inspection was conducted. The licensee entered this finding into its corrective action program and implemented appropriate corrective measures to address the issue. The licensee requested a regulatory conference to discuss the white finding, and requested that the NRC revise the SDP used to classify this finding because it could not have resulted in any actual or potential consequence.

DISCUSSION: The staff believes the white finding was appropriate based on the SDP used to classify the finding. However, the staff agreed that this finding did not and could not have resulted in any actual or potential consequence or increased risk to the public because of the conservative measures taken by the licensee in packaging the radioactive waste material as if it were Class B. The staff proceeded with the SDP revision process, with significant stakeholder input, which resulted in a change in the Public Radiation Safety SDP. The SDP was changed to reduce the risk color from white to green for those under-classifications involving Class A and B waste which met the true packaging requirements for transportation. An under-classification finding would continue to be white if it involved the higher activity Class C waste.

EXAMPLE 7

AREA: Fire Protection / Mitigating Systems

ISSUE: Inspection Finding–Fire Suppression Capability

The licensee failed to provide a required fixed-suppression system for the plant area that housed the "B" train motor-driven AFW pump, the turbine-driven AFW pump, two 480-volt switchgear buses, and an instrument air compressor. The fire area also contained electrical cables for both the "A" and "B" trains of equipment. AFW is the safety related system used to provide emergency feedwater to the steam generators during transient (TRANS), steam generator tube rupture (SGTR), and loss of off sight power (LOOP) events.

SIGNIFICANCE: The degradation of suppression capability was determined to have a low to moderate safety significance (white) using the Fire Protection SDP, as described in Appendix F to IMC 0609. Using the phase 1 screening criteria, the finding was determined to affect manual suppression capability and the fixed fire suppression system. As such, a phase 2 analysis was performed using the risk significance estimation matrix, which resulted in the White determination.

ACTION: The single white finding in the Mitigating Systems cornerstone placed the plant in the Regulatory Response column of the Action Matrix and a 95001 supplemental inspection was conducted. The licensee entered this finding into its corrective action program and implemented appropriate corrective measures to address the issue.

DISCUSSION: In crossing the green-white threshold, this issue indicates a performance deficiency, which resulted in a temporary loss of function of a single train of a multi-train mitigating system, as well as a reduction in the margin of safety defined in the licensing basis and relied upon during normal operations. The agency action also takes into consideration the slight increase in CDF and expert judgement based on engineering and inspection experience. The staff believes that these actions were appropriate.

ACTION MATRIX

		Licensee Response Column	Regulatory Response Column	Degraded Cornerstone Column	Multiple/ Repetitive Degraded Cornerstone Column	Unacceptable Performance Column
RESULTS		All Assessment Inputs (Performance Indicators (PIs) and Inspection Findings) Green; Cornerstone Objectives Fully Met	One or Two White Inputs (in different cornerstones) in a Strategic Performance Area; Cornerstone Objectives Fully Met	One Degraded Cornerstone (2 White Inputs or 1 Yellow Input) or any 3 White Inputs in a Strategic Performance Area; Cornerstone Objectives Met with Moderate Degradation in Safety Performance	Repetitive Degraded Cornerstone, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or 1 Red Input; Cornerstone Objectives Met with Longstanding Issues or Significant Degradation in Safety Performance	Overall Unacceptable Performance; Plants Not Permitted to Operate Within this Band, Unacceptable Margin to Safety
RESPONSE	Regulatory Performance Meeting	None	Branch Chief (BC) or Division Director (DD) Meet with Licensee	DD or Regional Administrator (RA) Meet with Licensee	RA (or EDO) Meet with Senior Licensee Management	Commission meeting with Senior Licensee Management
	Licensee Action	Licensee Corrective Action	Licensee root cause evaluation and corrective action with NRC Oversight	Licensee cumulative root cause evaluation with NRC Oversight	Licensee Performance Improvement Plan with NRC Oversight	
	NRC Inspection	Risk-Informed Baseline Inspection Program	Baseline and supplemental inspection procedure 95001	Baseline and supplemental inspection procedure 95002	Baseline and supplemental inspection procedure 95003	
	Regulatory Actions[1]	None	Supplemental inspection only	Supplemental inspection only	-10 CFR 2.204 DFI -10 CFR 50.54(f) Letter - CAL/Order	Order to Modify, Suspend, or Revoke Licensed Activities
COMMUNICATION	Assessment Letters	BC or DD review/sign assessment report (w/ inspection plan)	DD review/sign assessment report (w/ inspection plan)	RA review/sign assessment report (w/ inspection plan)	RA review/sign assessment report (w/ inspection plan)	
	Annual Public Meeting	SRI or BC Meet with Licensee	BC or DD Meet with Licensee	RA (or designee) Discuss Performance with Licensee	EDO Discuss Performance with Senior Licensee Management	
	Commission Involvement	None	None	None	Plant discussed at AARM	Commission Meeting with Senior Licensee Management
	INCREASING SAFETY SIGNIFICANCE ---------->					

Note 1: The regulatory actions for plants in the Multiple/Repetitive Degraded Cornerstone column are not mandatory agency actions. However, the regional office should consider each of these regulatory actions when significant new information regarding licensee performance becomes available.

ENCLOSURE 2

REGULATORY FRAMEWORK