



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 18, 2000

COMSECY-00-0036

MEMORANDUM TO: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield

FROM: William D. Travers
Executive Director for Operations

SUBJECT: SAFEGUARDS PERFORMANCE ASSESSMENT ISSUES ASSOCIATED
WITH THE REVISED OVERSIGHT PROCESS

The staff began initial implementation of the revised reactor oversight process on April 2, 2000. It has been recognized that the staff will continue to develop lessons learned during initial implementation. The Staff Requirements Memorandum dated May 17, 2000, associated with SECY 00-0049, states that during the initial implementation phase, the staff should inform the Commission whenever it determines that a deviation from the Action Matrix is warranted. The purpose of this memorandum is to inform the Commission of the staff's near-term corrective actions involving the Physical Protection Significance Determination Process and to inform the Commission of interim measures the staff will use for dealing with findings in reactor safeguards.

BACKGROUND:

In SECYs 99-007A, "Recommendations for Reactor Oversight Process Improvements," and 00-0049, "Results of the Revised Reactor Oversight Process Pilot Program," respectively, the staff presented the Commission with results from its feasibility reviews which involved applying the significance determination process as part of the revised reactor oversight process (RROP). Although bench marking and feasibility reviews were completed for the significance determination processes (SDPs), including the physical protection (PP)SDP, the bench marking and feasibility reviews for the PPSDP did not include detailed consideration of Operational Safeguards Response Evaluations (OSREs) or other force-on-force exercises.

The last two OSREs in the first cycle of the OSRE program were conducted at Perry and Quad Cities after the April 2, 2000 implementation of the RROP. The staff identified deficiencies during the Quad Cities OSRE, and these were evaluated using the PPSDP. However, the Quad Cities inspection findings posed a significant challenge in applying the PPSDP; specifically, the staff observed several process weaknesses with the PPSDP methodology which make the application of risk within the PPSDP as it was initially designed untenable. As a result, the current PPSDP will generate an inappropriate NRC response for certain OSRE findings. To remedy this, the staff believes that the PPSDP is in need of revision. Until the PPSDP is revised, interim guidance is necessary to address the issues that invalidate the use of the current PPSDP.

DISCUSSION:

The staff has determined that the PPSDP, with its link to the reactor safety SDP (RSSDP), can over-estimate the risk significance of an issue, and therefore lead to a higher level of NRC response and engagement than is warranted. The problem is most noticeable when processing a deficiency through the PPSDP that is identified by a force-on-force exercise, such as those conducted during OSREs. Typically, such deficiencies in the past would have warranted a regional response routinely associated with an issue that is evaluated as white (low to moderate safety significance). The current PPSDP and the Action Matrix would dictate a more substantive yellow or red significance determination and, therefore, an increased agency level response. This is due, in part, to the type and extent of damage simulated in a mock attack and how that damage estimate affects the assessment of the deficiency being processed through the RSSDP. Resolving this discrepancy would require the approval of the Executive Director for Operations to deviate from the Action Matrix in order to match the agency's response to the appropriate significance of the issue.

The challenge in applying the RSSDP to security evaluations is primarily driven by two factors, including: (a) an elevated RSSDP entry point as a result of initial equipment and system damage that is assumed during a force-on-force exercise, and (b) the lack of an assigned initiating event probability for the occurrence of an attack by the design basis threat (DBT) defined in 10 CFR 73.1. These factors affect the two variables which are used to enter the RSSDP and invalidate its use for this application.

The staff is concerned that the number of proposed deviations from the Action Matrix that would result from the current PPSDP would be more frequent than intended by the RROP. This belief is attributed to the number of findings in force-on-force exercises in the past that required NRC followup, but did not justify an agency-level response. In addition, the industry's practice of implementing immediate compensatory actions following identification of deficiencies in force-on-force exercises indicates that the proper actions have typically been taken with the traditional level of response and engagement by the staff.

In assessing the findings of the recent Quad Cities OSRE using the existing PPSDP, the staff reviewed a detailed analysis of simulated operator actions to mitigate the consequences of an adversary's destruction of a target set during one exercise scenario. The staff also reviewed the licensee's evaluation of fuel and cladding temperatures resulting from the simulated destruction of a target set in another scenario. The staff has concluded that, while these analyses may provide some insights as to the efficacy of mitigating actions, these resource expenditures do not aid in the clear articulation of the deficiencies found by the exercise in the safeguards program and the implementation of licensee corrective actions, which remains the central purpose of the OSRE program. As a result, the staff intends to add interim guidance to the existing PPSDP with respect to force-on-force exercises that would divorce it from the RSSDP. Under this plan, the significance of protective strategy deficiencies found during force-on-force exercises will be determined by the interim guidance discussed below. Findings that do not derive from force-on-force exercises will continue to be evaluated by the current PPSDP. The staff intends to use this interim guidance in the assessment of the Quad Cities OSRE findings.

This process would result in issuing the attached inspection report to the licensee with a potential issue of low to moderate safety significance, a preliminary white finding, and an associated apparent violation. As currently prescribed by the RROP, the licensee would be given an opportunity to request a Regulatory Conference to provide their perspective on the significance of the finding, the bases for their position, and whether they agree with the apparent violation. The staff would consider this information before making a final decision, followed by a final significance determination letter with a notice of violation, if appropriate. The staff would also apply the interim guidance to findings derived from subsequent OSREs, and similar force-on-force exercises, including those already conducted at Oconee, River Bend, and Farley, until the staff can develop a revised PPSDP. The staff plans to involve its stakeholders, as it has in the past, in the development of the revised PPSDP.

The interim guidance in the revised PPSDP reflects the following significance determinations for findings developed during multiple scenarios in force-on-force exercises:

Green (very low safety significance) - A finding in which the licensee has failed to adequately perform a limited portion of the protective strategy or a protective strategy deficiency that is of very low safety significance. The performance failure could result in the loss of a single target set. The performance failure is isolated in nature, such as deficiencies associated with specific response actions, not associated with procedures or training deficiencies. This finding is not considered predictable and repeatable.

White (low to moderate safety significance) - A finding in which the licensee has failed to adequately perform limited portions of the protective strategy or a protective strategy deficiency that results in the loss of at least one target set and is of low to moderate

safety significance. The performance failure is not isolated in nature, such as limited procedure and training issues. The finding is considered potentially predictable or occasionally repeatable, but not a broad programmatic problem.

Yellow (substantial safety significance) - A finding in which the licensee has failed to adequately perform multiple portions of their protective strategy or a protective strategy deficiency that results in the loss of at least one target set and is of substantial safety significance. The performance failure demonstrates significant single or multiple strategy implementation problems or design deficiencies. The finding is considered generally predictable, repeatable and a broad programmatic problem.

Red (high safety significance) - A finding in which the licensee has repeatedly failed to adequately perform multiple portions of their protective strategy or a protective strategy deficiency that results in the loss of multiple target sets and is of high safety significance. The performance failure demonstrates significant strategy implementation problems and design deficiencies, relating to multiple security program elements. The finding is considered consistently predictable, actually repeated and is a significant reduction in safety margin.

In accordance with this interim guidance, the findings of the Quad Cities OSRE appear to have low to moderate safety significance, because there were losses of target sets in two scenarios due to specific deficiencies associated with procedures, training and the protective strategy. These findings, while potentially repeatable, were not considered a broad programmatic problem. The deficiencies identified in the Quad Cities OSRE related to the failure of the licensee to adequately interpose members of the response force between vital areas and the mock adversary and, therefore, the licensee failed to intercept the mock adversaries and prevent them from simulating damage to systems and equipment identified in target sets. While these deficiencies did not represent a broad programmatic problem with the licensee's response strategy, the findings were assessed as potentially safety significant and preliminarily determined to be White, an issue with some increased importance to safety, which may require additional NRC inspection.

The staff notes that there were some issues identified in the Quad Cities OSRE related to the adequacy of controller conduct and actions taken in the scenario play, which are described in the inspection report and its attachment. In addition, the licensee raised issues regarding the development and selection of target sets for the two exercises with deficiencies. These issues were reviewed by the staff to determine whether they would have an impact on the staff's conclusions. It was determined that the target sets, controller conduct, and actions taken in the scenarios did not negate the findings. In addition, after reviewing the licensee's timeline of potential recovery actions, the staff was unable to validate conclusively the licensee's assertion that the scenarios would not have resulted in core damage. Clearly, deficiencies in the

licensee's protective strategy enabled the mock adversaries to challenge the licensee's ability to maintain core cooling and containment. Contributing factors included: certain deficiencies in the protected fighting positions and barriers, use of fewer responders than those committed to in the physical security plan, procedural issues, and the failure of some security officers to respond to appropriate interposing positions in specific circumstances.

As a longer term effort, the staff plans to revise the PPSDP, following a comprehensive review of recent lessons learned and historical data collected in OSREs. The staff plans to involve the public and industry stakeholders in making substantive changes to the RROP, to ensure compatibility of the final PPSDP with the ongoing rulemaking effort to revise 10 CFR 73.55(a).

The staff notes that some deficiencies identified in force-on-force exercises will warrant enforcement action, especially when those deficiencies represent a significant or repeated failure to comply with the regulations in 10 CFR 73.55 or the commitments made in the licensees' security plans. This includes those instances when exercise performance fails to provide the NRC high assurance that the licensee's physical protection system ensures that licensed activities do not constitute an unreasonable risk to the public health and safety. These actions will be considered in the context of the interim guidance, the RROP and the enforcement policy.

PLANNED STAFF ACTION:

The staff is informing the Commission that it intends to:

1. Use the interim guidance for the Physical Protection Significance Determination Process when evaluating findings during force-on-force exercises until a more formal effort to revise the PPSDP can be accomplished.
2. Issue the attached draft Quad Cities Inspection Report 10 days after the date of this memo. This memo and the inspection report cover letter will be publicly available in ADAMS five working days after the Quad Cities Inspection Report is issued.
3. Proceed with appropriate actions in accordance with the RROP and the Enforcement Policy.

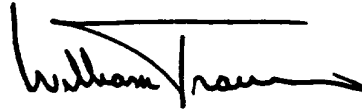
The Commissioners

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COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

SECY, please track.

A handwritten signature in black ink, appearing to read "William Travers", with a long horizontal stroke extending to the right.

William D. Travers
Executive Director
for Operations

Attachment: Draft Quad Cities Inspection Report