February 1, 2010

MEMORANDUM TO:	Eric J. Leeds, Director Office of Nuclear Reactor Regulation	
FROM:	Jennifer L. Uhle, Panel Chair / RA / Differing Professional Opinion Ad Hoc Review Panel	
	Timothy E. Collins, Panel Member / RA / Differing Professional Opinion Ad Hoc Review Panel	
	Martin A. Stutzke, Panel Member <i>/RA/</i> Differing Professional Opinion Ad Hoc Review Panel	
SUBJECT:	DIFFERING PROFESSIONAL OPINION PANEL REPORT ON FIRE PROTECTION (NFPA-805) AND ADDITIONAL RISK ASSOCIATED WITH PREVIOUSLY APPROVED RECOVERY ACTIONS (DPO-2009-001)	

In a memorandum dated August 13, 2009, you appointed Jennifer L. Uhle, Timothy E. Collins and Gareth W. Perry as members of a Differing Professional Opinion (DPO) Ad Hoc Review Panel (DPO Panel) to review a DPO regarding fire protection National Fire Protection Association Standard 805 (NFPA-805), "Performance-Based Standard for Fire Protection for Light-Water Reactor Electric Generating Plants, 2001 Edition", and additional risk associated with previously approved recovery actions. On September 30, 2009, Martin Stutzke replaced Gareth Perry as a panel member due to the latter's impending retirement. The DPO Panel has reviewed the DPO in accordance with the guidance in Management Directive 10.159, "The NRC Differing Professional Opinions Program."

The results of the DPO Panel's evaluation of the concerns raised in the DPO are detailed in the enclosed DPO Panel Report. Based on our review of concerns raised in the DPO, the DPO Panel concluded that the submitters' issue was valid and that the proposed revisions to Regulatory Guide (RG) RG 1.205, "Risk-Informed, Performance-Based Fire Protection For Existing Light-Water Nuclear Power Plants," were not compliant with Title 10, Section 50.48(c), of the *Code of Federal Regulations* (10CFR50.48(c)) and the referenced 2001 Edition of NFPA-805. However, prior to the completion of the DPO panel's deliberation, the submitters and their management came to consensus by proposing alternative language that was incorporated into Revision 1 of RG-1.205. The RG was issued on December 2009, and as a result, the concerns raised in the DPO have been resolved.

We believe the root cause of the differing view stemmed from varying interpretations of how an existing licensing basis is affected when a licensee adopts an alternative rule. This is further described in the attached DPO Panel Report. We recommend that a consistent Office interpretation be developed and documented so as to minimize the potential for similar differing views.

E. Leeds

The DPO panel believes that the DPO process helped to clarify the submitters' concerns and enhanced the effectiveness of the communication between the submitters and their management. We also recommend that the DPO submitters be recognized as their actions resulted in a significant contribution to the mission of the agency.

Please do not hesitate to contact us if you have any questions regarding the enclosed report.

Enclosure: DPO Panel Report

cc: Submitter DVPM DVOL The DPO panel believes that the DPO process helped to clarify the submitters' concerns and enhanced the effectiveness of the communication between the submitters and their management. We also recommend that the DPO submitters be recognized as their actions resulted in a significant contribution to the mission of the agency.

Please do not hesitate to contact us if you have any questions regarding the enclosed report.

Enclosure: DPO Panel Report

cc: Submitter DVPM DVOL

Date	02/01/2010	02/01/2010	02/01/2010	
Name	M. Stutzke	T. Collins	J. Uhle	
Office	DPO Panel Member	DPO Panel Member	DPO Panel Chair	
ADAMS Package: ML101590266		Memo: ML101830746		

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Differing Professional Opinion On Fire Protection (NFPA-805) and Additional Risk Associated With Previously Approved Recovery Actions (DPO-2009-001)

DPO Panel Report

/RA/

Jennifer L. Uhle, Panel Chair

/RA/

Timothy E. Collins, Panel Member

/RA/

Martin A. Stutzke, Panel Member

February 1, 2010

Enclosure

INTRODUCTION

On July 24 and 27, 2009, two Differing Professional Opinions (DPOs) were filed concerning language proposed in Regulatory Guide (RG) 1.205, Revision 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants." This RG incorporates the lessons-learned from the ongoing review of the National Fire Protection Association Standard 805 (NFPA-805) pilot applications and endorses the Nuclear Energy Institute document NEI 04–02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under Title 10 of the *Code of Federal Regulations* Part 50.48(c)." The technical information in the draft RG was developed by the Office of Nuclear Reactor Regulation (NRR) staff in conjunction with agency stakeholders. Two separate DPOs were filed, but because their statements of concern were similar, they were subsequently combined and are treated together hereinafter, as DPO-2009-001.

STATEMENTS OF CONSIDERATION

NFPA-805 is incorporated by reference into Title 10 of the *Code of Federal Regulations* Part 50.48(c) (10CFR50.48(c)) and is therefore rule language. The standard specifies the minimum fire protection requirements for existing light water reactors during all phases of operation, including decommissioning. Of particular relevance to this DPO, NFPA-805 requires that the additional risk of certain manual recovery actions be evaluated by and be acceptable to the authority having jurisdiction-in this case, the Nuclear Regulatory Commission (NRC). Some recovery actions are already approved in a plant's fire protection licensing basis. As some plants transition to the alternative rule, 10CFR50.48(c), the question of how to treat these recovery actions has been raised.

On March 13, 2009, Draft Revision 1 of RG 1.205 was published in the Federal Register. This version stated that the additional risk of all recovery actions must be estimated and included in the total change in risk during transition, and the total must be consistent with acceptance criteria specified in RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." The submitters supported this version.

In July 2009, management modified the Draft RG 1.205 and specified that for recovery actions that were previously approved, licensees must perform the evaluation of the additional risk and report this additional risk to the NRC but this additional risk would not be included in the total risk judged against the acceptance criteria of RG 1.174. In essence, management's position was that, to satisfy the requirements of the Standard, this additional risk must be evaluated and reported to the NRC. Management also previously approved configurations and activities, including these recovery actions, would carry forth (or "be grandfathered") into the new licensing basis. Therefore, the July 2009 draft excluded the additional risk from the previously approved recovery actions from the change in risk estimate that would be compared to the acceptance guidelines available to the NRC staff. The submitters did not agree with this version and as a result, filed their DPOs.

The submitters indicated that the July 2009 version was asking the licensee to evaluate the additional risk from recovery actions, but the NRC staff was precluded from evaluating acceptability of any risk increases. Furthermore requiring licensees to evaluate the additional

risk from recovery actions but not using it in determining the acceptability of the licensee's fire protection program was burdensome-NRC should not ask for information it does not use. The July 2009 version would also allow previously approved operator actions to meet the plant's old licensing basis and require other operator actions to meet NFPA-805 requirements, which is contrary to the 10CFR50.48(c) rule's Statement of Considerations that the rule not be implemented on a selective basis. It could also lead to different treatment of licensees under the same rule. Licensees at similar plants with similar programs may have recovery actions that were approved at one plant but not at the other, because of the "grandfathering" of the previous approval. The July 2009 version would also appear to set the precedence of new (undefined) acceptance criteria for risk-informed regulation other than that established in RG 1.174, potentially adding complexity to risk-informed regulatory practices.

EVALUATION

The salient requirements of NFPA-805 related to this issue are contained primarily in Chapter 4 of the Standard Chapter 4, "Determination of Fire Protection Systems and Features," establishes the methodology to determine the fire protections systems and features required to achieve the nuclear safety performance criteria (NSPC) of reactivity control, inventory and pressure control, decay heat removal, vital auxiliaries, and process monitoring. Either a deterministic or performance-based approach is available. Section 4.2.3.1, "Deterministic Approach," indicates that under the deterministic approach if recovery actions are used to demonstrate the availability of a success path for the NSPC, the use of the performance-based approach is required, which is outlined in Section 4.2.4, "Performance-Based Approach." Section 4.2.4 indicates that the additional risk presented by the use of recovery actions shall be evaluated according to the requirements described in Section 4.2.4. The process shall compare the risk associated with implementation of the deterministic requirements with the proposed alternative and the difference between the two approaches shall meet the risk acceptance criteria described in Section 2.4.4.1 - this risk acceptance criteria is specified in RG 1.174, as indicated in RG 1.205.

In contrast to the March 2009 version, which complies with the direction in NFPA-805 that the additional risk from recovery actions be included in the total risk change compared to the acceptance criteria in RG 1.174, the July 2009 version clearly indicates that this additional risk not be included. Therefore, the July 2009 version is not in compliance with NFPA-805 and in turn, 10CFR50.48(c).

The submitters also raise valid issues with regard to the unpredictability of the regulatory process when no acceptance criteria are provided for reviewers to cite, and that NRC should not ask for information it does not use.

Before the DPO Panel had concluded its deliberations, alternative language was developed that was acceptable to both staff, including the submitters, and management. The language maintained the separate risk estimate and reporting guidelines for the additional risk from previously approved operator actions. However, it added a framework which treats the additional risk from previously approved recovery actions as a special case but which also describes how this additional risk would be incorporated into a determination of the acceptability

of all the fire protection program changes proposed at a facility. Therefore, if the risk from a previously approved recovery action exceeds the criteria of RG 1.174, a licensee must somehow reduce the risk from other measures in its fire protection process. The submitters

agreed that the new framework provided by the alternative language would create a stable regulatory process and result in licensees receiving similar treatment under the new rule. A new precedent will be established but the scope and the process associated with the new precedent will be well defined. This language was included in Revision 1 of RG 1.205 that was released in December 2009. Therefore, the issues raised in the DPO have been resolved.

CONCLUSIONS

We believe that the submitters concerns have merit and the July 2009 version of RG 1.205 was not in compliance with 10CFR50.48(c). The compromise position developed by the staff and management has resolved the concerns.

We believe the root cause of the differing view stemmed from varying interpretations of how an existing licensing basis is affected when a licensee adopts an alternative rule. The case of a licensee voluntarily transitioning to an alternative rule that is risk-informed and performance-based in lieu of a deterministic rule provides a good example. Under the deterministic rule, the individual operator actions that are part of an overall process that a licensee relies on to demonstrate rule compliance (i.e., the overall process is composed of the combination of safety system response and individual operator actions) were approved using deterministic criteria, such as ability of the operator to take an action in a particular amount of time, the complexity of the action, whether the action is incorporated into procedures, etc. However, under the alternative rule, the previous approval of each of the actions should not be assumed to apply. There are two compelling reasons for this assertion.

First, each alternative provides a holistic set of requirements that the Commission has determined will provide the intended protection from fire hazards. The Commission did not consider various permutations of requirements, some from the deterministic rule and some from the alternative, in its determination. This risk-informed rule is expected to allow some actions that the deterministic rule would not allow, but also disallow other actions that the deterministic rule would allow.

Second, the two rules have different approaches to providing the intended protection and different acceptance criteria for judging compliance. The approval of the individual actions under the previous licensing basis was granted considering their context within the entire process and the acceptance criteria of the deterministic rule. Any of these individual actions that apply under the new licensing basis should be reevaluated against the alternative voluntary rule's criteria; i.e., the approval of an action should not be automatically "grandfathered" from the previous licensing basis. In the case of risk-informed, performance-based rules, this approval is likely to involve determining the contribution of the actions' risk to the overall risk of the process, whereas risk was not a consideration for determining compliance with the original rule. Without a reevaluation of all actions against the criteria in either rule, a plant may take advantage of the flexibility allowed in the deterministic rule, and then "add-on" the flexibility of the risk-informed rule to acquire a licensing basis that would not be approved using either rule alone. In addition to a licensing basis that simultaneously relies on both rules for acceptability, the acceptability of a proposed licensing basis could rely more on the path the plant used to

define its licensing basis than meeting the intent of either regulation.

RECOMMENDATIONS

Although the DPO concerns have been resolved, we recommend that NRR management consider establishing clear guidance concerning the transition to alternative rules and its effect on licensing bases, so as to minimize any future DPOs.