

<b>NRC FORM 680</b> (11-2002) NRCMD 10.159		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>		<b>FOR PROCESSING USE ONLY</b>	
<b>DIFFERING PROFESSIONAL OPINION</b>				1. DPO CASE NUMBER <div style="border: 1px solid black; padding: 2px; display: inline-block;">DPO-2009-001</div>	
<b>INSTRUCTIONS:</b> Prepare this form legibly and submit three copies to the address provided in Block 14 below.				2. DATE RECEIVED <div style="border: 1px solid black; padding: 2px; display: inline-block;">7/24/2009</div>	
3. NAME OF SUBMITTER  <b>Steven A. Laur</b>		4. POSITION TITLE  <b>Sr. Tech Adv. for Risk Informed Initiatives</b>		5. GRADE  <b>SLS</b>	
6. OFFICE/DIVISION/BRANCH/SECTION  <b>NRR/DRA</b>		7. BUILDING  <b>OWFN</b>	8. MAIL STOP  <b>O-10C15</b>	9. SUPERVISOR  <b>Mark Cunningham</b>	
10. DESCRIBE THE PRESENT SITUATION, CONDITION, METHOD, ETC., WHICH YOU BELIEVE SHOULD BE CHANGED OR IMPROVED. <i>(Continue on Page 2 or 3 as necessary.)</i> <p><b>The National Fire Protection Association (NFPA) Standard NFPA 805 is incorporated by reference into 10 CFR 50.48(c) and is therefore rule language. See continuation sheet for the salient requirements in NFPA 805 related to this issue.</b></p> <p><b>The Division of Risk Assessment (DRA) within the Office of Nuclear Reactor Regulation (NRR) management decided on Monday, July 20, 2009, that a portion of the rule need not be met; specifically, that the risk of operator actions previously approved by NRC under a licensee's current fire protection program (e.g., Appendix R to 10 CFR Part 50) will not be evaluated for acceptability by the staff. (Additional details on DRA management's decision are in block 11 of this NRC form 680.)</b></p>					
11. DESCRIBE YOUR DIFFERING OPINION IN ACCORDANCE WITH THE GUIDANCE PRESENTED IN NRC MANAGEMENT DIRECTIVE 10.159. <i>(Continue on Page 2 or 3 as necessary.)</i> <p><b>Precondition</b></p> <p><b>The individual submitting this Differing Professional Opinion (DPO) made reasonable efforts through discussions with his immediate supervisor and DRA management to address the issue under consideration. Specifically, this issue was identified during NFPA 805 team meetings led by that individual, with members of the DRA Fire Protection Branch (AFPB) and the Probabilistic Risk Assessment (PRA) Licensing Branch (APLA), starting in the fall of 2008. The issue was discussed with the acting Deputy Director for Fire Protection within DRA on numerous occasions. In November, 2008, the DPO author drafted a Commission Paper laying out two rulemaking alternates to resolve a conflict between the literal wording of the rule (NFPA 805 as incorporated into 10 CFR 50.48(c)) and the interpretation of that rule language favored by the Deputy Director. On December 16, 2008, the DRA Division Director was briefed on the conflict. The DRA decision at that time was to literally interpret NFPA 805, which avoided the necessity of rulemaking. Draft Guide (DG) DG 1218, the proposed revision to Regulatory Guide (RG) RG 1.205, was modified to incorporate that management decision. (continued on next page)</b></p>					
12. Check (a) or (b) as appropriate: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> a. Thorough discussions of the issue(s) raised in item 11 have taken place within my management chain; or  <input type="checkbox"/> b. The reasons why I cannot approach my immediate chain of command are:         </div>					
SIGNATURE OF SUBMITTER 		DATE <b>07/23/2009</b>	SIGNATURE OF CO-SUBMITTER (if any)		DATE
13. PROPOSED PANEL MEMBERS ARE (in priority order): <div style="margin-left: 20px;">           1. <b>Gareth W. Parry</b>            2. <b>Marty Stutzke</b>            3. <b>Tim Collins</b> </div>			14. Submit this form to: Differing Professional Opinions Program Manager Office of: <b>Enforcement</b> Mail Stop: <b>O-4A15A</b>		
<b>15. ACKNOWLEDGMENT</b>					
THANK YOU FOR YOUR DIFFERING PROFESSIONAL OPINION. It will be carefully considered by a panel of experts in accordance with the provisions of NRCMD 10.159, and you will be advised of any action taken. Your interest in improving NRC operations is appreciated.			SIGNATURE OF DIFFERING PROFESSIONAL OPINIONS PROGRAM MANAGER (DPOPM) 		
PRE-CONDITIONS MET <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			DATE OF ACKNOWLEDGMENT <div style="border: 1px solid black; padding: 2px; display: inline-block;">7/28/2009</div>		

## DIFFERING PROFESSIONAL OPINION (Continued)

CONTINUE ITEM 10, ITEM 11, AND/OR ITEM 12 FROM PAGE 1. (Indicate the block number to which this information applies.)

**Block 10: The salient requirements in NFPA 805 are:**

- Certain operator actions (called "recovery actions" in NFPA 805) must be addressed using performance-based methods in NFPA 805
- NFPA 805 requires the additional risk of these operator actions to be evaluated
- The fire risk evaluation performance-based method requires an integrated assessment of risk, defense-in-depth, and safety margins
- The risk acceptance criteria for this evaluation is that the change in public health risk be acceptable to the NRC and that core damage frequency (CDF) and large early release frequency (LERF) be used to determine the acceptability
- Neither 10 CFR 50.48(c) nor NFPA 805 differentiate between operator actions that have been previously approved by NRC and those that have not

**Block 11:**

**Precondition (continued)** - As a result of the management decision at that time, DG 1218 included two points: (1) licensees would have to evaluate the increase in risk from certain operator actions, whether or not previously approved; and, (2) the acceptance criteria for any risk increases would be RG 1.174. DG-1218 received DRA Division Director concurrence for transmittal to the Office of Research (RES) on February 12, 2009 (ML090370305). The Office of General Counsel (OGC) provided a "no legal objection" for DG-1218 to be published in the Federal Register on March 13, 2009 (ML090420128). Therefore, the DPO author asserts that the precondition of MD 10.159 has been met, in that reasonable efforts have been made to address this issue with appropriate management.

**Summary of the Existing Management Decision**

DRA management has decided that, for previously-approved operator actions that fall into the category discussed in block 10 of this NRC 680 form, licensees must perform the evaluation of the additional risk, but the NRC staff may not evaluate the acceptability of any risk increase against acceptance criteria when the licensee transitions to NFPA 805.

**Description of the Submitter's Views and How They Differ**

The DPO author is of the opinion that the DRA decision conflicts with the requirements of the rule, which require not only an evaluation of the additional risk of certain operator actions, but also that the change in public health risk be acceptable to the NRC and that CDF and LERF be used to determine the acceptability. Operator actions that have been approved by NRC as part of a licensee's existing fire protection program were not found acceptable based on CDF and LERF. Therefore, unless a licensee submits the additional risk of these operator actions, and the NRC staff evaluates the risk increases for acceptability, compliance with 10 CFR 50.48(c) has not been demonstrated.

The DPO author developed an "options paper" regarding this issue on July 14, 2009, at DRA management's request, and solicited input from team members from APFB and APLA, as well as from the acting Deputy Director. The options that the author supports, in decreasing level of preference, are:

- Require licensees to evaluate the additional risk of operator actions, whether or not previously approved, and evaluate using the acceptance guidelines in RG 1.174.
- Require the risk evaluation, and develop new risk acceptance guidelines and include in RG 1.205, Rev. 1.
- Require the risk evaluation, and use the "cost-beneficial backfit" criteria to evaluate the acceptability of previously approved operator actions
- Do not require the risk evaluation if the operator action is previously approved, and grant each licensee an exemption to NFPA 805, Section 4.2.4, until the rule can be revised.

The options the author does not support, for reasons discussed in the next section, are:

- Require licensees to evaluate the additional risk, but only assess the acceptability of the risk if it appears that adequate protection is questioned.
- Require the risk evaluation, but do not allow the NRC staff to evaluate the acceptability of previously approved operator actions.

## DIFFERING PROFESSIONAL OPINION (Continued)

CONTINUE ITEM 10, ITEM 11, AND/OR ITEM 12 FROM PAGE 1. (Indicate the block number to which this information applies.)

### Block 11:

#### Description of the Submitter's Views and How They Differ (continued)

The author's views differ from that of DRA management in that the author believes that either (1) the licensee and staff should be given clear guidance regarding acceptance criteria in order to determine whether the rule has been met; or, (2) the licensee should not incur the burden of performing calculations that are not used in the NRC's licensing decision.

#### Assessment of the Consequences if DRA Position Prevails

In the opinion of the DPO author, the DRA position is problematic for several reasons:

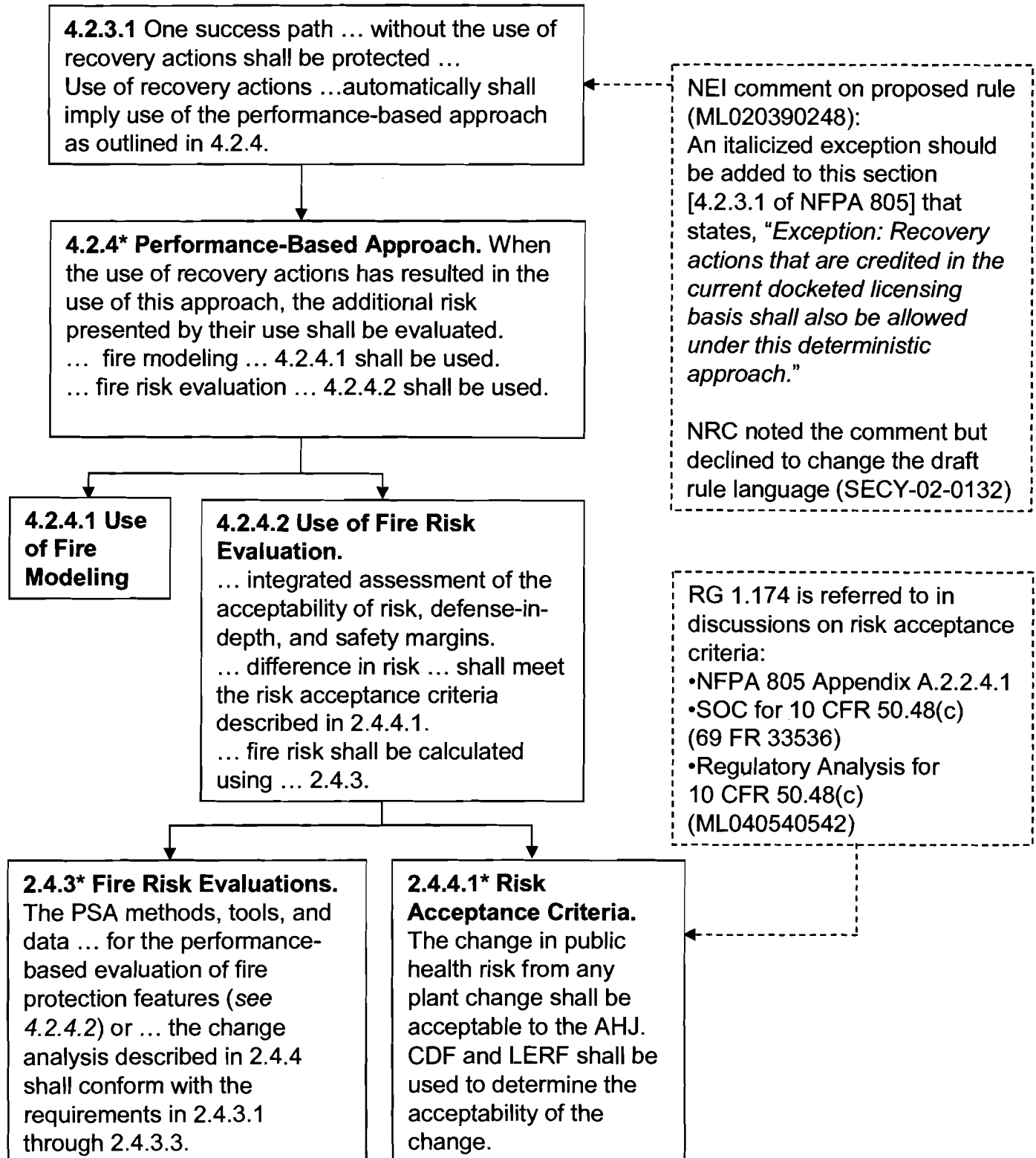
- It is contrary to the rule. NFPA 805 requires not only that the additional risk of these operator actions be calculated, but that the acceptance criteria in the rule be applied to judge the acceptability of any risk increases. Unless the previous approval used CDF and LERF, as required by NFPA 805, then that approval does not apply to the NFPA 805 requirement.
- It may have an adverse safety impact. Many licensees are transitioning to NFPA 805 because they have identified non-compliances with their existing fire protection licensing basis. Previously approved operator actions were evaluated by NRC assuming that the rest of the plant's fire protection program was in compliance with its fire protection licensing basis. There may be a synergistic effect between any non-compliances, including non-approved operator actions, and the previously approved operator actions, which would be assessed if NFPA 805 were followed but would not be assessed under this position.
- It is likely to lead to uncertainty in a licensee's fire protection licensing basis. Absent a rule change or an exemption, a plant will not be able to demonstrate compliance with NFPA 805 in the future, for example, to NRC inspectors, because the previous approval documentation does not meet the CDF and LERF requirement in the rule.
- It does not provide guidance to NRC staff. Without acceptance criteria, the staff has no basis for determining whether the risk associated with a given operator action is acceptable.
- It could require exemptions. Either an existing exemption, to Appendix R for example, would have to remain in effect, or an exemption to NFPA 805, Section 4.2.4 would have to be granted. This appears contrary to the expectation that NFPA 805 would not require exemptions.
- It accepts a "composite" fire protection program. This position would allow previously approved operator actions to meet the plant's old fire protection licensing basis and require other operator actions to meet NFPA 805 requirements. This appears contrary to intent that the rule not be implemented on a partial or selective basis (see the Statement of Considerations for 10 CFR 50.48(c), 69 FR 33536, June 16, 2004).
- It could result in different licensees being treated differently under the same rule. Licensees at similar plants may have similar operator actions that fall into the category under discussion that were previously approved at one plant but not at the other. The latter plant would be required to evaluate the additional risk associated with those recover actions and compare the result to the acceptance guidelines of RG 1.174. That plan may have to make safety improvements in order to be within those guidelines. The former plant would be allowed to rely on the previous approval (albeit to a different rule) to not meet any acceptance guidelines.
- It could be considered an unreasonable burden to licensees. The DRA position acknowledges that the rule requires the calculation of this additional risk, but does not require the corresponding evaluation of the acceptability of any risk increase against acceptance criteria (although also in the rule). If the acceptability is not to be evaluated, then requiring licensees to perform the calculation is unnecessary and the rule should be modified to eliminate this requirement for previously approved operator actions.

#### ATTACHMENTS:

1. Pictorial Representation of Salient Rule Sections – NFPA 805
2. Options Paper: Application of NFPA 805 paragraph 4.2.4 to Recovery Actions that are Previously Approved

# Pictorial Representation of Salient Rule Sections – NFPA 805

The quoted NFPA 805 sections below are shown in the order they would be used for the operator actions in question. The text to the right tends to indicate that the rule intent was to require the delta risk and evaluate with RG 1.174. Special treatment of previously approved recovery actions is not provided.



**Options Paper**  
**Application of NFPA 805 paragraph 4.2.4, "Performance-Based Approach,"**  
**to Recovery Actions that are Previously Approved<sup>1</sup>**

Revision 0, July 15, 2009

Purpose

In a meeting on July 9, 2009, the DRA Division Director was briefed on an issue that has surfaced regarding how a plant licensee transitions certain *recovery actions* from its existing fire protection program to one based on NFPA 805. The issue concerns whether the risk of previously approved recovery actions needs to be evaluated in order to comply with the rule (10 CFR 50.48(c)), and, if so, what acceptance criteria to use. The DRA staff was directed to develop a proposal to management to resolve this issue.

Issue Summary

The additional risk of certain recovery actions shall be evaluated in order to comply with NFPA 805. The additional risk shall be acceptable to the authority having jurisdiction (AHJ). Some recovery actions are previously approved in a plant's licensing basis. The issue is what acceptance criteria (if any) to apply to the additional risk of previously approved recovery actions.

NFPA 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," is incorporated into 10 CFR 50.48(c) by reference. Certain recovery actions (defined in NFPA 805, Section 1.6.52) are not allowed by NFPA 805 Section 4.2.3.1 to meet the deterministic approach, but mandate use of performance-based methods in either NFPA 805 Section 4.2.4.1 (fire modeling) or Section 4.2.4.2 (fire risk evaluation). NFPA 805 Section 4.2.4 requires the additional risk of such recovery actions be evaluated. If Section 4.2.4.2 is used to evaluate this additional risk, NFPA 805 requires that the change in public health risk be acceptable to the authority having jurisdiction, that CDF and LERF be used to determine the acceptability of the change, that the cumulative effect be evaluated, and that multiple changes be evaluated individually as well as combined.

Industry agrees (based on NEI comments) that the rule requires this evaluation. However, some of these recovery actions are previously approved parts of the licensee's existing fire protection licensing basis. Industry does not agree that the additional risk of previously approved recovery actions should be aggregated with other risk increases, and does not believe RG 1.174 is the appropriate guidance for these actions.

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<sup>1</sup> *Previously approved* means that the recovery action was explicitly approved by NRC by way of an exemption, a deviation, or via a safety evaluation report related to a license amendment. A previously approved approach must remain *valid*, which used in this context means that the technical basis for approval of the original exemption still applies and is correct. Note that *previously approved* is a subset of *allowed*. A recovery action would be *allowed* within a licensee's fire protection program if, for example, it meets Appendix R 3.G.III criteria. However, if the action has never been explicitly approved (as above), then it is not considered *previously approved*.

Pre-decisional Internal Information

Development and Evaluation of Options

The staff considered several options for addressing this issue and evaluated the relative merits of each. The options and discussion are in the table below.

<b>Options for Addressing NFPA 805, Section 4.2.4, Additional Risk of (Previously Approved) Recovery Actions</b>				
#	Option Description	Pros	Cons	Action to Implement
1	Do not require $\Delta$ risk	Preserves historical industry-staff compromises	<ul style="list-style-type: none"> <li>• Contradicts established precedent that additional risk is <math>\Delta</math> risk .</li> <li>• Preserves wide variation in acceptability of risk-significant operator actions after transition to NFPA 805 license basis</li> <li>• Creates a "composite" fire protection program:**               <ul style="list-style-type: none"> <li>○ meet NFPA 805 as-written for a subset of fire areas</li> <li>○ maintain "status quo" compliance in the other areas</li> </ul> </li> </ul>	<p>Issue plant-specific exemption to 4.2.4 under 10 CFR 50.12(a)(2)(ii)* (short-term)</p> <p>Revise rule (longer-term)</p>
2	Require calculation of $\Delta$ risk	Meets letter of NFPA 805	<ul style="list-style-type: none"> <li>• New position compared to historical industry-staff compromises</li> <li>• Industry burden – level of burden depends upon how NRC uses <math>\Delta</math> risk</li> </ul>	See refinements of this option (below) for specific pros and cons
2a	Compare $\Delta$ risk to RG 1.174	<ul style="list-style-type: none"> <li>• Clear guidance to reviewers and licensees</li> <li>• Quantitative guidelines publically developed and endorsed by Commission.</li> <li>• Maintains current risk-informed framework</li> <li>• Consistent application across all use of fire risk within NFPA 805:               <ul style="list-style-type: none"> <li>○ "hardware" variances</li> <li>○ non-previously approved recovery actions</li> <li>○ previously approved recovery actions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Plant modifications may be needed to reduce risk that would otherwise not be needed for Options 1, 2c, and 2d.</li> <li>• Some licensees may withdraw from NFPA 805 rather than make these modifications.</li> </ul>	<p>Issue RG 1.205, Revision 1, with language in DG-1218</p> <p>No impact on RG and SRP schedule</p>

Pre-decisional Internal Information

Options for Addressing NFPA 805, Section 4.2.4, Additional Risk of (Previously Approved) Recovery Actions				
#	Option Description	Pros	Cons	Action to Implement
2b	Compare $\Delta$ risk to new criteria	<ul style="list-style-type: none"> <li>• Clear guidance to reviewers and licensees</li> <li>• Maintains current risk-informed framework.</li> </ul>	<ul style="list-style-type: none"> <li>• Development of new quantitative guidelines impractical within current implementation schedule (would take years)</li> <li>• Potential for inconsistent treatment of fire risk among: <ul style="list-style-type: none"> <li>◦ “hardware” variances</li> <li>◦ non-previously approved recovery actions</li> <li>◦ previously approved recovery actions</li> </ul> </li> <li>• Regulatory uncertainty during guidance development</li> </ul>	<p>Develop new criteria and put in RG 1.205</p> <p>Potential for significant impact on schedule:</p> <ul style="list-style-type: none"> <li>• Effort to develop criteria</li> <li>• Review and approval of new thresholds (2<sup>nd</sup> public comment on DG; ACRS)</li> </ul>
2c	Compare $\Delta$ risk to cost-beneficial backfit criteria (could be individually or in toto)	<ul style="list-style-type: none"> <li>• Clear guidance on cost versus benefit already exists</li> <li>• No additional burden on licensees</li> </ul>	<ul style="list-style-type: none"> <li>• Puts the burden on the staff to estimate costs and benefits</li> <li>• Cost-benefit analysis is very time consuming and expensive and, unless high risk recovery actions are very rare, the staff will not have the resources for timely resolution.</li> <li>• Rule compliance is implicit rather than explicit – “acceptable to AHJ” presumed unless a backfit can be justified</li> </ul>	<p>State in RG 1.205 that the staff will require the <math>\Delta</math> risk to be calculated and provided but will not do anything with the information unless the criteria are triggered.</p> <p>Since the backfit (and adequate protection) criteria are always applicable, it would appear advisable to prefer option 1 to option 2c. Otherwise, the staff is creating an unnecessary burden on those licensees who elected to implement NFPA 805.</p>
2d	Compare $\Delta$ risk to “adequate protection” guidance	<ul style="list-style-type: none"> <li>• Fuzzy guidance already exists</li> <li>• No additional burden on licensees</li> </ul>	Same as option 2c. Requires a quantitative estimate with no associated criteria or even guidelines leading different NRC and licensee staff to reach different decisions	Same as option 2c
<p>Notes:</p> <p>* “Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.”</p> <p>** This appears to be contrary to the Commission’s intent that the rule not be implemented on a partial or selective basis.</p>				

## Discussion of Options

### *Option 1 – Do not require $\Delta$ risk*

OGC staff advised DRA staff that the intent of the NRC fire protection staff and industry during 10 CFR 50.48(c) rulemaking was that all previously approved portions of a plant's fire protection program carried over to NFPA 805. OGC staff advised that, while NRC may require licensees to submit the risk of previously approved recovery actions (as required by the rule), NRC staff may not evaluate these recovery actions for acceptability - acceptability has already been determined by the NRC's previous approval within the existing plant licensing basis. OGC staff stated that permitting a licensee to keep the recovery action but requiring them to make other modifications to reduce risk is still a new determination of acceptability and is not appropriate.

This appears contrary to the record, however. On February 7, 2002, NEI provided the following comment on the proposed rule (ML020390248):

"New Paragraph 2 exception, Section 4.2.3.1 Comment: This section states, 'Use of recovery actions to demonstrate availability of a success path for the nuclear safety performance criteria automatically shall imply use of the performance-based approach as outlined in 4.2.4.' Use of recovery actions should not be limited to a performance-based approach. An italicized exception should be added to this section that states, '*Exception: Recovery actions that are credited in the current docketed licensing basis shall also be allowed under this deterministic approach.*'"

Attachment 1 to SECY-02-0132 provides the NRC disposition of this comment:

"NEI submitted a number of other specific comments ... none of which resulted in the NRC choosing to make changes to the draft rule language. These comments regarded: ... (7) the use of recovery actions within the deterministic approach of the standard."

(Contrast this with the resolution of a comment to the effect that licensees should be allowed to apply performance-based methods to the NFPA 805 Chapter 3 elements – NRC agreed with the comment and added 10 CFR 50.48(c)(2)(vii).)

The staff concludes that (1) the issue of risk of previously approved recovery actions was raised during rule development and (2) the NRC staff at that time did not agree that previously approved recovery actions would meet the NFPA 805 Chapter 4 deterministic requirements.

### *Options 2a and 2b – Compare $\Delta$ risk to RG 1.174 or new criteria*



## Pre-decisional Internal Information

This option starts with the premise that licensees must assess the change in risk of all recovery actions, including those previously approved, and seeks to determine the appropriate acceptance criteria. Industry comments on DG-1218 indicate NEI's opinion that RG 1.174 is not the appropriate guidance.

The OGC and fire protection staff's understanding was that the risk of previously approved recovery actions could and would be assessed if they were simply modeled in the baseline fire PRA model. The rule requires, however, that the "additional" risk of these actions be assessed and the risk assessment staff does not agree that inclusion of a plant feature in the baseline fire PRA model is an assessment of the additional risk associated with that feature.

The risk assessment staff believes that RG 1.174 is the appropriate guidance for risk assessments in general and for NFPA 805 applications in particular. This is supported by the record, as follows:

The regulatory analysis for the final rule (ML040540542) states:

"The NFPA 805 approach also includes requirements for the application of acceptable codes and standards to assess the calculated margin between designed and qualified fire protection features versus specified nuclear safety and radioactive release performance criteria, as well as provisions for evaluating acceptable change in risk in terms of Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) based on risk acceptance guidelines as presented in NRC Regulatory Guide 1.174. (For example, when the calculated risk increase is in the range of 10<sup>-6</sup> per reactor year to 10<sup>-5</sup> per reactor year, the increase is acceptable if it can be reasonably shown that the total CDF is less than 10<sup>-4</sup> per reactor year.)"

"In summary, the overall approach of NFPA 805 is consistent with the key principles for evaluating licensing basis changes as described in NRC Regulatory Guide 1.174. Namely, the proposed change is consistent with defense-in-depth philosophy, maintains sufficient safety margins, and, when the proposed change results in an increase in CDF or risk, the increase is small and consistent with the intent of the Commission's Safety Goal Policy Statement."

The Statement of Considerations for the final rule (69 FR 33536) states:

"If the approach chosen to meet the performance criteria results in a change to the approved design basis, the licensee must evaluate any resulting changes in risk and determine whether the changes in risk are acceptable to the AHJ (Authority Having Jurisdiction, i.e., NRC). NRC guidance on the acceptability of changes in risk is in RG 1.174 and is referenced by NFPA 805."

NFPA 805 itself mentions RG 1.174 in the definition of large early release, in the references section, and in the explanatory information in the non-endorsed Appendix A of NFPA 805. Appendix A states:

## Pre-decisional Internal Information

“A.2.4.4.1 An example approach for acceptance criteria for changes in risk from a plant change can be found in Regulatory Guide 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant Specific Changes to the Licensing Basis.” This process ensures that only small increases in risk are allowed. More importantly, the process encourages that plant changes result in either no change in risk or a reduction in risk.”

Therefore, it appears clear that RG 1.174 was considered the appropriate risk acceptance guidance during the development of NFPA 805 and its subsequent incorporation into 10 CFR 50.48(c).

*Options 2c and 2d – Compare  $\Delta$  risk to cost-beneficial backfit criteria or “adequate protection” guidance*

The option to invoke a cost-beneficial backfit or to question adequate protection always exists if the staff receives new information, such as the risk of previously approved recovery actions. However, the level of risk that would invoke either of these options does not appear consistent with the intent of NFPA 805, considering that RG 1.174 was issued well in advance of NFPA 805 or 10 CFR 50.48(c), and has been employed as guidance for virtually all risk-informed licensing actions within the agency.

Recommendation

Option 2a is recommended as being consistent with the documented intent of the rule, the Commission’s Safety Goal Policy Statement, and current risk-informed practice within the agency. It will foster regulatory stability and a clear fire protection licensing basis for NFPA 805 licensees.

DIFFERING PROFESSIONAL OPINION

1. DPO CASE NUMBER

DPO-2009-001

**INSTRUCTIONS:** Prepare this form legibly and submit three copies to the address provided in Block 14 below.

2. DATE RECEIVED

7/27/2009

3. NAME OF SUBMITTER

Stephen Dinsmore

4. POSITION TITLE

Senior Reliability and Risk Analyst

5. GRADE

15

6. OFFICE/DIVISION/BRANCH/SECTION

NRR/DRA/APLA

7. BUILDING

OWFN

8. MAIL STOP

O10C15

9. SUPERVISOR

Donnie Harrison

10. DESCRIBE THE PRESENT SITUATION, CONDITION, METHOD, ETC., WHICH YOU BELIEVE SHOULD BE CHANGED OR IMPROVED.  
(Continue on Page 2 or 3 as necessary.)

On June 16, 2004, the NRC promulgated a risk-informed, performance-based voluntary alternative fire protection program in Title 10, Section 50.48(c), of the Code of Federal Regulations (10 CFR 50.48(c)) (69 FR 3353) which references the 2001 Edition of the National Fire Protection Association (NFPA) standard, NFPA 805, "Performance-Based Standard for Fire Protection for Light-Water Reactor Electric Generating Plants." Two pilot application requesting amendments to Adopt NFPA 805 were submitted in 2008 and are currently under review. A large number of other facilities (perhaps 50) have indicated interest in adopting this voluntary alternative.

CONTINUED ON PAGE 2

11. DESCRIBE YOUR DIFFERING OPINION IN ACCORDANCE WITH THE GUIDANCE PRESENTED IN NRC MANAGEMENT DIRECTIVE 10.159.  
(Continue on Page 2 or 3 as necessary.)

In my opinion, deleting the acceptance guidelines for the additional risk associated with previously approved recovery actions is contrary to establishing regulatory predictability and stability in fire protection. It also misses a rare opportunity to use risk insights to redirect resources to provide a measurable safety benefit. Finally, the risk-informed framework that has been developed over the last decade at the NRC will be potentially weakened and certainly made more complex by declining to utilize the acceptance guidelines in RG 1.174 for all the change in risk estimates required by the rule.

CONTINUED ON PAGE 2

12. Check (a) or (b) as appropriate:

- ☒ a. Thorough discussions of the issue(s) raised in item 11 have taken place within my management chain; or  
☐ b. The reasons why I cannot approach my immediate chain of command are:

SIGNATURE OF SUBMITTER

Stephen Dinsmore

DATE

7/27/09

SIGNATURE OF CO-SUBMITTER (if any)

DATE

13. PROPOSED PANEL MEMBERS ARE (in priority order):

1. Gareth Perry
2. Marty Stutzke
3. Timothy Collins

14. Submit this form to:

Differing Professional Opinions Program Manager

Office of: \_\_\_\_\_

Mail Stop: \_\_\_\_\_

15. ACKNOWLEDGMENT

THANK YOU FOR YOUR DIFFERING PROFESSIONAL OPINION. It will be carefully considered by a panel of experts in accordance with the provisions of NRCMD 10.159, and you will be advised of any action taken. Your interest in improving NRC operations is appreciated.

SIGNATURE OF DIFFERING PROFESSIONAL OPINIONS PROGRAM MANAGER (DPOPM)

Renée Pedersen

PRE-CONDITIONS MET

☒ YES

☐ NO

DATE OF ACKNOWLEDGMENT

7/28/2009

## DIFFERING PROFESSIONAL OPINION (Continued)

CONTINUE ITEM 10, ITEM 11, AND/OR ITEM 12 FROM PAGE 1. (Indicate the block number to which this information applies.)

### CONTINUED ITEM 10. DESCRIBE THE PRESENT SITUATION, CONDITION, METHOD, ETC., WHICH YOU BELIEVE SHOULD BE CHANGED OR IMPROVED

In May 2006, NRC issued Revision 1 of RG 1.205, "Risk-Informed, Performance Based Fire Protection for Existing Light-Water Nuclear Power Plants." A draft version of Revision 2 of RG 1.205 that incorporates lessons learned during the initial pilot application reviews was issued for comment in March 2009. A final draft RD1.200 was placed into NRC concurrence on July 20, 2009 (ML091960296). DRA management directed changes to RG 1.205 and then concurred on a proposed final RG package on July 23, 2008.

Among its requirements, NFPA 805 requires that the additional risk of certain operator "recovery actions" be estimated and that this additional risk be acceptable to the NRC (NFPA 805 Section 4.2.4.2). NFPA 805 does not provide any special treatment for recovery actions that may have been previously approved by the NRC. Revision 1 of RG 1.205 was silent on this requirement to estimate the additional risk of recovery actions whether previously approved or not. Draft revision 2 that was issued for comment, and the revision provided for concurrence to DRA management on July 20, 2009 (ML091960258 version ID 3), directed that the additional risk of all recovery actions be combined with all other changes in risk associated with the transition to NFPA 805, and that the total change in risk associated with the transition be compared to the risk acceptance guidelines in RG 1.174.

DRA management (ML091960258 version ID 8) removed the direction that the additional risk from previously approved recovery actions be combined with all other transition risk, and added the direction that the total transition risk that will be compared to the RG 1.174 risk acceptance guidelines would exclude the additional risk from previously approved recovery actions. For the reasons stated under Item 11, I think that this decision should be reversed or modified.

### CONTINUED ITEM 11. DESCRIBE YOUR DIFFERING OPINION IN ACCORDANCE WITH THE GUIDANCE PRESENTED IN MANAGEMENT DIRECTIVE 10.159

1) Deleting the acceptance guidelines for the additional risk associated with previously approved recovery actions is contrary to establishing regulatory predictability and stability in fire protection. Regulatory Guide 1.174 was developed because the NRC recognized that predictability and stability in risk-informed applications requires a common understanding on what is acceptable. NFPA Section 4.2.4.2 requires that the additional risk of utilizing a risk-informed approach be acceptable to the NRC. In contrast, the draft final Revision 2 of RG 1.205 separates out the additional risk of previously approved recovery actions from the change in risk that will be compared to RG 1.174 acceptable risk increase guidelines, and then is silent on what should be done with estimated additional risk of previously approved recovery actions (apart from the direction that it not be compared to the RG 1.174 acceptance guidelines).

If the safety evaluation approving the transition of the licensing basis to the new 50.48(c) is silent on the acceptability of the additional risk of previously approved recovery actions, future evaluations of the fire protection programs could question whether the licensee actually satisfied all the rule requirements - a problem which plagues the current fire protection regulations. If, instead, the safety analysis unambiguously addresses all the rule's risk-informed requirements, each NRC staff reviewer observing each additional risk estimate must decide that the additional risk from previously approved recovery actions is acceptable. Such a determination is simple and universally welcomed if the additional risk is small, but becomes very problematic if the additional risk becomes large. Licensees will inevitably, and properly, claim that any determination of unacceptably high risk is an NRC decision, not a reviewer's decision. If no guidance on the acceptability of the additional risk of recovery actions is provided, different reviewers (and their management chains) may well reach different conclusion on what is acceptable and what is not acceptable. Any conclusion on non-acceptable would need to be justified on a case by case basis, a very arduous process that, even if successfully accomplished, will not establish regulatory predictability and stability.

## DIFFERING PROFESSIONAL OPINION (Continued)

CONTINUE ITEM 10, ITEM 11, AND/OR ITEM 12 FROM PAGE 1. (Indicate the block number to which this information applies.)

### CONTINUED ITEM 11

2) Deleting the acceptance guidelines misses a rare opportunity to use risk insights to redirect resources to provide a safety benefit

The transition to NFPA 805 provides new freedom to licensee to modify their fire-protection programs by replacing the exemption process with a risk-informed process. For the remaining life of the plant, licensee that have transitioned to 50.48(c) will be entitled to make changes to their fire protection program as long as the increase in risk satisfies the risk-informed guidelines in RG 1.174. The rule as written by the NFPA Standards committee and endorsed by the NRC provides the opportunity to systematically and transparently require licensees to partially improve safety during transition if the additional risk from recovery actions causes the risk of transition to exceed the risk increase guidelines in RG 1.174. If the total risk from transition, including the additional risk from previously approved recovery actions, exceeds the acceptance guidelines in 1.174, licensees need not change these recovery actions. Instead, they could make another facility changes that would bring the total risk of transition to something less than the acceptance guidelines in RG 1.174.

3. The risk-informed framework that has been developed over the last decade at the NRC will be potentially weakened and certainly made more complex by declining to utilize the acceptance guidelines in RG 1.174 for all the change in risk estimates required by the rule. Deleting the acceptance guidelines for previously approved recovery actions creates two class of addition risk with two classes of acceptable risk increases, those judged against RG 1.174 and others. Licensees justifiably expect the NRC to follow its precedent, and if the NRC establishes the precedent for accepting "other" (most certainly larger) additional risks in parallel to RG 1.174 compliant risk increases, it will be expected that such precedent be accepted in the future.

### 4. Concluding Comments

Some claims have been made that the requirement to assess the additional risk of all recovery actions, and have this risk found acceptable by the NRC was not intended by the consensus Standard authors. I disagree. Some authors (including one public commenter) obviously did not think it was needed. But the requirement is too clearly stated and too integrated into the framework to think that it is included in the standard because of misunderstandings or editing errors.

It is not clear to me why the "previously approved" label makes recovery action in this particular risk informed application somehow off-limits. Adopting NFPA 805 means transitioning from a deterministic to a risk-informed framework. In risk-informed in service inspection (RI-ISI), licensees need to change a previously approved inspection volumes under certain situations if they wish to take advantage of the reduction in inspection locations in RI-ISI. In risk-informed inservice testing (RI-IST), licensee must improve previously approved testing strategies if they wish to take advantage of the extended surveillance intervals in RI-IST. The new special treatment requirements rule (50.69) could even require increased treatment of non-safety-related components if the risk-informed process dictated that such improved treatment is needed. I see no difference between previously approved recovery actions and any other previously approved activities that need to be modified to transition from a deterministic to a risk-informed regime. In this case, these previously approved recovery actions do not even have to be modified, only their additional risk compensated for if needed.