
Regulatory Analysis and Backfit Analysis

Proposed Rulemaking: Emergency Preparedness (10 CFR Part 50)

U.S. Nuclear Regulatory Commission
Office of Nuclear Security and Incident Response



Table of Contents

Table of Contents	i
Executive Summary	1
Abbreviations	3
1. Introduction.....	4
1.1 Statement of the Problem and Reasons for the Rulemaking.....	4
1.2 Background.....	4
1.2.1 Current Regulations Governing Emergency Preparedness (10 CFR Part 50)	4
1.2.2 Commission Orders	4
1.2.3 NRC Bulletin 2005-02	5
1.2.4 NRC Guidance Documents.....	6
1.3 Regulatory Objectives.....	6
2. Identification and Preliminary Analysis of Alternative Approaches	7
3. Evaluation of Benefits and Costs	8
3.1 Identification of Affected Attributes	8
3.2 Analytical Methodology	9
3.2.1 Baselines for Analysis.....	10
3.2.2 EP Programs and Program Characteristics.....	10
3.2.3 Incremental Requirements in the Final Rule.....	11
3.2.4 Other Data and Assumptions	11
4. Results.....	12
4.1 Benefits and Costs Under the Main Analysis.....	12
4.1.1 Protection of Onsite Personnel	16
4.1.2 Emergency Action Levels for Hostile Action Events	17
4.1.3 Hostile Action Event Drills and Exercises	18
4.1.4 Evacuation Time Estimate Updating.....	19
4.1.5 Licensee Coordination with Offsite Response Organizations.....	20
4.1.6 On-Shift Multiple Responsibilities.....	21
4.1.7 Emergency Response Organization Augmentation and Alternative Facilities.....	22
4.1.8 Reduction in Effectiveness.....	23
4.1.9 Emergency Declaration Timeliness	25
4.1.10 Emergency Operations Facility – Performance-Based Approach	26
4.1.11 Backup Means for Alert and Notification Systems (ANS)	27
4.2 Sensitivity Analysis – Pre-Order Baseline.....	28
4.3 Backfit Analysis	32
4.4 Safety Goal Evaluation.....	38
4.5 CRGR Results.....	39
5. Decision Rationale.....	40
5.1 Regulatory Analysis	40
5.2 Backfit Analysis	40
6. Implementation	41
6.1 Schedule	41
6.2 Impacts on Other Requirements	41

Appendix A Regulatory Analysis Assumptions and Inputs, by Regulatory Initiative

Executive Summary

The Nuclear Regulatory Commission (NRC) is proposing to enhance the current emergency preparedness (EP) regulations pertaining to nuclear reactors. The proposed rulemaking: (1) codifies emergency preparedness requirements imposed by Commission order after the terrorist attacks of September 11, 2001, as modified based upon experience and insights gained by the Commission during implementation, (2) codifies emergency preparedness and response enhancements discussed within NRC Bulletin 2005-02, and (3) adds several new requirements that resulted from NRC staff review of EP regulations and guidance. The rulemaking proposes changes addressing 11 aspects of EP. All of these changes would affect power reactor licensees, and one would affect non-power reactors.

The analysis presented in this document examines the benefits and costs of the proposed EP requirements relative to the baseline of current regulations, relevant orders, and voluntary actions on the part of industry. As a sensitivity analysis, the document also examines the benefits and costs of the proposed rulemaking relative to the baseline of current regulations only (excluding the Order, NRC Bulletin 2005-02, and industry voluntary actions). The key findings of the analysis are as follows:

- **Total Cost to Industry (including Backfits).** The proposed rule would result in a total one-time cost to all nuclear power plant sites and non-power reactors of approximately \$29.5 million, followed by total annual costs on the order of \$3.1 million. The total present value of these costs is estimated at \$67.4 million (using a 7-percent discount rate) and \$88.7 million (using a 3-percent discount rate) over the next 30 years. Almost all of the estimated costs to industry qualify as backfits (see Section 4.3).
- **Average Cost per Site for Power Reactors.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$447,000 followed by annual costs of approximately \$47,000.
- **Average Cost per Site for Non-Power Reactors.** The average non-power reactor would incur a one-time cost of approximately \$14,000. The proposed rule does not impose any annual costs on non-power reactors.
- **Value of Benefits Not Reflected Quantitatively.** With the exception of some direct monetary savings to industry, the cost figures shown above do not reflect the value of the benefits of the proposed rule. These benefits are evaluated qualitatively in Section 4.1.
- **Costs to NRC.** The rule would result in a one-time cost to NRC of approximately \$1.1 million, followed by annual costs of approximately \$100,000. The total present value of these NRC costs is estimated at \$2.3 million (using a 7-percent discount rate) and \$3.0 million (using a 3-percent discount rate).
- **Costs to Other Government Agencies.** The rule would result in a one-time cost to other government agencies of approximately \$1.8 million, followed by annual costs of approximately \$36,000. The total present value of these other government costs is

estimated at \$2.2 million (using a 7-percent discount rate) and \$2.5 million (using a 3-percent discount rate).

- Decision Rationale. The NRC believes that the rule is cost-justified because the proposed regulatory initiatives for increased and consistent emergency preparedness measures would enable emergency personnel to respond earlier and more effectively to emergency events at nuclear power plants, increasing the public health and safety.

The proposed rule also would apply to any new reactors brought online after promulgation of the final rule, including Watts Bar Unit 2 as well as any units that would be built under the new reactor applications that NRC has received to date. Because EP program costs are primarily a site-based function, rather than a reactor-based function, the regulatory analysis and backfit analysis reflect costs associated with Watts Bar Unit 2 as well as those units covered by the new applications that (like Watts Bar Unit 2) would co-locate new reactors with currently operating reactors. For the new applications that would place new reactors at sites that are not co-located with operating reactors, this analysis estimates that one-time and annual impacts will be less than or equal to the corresponding impacts for operating reactors (i.e., because the development of EP plans for the new sites will not require that existing plans be analyzed and reworked). However, the quantitative results do not reflect any additional incremental cost for the non-co-located reactors due to the uncertainty associated with when and if these facilities actually will be licensed and operated.

Pre-Order Baseline Sensitivity Analysis. The regulatory analysis contains a sensitivity analysis that, like the main analysis, estimates the incremental costs of the proposed rule, but it assumes an alternative baseline consisting of only the regulations that were in effect *prior to* (1) issuance of NRC Order EA-02-26 on February 25, 2002, and (2) voluntary industry actions initiated in response to NRC Bulletin 2005-02. Relative to the pre-order baseline, the proposed rule would result in a total one-time cost to all nuclear power plant sites of approximately \$61.5 million, followed by total annual costs on the order of \$3.1 million. The total present value of these costs is estimated at \$99.3 million (using a 7-percent discount rate) and \$120.6 million (using a 3-percent discount rate) over the next 30 years (see Section 4.2).

Abbreviations

ANS	Alert and Notification System
CFR	Code of Federal Regulations
CRGR	Committee to Review Generic Requirements
EAL	Emergency Action Level
EOF	Emergency Operations Facility
EP	Emergency Preparedness
ERO	Emergency Response Organization
ETE	Evacuation Time Estimate
FEMA	Federal Emergency Management Agency
ICM	Interim Safeguards and Security Compensatory Measure
LLEA	Local Law Enforcement Agency
NRC	U.S. Nuclear Regulatory Commission
OMB	Office of Management and Budget
ORO	Offsite Response Organization
SRM	Staff Requirements Memorandum

1. Introduction

This document presents a draft regulatory analysis of proposed enhancements to the emergency preparedness (EP) requirements as set forth by the U.S. Nuclear Regulatory Commission (NRC) in Title 10, Part 50, of the Code of Federal Regulations (10 CFR Part 50). The proposed rule would revise provisions contained in Sections 50.47, 50.54, and Appendix E to Part 50. This introduction is divided into three sections. Section 1.1 states the problem and the reasons for the proposed rulemaking, Section 1.2 provides background information, and Section 1.3 discusses regulatory objectives related to adoption of the proposed revisions to the proposed rule.

1.1 Statement of the Problem and Reasons for the Rulemaking

Following the terrorist events of September 11, 2001, the NRC staff evaluated the EP planning basis given the resulting threat environment and concluded that it remains valid. However, the NRC staff recognized that security events differ from accidental events and that the EP regulations and guidance could be enhanced in this and other respects. In addition, NRC staff reviewed existing EP regulations and guidance and identified clarifications and enhancements to the regulations that recognize the benefits of advances in communication technologies and lessons learned through EP program implementation.

While licensees have implemented significant enhancements to their EP programs in response to the February 25, 2002, Commission Order, NRC Bulletin 2005-02, and various NRC generic communications, the current regulations do not encompass these elements. The NRC staff believes that EP regulations and guidance could be enhanced to better reflect the security elements implemented in response to the attacks of September 11, 2001, advances in technology, and lessons learned. Therefore, the NRC staff is proposing to revise 10 CFR Part 50 to codify the inclusion of EP enhancements.

1.2 Background

1.2.1 Current Regulations Governing Emergency Preparedness (10 CFR Part 50)

10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," of the Code of Federal Regulations (10 CFR Part 50), codifies a set of EP planning standards in 10 CFR 50.47(b) with supporting requirements in Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50.

1.2.2 Commission Orders

The Commission imposed several security orders on all operating power reactor licensees following September 11, 2001. On February 25, 2002, the NRC issued Order EA-02-26, "Interim Safeguards and Security Compensatory Measures (ICMs)," to all license holders for the operating commercial power reactors in the United States. Among other things, the Order required licensees to implement ICMs for the present threat level and take actions such as:

- Review the security and emergency plans to maximize compatibility,

- Assess the adequacy of staffing plans at emergency response facilities, and for licensees with an onsite emergency operations facility (EOF), identify alternative facilities capable of supporting emergency response,
- Develop plans, procedures and training regarding notification (including responding employees), activation, and coordination between the site and offsite response organizations (OROs),
- Conduct a review to ensure that responders are not assigned collateral duties that would prevent effective emergency response, and
- Implement site-specific Emergency Action Levels (EALs) to provide an anticipatory response to a credible threat.

1.2.3 NRC Bulletin 2005-02

The NRC issued Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," to obtain information regarding changes nuclear power reactor licensees made or were planning to make regarding security-based emergency preparedness program capabilities and to evaluate how consistently such changes had been implemented. Specifically, the Bulletin focused on gathering information from licensees on five emergency preparedness topic areas: security-based emergency classification levels and EALs; NRC notifications; onsite protective measures; emergency response organization (ERO) augmentation; and drill and exercise programs.

Nuclear plant licensees all responded that they had implemented, or planned to implement, the types of enhancements outlined in NRC Bulletin 2005-02. Further, the Nuclear Energy Institute (NEI) developed a white paper titled "Enhancements to Emergency Preparedness Programs for Hostile Action," issued May 2005 (revised November 18, 2005). The NRC staff endorsed this guidance in Regulatory Issue Summary (RIS) 2006-12, dated July 19, 2006, as an acceptable implementation methodology for the program enhancements discussed in NRC Bulletin 2005-02. However, these enhancements are voluntary. The NRC currently does not regard these voluntary actions in the licensing basis of the plants.

1.2.4 NRC Guidance Documents

NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (herein referred to as NUREG-0654) is the joint NRC and Federal Emergency Management Agency (FEMA) guidance that provides a basis for NRC licensees and State and local governments to develop radiological emergency plans and improve emergency preparedness. It also is used by reviewers to determine the adequacy of State, local, and nuclear power plant licensee emergency plans and preparedness. NUREG-0654 provides guidance for each of the planning standards found in 10 CFR 50.47(b). Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 2, issued October 1981, endorsed NUREG-0654/FEMA-REP-1, Revision 1. Regulatory Guide 1.101 provides guidance to licensees and applicants on methods acceptable to the NRC staff for complying with the standards in 10 CFR 50.47 that must be met in onsite and offsite emergency response plans. Regulatory guides are not substitutes for regulations, and compliance with them is not required. Licensees and applicants may propose methods and solutions different from those specified in the guides if they provide a basis for the findings required for the issuance of a license by the Commission.

1.3 Regulatory Objectives

The NRC's objectives for the current rulemaking are to (1) codify emergency preparedness requirements imposed by Commission order after the terrorist attacks of September 11, 2001, as modified based upon experience and insights gained by the Commission during implementation, (2) codify emergency preparedness and response enhancements discussed within NRC Bulletin 2005-02, and (3) add several new requirements that resulted from NRC staff review of EP regulations and guidance.

2. Identification and Preliminary Analysis of Alternative Approaches

Prior to the rulemaking, the NRC staff conducted an extensive review of EP regulations and guidance and developed numerous recommendations. The NRC staff presented the analysis and recommendations to the Commission in SECY-06-0200, "Results of the Review of Emergency Preparedness Regulations and Guidance," dated September 20, 2006. SECY-06-0200 also prioritized the NRC staff's recommendations using specified criteria. The Commission, in a Staff Requirements Memorandum (SRM) dated January 8, 2007, approved a rulemaking effort for the various EP initiatives contained in SECY-06-0200. In SECY-07-0182, "Semi-annual Update on the Status of Emergency Preparedness Activities," the NRC staff committed to first conduct rulemaking on the issues identified as high-priority in SECY-06-0200.

Based on the preliminary analysis described above, the proposed rulemaking would revise 10 CFR 50.47, 50.54, and Appendix E to Part 50 to incorporate a total of 11 regulatory initiatives:

1. Protection of onsite personnel
2. Emergency action levels for hostile action events
3. Hostile action event drills and exercises
4. Evacuation time estimate updating
5. Licensee coordination with offsite response organizations
6. On-shift multiple responsibilities
7. Emergency response organization augmentation and alternative facilities
8. Reduction in effectiveness
9. Emergency declaration timeliness
10. Emergency operations facility – performance-based approach
11. Backup means for alert and notification systems

The rulemaking would allow the NRC to achieve enhancements to emergency preparedness at nuclear power plants as well as greater regulatory consistency across licensees.

The alternative to these initiatives is the "no-action alternative." Under the no-action alternative, NRC would not amend the current regulations regarding emergency preparedness at nuclear power plant sites. Licensees would continue to comply with the Commission's Order and voluntary commitments from the generic communications. This option would avoid certain costs that the proposed rule would impose. However, taking no action would not enhance emergency preparedness based on recent experience, would not enhance regulatory efficiency, and, moreover, would present a problem for establishing appropriate emergency preparedness measures for new reactors that did not receive the Commission Order or generic communications.

3. Evaluation of Benefits and Costs

This section examines the benefits and costs expected to result from this rulemaking, and is presented in two subsections. Section 3.1 identifies attributes that are expected to be affected by the rulemaking. Section 3.2 describes how benefits and costs have been analyzed.

3.1 Identification of Affected Attributes

This section identifies the factors within the public and private sectors that the regulatory alternatives (discussed in Section 2) are expected to affect. These factors are classified as “attributes” using the list of potential attributes provided by NRC in Chapter 5 of its *Regulatory Analysis Technical Evaluation Handbook*.¹ Affected attributes include the following:

- Public Health (Accident) – The proposed action would reduce the risk that public health will be affected by radiological releases resulting from an emergency.
- Occupational Health (Accident) – The proposed action would reduce the risk that occupational health will be affected by radiological releases resulting from emergencies and by some hostile action events.
- Industry Implementation – The proposed action would require licensees to make facility modifications and to revise their emergency plans and procedures, among other implementation activities.
- Industry Operation – The proposed action would require licensees to conduct additional emergency preparedness (EP) activities beyond those currently being conducted. For example, licensees would need to track compliance over time with NRC’s proposed hostile action event drill and exercise requirements.
- NRC Implementation – Under the proposed action, NRC would develop or revise guidance and inspection procedures as a result of the new requirements. Also, the NRC would incur administrative costs to finalize the rulemaking.
- NRC Operation – The proposed action would require the NRC to review biennial exercise scenarios and updated evacuation time estimates for each site on an ongoing basis.
- Other government – The proposed action would result in one-time and annual costs to other government agencies. FEMA and State and local government agencies coordinate with NRC and licensees on EP activities. The proposed rule may require these other government agencies to review and revise guidance and procedures, and to conduct trainings.

¹ *Regulatory Analysis Technical Evaluation Handbook, Final Report*, NUREG/BR-0184, Office of Nuclear Regulatory Research, January 1997.

- Regulatory Efficiency – The proposed action would result in enhanced regulatory efficiency through regulatory and compliance improvements.
- Off-Site Property – The proposed action would reduce the risk that off-site property will be affected by radiological releases resulting from emergencies.
- On-Site Property – The proposed action would reduce the risk that on-site property will be affected by radiological releases resulting from emergencies and some hostile action events.

Attributes that are *not* expected to be affected under any of the rulemaking options include the following: safeguards and security considerations; occupational health (routine); public health (routine); environmental considerations; general public; improvements in knowledge; and antitrust considerations.

3.2 Analytical Methodology

This section describes the process used to evaluate benefits and costs associated with the various regulatory options. The benefits of the rule include any desirable changes in affected attributes (e.g., monetary savings, improved safety resulting from new physical protection requirements) while the costs include any undesirable changes in affected attributes (e.g., monetary costs, increased exposures).

The analysis evaluates several attributes on a quantitative basis. (These include industry implementation, industry operation, NRC implementation, NRC operation, other government.) Quantitative analysis requires a baseline characterization of the universe, including factors such as the number of licensees affected, the nature of the activities currently being conducted, and the types of new or modified systems and procedures that licensees will implement, or will no longer implement, as a result of the rule. In fact, however, licensees may respond to the rule in different ways depending on their own licensee-specific characteristics, such as (1) the physical characteristics of their sites, (2) the current contents of their emergency plans, (3) the organizational and managerial characteristics of their operations, (4) their approaches toward meeting new performance-based criteria, and (5) the characteristics of the local communities and their relationship with the local communities. Sections 3.2.1–3.2.4 describe the most significant analytical data and assumptions used in the quantitative analysis of these attributes. Additional details regarding the calculations used in the analysis are presented in an appendix to the analysis.

The analysis relies on a primarily qualitative (rather than quantitative) evaluation of several of the affected attributes (public health, occupational health, offsite property, and onsite property) due to the difficulty in quantifying the impact of the current rulemaking.² These attributes would be affected by the regulatory options through the associated increases in effectiveness of emergency plans and emergency response activities. Quantification of any of these attributes would require estimation of factors such as (1) the frequency of various types of emergencies and emergency events, (2) the radiological consequences of such emergencies, and (3) pre-rule and post-rule impacts associated with such emergencies and hostile action events.

² The regulatory efficiency attribute also is evaluated qualitatively, by definition. See NRC's *Regulatory Analysis Technical Evaluation Handbook*, Section 5.5.14.

3.2.1 Baselines for Analysis

This regulatory analysis measures the incremental impacts of the final rule relative to a “baseline,” which reflects anticipated behavior in the event that the final regulation is not imposed. The primary baseline used in this analysis assumes full licensee compliance with existing NRC requirements, including current regulations, relevant orders, and voluntary industry actions initiated in response to NRC Bulletin 2005-02. Section 4.1 presents the estimated incremental costs and savings of the proposed rule relative to this baseline. Unless otherwise noted, the estimated costs and savings presented in this document reflect this baseline and are referred to as the “main analysis.”

The NRC staff also has prepared a sensitivity analysis as part of this regulatory analysis, in accordance with the agency’s regulatory analysis guidelines. The sensitivity analysis, like the main analysis, estimates the incremental savings and costs of the proposed rule, but it assumes an alternative baseline consisting of only the regulations that were in effect before (1) issuance of NRC Order EA-02-26 on February 25, 2002, and (2) voluntary industry actions initiated in response to NRC Bulletin 2005-02. This analysis is referred to as the “pre-order baseline analysis,” and its results appear in Section 4.2.

3.2.2 EP Programs and Program Characteristics

The analysis models 65 sites administering a total of 104 operating power reactors. It assumes that incremental costs and savings accrue to sites independent of the number of reactor facilities located at each site. It also assumes that the manner in which operating reactors comply with current EP requirements is substantially similar (except as indicated in Appendix A) and that all operating nuclear power reactors are in full compliance with the applicable baseline requirements. As a result, the analysis applies the same average cost per activity to each site, even though in reality some sites will incur higher or lower costs. Each operating licensee is assumed to apply for and receive a single 20-year license extension. Based on the extended license expiration dates, the analysis calculates the average remaining operating life across all reactors as 30 years. Therefore, costs and savings are estimated for the 65 reactor sites over a 30-year period, with each year’s costs or savings discounted back at a 7-percent and 3-percent discount rate, in accordance with NUREG/BR-0058, Rev. 4, “Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission.” (See Section 4.1 for these results.)

The proposed rule also would apply to any new reactors brought online after promulgation of the final rule. Watts Bar Unit 2 is assumed to be one such reactor. In addition, NRC has received applications to build other nuclear power reactors. For Watts Bar Unit 2 and the new applications that (like Watts Bar Unit 2) would co-locate new reactors with currently operating reactors, this analysis assumes that there is no significant additional incremental cost or saving incurred (because EP program costs are primarily a site-based function, rather than a reactor-based function). For the new applications that would place new reactors at sites that are not co-located with operating reactors, this analysis estimates that one-time and annual impacts will be less than or equal to the corresponding impacts for operating reactors (i.e., because the development of EP plans for the new sites will not require that existing plans be analyzed and reworked). Nevertheless, Section 4 does not reflect any additional incremental cost for the non-co-located reactors due to the uncertainty associated with when and if these facilities actually will be licensed and operated.

The proposed rule also makes a conforming change to Part 52 that affects combined license applicants. The conforming change points applicants to the EP requirements in Part 50, Appendix E, instead of the EP requirements in Section 50.34(f). The NRC staff believes that this change will have a cost impact only for combined license applications that have been or will have been submitted prior to promulgation of this proposed rule. Specifically, applications may cite Section 50.34(f) as the regulatory basis for some of the EP features disclosed in the application. Under the proposed rule, these applications instead would need to cite Part 50, Appendix E as the regulatory basis. NRC estimates that the cost impact associated with this revision is insignificant relative to the overall cost of the proposed rule.

In addition, one of the proposed rule's regulatory initiatives would apply to non-power reactor licensees.³ As a result, the analysis also models the cost incurred by the 32 operating non-power reactors.

3.2.3 Incremental Requirements in the Final Rule

The NRC evaluated each of the 11 regulatory initiatives contained in the proposed rule relative to the applicable baselines described in Section 3.2.1. Based on this analysis, the NRC developed equations to estimate costs and savings using available data, augmented by assumptions when necessary. Appendix A documents this analysis, including the specific equations used to quantify costs and savings.

3.2.4 Other Data and Assumptions

Information on operating non-power reactors, power reactors, and shutdown dates has been taken from NUREG-1350, Vol. 20, *NRC Information Digest, 2008-2009 Edition*. To the extent practical, quantitative information (e.g., costs and savings) and qualitative information (e.g., the nature and magnitude of impacts) on attributes affected by the rule has been obtained from, or developed in consultation with, NRC staff. The analysis also considered input provided by stakeholders at public meetings.

The analysis assumes that the final rule would become effective in December 2010, and that any one-time implementation costs are incurred during the first year. Ongoing (annual) costs of operation are assumed to begin in 2010, and are modeled on an annual cost basis. Costs and savings are expressed in 2009 dollars.

³ Reduction in Effectiveness applies to both nuclear power reactor and non-power reactor licensees. See Section 4.1.8 and Appendix A.8.b.

4. Results

This section presents the analytical results which are organized into five separate sections:

- Section 4.1 presents results on the benefits and costs of the rule as a whole under the main analysis, as well as disaggregated results for each of the 11 regulatory initiatives that comprise the rule.
- Section 4.2 presents the results of the analysis under the pre-order baseline.
- Section 4.3 considers the findings relative to NRC's backfit rule.
- Section 4.4 addresses the applicability of a safety goal evaluation to the current rulemaking.
- Section 4.5 describes the information required for review by the Committee to Review Generic Requirements (CRGR).

4.1 Benefits and Costs Under the Main Analysis

This section summarizes the benefits and costs estimated for each regulatory initiative and for the rule as a whole. To the extent that the affected attributes could be analyzed quantitatively, the net effect of each option has been calculated and is presented below. However, some benefits and costs could be evaluated only on a qualitative basis.

Exhibits 4-1 and 4-2 summarize the results for the proposed rule as a whole, and Exhibit 4-3 shows the incremental costs for each of the 11 regulatory initiatives contained in the proposed rule.⁴ Relative to the no-action alternative (Option 1), the rule as a whole (Option 2) would result in a net quantitative cost estimated between \$71.9 million and \$94.2 million (7-percent and 3-percent discount rate, respectively). The majority of the costs associated with Option 2 will be incurred by industry (\$67.4 million - \$88.7 million, 7-percent and 3-percent discount rate, respectively).

The analysis estimates that Option 2 would result in qualitative benefits in the following attributes: public health (accident), occupational health (accident), regulatory efficiency, off-site property, and on-site property. Specifically, the benefits would include a reduced risk that public health and occupational health will be affected by radiological releases resulting from radiological emergencies, including hostile action events. There also would be enhanced regulatory efficiency through regulatory and compliance improvements, including changes in industry's planning efforts and in NRC's review and inspection efforts.

The proposed rule also would reduce the risk that off-site and on-site property will be affected by radiological releases resulting from emergencies, including hostile action events.

⁴ Note that the totals shown in Exhibit 4-2 exceed those shown in Exhibit 4-3. The reason for this is that Exhibit 4-2 includes certain costs that cannot be attributed to a particular regulatory initiative. In particular, Exhibit 4-2 includes the remaining cost of the rulemaking as part of NRC implementation costs. The NRC estimates that the remaining cost to finalize the rulemaking is approximately \$237,000 (assuming a level of effort of 1.5 FTE and a labor rate of \$158,000).

Although EP cannot affect the probability of the initiating hostile action event, a high level of EP increases the likelihood of accident mitigation if the initiating event proceeds beyond the need for initial operator actions. An augmented EP program reduces the risk that off-site and on-site property will be affected by radiological releases by improving the response to initiating events that could lead to severe accidents in the absence of mitigative response.

Exhibit 4-1 Summary of Overall Benefits and Costs

Net Monetary Savings (or Costs) - Total Present Value	Non-Monetary Benefits/Costs
Option 1: No Action \$0	<u>Qualitative Benefits and Costs:</u> None.
Option 2: Proposed Action Industry: (\$67.4 million) using a 7% discount rate (\$88.7 million) using a 3% discount rate NRC: (\$2.3 million) using a 7% discount rate (\$3.0 million) using a 3% discount rate Other Government: (\$2.2 million) using a 7% discount rate (\$2.5 million) using a 3% discount rate	<u>Qualitative Benefits:</u> Public Health (Accident): Reduced risk that public health will be affected by radiological releases resulting from radiological emergencies. Occupational Health (Accident): Reduced risk that occupational health will be affected by radiological releases resulting from radiological emergencies and some hostile action events. Regulatory Efficiency: Enhanced regulatory efficiency through regulatory and compliance improvements, including changes in industry's planning efforts and in NRC's review and inspection efforts. Off-Site Property: Reduced risk that off-site property will be affected by radiological releases resulting from radiological emergencies. On-Site Property: Reduced risk that on-site property will be affected by radiological releases resulting from radiological emergencies and some hostile action events. <u>Qualitative Costs:</u> None.

Exhibit 4-2 Summary of One-Time, Annual, and Overall Benefits and Costs

Entity	Total Savings and Costs				Average per Nuclear Power Plant Site		Average per Non-Power Reactor	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$29,497,300)	(\$3,084,700)	(\$67,370,241)	(\$88,687,926)	(\$446,912)	(\$47,457)	(\$14,000)	\$0
NRC	(\$1,076,600)	(\$100,400)	(\$2,309,278)	(\$3,003,121)	n/a	n/a	n/a	n/a
Other Government	(\$1,762,800)	(\$36,400)	(\$2,209,707)	(\$2,461,260)	n/a	n/a	n/a	n/a
Total	(\$32,336,700)	(\$3,221,500)	(\$71,889,227)	(\$94,152,306)	(\$446,912)	(\$47,457)	(\$14,000)	\$0

Exhibit 4-3
Summary of One-Time, Annual, and Overall Benefits and Costs,
by Regulatory Initiative

Section	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Protection of Onsite Personnel						
Industry	(\$2,613,000)	\$0	(\$2,613,000)	(\$2,613,000)	(\$40,200)	\$0
NRC	(\$18,800)	\$0	(\$18,800)	(\$18,800)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$2,631,800)</i>	<i>\$0</i>	<i>(\$2,631,800)</i>	<i>(\$2,631,800)</i>	<i>(\$40,200)</i>	<i>\$0</i>
Emergency Action Levels for Hostile Action Events						
Industry	(\$487,500)	\$0	(\$487,500)	(\$487,500)	(\$7,500)	\$0
NRC	\$0	\$0	\$0	\$0	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$487,500)</i>	<i>\$0</i>	<i>(\$487,500)</i>	<i>(\$487,500)</i>	<i>(\$7,500)</i>	<i>\$0</i>
Hostile Action Event Drills and Exercises						
Industry	(\$832,000)	(\$468,000)	(\$6,577,951)	(\$9,812,197)	(\$12,800)	(\$7,200)
NRC	(\$52,000)	(\$64,000)	(\$837,771)	(\$1,280,061)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$884,000)</i>	<i>(\$532,000)</i>	<i>(\$7,415,723)</i>	<i>(\$11,092,258)</i>	<i>(\$12,800)</i>	<i>(\$7,200)</i>
Evacuation Time Estimate Updating						
Industry	(\$6,942,000)	(\$1,435,200)	(\$24,562,918)	(\$34,481,270)	(\$106,800)	(\$22,080)
NRC	(\$508,400)	(\$36,400)	(\$955,307)	(\$1,206,860)	n/a	n/a
Other Government	(\$364,000)	(\$36,400)	(\$810,907)	(\$1,062,460)	n/a	n/a
<i>Subtotal</i>	<i>(\$7,814,400)</i>	<i>(\$1,508,000)</i>	<i>(\$26,329,132)</i>	<i>(\$36,750,590)</i>	<i>(\$106,800)</i>	<i>(\$22,080)</i>
Licensee Coordination with Offsite Response Organizations						
Industry	(\$988,000)	\$0	(\$988,000)	(\$988,000)	(\$15,200)	\$0
NRC	(\$29,600)	\$0	(\$29,600)	(\$29,600)	n/a	n/a
Other Government	(\$783,600)	\$0	(\$783,600)	(\$783,600)	n/a	n/a
<i>Subtotal</i>	<i>(\$1,801,200)</i>	<i>\$0</i>	<i>(\$1,801,200)</i>	<i>(\$1,801,200)</i>	<i>(\$15,200)</i>	<i>\$0</i>
On-Shift Multiple Responsibilities						
Industry	(\$2,782,000)	\$0	(\$2,782,000)	(\$2,782,000)	(\$42,800)	\$0
NRC	(\$65,600)	\$0	(\$65,600)	(\$65,600)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$2,847,600)</i>	<i>\$0</i>	<i>(\$2,847,600)</i>	<i>(\$2,847,600)</i>	<i>(\$42,800)</i>	<i>\$0</i>

Section	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Emergency Response Organization Augmentation and Alternative Facilities						
Industry	(\$1,417,000)	(\$65,000)	(\$2,215,049)	(\$2,664,250)	(\$21,800)	(\$1,000)
NRC	(\$28,000)	\$0	(\$28,000)	(\$28,000)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$1,445,000)</i>	<i>(\$65,000)</i>	<i>(\$2,243,049)</i>	<i>(\$2,692,250)</i>	<i>(\$21,800)</i>	<i>(\$1,000)</i>
Reduction in Effectiveness – Power Reactor Licensees						
Industry	(\$1,183,000)	(\$6,500)	(\$1,262,805)	(\$1,307,725)	(\$18,200)	(\$100)
NRC	(\$52,000)	\$0	(\$52,000)	(\$52,000)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$1,235,000)</i>	<i>(\$6,500)</i>	<i>(\$1,314,805)</i>	<i>(\$1,359,725)</i>	<i>(\$18,200)</i>	<i>(\$100)</i>
Reduction in Effectiveness – Non-Power Reactor Licensees						
Industry	(\$448,000)	\$0	(\$448,000)	(\$448,000)	(\$14,000)	\$0
NRC	\$0	\$0	\$0	\$0	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$448,000)</i>	<i>\$0</i>	<i>(\$448,000)</i>	<i>(\$448,000)</i>	<i>(\$14,000)</i>	<i>\$0</i>
Emergency Declaration Timeliness						
Industry	(\$286,000)	\$0	(\$286,000)	(\$286,000)	(\$4,400)	\$0
NRC	(\$15,600)	\$0	(\$15,600)	(\$15,600)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$301,600)</i>	<i>\$0</i>	<i>(\$301,600)</i>	<i>(\$301,600)</i>	<i>(\$4,400)</i>	<i>\$0</i>
Emergency Operations Facility - Performance Based Approach						
Industry	\$0	\$0	\$0	\$0	\$0	\$0
NRC	(\$54,000)	\$0	(\$54,000)	(\$54,000)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$54,000)</i>	<i>\$0</i>	<i>(\$54,000)</i>	<i>(\$54,000)</i>	<i>\$0</i>	<i>\$0</i>
Backup Means for Alert and Notification Systems (ANS)						
Industry	(\$11,518,800)	(\$1,110,000)	(\$25,147,018)	(\$32,817,985)	(\$177,212)	(\$17,077)
NRC	(\$15,600)	\$0	(\$15,600)	(\$15,600)	n/a	n/a
Other Government	(\$615,200)	\$0	(\$615,200)	(\$615,200)	n/a	n/a
<i>Subtotal</i>	<i>(\$12,149,600)</i>	<i>(\$1,110,000)</i>	<i>(\$25,777,818)</i>	<i>(\$33,448,785)</i>	<i>(\$177,212)</i>	<i>(\$17,077)</i>

Section	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
TOTAL						
Industry	(\$29,497,300)	(\$3,232,300)	(\$69,182,426)	(\$91,520,142)	Nuclear Power Plant: (\$446,912) Non-Power Reactor: (\$119,600)	Nuclear Power Plant: (\$49,728) Non-Power Reactor: \$0
NRC	(\$839,600)	(\$192,400)	(\$3,201,824)	(\$4,531,459)	n/a	n/a
Other Government	(\$1,762,800)	(\$36,400)	(\$2,209,707)	(\$2,461,260)	n/a	n/a
Total	(\$32,099,700)	(\$3,221,500)	(\$71,652,227)	(\$93,915,306)	Nuclear Power Plant: (\$446,912) Non-Power Reactor: (\$14,000)	Nuclear Power Plant: (\$47,457) Non-Power Reactor: \$0

*Results in 2009 dollars.

**Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.1 Protection of Onsite Personnel

The new measures for protection of onsite personnel would protect onsite emergency responders and other onsite personnel in emergencies resulting from hostile actions. The NRC conducted analyses following the terrorist attacks of September 11, 2001, and determined that the current guidance for protection of personnel during an emergency would not be protective in hostile action scenarios. A lack of protection for emergency responders who are expected to implement the emergency plan could result in the plan not being implemented as required. These emergency responders are best able to mitigate any damage caused by the hostile action and to provide notifications to offsite response organizations to consider protective actions for the public should such be necessary. A lack of protection for onsite emergency responders could result in the responders not being able to provide an adequate protective response during hostile action scenarios. The proposed rule would require licensees to develop new protective measures, such as evacuating personnel from target buildings, taking cover during an armed attack, accounting for personnel after an attack, and providing emergency response training. The primary benefit of this initiative, therefore, would be potentially saving lives and reducing exposures during an event, including a hostile action event, both in terms of the emergency responders and the local population.

- **Total Cost to Industry.** The proposed regulatory initiative would result in a total one-time cost to all power reactor licensees of approximately \$2.6 million over the next 30 years.

- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$40,000.
- **Costs to NRC.** The regulatory initiative would result in a one-time cost to NRC of approximately \$19,000.
- **Decision Rationale.** Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because, in the event of a hostile action event, the provision potentially will result in significant saving of lives and reduction in exposures for onsite personnel. Appendix A.1 presents more detailed information on the costs for the protection of onsite personnel regulatory initiative.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$2,613,000)	\$0	(\$2,613,000)	(\$2,613,000)	(\$40,200)	\$0
NRC	(\$18,800)	\$0	(\$18,800)	(\$18,800)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$2,631,800)</i>	<i>\$0</i>	<i>(\$2,631,800)</i>	<i>(\$2,631,800)</i>	<i>(\$40,200)</i>	<i>\$0</i>

Appendix A.1 presents additional detail on the cost analysis for the regulatory initiative addressing protection of onsite personnel. Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.2 Emergency Action Levels for Hostile Action Events

This proposed regulatory initiative would codify generically applicable requirements similar to those imposed by the anticipatory EALs of the ICM Order and industry initiatives responding to NRC Bulletin 2005-02. In the aftermath of the terrorist attacks of September 11, 2001, the staff became aware that the currently approved nuclear plant EALs may not appropriately characterize hostile actions. Changes to EALs were warranted due to the potentially rapid and purposefully damaging nature of hostile actions. Without proper declaration of emergencies based on hostile action, OROs may not receive adequate and timely notification and the ERO may not activate in a timely manner to provide an adequate protective response during hostile action scenarios. The proposed regulatory initiative would increase assurance that licensees are adequately prepared to conduct appropriate assessment and emergency classification during a hostile action-related event, thereby resulting in emergency personnel onsite and offsite receiving proper notification to rapidly respond with the appropriate resources. The benefit of these new proposed measures would be to provide licensees and EROs more time to prepare for and respond to emergency events, thereby potentially saving lives, radiation exposure and property.

- **Total Cost to Industry.** The proposed regulatory initiative would result in a total one-time cost to all power reactor licensees of approximately \$488,000.

- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$8,000.
- **Decision Rationale.** Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would allow emergency responders more time to coordinate a response effort in the event of a hostile action-related emergency event. The additional time potentially would enable emergency responders to save more lives.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$487,500)	\$0	(\$487,500)	(\$487,500)	(\$7,500)	\$0
NRC	\$0	\$0	\$0	\$0	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
Subtotal	(\$487,500)	\$0	(\$487,500)	(\$487,500)	(\$7,500)	\$0

Appendix A.2 presents additional detail on the cost analysis for the regulatory initiative addressing EALs for hostile action events. Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.3 Hostile Action Event Drills and Exercises

The hostile action event drills and exercises initiative originated from NRC Bulletin 2005-02, as well as from an SRM issued on June 29, 2006. NRC regulations are designed to ensure that licensee ERO personnel are prepared to respond to any emergency. Drill and exercise programs are intended to ensure that ERO personnel develop and maintain the key skills necessary for mitigating emergencies. In the aftermath of the terrorist attacks of September 11, 2001, the staff became aware that hostile actions pose circumstances that are different from the conditions traditionally practiced in EP drill and exercise programs. The ERO is the primary organization trained to effectively mitigate damage caused by an emergency and to notify OROs of the event and, if necessary, of the need to take protective actions. Including hostile action events in licensee drill and exercise programs will better prepare the ERO to respond to such events. This regulatory change would require enhanced scenario content for drills and exercises to include hostile action scenarios, and reduce preconditioning of licensee staff through a wider spectrum of challenges, thus improving licensee ERO capabilities under all accident scenarios. The benefit would be increased assurance that emergency plans would be implemented during any emergency and as a result, improved protection of public health and safety during an emergency.

- **Total Cost to Industry.** The proposed regulatory initiative would result in a total one-time cost to all power reactor licensees of approximately \$832,000, followed by total annual costs on the order of \$468,000. The total present value of these costs is estimated at approximately \$6.6 million (using a 7-percent discount rate) and \$9.8 million (using a 3-percent discount rate) over the next 30 years.

- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$13,000 followed by annual costs of approximately \$7,000.
- **Costs to NRC.** The regulatory initiative would result in a one-time cost to NRC of approximately \$52,000, followed by annual costs of approximately \$64,000. The total present value of these NRC costs is estimated at \$838,000 (using a 7-percent discount rate) and \$1.3 million (using a 3-percent discount rate).
- **Decision Rationale.** Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would improve the execution of EP plans and better protect public health and safety during an emergency.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$832,000)	(\$468,000)	(\$6,577,951)	(\$9,812,197)	(\$12,800)	(\$7,200)
NRC	(\$52,000)	(\$64,000)	(\$837,771)	(\$1,280,061)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$884,000)</i>	<i>(\$532,000)</i>	<i>(\$7,415,723)</i>	<i>(\$11,092,258)</i>	<i>(\$12,800)</i>	<i>(\$7,200)</i>

Appendix A.3 presents additional detail on the cost analysis for the regulatory initiative addressing hostile action event drills and exercises.

Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.4 Evacuation Time Estimate Updating

The purpose of evacuation time estimates (ETEs) is to analyze expected traffic flow during an evacuation and identify any constraint that could challenge efficient evacuation. The ETE facilitates evacuation planning to provide an adequate protective response in the unlikely event of a severe accident. ETE results provide emergency planners information to support protective action decisions, including whether evacuation or sheltering in place is the better response to a severe accident. Existing EP regulations are ambiguous on updating ETEs. The proposed changes to the regulations and guidance, which originated from NRC staff review, would require the periodic review and updating of the ETEs as well as information on evacuation plan improvements. The staff is in the process of changing its guidance for the recommendation of protective actions to protect the public. The best protective action strategy is conditional on the evacuation time for some accident scenarios. ETEs performed in accordance with standard methods would improve the information used for determining the best protective action strategy for each site. The primary benefit of this change would be to aid in the development of the appropriate protective action strategy for each site. In addition, the identification of potential evacuation challenges and the consideration of methods to improve evacuation plans would lead to enhanced protection of public health and safety.

- **Total Cost to Industry.** The proposed regulatory initiative would result in a total one-time cost to all power reactor licensees of approximately \$6.9 million, followed by total annual costs on the order of \$1.4 million. The total present value of these costs is estimated at approximately \$24.6 million (using a 7-percent discount rate) and \$34.5 million (using a 3-percent discount rate) over the next 30 years.
- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$107,000 followed by annual costs of approximately \$22,000.
- **Costs to NRC.** The regulatory initiative would result in a one-time cost to NRC of approximately \$508,000, followed by annual costs of approximately \$36,000. The total present value of these NRC costs is estimated at \$955,000 (using a 7-percent discount rate) and \$1.2 million (using a 3-percent discount rate).
- **Costs to Other Government Agencies.** The rule would result in a one-time cost to other government agencies of approximately \$364,000, followed by annual costs of approximately \$36,000. The total present value of these other government costs is estimated at \$811,000 (using a 7-percent discount rate) and \$1.1 million (using a 3-percent discount rate).
- **Decision Rationale.** Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would result in updated EP plans, more effective emergency responses, and better protection to the local population in case of an emergency event.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$6,942,000)	(\$1,435,200)	(\$24,562,918)	(\$34,481,270)	(\$106,800)	(\$22,080)
NRC	(\$508,400)	(\$36,400)	(\$955,307)	(\$1,206,860)	n/a	n/a
Other Government	(\$364,000)	(\$36,400)	(\$810,907)	(\$1,062,460)	n/a	n/a
Subtotal	(\$7,814,400)	(\$1,508,000)	(\$26,329,132)	(\$36,750,590)	(\$106,800)	(\$22,080)

Appendix A.4 presents additional detail on the cost analysis for the regulatory initiative addressing ETE updating.

Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.5 Licensee Coordination with Offsite Response Organizations

This regulatory initiative originated in the Order and from the NRC staff's observation of DHS Comprehensive Reviews. Currently, licensees are not explicitly required to coordinate with OROs to ensure that ORO personnel are available to carry out planned actions, such as traffic control and route alerting, during hostile action directed at a nuclear power plant. The DHS Comprehensive Review program identified that at many sites OROs had not planned for the competing resource demands that would occur during hostile action. The proposed rule would require licensees to coordinate with OROs to ensure that offsite personnel are

available to carry out planned functions, such as traffic control, route alerting, etc., as required when an emergency event occurs. The primary benefit would be to increase assurance that adequate resources are available to respond to a hostile action event at a nuclear power plant. This change enhances protection of public health and safety.

- **Total Cost to Industry.** The regulatory initiative would result in a total one-time cost to all power reactor licensees on the order of \$988,000.
- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$15,000.
- **Costs to NRC.** The proposed regulatory initiative would result in a one-time cost to NRC of approximately \$30,000.
- **Costs to Other Government Agencies.** Additionally, the regulatory initiative would result in a one-time cost to other government agencies of approximately \$784,000.
- **Decision Rationale.** Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would increase the effectiveness of important aspects of the EP plan, thereby potentially saving lives in the event of an emergency.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$988,000)	\$0	(\$988,000)	(\$988,000)	(\$15,200)	\$0
NRC	(\$29,600)	\$0	(\$29,600)	(\$29,600)	n/a	n/a
Other Government	(\$783,600)	\$0	(\$783,600)	(\$783,600)	n/a	n/a
<i>Subtotal</i>	<i>(\$1,801,200)</i>	<i>\$0</i>	<i>(\$1,801,200)</i>	<i>(\$1,801,200)</i>	<i>(\$15,200)</i>	<i>\$0</i>

Appendix A.5 presents additional detail on the cost analysis for the regulatory initiative addressing licensee coordination with OROs.

Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.6 On-Shift Multiple Responsibilities

This regulatory initiative would codify generically applicable requirements similar to those imposed by the 2002 ICM Order requirements limiting onshift staff multiple responsibilities for individuals performing emergency plan functions. The proposed regulatory initiative would increase assurance that appropriate shift resources are available for emergency plan implementation so that during an emergency, licensees will be able to carry out their emergency plans in timely fashion as needed to protect public health and safety. The lack of adequate staff on shift has the potential to delay implementation of the emergency plan during plant transients that may lead to an emergency. The primary benefit of this requirement would be to increase assurance of effective and timely emergency plan implementation and timely protective action recommendations to OROs, should that be

necessary. This would enhance protection of public health and safety in the event of an emergency.

- **Total Cost to Industry.** The proposed rule would result in a total one-time cost to all power reactor licensees of approximately \$2.8 million.
- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$43,000.
- **Costs to NRC.** The regulatory initiative would result in a one-time cost to NRC of approximately \$66,000.
- **Decision Rationale.** Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would reduce the possibility that emergency plans would fail as a result of foreseeable conflicts caused by multiple responsibilities. Therefore, the public would be better protected because onsite staff would be able to better fulfill all aspects of the emergency plan, and protective action recommendations to the states would be more timely and accurate.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$2,782,000)	\$0	(\$2,782,000)	(\$2,782,000)	(\$42,800)	\$0
NRC	(\$65,600)	\$0	(\$65,600)	(\$65,600)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
Subtotal	(\$2,847,600)	\$0	(\$2,847,600)	(\$2,847,600)	(\$42,800)	\$0

Appendix A.6 presents additional detail on the cost analysis for the regulatory initiative addressing on-shift multiple responsibilities.

Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.7 Emergency Response Organization Augmentation and Alternative Facilities

This regulatory initiative would codify generically applicable requirements for the use of an alternative emergency response facility similar to those imposed by the Order and addressed in NRC Bulletin 2005-02, which would protect ERO personnel from hostile action and increase assurance of timely ERO augmentation so responders could travel quickly to the site. In the event of a hostile-action event, it is possible that the onsite emergency preparedness facilities may not be accessible by emergency response personnel, which may prevent the ERO from taking the necessary actions to mitigate facility damage or implementing measures to protect public health and safety. Alternative facilities provide a place where the ERO can gather and prepare to enter the site as soon as it is safe to do so. If the ERO cannot gather in a timely manner, the full augmentation of the on shift ERO would be delayed. The alternative facility would be equipped to allow the ERO to begin

preparations for damage mitigation efforts when they can access the site. The primary benefit of this regulatory initiative would be greater assurance that the emergency response effort would be effective in the event that a hostile action compromises primary emergency response facilities.

- **Total Cost to Industry.** The regulatory initiative would result in a total one-time cost to all power reactor licensees on the order of \$1.4 million, followed by total annual costs of approximately \$65,000. The total present value of these costs is estimated at \$2.2 million (using a 7-percent discount rate) and \$2.7 million (using a 3-percent discount rate) over the next 30 years.
- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$22,000 followed by annual costs of approximately \$1,000.
- **Costs to NRC.** The proposed regulatory initiative would result in a one-time cost to NRC of approximately \$28,000.
- **Decision Rationale.** Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would increase assurance that EP plans would be executed effectively in the event of hostile actions, thereby better protecting public health and safety.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$1,417,000)	(\$65,000)	(\$2,215,049)	(\$2,664,250)	(\$21,800)	(\$1,000)
NRC	(\$28,000)	\$0	(\$28,000)	(\$28,000)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
Subtotal	(\$1,445,000)	(\$65,000)	(\$2,243,049)	(\$2,692,250)	(\$21,800)	(\$1,000)

Appendix A.7 presents additional detail on the cost analysis for the regulatory initiative addressing ERO augmentation and alternative facilities.

Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.8 Reduction in Effectiveness

Current regulations require licensees to “maintain in effect” their emergency plans. The objective of this proposed regulatory initiative, which originated in NRC staff review and would apply both to power reactors and non-power reactors, is not an improvement in current safety, but rather ensuring that the current level of safety is not reduced by changes to the emergency plan. The proposed rule would substantially clarify what changes would reduce the effectiveness of the licensee’s plans, minimizing licensees’ uncertainty regarding what changes would require prior NRC staff review and what changes would not. This outcome, if achieved, would result in the following benefits:

- Facilitate the decision process for changes, resulting in less review and evaluation time.
 - Minimize licensee's exposure to potential violations for making changes without needed prior NRC staff review.
 - Minimize the increasing trend by some licensees of avoiding enforcement action by submitting all EP plan changes for NRC review, resulting in fewer costs of submittal and NRC staff charges.
- **Total Cost to Industry.** The proposed regulatory initiative would result in a total one-time cost to all power reactor licensees of approximately \$1.2 million, followed by total annual costs of about \$7,000. In addition, the proposed regulatory initiative would result in a one-time cost to non-power reactors of approximately \$448,000. Non-power reactors would not incur annual costs. The total present value of these costs is estimated at \$1.7 million (using a 7-percent discount rate) and \$1.8 million (using a 3-percent discount rate) over the next 30 years.
 - **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$18,000 followed by annual costs of approximately \$100. The average non-power reactor would incur a one-time cost of approximately \$14,000 and no annual costs.
 - **Costs to NRC.** The regulatory initiative would result in a one-time cost to NRC of approximately \$52,000, and no annual costs. The total present value of these NRC costs is estimated at \$52,000 (using a 7-percent or 3-percent discount rate).
 - **Decision Rationale.** Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would increase assurance that current levels of safety are not reduced and the licensee's emergency plan, as modified, would continue to meet the requirements in Appendix E to Part 50, and for nuclear power reactors, the planning standards of 10 CFR 50.47(b).

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Nuclear Power Reactor Licensees						
Industry	(\$1,183,000)	(\$6,500)	(\$1,262,805)	(\$1,307,725)	(\$18,200)	(\$100)
NRC	(\$52,000)	\$0	(\$52,000)	(\$52,000)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
Non-Power Reactors						
Industry	(\$448,000)	\$0	(\$448,000)	(\$448,000)	(\$14,000)	\$0
NRC	\$0	\$0	\$0	\$0	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	(\$1,683,000)	(\$6,500)	(\$1,762,805)	(\$1,807,725)	(\$32,200)	(\$100)

Appendix A.8 presents additional detail on the cost analysis for the regulatory initiative addressing reduction in effectiveness. Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.9 Emergency Declaration Timeliness

Current emergency preparedness regulations do not establish timeliness criteria for the emergency declaration process. This regulatory initiative, which originated from NRC staff review, would require licensees to have the capability to classify and declare an emergency within 15 minutes of the availability of information that an EAL has been or may be exceeded. While this action already is largely conducted on a voluntary basis by the industry, the NRC staff believes that codification of the rule would result in increased assurance that the emergency plan will be effectively implemented. Thus, the objective of the proposed regulatory initiative is to ensure that licensee emergency declarations are performed in a timely manner so as to support timely implementation of emergency response actions. The primary benefit would be to enhance the NRC's assurance that protective actions can be implemented on a timely basis, thereby protecting public health and safety.

- **Total Cost to Industry.** The regulatory initiative would result in a total one-time cost to all power reactor licensees of approximately \$286,000.
- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$4,000.
- **Costs to NRC.** The proposed regulatory initiative would result in a one-time cost to NRC of approximately \$16,000.

- Decision Rationale. Although the NRC did not quantify the benefits of this provision, the NRC staff did qualitatively examine benefits and concluded that the provision would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would increase assurance in the ability of licensees to conduct timely emergency declarations in the event of an emergency, which, in turn, would allow emergency personnel to respond as quickly as possible to protect the public.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$286,000)	\$0	(\$286,000)	(\$286,000)	(\$4,400)	\$0
NRC	(\$15,600)	\$0	(\$15,600)	(\$15,600)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$301,600)</i>	<i>\$0</i>	<i>(\$301,600)</i>	<i>(\$301,600)</i>	<i>(\$4,400)</i>	<i>\$0</i>

Appendix A.9 presents additional detail on the cost analysis for the regulatory initiative addressing the timeliness of emergency declarations.

Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.10 Emergency Operations Facility – Performance-Based Approach

This proposed provision revises the EP regulations to make the requirements for emergency operations facilities (EOFs) more performance-based. This regulatory initiative, which originated from NRC staff review, would allow licensees to locate an EOF more than 25 miles from a site and multi-site licensees to consolidate their EOFs if those licensees can demonstrate their emergency response strategies will adequately cope with an emergency at any of the associated plants. The new measures would provide specific functional requirements for EOFs, thereby ensuring that the necessary capabilities are in place for the protection of public health and safety. The primary benefit of this provision is the reduction in costs achieved by licensees that choose to locate their EOFs more than 25 miles from a site or consolidate their EOFs.

- Total Savings to Industry. The analysis assumes there are no incremental costs to licensees for this regulatory initiative because the rule does not require location of an EOF more than 25 miles from a site or consolidation of EOFs. Instead, a licensee would voluntarily choose to pursue consolidation only if the incremental savings exceed the incremental costs. These savings have not been quantified in the analysis.
- Costs to NRC. The regulatory initiative would result in a one-time cost to NRC of approximately \$54,000.
- Decision Rationale. The NRC believes that the provision's savings to licensees would exceed the costs to the NRC and, therefore, that the provision is cost-justified.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	\$0	\$0	\$0	\$0	\$0	\$0
NRC	(\$54,000)	\$0	(\$54,000)	(\$54,000)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$54,000)</i>	<i>\$0</i>	<i>(\$54,000)</i>	<i>(\$54,000)</i>	<i>\$0</i>	<i>\$0</i>

Appendix A.10 presents additional detail on the cost analysis for the regulatory initiative addressing the EOF performance-based approach.

Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.1.11 Backup Means for Alert and Notification Systems (ANS)

This regulatory initiative, which originated from NRC staff review, would require licensees to select and implement a backup method of alerting and notifying the public in the event that the primary ANS is unavailable during an emergency. A backup means of alerting and notifying the public increases the likelihood that an adequate protective response can be implemented when the primary means of alert and notification is unavailable. The primary benefit of this provision would be to provide increased assurance that the public will be alerted and notified of any emergency event at the nuclear power plant, thereby increasing the effectiveness of the emergency plan, saving lives, and increasing public safety and confidence.

- **Total Cost to Industry.** The proposed regulatory initiative would result in a total one-time cost to all power reactor licensees of approximately \$11.5 million, followed by total annual costs on the order of \$1.1 million. The total present value of these costs is estimated at \$25.1 million (using a 7-percent discount rate) and \$32.8 million (using a 3-percent discount rate) over the next 30 years.
- **Average Cost per Site.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$177,000 followed by annual costs of approximately \$17,000.
- **Costs to NRC.** The regulatory initiative would result in a one-time cost to NRC of approximately \$16,000.
- **Costs to Other Government Agencies.** The regulatory initiative would result in a one-time cost to other government agencies of approximately \$615,000.
- **Decision Rationale.** Although the NRC did not quantify the benefits of this regulatory initiative, the NRC staff did qualitatively examine benefits and concluded that the regulatory initiative would provide health and safety-related benefits, as discussed above. The NRC believes that the regulatory initiative is cost-justified because it would increase assurance that the local population would be notified of emergency events, thereby increasing the effectiveness of the emergency plan, saving lives, and increasing public confidence and safety. Appendix A.11 contains a

more detailed analysis of the costs associated with the backup means for ANS provisions of the proposed rule.

Entity	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$11,518,800)	(\$1,110,000)	(\$25,147,018)	(\$32,817,985)	(\$177,212)	(\$17,077)
NRC	(\$15,600)	\$0	(\$15,600)	(\$15,600)	n/a	n/a
Other Government	(\$615,200)	\$0	(\$615,200)	(\$615,200)	n/a	n/a
<i>Subtotal</i>	<i>(\$12,149,600)</i>	<i>(\$1,110,000)</i>	<i>(\$25,777,818)</i>	<i>(\$33,448,785)</i>	<i>(\$177,212)</i>	<i>(\$17,077)</i>

Appendix A.11 presents additional detail on the cost analysis for the regulatory initiative addressing the backup means for ANS. Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site (which is shown above) would be less than the cost per affected site (which is shown in Appendix A).

4.2 Sensitivity Analysis – Pre-Order Baseline

The NRC has performed a sensitivity analysis using an alternative baseline (called the “pre-order baseline”) that considers the incremental costs of the proposed rule relative to only those regulations that were in effect before the NRC issued Order EA-02-26 and Bulletin 2005-02. The purpose of this sensitivity analysis is to account for relevant cost impacts of the orders and post-Bulletin industry initiatives in addition to those that are incremental to the proposed rule. These impacts already have been incurred, but they have not previously been quantified. The key findings of the sensitivity analysis are presented below:

- **Total Cost to Industry.** The proposed rule would result in a total one-time cost to all power reactor sites of approximately \$61.5 million, followed by total annual costs on the order of \$3.1 million. The total present value of these costs is estimated at \$99.3 million (using a 7-percent discount rate) and \$120.6 million (using a 3-percent discount rate) over the next 30 years.
- **Average Cost per Site for Power Reactors.** The average nuclear power plant site, which may include multiple units, would incur a one-time cost of approximately \$939,000 followed by annual costs of approximately \$47,000.
- **Average Cost per Site for Non-Power Reactors.** The average non-power reactor would incur a one-time cost of approximately \$14,000. The proposed rule would not impose any annual costs on non-power reactors.
- **Value of Benefits Not Reflected Above.** With the exception of some monetary savings to industry, the cost figures shown above do not reflect the value of the benefits of the proposed rule. These benefits are evaluated qualitatively in Section 4.1. (See Sections 4.1.1 - 4.1.11 for a detailed discussion on the benefits of each regulatory initiative of the proposed rule.)
- **Costs to NRC.** The rule would result in a one-time cost to NRC of approximately \$2.1 million, followed by annual costs of approximately \$144,000. The total present value of these costs is estimated at \$3.6 million (using a 7-percent discount rate)

and \$4.6 million (using a 3-percent discount rate). (These costs include NRC costs to comply with each regulatory initiative plus the one-time administrative costs of approximately \$237,000 to finalize the rulemaking.)

- **Costs to Other Government Agencies.** The proposed rule would result in a one-time cost to other government agencies of approximately \$6.2 million, followed by annual costs of approximately \$36,000. The total present value of these costs is estimated at \$6.7 million (using a 7-percent discount rate) and \$6.9 million (using a 3-percent discount rate).
- **Decision Rationale.** Although the NRC did not quantify the benefits of this rule, the NRC staff did qualitatively examine benefits and concluded that the rule would provide substantial health and safety-related benefits. The NRC believes that the rule is cost-justified because the proposed regulatory initiatives for increased and consistent emergency preparedness measures would increase the effectiveness of emergency planning and response efforts, thereby saving lives of emergency personnel (in a hostile action-related event) and the public in the event of an emergency (hostile action-related or non-hostile action-related). Exhibit 4-4 below presents a more detailed cost analysis.

Exhibit 4-4
Sensitivity Analysis under the Pre-Order Baseline:
Industry, NRC, and Other Government Savings and Costs, by Regulatory Initiative

Section	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Protection of Onsite Personnel						
Industry	(\$4,771,000)	\$0	(\$4,771,000)	(\$4,771,000)	(\$73,400)	\$0
NRC	(\$38,800)	\$0	(\$38,800)	(\$38,800)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$4,809,800)</i>	<i>\$0</i>	<i>(\$4,809,800)</i>	<i>(\$4,809,800)</i>	<i>(\$73,400)</i>	<i>\$0</i>
Emergency Action Levels for Hostile Action Events						
Industry	(\$6,428,500)	\$0	(\$6,428,500)	(\$6,428,500)	(\$98,900)	\$0
NRC	(\$94,000)	\$0	(\$94,000)	(\$94,000)	n/a	n/a
Other Government	(\$143,000)	\$0	(\$143,000)	(\$143,000)	n/a	n/a
<i>Subtotal</i>	<i>(\$6,665,500)</i>	<i>\$0</i>	<i>(\$6,665,500)</i>	<i>(\$6,665,500)</i>	<i>(\$98,900)</i>	<i>\$0</i>
Hostile Action Event Drills and Exercises						
Industry	(\$9,594,000)	(\$468,000)	(\$15,339,951)	(\$18,574,197)	(\$147,600)	(\$7,200)
NRC	(\$791,000)	(\$107,200)	(\$2,107,167)	(\$2,848,002)	n/a	n/a
Other Government	(\$588,000)	\$0	(\$588,000)	(\$588,000)	n/a	n/a
<i>Subtotal</i>	<i>(\$10,973,000)</i>	<i>(\$575,200)</i>	<i>(\$18,035,118)</i>	<i>(\$22,010,199)</i>	<i>(\$147,600)</i>	<i>(\$7,200)</i>
Evacuation Time Estimate Updating						
Industry	(\$6,942,000)	(\$1,435,200)	(\$24,562,918)	(\$34,481,270)	(\$106,800)	(\$22,080)
NRC	(\$508,400)	(\$36,400)	(\$955,307)	(\$1,206,860)	n/a	n/a
Other Government	(\$364,000)	(\$36,400)	(\$810,907)	(\$1,062,460)	n/a	n/a
<i>Subtotal</i>	<i>(\$7,814,400)</i>	<i>(\$1,508,000)</i>	<i>(\$26,329,132)</i>	<i>(\$36,750,590)</i>	<i>(\$106,800)</i>	<i>(\$22,080)</i>
Licensee Coordination with Offsite Response Organizations						
Industry	(\$5,850,000)	\$0	(\$5,850,000)	(\$5,850,000)	(\$90,000)	\$0
NRC	(\$67,400)	\$0	(\$67,400)	(\$67,400)	n/a	n/a
Other Government	(\$4,527,600)	\$0	(\$4,527,600)	(\$4,527,600)	n/a	n/a
<i>Subtotal</i>	<i>(\$10,445,000)</i>	<i>\$0</i>	<i>(\$10,445,000)</i>	<i>(\$10,445,000)</i>	<i>(\$90,000)</i>	<i>\$0</i>
On-Shift Multiple Responsibilities						
Industry	(\$10,309,000)	\$0	(\$10,309,000)	(\$10,309,000)	(\$158,600)	\$0
NRC	(\$103,400)	\$0	(\$103,400)	(\$103,400)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$10,412,400)</i>	<i>\$0</i>	<i>(\$10,412,400)</i>	<i>(\$10,412,400)</i>	<i>(\$158,600)</i>	<i>\$0</i>

Section	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Emergency Response Organization Augmentation and Alternative Facilities						
Industry	(\$2,925,000)	(\$65,000)	(\$3,723,049)	(\$4,172,250)	(\$45,000)	(\$1,000)
NRC	(\$75,800)	\$0	(\$75,800)	(\$75,800)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$3,000,800)</i>	<i>(\$65,000)</i>	<i>(\$3,798,849)</i>	<i>(\$4,248,050)</i>	<i>(\$45,000)</i>	<i>(\$1,000)</i>
Reduction in Effectiveness – Nuclear Power Reactor Licensees						
Industry	(\$1,183,000)	(\$6,500)	(\$1,262,805)	(\$1,307,725)	(\$18,200)	(\$100)
NRC	(\$52,000)	\$0	(\$52,000)	(\$52,000)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$1,235,000)</i>	<i>(\$6,500)</i>	<i>(\$1,314,805)</i>	<i>(\$1,359,725)</i>	<i>(\$18,200)</i>	<i>(\$100)</i>
Reduction in Effectiveness – Non-Power Reactor Licensees						
Industry	(\$448,000)	\$0	(\$448,000)	(\$448,000)	(\$14,000)	\$0
NRC	\$0	\$0	\$0	\$0	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$448,000)</i>	<i>\$0</i>	<i>(\$448,000)</i>	<i>(\$448,000)</i>	<i>(\$14,000)</i>	<i>\$0</i>
Emergency Declaration Timeliness						
Industry	(\$1,488,500)	\$0	(\$1,488,500)	(\$1,488,500)	(\$22,900)	\$0
NRC	(\$15,600)	\$0	(\$15,600)	(\$15,600)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$1,504,100)</i>	<i>\$0</i>	<i>(\$1,504,100)</i>	<i>(\$1,504,100)</i>	<i>(\$22,900)</i>	<i>\$0</i>
Emergency Operations Facility – Performance-Based Approach						
Industry	\$0	\$0	\$0	\$0	\$0	\$0
NRC	(\$54,000)	\$0	(\$54,000)	(\$54,000)	n/a	n/a
Other Government	\$0	\$0	\$0	\$0	n/a	n/a
<i>Subtotal</i>	<i>(\$54,000)</i>	<i>\$0</i>	<i>(\$54,000)</i>	<i>(\$54,000)</i>	<i>\$0</i>	<i>\$0</i>
Backup Means for Alert and Notification Systems (ANS)						
Industry	(\$11,518,800)	(\$1,110,000)	(\$25,147,018)	(\$32,817,985)	(\$177,212)	(\$17,077)
NRC	(\$15,600)	\$0	(\$15,600)	(\$15,600)	n/a	n/a
Other Government	(\$615,200)	\$0	(\$615,200)	(\$615,200)	n/a	n/a
<i>Subtotal</i>	<i>(\$12,149,600)</i>	<i>(\$1,110,000)</i>	<i>(\$25,777,818)</i>	<i>(\$33,448,785)</i>	<i>(\$177,212)</i>	<i>(\$17,077)</i>

Section	Total Savings and Costs				Average per Site	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
TOTAL						
Industry	(\$61,457,800)	(\$3,084,700)	(\$99,330,741)	(\$120,648,426)	Nuclear Power Plant: (\$938,612) Non-Power Reactor: (\$14,000)	Nuclear Power Plant: (\$47,457) Non-Power Reactor: \$0
NRC	(\$1,816,000)	(\$143,600)	(\$3,579,074)	(\$4,571,462)	n/a	n/a
Other Government	(\$6,237,800)	(\$36,400)	(\$6,684,707)	(\$6,936,260)	n/a	n/a
Total	(\$69,511,600)	(\$3,264,700)	(\$109,594,523)	(\$132,156,148)	Nuclear Power Plant: (\$938,612) Non-Power Reactor: (\$14,000)	Nuclear Power Plant: (\$47,457) Non-Power Reactor: \$0

Results in 2009 dollars.

4.3 Backfit Analysis

This section presents the NRC's evaluation of changes in the proposed rule in accordance with the Backfit Rule, 10 CFR 50.109. The backfit analysis examines the impacts of the rule relative to the baseline used in the regulatory analysis, which consists of existing requirements, the recently issued orders, and voluntary actions on part of the industry subsequent to NRC Bulletin 2005-02.

The backfit analysis examines the aggregation of the subset of proposed regulatory requirements that constitute backfits as defined in 10 CFR 50.109(a)(1). The analysis excludes individual requirements that are not subject to the Backfit Rule or that do not fall within the definition of "backfitting" as defined in the Backfit Rule, which include requirements that fall into one or more of the following categories.

- Administrative matters. Revisions that make minor administrative changes, such as correction of typographic errors, correction of inconsistencies, relocating requirements from one section to another, and combining existing requirements into a single section.

- Information collection and reporting requirements. Revisions that either amend existing information collection and reporting requirements or impose new information and collection and reporting requirements, as set forth in the Committee to Review Generic Requirements (CRGR) charter.
- Clarifications. Revisions that clarify current requirements to assure consistent understanding and implementation of the NRC's original intent for these requirements. These revisions remove the ambiguities that produced regulatory uncertainty without changing the underlying requirements stated in these sections.
- Permissive relaxations/Voluntary alternatives. Revisions that permit, but do not require, relaxations or alternatives to current requirements (i.e., licensees are free to either comply with current requirements or adopt the relaxed requirements/voluntary alternative as a binding requirement).

With the exception of two proposed initiatives, one in Part 50, Appendix E, Section IV.E.8. allowing a performance-based approach for the emergency operations facility (which results in no cost to industry) and one in § 50.54(q) clarifying that licensees must submit for prior NRC approval under 10 CFR 50.90 any proposed change to their emergency plans that would reduce the effectiveness of the emergency plans, the entire proposed rule qualifies as a backfit.

The NRC believes the proposed Reduction in Effectiveness amendment is not a change to existing requirements. Some confusion exists as to whether all proposed emergency plan changes submitted under § 50.4 would result in a reduction in effectiveness and whether Commission review of such submissions is necessary. The NRC proposes to clarify that the license amendment process is the correct process to use when reviewing submittals involving a proposed emergency plan change that the licensee has determined constitutes a reduction in effectiveness of the plan. The proposed rule language addresses this clarification. As part of this clarification, power reactor and non-power reactor licensees would need to review and possibly revise procedures and training to clarify the process for emergency plan changes (i.e., through 10 CFR 50.90 submittals).

The proposed Reduction in Effectiveness rule language would not be a backfit. The Backfit Rule protects licensees from Commission actions that arbitrarily change license terms and conditions. A licensee's request under 10 CFR 50.54(q) asks for Commission authority to do what is not currently permitted under its license. The licensee has no valid expectations protected by the Backfit Rule regarding the means for obtaining the new authority that is not permitted under the current license.

In addition, to the extent that using a license amendment process for making modifications to emergency plans that reduce the effectiveness of the plans is considered a change, it would be a change to the NRC's regulatory process for addressing modifications to the emergency plan. The NRC's regulatory review process is not a licensee procedure required for operating a plant that would be subject to backfit limitations. For these reasons, this clarification in 10 CFR 50.54(q) would not constitute a backfit under 10 CFR 50.109.

The NRC evaluated the aggregated set of requirements constituting backfits in accordance with 10 CFR 50.109 to determine if the costs of implementing the rule would be justified by a substantial increase in public health and safety or common defense and security. In

performing this analysis, the NRC considered the quantitative and qualitative costs and benefits of the rule, as discussed below.

Collectively, the individual requirements in the proposed rule that qualify as backfits result in an estimated net cost of approximately \$65.7 million to industry over the next 30 years (present value), assuming a 7-percent discount rate, or approximately \$86.9 million assuming a 3-percent discount rate.

For the average nuclear power plant site, these backfits would mean an initial one-time cost of approximately \$429,000, followed by annual costs of about \$47,000 per year. For industry as a whole, NRC estimates that the backfits would result in approximately \$27.9 million in one-time costs, and about \$3.1 million in annual costs.

With regard to emergency preparedness benefits afforded by the proposed rule's provisions, as documented in Section 4.1 of the regulatory analysis, the NRC considered them in qualitative terms. NRC also qualitatively determined whether the costs of the rule would be justified in light of the emergency preparedness benefits. In contrast, the NRC evaluated costs in quantitative terms, as documented in Appendix A to the regulatory analysis.

In performing this analysis, the NRC considered the nine factors in 10 CFR 50.109, as follows:

(1) *Statement of the specific objectives that the proposed backfit is designed to achieve;*

The rulemaking aims to enhance the current emergency preparedness regulations pertaining to nuclear power reactors and non-power reactors. The goals of the proposed rule would be as follows:

- To enhance nuclear plant emergency preparedness by codifying the requirements imposed by Commission orders issued after the terrorist attacks of September 11, 2001, as modified based upon experience and insights gained since implementation. These actions would enhance the ability of nuclear plant EROs to respond to hostile action and implement emergency plans and implement an adequate protective response.
- To enhance nuclear plant emergency preparedness by codifying the enhancements implemented by industry on a voluntary basis subsequent to the issuance of NRC Bulletin 2005-02. These actions would enhance the ability of nuclear plant EROs to respond to hostile action and implement an adequate protective response.
- To enhance nuclear plant emergency preparedness by codifying improvements to requirements in the areas of:
 - timeliness of declaration and the content of emergency action level schemes;
 - survivability, facilities and resources for emergency response organizations;

- alerting and notification of the public, evacuation planning and adequate resources to implement evacuations; and,
- training through drills and exercises that reflect the current threat environment.

(2) *General description of the activity that would be required by the licensee or applicant in order to complete the backfit;*

In general terms, the proposed rule would ensure that all licensees consistently implement new and existing emergency preparedness measures. Detailed analysis of the activities and procedural changes required by the proposed rule are set forth in Appendix A to the regulatory analysis. A general description of each backfit is provided below:

- Protection of Onsite Personnel

The proposed rule would require licensees to review and revise plans, procedures, training, and guidance to address protective measures for onsite personnel (e.g., evacuation of personnel from target buildings, accounting for personnel after attack) in order to ensure that plant announcements are timely and convey the onsite protective measures deemed appropriate. This provision would affect power reactor licensees.

- Emergency Action Levels for Hostile Action Events

The new measures would require licensees to review their existing anticipatory EALs and update their plans, procedures, and training as needed to confirm that they comply with the rule requirements. This provision would affect power reactor licensees.

- Hostile Action Event Drills and Exercises

The proposed rule language would require licensees to change how they develop drill and exercise scenarios and make related changes to the emergency plan. Specifically, the drill and exercise scenarios must be designed to avoid biennial exercise scenarios that become predictable or precondition emergency response organizations to expect a sequential escalation of emergency classifications culminating in a large radiological release. Licensees would need to submit these scenarios for NRC approval. This provision would affect power reactor licensees.

- Evacuation Time Estimate Updating and Exercises

The proposed rule would clarify the need for licensees to review and update ETEs following the initial licensing of a nuclear power plant and to submit them to NRC for review. Specifically, the proposed rule would establish a requirement for licensees to update ETEs on a stated frequency (i.e., every 10 years) and when annual reviews show that the population increases or decreases by 10 percent from the population that formed the basis for the currently approved ETE. This provision would affect power reactor licensees.

- Licensee Coordination with Offsite Response Organizations (OROs)

The proposed rule would require licensees to coordinate with OROs to increase assurance that adequate resources will be available and pre-planned actions will be carried out when needed. Licensees would need to review and revise plans, procedures, and training regarding notification, activation, and coordination between site personnel and OROs. This provision would affect power reactor licensees.

- On-Shift Multiple Responsibilities

This change would require licensees to review and revise plans, procedures, and training regarding assignment of multiple responsibilities, and to re-assign responsibilities if necessary. This provision would affect power reactor licensees.

- Emergency Response Organization Augmentation and Alternative Facilities

This change would require licensees to review and revise their plans, procedures, and training regarding ERO augmentation during a hostile action event. In addition, some sites may need to lease and/or equip a new facility to serve as an alternative facility. This provision would affect power reactor licensees.

- Emergency Declaration Timeliness

Licensees are already complying with the proposed rule language via a voluntary initiative that accomplishes the intent of the proposed rule. Licensees, however, would need to review and confirm or (if necessary) revise existing site procedures and training to reflect the revised rule. This provision would affect power reactor licensees.

- Backup Means for Alert and Notification Systems

The proposed rule would require licensees to select and implement a backup method of alerting and notification to be used in the event that the primary ANS is unavailable. This provision would affect power reactor licensees.

(3) *Potential change in the risk to the public from the accidental off-site release of radioactive material;*

The rulemaking would not directly affect the likelihood of core damage or spent fuel damage. The rulemaking will provide added assurance that the risk resulting from offsite releases remains acceptably low. Although EP cannot affect the probability of the initiating event, a high level of EP increases the likelihood of accident mitigation if the initiating event proceeds beyond the need for initial operator actions. An augmented EP program enhances the protection of public health and safety by improving the

response to initiating events that could lead to an accidental off-site release of radioactive material in the absence of mitigative response.

(4) *Potential impact on radiological exposure of facility employees;*

The rulemaking would not directly affect the likelihood of core damage or spent fuel damage. The rulemaking would provide added assurance that nuclear industry workers are not subjected to unnecessary radiological exposures as the result of emergency situations, including hostile action events.

(5) *Installation and continuing costs associated with the backfit, including the cost of facility downtime or the cost of construction delay;*

The backfit analysis for the proposed rule sets forth the NRC's estimate of the initial costs for implementing the major elements of the proposed rule, and the ongoing costs to the licensees. The estimated one-time industry net cost associated with the backfits would be approximately \$27.9 million (or approximately \$429,000 for the average nuclear power plant site), and the annually recurring cost would be approximately \$3.1 million (or approximately \$47,000 for the average nuclear power plant program). Combining these initial and annual costs, this analysis estimates that the backfits associated with the proposed rule would cost industry approximately \$65.7 million (present value, assuming a 7-percent discount rate) to \$86.9 million (present value, assuming a 3-percent discount rate).

(6) *The potential safety impact of changes in plant or operational complexity, including the relationship to proposed and existing regulatory requirements;*

The proposed rule would make changes with respect to the design of a nuclear power plant. Specifically, the changes involve the following:

- Licensees must provide alternative facilities for use during hostile action events when onsite facilities (technical support center and/or EOF) are not available (e.g., due to emergency conditions).
- Licensees must select and implement a backup method of alerting and notification to be used in the event that the primary ANS is unavailable.

These design changes do not affect all nuclear power plants because some currently meet these requirements. This rule is not expected to have a significant effect on operational complexity beyond those reflected in the estimated costs to licensees.

(7) *The estimated resource burden on the NRC associated with the proposed backfit and the availability of such resources;*

The majority of the one-time costs incurred by NRC come from reviewing and revising guidance documents to comply with the proposed rule. NRC faces additional costs to participate in EP exercise drills, review the emergency plans, coordinate with FEMA, develop procedures for ETE reviews, and

review initial updates of ETEs. These activities would result in one-time costs of approximately \$734,000.

The NRC faces costs of annual operations to review biennial EP exercise submittals and review ongoing updates of ETEs. These activities would result in annual costs of approximately \$100,000.

- (8) *The potential impact of differences in facility type, design or age on the relevancy and practicality of the proposed backfit;*

For the nuclear power reactor licensees, the emergency preparedness requirements in the proposed rule would not directly relate to the facility type, design or age. Although the benefits and costs attributable to the proposed rule would vary for a variety of site-specific reasons (e.g., local population, transportation, and geography), the NRC does not believe they will vary significantly based upon the nuclear power reactor's facility type, design, or age.

- (9) *Whether the proposed backfit is interim or final and, if interim, the justification for imposing the proposed backfit on an interim basis.*

The proposed backfit, when implemented later at the final rule stage, would be final.

In light of the substantial benefits of the proposed rule as summarized in Sections 4.1.1-4.1.11, the NRC finds that the backfits contained in the proposed rule, when considered in the aggregate, would constitute a substantial increase in emergency preparedness.

4.4 Safety Goal Evaluation

Safety goal evaluations are applicable only to regulatory initiatives considered to be generic safety enhancement backfits subject to the substantial additional protection standard at 10 CFR 50.109(a)(3).⁵ A safety goal evaluation is designed to determine whether a regulatory requirement should not be imposed generically on nuclear power plants because the residual risk is already acceptably low. The current rulemaking would apply generically to all reactors, and would provide added assurance that the public is protected from the consequences of nuclear reactor operations. Some aspects of the rule may indirectly qualify as generic safety enhancements because it is possible that they could indirectly affect the likelihood of core damage or spent fuel damage, which generally are the focus of a quantitative safety goal evaluation. However, the rulemaking would not directly affect the likelihood of core damage or spent fuel damage because EP plans are not activated until after a potential emergency situation has been identified. Therefore, a safety goal evaluation is not appropriate for the proposed rule.

⁵ A safety goal evaluation is not needed, therefore, for new requirements falling within the backfit exceptions at 10 CFR 50.109(a)(4)(i)-(iii).

4.5 CRGR Results

This section addresses regulatory analysis information requirements for rulemaking actions or staff positions subject to review by the CRGR. All information called for by the CRGR is presented in this regulatory analysis, or in the Federal Register Notice for the proposed rule. As a reference aid, Exhibit 4-5 provides a cross-reference between the relevant information and its location in this document or the Federal Register Notice.

Exhibit 4-5 Specific CRGR Regulatory Analysis Information Requirements

CRGR Charter Citation	Information Item to be Included in a Regulatory Analysis Prepared for CRGR Review	Where Item is Discussed
IV.B(1)	Proposed generic requirement or staff position as it is proposed to be sent out to licensees. When the objective or intended result of a proposed generic requirement or staff position can be achieved by setting a readily quantifiable standard that has an unambiguous relationship to a readily measurable quantity and is enforceable, the proposed requirements should specify the objective or result to be attained rather than prescribing how the objective or result is to be attained.	Proposed rule text in Federal Register Notice.
IV.B(iii)	The sponsoring office's position on whether the proposed action would increase requirements or staff positions, implement existing requirements or staff positions, or relax or reduce existing requirements or staff positions.	Regulatory Analysis, Section 4.1.
IV.B(iv)	The proposed method of implementation.	Regulatory Analysis, Section 6.
IV.B(vi)	Identification of the category of power reactors or nuclear materials facilities/activities to which the generic requirement or staff position will apply.	Regulatory Analysis, Section 3.2.2.
IV.B(vii) IV.B(viii)	If the proposed action involves a power reactor backfit and the exceptions at 10 CFR 50.109(a)(4) are not applicable, the items required at 10 CFR 50.109(c) and the required rationale at 10 CFR 50.109(a)(3) are to be included.	Regulatory Analysis, Section 4.3.
IV.B(x)	For proposed relaxations or decreases in current requirements or staff positions, a rationale is to be included for the determination that (a) the public health and safety and the common defense and security would be adequately protected if the proposed reduction in requirements or positions were implemented, and (b) the cost savings attributed to the action would be substantial enough to justify taking the action.	Federal Register Notice for the proposed rule.
IV.B(xii)	Preparation of an assessment of how the proposed action relates to the Commission's Safety Goal Policy Statement.	Regulatory Analysis, Section 4.4.

5. Decision Rationale

5.1 Regulatory Analysis

Relative to the “no-action” alternative, the proposed rule as a whole would result in a net cost estimated as approximately \$71.9 million (total present value over a 30-year period), assuming a 7-percent discount rate, or approximately \$94.2 million assuming a 3-percent discount rate. All of this cost would accrue to industry, except for approximately \$2.3 million (7 percent) or \$3.0 million (3 percent) and approximately \$2.2 million (7 percent) or \$2.5 million (3 percent) that would that would accrue to the NRC and other government agencies, respectively. The rule would result in one-time industry costs of approximately \$29.5 million. This is equivalent to approximately \$447,000 for the average power reactor site, and \$14,000 for the average non-power reactor. The proposed rule language would generate annual industry costs of about \$3.1 million (\$47,000 per site). Offsetting this net cost, the NRC believes that the rule would result in substantial non-quantified benefits related to emergency preparedness, as well as enhanced regulatory efficiency and effectiveness. The analysis discusses these benefits in Section 4.1 of this document. Based on the NRC's assessment of the costs and benefits of the proposed rule on licensee facilities, the agency has concluded that the proposed rule provisions would be justified.

5.2 Backfit Analysis

The NRC conducted a backfit analysis of the proposed rule relative to the backfit requirements in 10 CFR 50.109. The proposed rule would constitute a backfit because it would impose new requirements on licensees. These new measures include developing measures and revising procedures and training related to protection of onsite personnel; reviewing and revising plans, procedures, and training regarding EALs; revising drill and exercise scenarios; reviewing and updating ETEs; requiring coordination with OROs; reviewing plans, procedures, and training regarding the assignment of multiple responsibilities; reviewing and revising plans, procedures, and training regarding ERO augmentation; reviewing and revising existing site procedures and training to include new timeliness requirements for emergency declarations; and selecting and implementing a backup method of alerting and notification to be used in the event that the primary ANS is unavailable. This falls under the definition of a backfit because such efforts would be new and would be the result of a change in NRC's position.

In light of the substantial benefits of the proposed rule as summarized in Sections 4.1.1-4.1.11, the NRC finds that the backfits contained in the proposed rule, when considered in the aggregate, would constitute a substantial increase in emergency preparedness and would be justified in view of this increased protection of the public health and safety. Although EP cannot affect the probability of the initiating event, a high level of EP increases the likelihood of accident mitigation if the initiating event proceeds beyond the need for initial operator actions. An EP program, augmented in compliance with the proposed EP rule, substantially enhances public health and safety by improving the licensee and ORO response to events that could pose a threat to public health and safety.

6. Implementation

This section identifies how and when the proposed action would be implemented, the required NRC actions to ensure implementation, and the impact on NRC resources.

6.1 Schedule

The NRC proposes to make the final rule effective 30 days after its publication in the Federal Register. Licensees would be permitted to defer implementation of the final rule until 180 days after publication of the final rule in the Federal Register, except for the following proposed rule changes: (1) the requirements under proposed 10 CFR 50.54(q), which would become effective 30 days after publication of the final rule in the Federal Register; (2) the requirements under proposed Part 50, Appendix E, Section IV.F.2., which each applicable licensee would be required to implement no later than its first biennial exercise conducted more than one year after the effective date of the final rule; and (3) the requirements under proposed Part 50, Appendix E, Section IV.D.3., which each applicable licensee would be required to implement no later than its first biennial exercise conducted more than one year after the effective date of the final rule.

6.2 Impacts on Other Requirements

As discussed in Section 4.1, affected licensees would experience most of the impact of the revisions to the requirements. Nevertheless, the NRC expects the rulemaking would have a noticeable impact on agency resources, both initially and annually thereafter. The most significant impacts result from NRC's need to complete the rulemaking, and to review and revise guidance documents relating to the following issues:

- Protection of Onsite Personnel
- Emergency Action Levels for Hostile Action Events
- Hostile Action Event Drills
- Evacuation Time Estimate Updating and Exercises
- Licensee Coordination with Offsite Response Organizations
- On-Shift Multiple Responsibilities
- Emergency Response Organization Augmentation and Alternative Facilities
- Reduction in Effectiveness
- Emergency Declaration Timeliness
- Emergency Operations Facilities – Performance-Based Approach
- Backup Means for Alert and Notification Systems

The NRC estimates that the remaining cost to finalize the rulemaking is approximately \$237,000. In addition to reviewing and revising guidance documents, the NRC faces additional impacts to review the emergency plans and develop Temporary Instructions, and interact with FEMA. Furthermore, the NRC must develop procedures for ETE reviews, and review initial updates of ETEs. As shown in Exhibit 4.3, the one-time cost to NRC to comply with the requirements set forth in the 11 initiatives is approximately \$840,000. Also, the NRC faces an impact from issuing a new regulatory guide clarifying the requirement that a licensee must “maintain in effect” their emergency plan. All of the activities discussed above would result in one-time costs of approximately \$1.1 million.

Additionally, the NRC expects that the rulemaking would result in increased annual expenditures of agency resources. The NRC faces annual costs to review biennial EP exercise submittals and review ongoing updates of ETEs. These activities would result in annual costs of approximately \$100,000.

Appendix A:

Regulatory Analysis Assumptions and Inputs, by Regulatory Initiative

A.1: Protection of Onsite Personnel

NRC regulations do not currently require emergency plan provisions to protect onsite emergency responders and other onsite personnel in emergencies resulting from hostile actions. The proposed rule would codify generically applicable requirements similar to the changes recommended in Bulletin 2005-02 requiring licensees to develop new protective measures (e.g., evacuation of personnel from target buildings, accounting for personnel after attack) and revise their procedures and training to ensure plant announcements are timely and convey the onsite protective measures deemed appropriate.

Assumptions:

- (1) Revised training materials (including content addressing onsite protective measures) would replace existing training materials.
- (2) Revised procedures (including new onsite protective measures) would be integrated into the current drill and exercise program at an insignificant cost to licensees.

Requirement	Cost Inputs			Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected		Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Develop new protective measures	Executive	\$200.00/hr	65	0 hrs/site	\$ -	8 hrs/site	\$ (1,600)
	Manager	\$150.00/hr	65	0 hrs/site	\$ -	20 hrs/site	\$ (3,000)
	EP staff	\$100.00/hr	65	0 hrs/site	\$ -	80 hrs/site	\$ (8,000)
	Clerical	\$50.00/hr	65	0 hrs/site	\$ -	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	8 hrs/site	\$ (800)
Review and revise emergency plan	Executive	\$200.00/hr	65	0 hrs/site	\$ -	8 hrs/site	\$ (1,600)
	Manager	\$150.00/hr	65	0 hrs/site	\$ -	20 hrs/site	\$ (3,000)
	EP staff	\$100.00/hr	65	0 hrs/site	\$ -	80 hrs/site	\$ (8,000)
	Clerical	\$50.00/hr	65	0 hrs/site	\$ -	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	8 hrs/site	\$ (800)
Review and revise existing procedures	Executive	\$200.00/hr	65	4 hrs/site	\$ (800)	4 hrs/site	\$ (800)
	Manager	\$150.00/hr	65	20 hrs/site	\$ (3,000)	20 hrs/site	\$ (3,000)
	EP staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	20 hrs/site	\$ (1,000)	20 hrs/site	\$ (1,000)
	Licensing	\$100.00/hr	65	8 hrs/site	\$ (800)	8 hrs/site	\$ (800)
Review and revise training	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	8 hrs/site	\$ (1,200)	4 hrs/site	\$ (600)
	EP staff	\$100.00/hr	65	20 hrs/site	\$ (2,000)	20 hrs/site	\$ (2,000)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Coordinate and develop industry guidance (NEI White Paper)	Executive	\$200.00/hr	65	8 hrs/site	\$ (1,600)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	24 hrs/site	\$ (3,600)	0 hrs/site	\$ -
	EP staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	0 hrs/site	\$ -
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	16 hrs/site	\$ (1,600)	0 hrs/site	\$ -
Total Industry Implementation Cost				320 hrs/site	\$ (33,200)	372 hrs/site	\$ (40,200)
INDUSTRY OPERATIONS (ANNUAL)							
None.							
NRC IMPLEMENTATION (ONE-TIME)							
Review and revise guidance (industry guidance, NRC inspection guidance, bulletin preparation)	Executive	\$100.00/hr		0 hrs	\$ -	8 hrs	\$ (800)
	Manager	\$100.00/hr		0 hrs	\$ -	20 hrs	\$ (2,000)
	Staff	\$100.00/hr		200 hrs	\$ (20,000)	100 hrs	\$ (10,000)
	Clerical	\$100.00/hr		0 hrs	\$ -	40 hrs	\$ (4,000)
	Attorney	\$100.00/hr		0 hrs	\$ -	20 hrs	\$ (2,000)
Total NRC Implementation Cost				200 hrs	\$ (20,000)	188 hrs	\$ (18,800)
NRC OPERATIONS (ANNUAL)							
None.							
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)							
None.							
OTHER GOVERNMENT OPERATIONS (ANNUAL)							
None.							
TOTAL				520 hrs		560 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.

A.2: Emergency Action Levels for Hostile Action Events

NRC regulations currently require an emergency classification and action level scheme for hostile action events. Historically, event declarations have been based on actual threat information. The proposed rule would codify generically applicable requirements similar to the anticipatory EALs contained in the Interim Compensatory Measures Order (EA-02-26) and the recommended changes in NRC Bulletin 2005-02 in Part 50, Appendix E to require event declarations based on a credible future threats.

Assumptions:

(1) Current industry practice is sufficient to comply with the rule. Nonetheless, licensees would review their existing anticipatory EALs and training to confirm that they comply with the rule requirements.

Requirement	Cost Inputs			Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site	
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Review existing EALs	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	0 hrs/site	\$ -	4 hrs/site	\$ (600)
	EP Staff	\$100.00/hr	65	0 hrs/site	\$ -	24 hrs/site	\$ (2,400)
	Clerical	\$50.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	8 hrs/site	\$ (800)
Review and revise EAL training	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	8 hrs/site	\$ (1,200)	2 hrs/site	\$ (300)
	EP staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	8 hrs/site	\$ (800)
	Clerical	\$50.00/hr	65	8 hrs/site	\$ (400)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Review and revise emergency plan	Executive	\$200.00/hr	65	2 hrs/site	\$ (400)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	24 hrs/site	\$ (3,600)	2 hrs/site	\$ (300)
	EP staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	8 hrs/site	\$ (800)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	16 hrs/site	\$ (1,600)	4 hrs/site	\$ (400)
Review and revise procedures	Executive	\$200.00/hr	65	4 hrs/site	\$ (800)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	40 hrs/site	\$ (6,000)	2 hrs/site	\$ (300)
	EP staff	\$100.00/hr	65	200 hrs/site	\$ (20,000)	8 hrs/site	\$ (800)
	Clerical	\$50.00/hr	65	40 hrs/site	\$ (2,000)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	16 hrs/site	\$ (1,600)	0 hrs/site	\$ -
Conduct initial EAL training (30 managers at 4 hour training; 12 security managers at 4 hour training; 50 ERO staff members at 2 hour training; one trainer per 30 trainees)	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	176 hrs/site	\$ (26,400)	0 hrs/site	\$ -
	EP staff	\$100.00/hr	65	104 hrs/site	\$ (10,400)	0 hrs/site	\$ -
	Clerical	\$50.00/hr	65	4 hrs/site	\$ (200)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Total Industry Implementation Cost				818 hrs/site	\$ (91,400)	70 hrs/site	\$ (7,500)
INDUSTRY OPERATIONS (ANNUAL)							
None.							
NRC IMPLEMENTATION (ONE-TIME)							
Review and revise guidance (six month effort for Bulletin preparation) and endorse security EALs in a regulatory guide	Executive	\$100.00/hr		100 hrs	\$ (10,000)	0 hrs	\$ -
	Manager	\$100.00/hr		120 hrs	\$ (12,000)	0 hrs	\$ -
	Staff	\$100.00/hr		560 hrs	\$ (56,000)	0 hrs	\$ -
	Clerical	\$100.00/hr		60 hrs	\$ (6,000)	0 hrs	\$ -
	Attorney	\$100.00/hr		100 hrs	\$ (10,000)	0 hrs	\$ -
Total NRC Implementation				940 hrs	\$ (94,000)	0 hrs	\$ -
NRC OPERATIONS (ANNUAL)							
None.							
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)							
State and Local Government - Conduct initial ORO training (10 staff per site at 2 hour training; one trainer per 30 trainees)	Executive	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Staff	\$100.00/hr	65	22 hrs/site	\$ (2,200)	0 hrs/site	\$ -
	Clerical	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Attorney	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Total State and Local Implementation Cost				22 hrs	\$ (2,200)	0 hrs/site	\$ -
OTHER GOVERNMENT OPERATIONS (ANNUAL)							
None.							
TOTAL				1,780 hrs		70 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) State and Local Government labor rates assumed to be the same as NRC wage rates.
- (3) See discussion of methodology in Section 3.2 of the Regulatory Analysis.

A.3: Hostile Action Event Drills and Exercises

The proposed rule language would adopt elements of NRC Bulletin 2005-02 and require licensees to revise drill and exercise scenarios. Specifically, the drill and exercise scenarios would need to be designed to avoid biennial exercise scenarios that become predictable or precondition emergency response organizations to expect a sequential escalation of emergency classifications culminating in a large radiological release. Licensees would need to submit these scenarios for NRC approval. In addition, licensees would need to revise existing schemes to track implementation of the various scenario objectives.

Assumptions:

- (1) All sites develop 6-year drill and exercise plans and conduct initial exercises by the end of CY09 in response to NRC Bulletin 2005-02.
- (2) NRC would review emergency plan and scenarios as they are used by licensees (annual cost, assuming 32.5 are submitted per year).

Requirement	Cost Inputs			Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected		Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Affected Site
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Develop and review 6-year plan	Executive	\$200.00/hr	65	8 hrs/site	\$ (1,600)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	40 hrs/site	\$ (6,000)	8 hrs/site	\$ (1,200)
	EP staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	65	16 hrs/site	\$ (1,600)	8 hrs/site	\$ (800)
Review and update emergency plan and exercise objective tracking scheme	Executive	\$200.00/hr	65	4 hrs/site	\$ (800)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	80 hrs/site	\$ (12,000)	8 hrs/site	\$ (1,200)
	EP staff	\$100.00/hr	65	160 hrs/site	\$ (16,000)	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	65	40 hrs/site	\$ (4,000)	8 hrs/site	\$ (800)
Conduct initial exercise (4 executives at 8 hour tabletop and exercise, 30 managers at 8 hour tabletop and exercise; 100 ERO and security staff members at 4 hour exercise)	Executive	\$200.00/hr	65	32 hrs/site	\$ (6,400)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	240 hrs/site	\$ (36,000)	0 hrs/site	\$ -
	EP staff	\$100.00/hr	65	400 hrs/site	\$ (40,000)	0 hrs/site	\$ -
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Total Industry Implementation Cost				1,148 hrs/site	(\$134,800)	128 hrs/site	(\$12,800)
INDUSTRY OPERATIONS (ANNUAL)							
Track compliance with required exercise scenario elements	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	0 hrs/site	\$ -	8 hrs/site	\$ (1,200)
	EP staff	\$100.00/hr	65	0 hrs/site	\$ -	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Submit scenario to NRC for review	Executive	\$200.00/hr	32.5	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	32.5	0 hrs/site	\$ -	8 hrs/site	\$ (1,200)
	EP staff	\$100.00/hr	32.5	0 hrs/site	\$ -	16 hrs/site	\$ (1,600)
	Clerical	\$50.00/hr	32.5	0 hrs/site	\$ -	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	32.5	0 hrs/site	\$ -	8 hrs/site	\$ (800)
Total Industry Operations Cost				0 hrs/site	\$ -	88 hrs/site	(\$9,200)

Hostile Action Event Drills and Exercises (continued)

Requirement	Cost Inputs		Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site
NRC IMPLEMENTATION (ONE-TIME)						
Review and revise guidance (Bulletin preparation)	Executive	\$100.00/hr	0 hrs	\$ -	0 hrs	\$ -
	Manager	\$100.00/hr	0 hrs	\$ -	120 hrs	\$ (12,000)
	Staff	\$100.00/hr	300 hrs	\$ (30,000)	280 hrs	\$ (28,000)
	Clerical	\$100.00/hr	0 hrs	\$ -	60 hrs	\$ (6,000)
	Attorney	\$100.00/hr	0 hrs	\$ -	60 hrs	\$ (6,000)
Compile RIS 2006-12 (review NEI White Paper)	Executive	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Manager	\$100.00/hr	16 hrs	\$ (1,600)	0 hrs	\$ -
	Staff	\$100.00/hr	360 hrs	\$ (36,000)	0 hrs	\$ -
	Clerical	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Attorney	\$100.00/hr	20 hrs	\$ (2,000)	0 hrs	\$ -
Review NEI-06-04, Rev. 0	Executive	\$100.00/hr	16 hrs	\$ (1,600)	0 hrs	\$ -
	Manager	\$100.00/hr	20 hrs	\$ (2,000)	0 hrs	\$ -
	Staff	\$100.00/hr	240 hrs	\$ (24,000)	0 hrs	\$ -
	Clerical	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Attorney	\$100.00/hr	20 hrs	\$ (2,000)	0 hrs	\$ -
Review and endorse NEI-06-04, Rev. 1 and RIS 2008-08	Executive	\$100.00/hr	16 hrs	\$ (1,600)	0 hrs	\$ -
	Manager	\$100.00/hr	20 hrs	\$ (2,000)	0 hrs	\$ -
	Staff	\$100.00/hr	160 hrs	\$ (16,000)	0 hrs	\$ -
	Clerical	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Attorney	\$100.00/hr	20 hrs	\$ (2,000)	0 hrs	\$ -
Participate in first 10 drills	Executive	\$100.00/hr	20 hrs	\$ (2,000)	0 hrs	\$ -
	Manager	\$100.00/hr	80 hrs	\$ (8,000)	0 hrs	\$ -
	Staff	\$100.00/hr	234 hrs	\$ (23,400)	0 hrs	\$ -
	Clerical	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Attorney	\$100.00/hr	0 hrs	\$ -	0 hrs	\$ -
Participate in last 55 drills	Executive	\$100.00/hr	4 hrs	\$ (400)	0 hrs	\$ -
	Manager	\$100.00/hr	24 hrs	\$ (2,400)	0 hrs	\$ -
	Staff	\$100.00/hr	100 hrs	\$ (10,000)	0 hrs	\$ -
	Clerical	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Attorney	\$100.00/hr	0 hrs	\$ -	0 hrs	\$ -
Review emergency plan and TI	Executive	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Manager	\$100.00/hr	16 hrs	\$ (1,600)	0 hrs	\$ -
	Staff	\$100.00/hr	360 hrs	\$ (36,000)	0 hrs	\$ -
	Clerical	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Attorney	\$100.00/hr	20 hrs	\$ (2,000)	0 hrs	\$ -
Interact with FEMA	Executive	\$100.00/hr	420 hrs	\$ (42,000)	0 hrs	\$ -
	Manager	\$100.00/hr	420 hrs	\$ (42,000)	0 hrs	\$ -
	Staff	\$100.00/hr	4,200 hrs	\$ (420,000)	0 hrs	\$ -
	Clerical	\$100.00/hr	20 hrs	\$ (2,000)	0 hrs	\$ -
	Attorney	\$100.00/hr	200 hrs	\$ (20,000)	0 hrs	\$ -
Total NRC Implementation Cost			6,678 hrs	\$ (739,000)	520 hrs	\$ (52,000)
NRC OPERATIONS (ANNUAL)						
Review of biennial exercise submittals	Executive	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Manager	\$100.00/hr	16 hrs	\$ (1,600)	160 hrs	\$ (16,000)
	Staff	\$100.00/hr	400 hrs	\$ (40,000)	480 hrs	\$ (48,000)
	Clerical	\$100.00/hr	8 hrs	\$ (800)	0 hrs	\$ -
	Attorney	\$100.00/hr	0 hrs	\$ -	0 hrs	\$ -
Total NRC Operations Cost			432 hrs	\$ (43,200)	640 hrs	\$ (64,000)
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)						
FEMA - Review and revise guidance (REP program FEMA exercise evaluation criteria) - 3 FTE per year for staff	Executive	\$100.00/hr	420 hrs	\$ (42,000)	0 hrs	\$ -
	Manager	\$100.00/hr	420 hrs	\$ (42,000)	0 hrs	\$ -
	Staff	\$100.00/hr	4,200 hrs	\$ (420,000)	0 hrs	\$ -
	Clerical	\$100.00/hr	420 hrs	\$ (42,000)	0 hrs	\$ -
	Attorney	\$100.00/hr	420 hrs	\$ (42,000)	0 hrs	\$ -
Total FEMA Implementation Cost			5,880 hrs	\$ (588,000)		
OTHER GOVERNMENT OPERATIONS (ANNUAL)						
None.						
TOTAL			14,138 hrs		1,376 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) FEMA labor rates assumed to be the same as NRC wage rates.
- (3) See discussion of methodology in Section 3.2 of the Regulatory Analysis.
- (4) Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site would be less than the cost per affected site (which is shown above).

A.4: Evacuation Time Estimate Updating

Under existing regulations, applicants and licensees must provide estimates of the time required to evacuate the public from the plume exposure pathway emergency planning zone (EPZ). The proposed rule would clarify the need to review and update the evacuation time estimates (ETEs) following the initial licensing of a nuclear power plant. Specifically, the proposed rule would establish a requirement for licensees to evaluate an EPZ's population and to update ETEs on a stated frequency (i.e., every 10 years) and when annual reviews show that the population increases or decreases by 10% from the population that formed the basis for the currently approved ETE.

Assumptions:

- (1) 50 percent of sites would require an initial update to ETEs.
- (2) Although sites reassess population annually, ETE updates would be needed once every 10 years due to new Census data.

Requirement	Cost Inputs			Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Affected Site	
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Establish process to obtain and analyze annual Census Bureau population updates for EPZ	Executive	\$200.00/hr	65	n/a	0 hrs/site	\$ -	
	Manager	\$150.00/hr	65	n/a	8 hrs/site	\$ (1,200)	
	EP staff	\$100.00/hr	65	n/a	32 hrs/site	\$ (3,200)	
	Clerical	\$50.00/hr	65	n/a	0 hrs/site	\$ -	
	Licensing	\$100.00/hr	65	n/a	0 hrs/site	\$ -	
Review existing ETE	Executive	\$200.00/hr	65	n/a	4 hrs/site	\$ (800)	
	Manager	\$150.00/hr	65	n/a	8 hrs/site	\$ (1,200)	
	EP staff	\$100.00/hr	65	n/a	40 hrs/site	\$ (4,000)	
	Clerical	\$50.00/hr	65	n/a	0 hrs/site	\$ -	
	Licensing	\$100.00/hr	65	n/a	8 hrs/site	\$ (800)	
Significant initial update to existing ETEs	\$ 200,000	32.5	n/a	1 estimate/site	\$ (200,000)		
Total Industry Implementation Cost					100 hrs/site	\$ (211,200)	
INDUSTRY OPERATIONS (ANNUAL)							
Obtain and analyze annual Census Bureau population updates for EPZ	Executive	\$200.00/hr	65	n/a	0 hrs/site	\$ -	
	Manager	\$150.00/hr	65	n/a	4 hrs/site	\$ (600)	
	EP staff	\$100.00/hr	65	n/a	8 hrs/site	\$ (800)	
	Clerical	\$50.00/hr	65	n/a	0 hrs/site	\$ -	
	Licensing	\$100.00/hr	65	n/a	0 hrs/site	\$ -	
Review Updated ETE	Executive	\$200.00/hr	6.5	n/a	4 hrs/site	\$ (800)	
	Manager	\$150.00/hr	6.5	n/a	8 hrs/site	\$ (1,200)	
	EP staff	\$100.00/hr	6.5	n/a	40 hrs/site	\$ (4,000)	
	Clerical	\$50.00/hr	6.5	n/a	0 hrs/site	\$ -	
	Licensing	\$100.00/hr	6.5	n/a	8 hrs/site	\$ (800)	
Update ETEs	\$ 200,000	65	n/a	1 time/10 years	\$ (20,000)		
Total Industry Operations Cost					72 hrs/site	\$ (28,200)	
NRC IMPLEMENTATION (ONE-TIME)							
Review and revise guidance (NUREG guidance document)	Executive	\$100.00/hr		n/a	8 hrs	\$ (800)	
	Manager	\$100.00/hr		n/a	20 hrs	\$ (2,000)	
	Staff	\$100.00/hr		n/a	80 hrs	\$ (8,000)	
	Clerical	\$100.00/hr		n/a	8 hrs	\$ (800)	
	Attorney	\$100.00/hr		n/a	8 hrs	\$ (800)	
Conduct ETE study (NRC contractor)	\$ 120,000		n/a	1	\$ (120,000)		
Develop procedures for ETE reviews (Standard Review Plan)	Executive	\$100.00/hr		n/a	0 hrs	\$ -	
	Manager	\$100.00/hr		n/a	16 hrs	\$ (1,600)	
	Staff	\$100.00/hr		n/a	80 hrs	\$ (8,000)	
	Clerical	\$100.00/hr		n/a	16 hrs	\$ (1,600)	
	Attorney	\$100.00/hr		n/a	8 hrs	\$ (800)	
Review initial updates of ETEs	Executive	\$100.00/hr	65	n/a	4 hrs/site	\$ (400)	
	Manager	\$100.00/hr	65	n/a	8 hrs/site	\$ (800)	
	Staff	\$100.00/hr	65	n/a	40 hrs/site	\$ (4,000)	
	Clerical	\$100.00/hr	65	n/a	0 hrs/site	\$ -	
	Attorney	\$100.00/hr	65	n/a	4 hrs/site	\$ (400)	
Total NRC Implementation Cost					300 hrs	\$ (150,000)	
NRC OPERATIONS (ANNUAL)							
Review ongoing updates of ETEs	Executive	\$100.00/hr	6.5	n/a	4 hrs/site	\$ (400)	
	Manager	\$100.00/hr	6.5	n/a	8 hrs/site	\$ (800)	
	Staff	\$100.00/hr	6.5	n/a	40 hrs/site	\$ (4,000)	
	Clerical	\$100.00/hr	6.5	n/a	0 hrs/site	\$ -	
	Attorney	\$100.00/hr	6.5	n/a	4 hrs/site	\$ (400)	
Total NRC Operations Cost					56 hrs/site	\$ (5,600)	

Evacuation Time Estimate Updating (continued)

Requirement	Cost Inputs		Incremental Effort Due to		Additional Incremental Effort Due to	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)						
Review initial ETEs	Executive	\$100.00/hr	65	n/a	4 hrs/site	\$ (400)
	Manager	\$100.00/hr	65	n/a	8 hrs/site	\$ (800)
	Staff	\$100.00/hr	65	n/a	40 hrs/site	\$ (4,000)
	Clerical	\$100.00/hr	65	n/a	0 hrs/site	\$ -
	Attorney	\$100.00/hr	65	n/a	4 hrs/site	\$ (400)
Total State and Local Government Implementation Cost					56 hrs	(\$5,600)
OTHER GOVERNMENT OPERATIONS (ANNUAL)						
Review updated ETEs	Executive	\$100.00/hr	6.5	n/a	4 hrs/site	\$ (400)
	Manager	\$100.00/hr	6.5	n/a	8 hrs/site	\$ (800)
	Staff	\$100.00/hr	6.5	n/a	40 hrs/site	\$ (4,000)
	Clerical	\$100.00/hr	6.5	n/a	0 hrs/site	\$ -
	Attorney	\$100.00/hr	6.5	n/a	4 hrs/site	\$ (400)
Total State and Local Government Operations Cost					56 hrs	\$ (5,600)
TOTAL					640 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.
- (3) "n/a" means that the issue was not in the Orders or the Bulletin.
- (4) State and local government labor rates assumed to be the same as NRC wage rates.
- (5) Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site would be less than the cost per affected site (which is shown above).

A.5: Licensee Coordination with Offsite Response Organizations

The current regulations do not require licensees to coordinate with offsite response organizations (OROs) to ensure that personnel will be available to carry out pre-planned actions, such as traffic control and route alerting, during a hostile action event directed at the plant. The proposed rule would implement elements of Commission Order EA-02-26 explicitly requiring licensees to coordinate with OROs to increase assurance that adequate resources would be available and pre-planned actions would be carried out when needed. Licensees would need to develop plans, procedures, and training regarding notification, activation, and coordination between site personnel and OROs.

Assumptions:

(1) New training and drilling for coordination with OROs would be integrated within the current training program coursework and delivered at the same time as other EP training without extending the duration of training courses.

Requirement	Cost Inputs			Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site	
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Review and update ORO coordination protocol and interact with ORO	Executive	\$200.00/hr	65	40 hrs/site	\$ (8,000)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	80 hrs/site	\$ (12,000)	8 hrs/site	\$ (1,200)
	EP staff	\$100.00/hr	65	160 hrs/site	\$ (16,000)	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Review and revise existing procedures and plans	Executive	\$200.00/hr	65	8 hrs/site	\$ (1,600)	4 hrs/site	\$ (800)
	Manager	\$150.00/hr	65	40 hrs/site	\$ (6,000)	8 hrs/site	\$ (1,200)
	EP staff	\$100.00/hr	65	160 hrs/site	\$ (16,000)	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	65	40 hrs/site	\$ (4,000)	16 hrs/site	\$ (1,600)
Review and revise training	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	8 hrs/site	\$ (1,200)	0 hrs/site	\$ -
	EP staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	20 hrs/site	\$ (2,000)
	Clerical	\$50.00/hr	65	8 hrs/site	\$ (400)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Total Industry Implementation Cost				656 hrs/site	\$ (74,800)	144 hrs/site	\$ (15,200)
INDUSTRY OPERATIONS (ANNUAL)							
None.							
NRC IMPLEMENTATION (ONE-TIME)							
Review and revise guidance (NUREG 0654 supplement, Interim Staff Guidance, Temporary Instruction 2515/148 Rev 2)	Executive	\$100.00/hr		8 hrs	\$ (800)	8 hrs	\$ (800)
	Manager	\$100.00/hr		30 hrs	\$ (3,000)	20 hrs	\$ (2,000)
	Staff	\$100.00/hr		290 hrs	\$ (29,000)	240 hrs	\$ (24,000)
	Clerical	\$100.00/hr		40 hrs	\$ (4,000)	8 hrs	\$ (800)
	Attorney	\$100.00/hr		10 hrs	\$ (1,000)	20 hrs	\$ (2,000)
Total NRC Implementation Cost				378 hrs	\$ (37,800)	296 hrs/site	\$ (29,600)
NRC OPERATIONS (ANNUAL)							
None.							
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)							
State and Local Government coordination	Executive	\$100.00/hr	65	40 hrs/site	\$ (4,000)	0 hrs/site	\$ -
	Manager	\$100.00/hr	65	80 hrs/site	\$ (8,000)	0 hrs/site	\$ -
	Staff	\$100.00/hr	65	160 hrs/site	\$ (16,000)	40 hrs/site	\$ (4,000)
	Clerical	\$100.00/hr	65	16 hrs/site	\$ (1,600)	0 hrs/site	\$ -
	Attorney	\$100.00/hr	65	16 hrs/site	\$ (1,600)	0 hrs/site	\$ -
State and Local Government review and revise plan and procedures	Executive	\$100.00/hr	65	8 hrs/site	\$ (800)	4 hrs/site	\$ (400)
	Manager	\$100.00/hr	65	40 hrs/site	\$ (4,000)	8 hrs/site	\$ (800)
	Staff	\$100.00/hr	65	160 hrs/site	\$ (16,000)	40 hrs/site	\$ (4,000)
	Clerical	\$100.00/hr	65	16 hrs/site	\$ (1,600)	8 hrs/site	\$ (800)
	Attorney	\$100.00/hr	65	40 hrs/site	\$ (4,000)	16 hrs/site	\$ (1,600)
FEMA to develop and revise guidance and supplement to NUREG 0654	Executive	\$100.00/hr		0 hrs	\$ -	8 hrs	\$ (800)
	Manager	\$100.00/hr		0 hrs	\$ -	20 hrs	\$ (2,000)
	Staff	\$100.00/hr		0 hrs	\$ -	240 hrs	\$ (24,000)
	Clerical	\$100.00/hr		0 hrs	\$ -	8 hrs	\$ (800)
	Attorney	\$100.00/hr		0 hrs	\$ -	20 hrs	\$ (2,000)
Total State and Local Government Implementation Cost				576 hrs/site	\$ (57,600)	412 hrs	\$ (41,200)
OTHER GOVERNMENT OPERATIONS (ANNUAL)							
None.							
TOTAL				1,610 hrs		852 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.
- (3) FEMA labor rates assumed to be the same as NRC wage rates.
- (4) State and local government labor rates assumed to be the same as NRC labor rates.

A.6: On-Shift Multiple Responsibilities

The current regulations do not clearly state that on-shift nuclear power reactor personnel assigned to emergency plan implementation must not have multiple emergency responsibilities that would prevent them from performing their primary plan tasks. The proposed rule would codify generically applicable requirements similar to elements of the Commission Order EA 02-26 requiring that on-shift emergency response personnel must not have competing responsibilities that interfere with primary emergency response functions, and would establish criteria for shift staffing responsibilities to increase assurance that responders are not overburdened. This change would require nuclear power reactor licensees to conduct a job task analysis and review plans, procedures, and training regarding assignment of multiple responsibilities, and to re-assign responsibilities if necessary.

Assumptions:

(1) This analysis assumes that some plans, procedures, training, and re-assignment would need to be revised because the regulations may exceed the 2002 Order.

Requirement	Cost Inputs		Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule		
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site	
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Conduct job task analysis - Nuclear power reactor licensees	Executive	\$200.00/hr	65	0 hrs/site	\$ -	4 hrs/site	\$ (800)
	Manager	\$150.00/hr	65	0 hrs/site	\$ -	16 hrs/site	\$ (2,400)
	EP Staff	\$100.00/hr	65	0 hrs/site	\$ -	160 hrs/site	\$ (16,000)
	Clerical	\$50.00/hr	65	0 hrs/site	\$ -	40 hrs/site	\$ (2,000)
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	16 hrs/site	\$ (1,600)
Review and revise emergency plan - Nuclear power reactor licensees	Executive	\$200.00/hr	65	8 hrs/site	\$ (1,600)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	40 hrs/site	\$ (6,000)	8 hrs/site	\$ (1,200)
	EP Staff	\$100.00/hr	65	160 hrs/site	\$ (16,000)	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	40 hrs/site	\$ (4,000)	8 hrs/site	\$ (800)
Review and revise procedures - Nuclear power reactor licensees	Executive	\$200.00/hr	65	8 hrs/site	\$ (1,600)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	40 hrs/site	\$ (6,000)	8 hrs/site	\$ (1,200)
	EP Staff	\$100.00/hr	65	320 hrs/site	\$ (32,000)	80 hrs/site	\$ (8,000)
	Clerical	\$50.00/hr	65	32 hrs/site	\$ (1,600)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	40 hrs/site	\$ (4,000)	8 hrs/site	\$ (800)
Review and revise training - Nuclear power reactor licensees	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	8 hrs/site	\$ (1,200)	0 hrs/site	\$ -
	EP Staff	\$100.00/hr	65	120 hrs/site	\$ (12,000)	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Conduct initial training (30 staff at 4 hour training; one trainer per 30 trainees)	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	4 hrs/site	\$ (600)	0 hrs/site	\$ -
	EP Staff	\$100.00/hr	65	120 hrs/site	\$ (12,000)	0 hrs/site	\$ -
	Clerical	\$50.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Develop industry white paper	Executive	\$200.00/hr	65	8 hrs/site	\$ (1,600)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	24 hrs/site	\$ (3,600)	0 hrs/site	\$ -
	EP Staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	0 hrs/site	\$ -
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	16 hrs/site	\$ (1,600)	0 hrs/site	\$ -
Total Industry Implementation Cost			1,116 hrs/site	\$ (115,800)	428 hrs/site	\$ (42,800)	
INDUSTRY OPERATIONS (ANNUAL)							
None.							
NRC IMPLEMENTATION (ONE-TIME)							
Review and revise guidance (Temporary Instructions, NEI White Paper, Interim Staff Guidance)	Executive	\$100.00/hr		8 hrs	\$ (800)	16 hrs	\$ (1,600)
	Manager	\$100.00/hr		30 hrs	\$ (3,000)	40 hrs	\$ (4,000)
	Staff	\$100.00/hr		290 hrs	\$ (29,000)	480 hrs	\$ (48,000)
	Clerical	\$100.00/hr		40 hrs	\$ (4,000)	80 hrs	\$ (8,000)
	Attorney	\$100.00/hr		10 hrs	\$ (1,000)	40 hrs	\$ (4,000)
Total NRC Implementation Cost			378 hrs	\$ (37,800)	656 hrs	\$ (65,600)	
NRC OPERATIONS (ANNUAL)							
None.							
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)							
None.							
OTHER GOVERNMENT OPERATIONS (ANNUAL)							
None.							
TOTAL				1,494 hrs		1,084 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.

A.7: Emergency Response Organization Augmentation and Alternative Facilities

The current regulations do not require licensees to identify alternative facilities to support emergency response organization (ERO) augmentation during hostile action events. The proposed rule would codify generically applicable requirements similar to those elements of Commission Order 02-26 and industry initiatives subsequent to NRC Bulletin 2005-02 directing licensees to provide alternative facilities for use during hostile action events when onsite facilities (technical support center and/or near-site emergency operations facility) are not available (e.g., due to emergency conditions). This change would require licensees to review and revise their plans, procedures, and training regarding ERO augmentation during a hostile action event. In addition, some sites may need to lease and equip a new facility to serve as its alternative facility.

Assumptions:

(1) This analysis assumes that most sites would use present facilities, i.e. EOF, back up EOF, back up TSC.

Requirement	Cost Inputs		Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule		
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site	
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Review and revise emergency plan	Executive	\$200.00/hr	65	0 hrs/site	\$ -	10 hrs/site	\$ (2,000)
	Manager	\$150.00/hr	65	0 hrs/site	\$ -	20 hrs/site	\$ (3,000)
	EP staff	\$100.00/hr	65	0 hrs/site	\$ -	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	65	0 hrs/site	\$ -	24 hrs/site	\$ (1,200)
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	40 hrs/site	\$ (4,000)
Review and revise procedures	Executive	\$200.00/hr	65	8 hrs/site	\$ (1,600)	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	24 hrs/site	\$ (3,600)	8 hrs/site	\$ (1,200)
	EP staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	16 hrs/site	\$ (1,600)
	Clerical	\$50.00/hr	65	40 hrs/site	\$ (2,000)	0 hrs/site	\$ -
	Licensing	\$250.00/hr	65	8 hrs/site	\$ (2,000)	0 hrs/site	\$ -
Review and revise training	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	8 hrs/site	\$ (1,200)	8 hrs/site	\$ (1,200)
	EP staff	\$100.00/hr	65	40 hrs/site	\$ (4,000)	16 hrs/site	\$ (1,600)
	Clerical	\$50.00/hr	65	16 hrs/site	\$ (800)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Equip alternative facility with necessary capabilities	\$2,000/site	65	1 per site		0	(\$2,000)	
Total Industry Implementation Cost			225 hrs/site		182 hrs/site	\$ (21,800)	
INDUSTRY OPERATIONS (ANNUAL)							
Maintain procedures and equipment for alternative facilities	\$1,000/site	65	1 per site		0	\$ (1,000)	
Total Industry Operations Cost						\$ (1,000)	
NRC IMPLEMENTATION (ONE-TIME)							
Review and revise guidance (Temporary Instructions, bulletin preparation, new regulatory guide)	Executive	\$100.00/hr		8 hrs	(800)	20 hrs	\$ (2,000)
	Manager	\$100.00/hr		30 hrs	(3,000)	40 hrs	\$ (4,000)
	Staff	\$100.00/hr		390 hrs	(39,000)	160 hrs	\$ (16,000)
	Clerical	\$100.00/hr		40 hrs	(4,000)	40 hrs	\$ (4,000)
	Attorney	\$100.00/hr		10 hrs	(1,000)	20 hrs	\$ (2,000)
Total NRC Implementation Cost			478 hrs	(47,800)	280 hrs	\$ (28,000)	
NRC OPERATIONS (ANNUAL)							
None.							
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)							
None.							
OTHER GOVERNMENT OPERATIONS (ANNUAL)							
None.							
TOTAL			703 hrs		462 hrs		

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.

A.8.a: Reduction in Effectiveness - Nuclear Power Reactor Licensees

Current regulations require nuclear power reactor licensees to "maintain in effect" their emergency plan. The proposed rule would clarify that the license amendment process is the correct process for licensees to use when submitting emergency plan changes that would reduce the effectiveness of the emergency plan. To comply with the proposed rules, nuclear power reactor licensees may need to revise procedures and training to address the process for emergency plan changes (i.e., through 10 CFR 50.90 submittals). In addition, for emergency plan changes that do not result in a reduction in effectiveness, nuclear power reactor licensees would need to submit to NRC the analysis prepared to demonstrate the change does not reduce the effectiveness of the plan.

Assumptions:

- (1) The proposed Reduction in Effectiveness rule language clarifies existing requirements. Therefore, this analysis does not estimate incremental costs associated with preparing Section 50.54(q) emergency plan changes via the license amendment process.
- (2) Although training may not be necessary, the analysis conservatively assumes revisions to training materials.
- (3) None of the license amendment requests submitted by licensees would result in hearings.

Requirement	Cost Inputs			Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Affected Site	
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Review and revise existing procedures - Nuclear power reactor licensees	Executive	\$200.00/hr	65	n/a	0 hrs/site	\$ -	
	Manager	\$150.00/hr	65	n/a	16 hrs/site	\$ (2,400)	
	EP Staff	\$100.00/hr	65	n/a	60 hrs/site	\$ (6,000)	
	Clerical	\$50.00/hr	65	n/a	40 hrs/site	\$ (2,000)	
	Licensing	\$100.00/hr	65	n/a	16 hrs/site	\$ (1,600)	
Review and revise training - Nuclear power reactor licensees	Executive	\$200.00/hr	65	n/a	0 hrs/site	\$ -	
	Manager	\$150.00/hr	65	n/a	8 hrs/site	\$ (1,200)	
	EP Staff	\$100.00/hr	65	n/a	40 hrs/site	\$ (4,000)	
	Clerical	\$50.00/hr	65	n/a	20 hrs/site	\$ (1,000)	
	Licensing	\$100.00/hr	65	n/a	0 hrs/site	\$ -	
Total Industry Implementation Cost					200 hrs/site	\$ (18,200)	
INDUSTRY OPERATIONS (ANNUAL)							
Submit analysis of changes to emergency plan not resulting in reduction in effectiveness	Executive	\$200.00/hr	65	n/a	0 hrs/site	\$ -	
	Manager	\$150.00/hr	65	n/a	0 hrs/site	\$ -	
	EP Staff	\$100.00/hr	65	n/a	0 hrs/site	\$ -	
	Clerical	\$50.00/hr	65	n/a	2 hrs/site	\$ (100)	
	Licensing	\$100.00/hr	65	n/a	0 hrs/site	\$ -	
	Attorney	\$250.00/hr	65	n/a	0 hrs/site	\$ -	
Total Industry Operations Cost					2 hrs/site	\$ (100)	
NRC IMPLEMENTATION (ONE-TIME)							
Issue new Regulatory Guide	Executive	\$100.00/hr		n/a	0 hrs	\$ -	
	Manager	\$100.00/hr		n/a	160 hrs	\$ (16,000)	
	Staff	\$100.00/hr		n/a	240 hrs	\$ (24,000)	
	Clerical	\$100.00/hr		n/a	80 hrs	\$ (8,000)	
	Attorney	\$100.00/hr		n/a	40 hrs	\$ (4,000)	
Total NRC Implementation Cost					520 hrs	\$ (52,000)	
NRC OPERATIONS (ANNUAL)							
None.							
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)							
None.							
OTHER GOVERNMENT OPERATIONS (ANNUAL)							
None.							
TOTAL					722 hrs		

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.
- (3) "n/a" means that the issue was not in the Orders or the Bulletin.
- (4) Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site would be less than the cost per affected site (which is shown above).

A.8.b: Reduction in Effectiveness - Non-Power Reactor Licensees

Current regulations require non-power reactor licensees to "maintain in effect" their emergency plan. The proposed rule language would clarify the existing rule language by requiring non-power reactor licensees: to maintain capabilities and resources relative to the emergency plan, ensure changes to the approved emergency plan are properly evaluated, and ensure that proposed changes that reduce the effectiveness of the plan receive prior review by the NRC. To comply with the proposed rules, non-power reactor licensees may need to revise procedures and training to address the process for emergency plan changes (i.e., through 10 CFR 50.90 submittals). In addition, for emergency plan changes that do not result in a reduction in effectiveness, non-power reactor licensees would need to submit to the NRC the analysis prepared to demonstrate the change does not reduce the effectiveness of the plan.

Assumptions:

- (1) Although training may not be necessary, the analysis conservatively assumes revisions to training materials.
- (2) NRC would not receive any 10 CFR 50.90 submittals (i.e., emergency plan change that reduces the effectiveness of the plan) per year.

Requirement	Cost Inputs			Incremental Effort Due to Order & Bulletin	Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Affected Site
INDUSTRY IMPLEMENTATION (ONE-TIME)						
Review and revise existing procedures - Research and test reactors	Executive	\$200.00/hr	32	n/a	0 hrs/site	\$ -
	Manager	\$150.00/hr	32	n/a	0 hrs/site	\$ -
	EP Staff	\$100.00/hr	32	n/a	80 hrs/site	\$ (8,000)
	Clerical	\$50.00/hr	32	n/a	40 hrs/site	\$ (2,000)
	Licensing	\$100.00/hr	32	n/a	0 hrs/site	\$ -
Review and revise training - Research and test reactors	Executive	\$200.00/hr	32	n/a	0 hrs/site	\$ -
	Manager	\$150.00/hr	32	n/a	0 hrs/site	\$ -
	EP Staff	\$100.00/hr	32	n/a	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	32	n/a	0 hrs/site	\$ -
	Licensing	\$100.00/hr	32	n/a	0 hrs/site	\$ -
Total Industry Implementation Cost					160 hrs/site	\$ (14,000)
INDUSTRY OPERATIONS (ANNUAL)						
None						
NRC IMPLEMENTATION (ONE-TIME)						
None						
NRC OPERATIONS (ANNUAL)						
None						
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)						
None.						
OTHER GOVERNMENT OPERATIONS (ANNUAL)						
None.						
TOTAL					160 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.
- (3) "n/a" means that the issue was not in the Orders or the Bulletin.
- (4) Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site would be less than the cost per affected site (which is shown above).

A.9: Emergency Declaration Timeliness

The current emergency preparedness regulations do not establish timeliness criteria for the emergency declaration process. The proposed rule would require licensees to have the capability to classify and declare an emergency within 15 minutes of the availability of information that an EAL has been or may be exceeded. Licensees are already complying with the proposed rule language via a voluntary initiative that accomplishes the intent of the proposed rule. Licensees, however, would need to review and revise existing site procedures and training to include the new timeliness requirements for emergency declarations.

Assumptions:

- (1) New training for emergency classification timeliness would be integrated within the current training program coursework and delivered at the same time as other EP training without extending the duration of training courses.
- (2) Sites would not incur operating costs because the proposed rule only requires the capability to classify and declare an emergency within 15 minutes.

Requirement	Cost Inputs			Incremental Effort Due to Voluntary Initiative (PI)		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected		Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site
INDUSTRY IMPLEMENTATION (ONE-TIME)							
Review and revise existing procedures	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	20 hrs/site	\$ (3,000)	4 hrs/site	\$ (600)
	EP Staff	\$100.00/hr	65	80 hrs/site	\$ (8,000)	16 hrs/site	\$ (1,600)
	Clerical	\$50.00/hr	65	20 hrs/site	\$ (1,000)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Review and revise training	Executive	\$200.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
	Manager	\$150.00/hr	65	10 hrs/site	\$ (1,500)	4 hrs/site	\$ (600)
	EP Staff	\$100.00/hr	65	40 hrs/site	\$ (4,000)	16 hrs/site	\$ (1,600)
	Clerical	\$50.00/hr	65	20 hrs/site	\$ (1,000)	0 hrs/site	\$ -
	Licensing	\$100.00/hr	65	0 hrs/site	\$ -	0 hrs/site	\$ -
Total Industry Implementation Cost				190 hrs/site	\$ (18,500)	40 hrs/site	\$ (4,400)
INDUSTRY OPERATIONS (ANNUAL)							
None.							
NRC IMPLEMENTATION (ONE-TIME)							
Review and revise guidance (e.g., withdraw EPPS-2, update NEI-99-02)	Executive	\$100.00/hr		0 hrs	\$ -	0 hrs	\$ -
	Manager	\$100.00/hr		0 hrs	\$ -	16 hrs	\$ (1,600)
	Staff	\$100.00/hr		0 hrs	\$ -	80 hrs	\$ (8,000)
	Clerical	\$100.00/hr		0 hrs	\$ -	40 hrs	\$ (4,000)
	Attorney	\$100.00/hr		0 hrs	\$ -	20 hrs	\$ (2,000)
Total NRC Implementation Cost				0 hrs	\$ -	156 hrs	\$ (15,600)
NRC OPERATIONS (ANNUAL)							
None.							
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)							
None.							
OTHER GOVERNMENT OPERATIONS (ANNUAL)							
None.							
TOTAL				190 hrs		196 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.

A.10: Emergency Operations Facility - Performance Based Approach

Current regulations do not address the capabilities and functional requirements for an EOF located more than 25 miles from a site or an EOF serving more than one site, such as a co-located or consolidated EOF. The proposed rule would establish a performance standard for licensees that plan to locate an EOF more than 25 miles from a site or consolidate multiple EOFs into one facility. The analysis assumes there are no incremental costs to licensees for this proposed rule change because the rule does not require that EOFs be located more than 25 miles from a site or consolidation of EOFs. Rather, a licensee would voluntarily choose to pursue an EOF location more than 25 miles from a site or consolidation only if the incremental savings exceed the incremental costs.

Assumptions:

- (1) Consolidation of an EOF or location of an EOF more than 25 miles from a site is optional. Therefore, the analysis does not calculate the incremental costs or savings incurred by licensees resulting from EOF consolidation or location more than 25 miles from a site.
- (2) NRC would incur costs to revise guidance.

Requirement	Cost Inputs		Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Site
INDUSTRY IMPLEMENTATION (ONE-TIME)						
None.						
INDUSTRY OPERATIONS (ANNUAL)						
None.						
NRC IMPLEMENTATION (ONE-TIME)						
Review and revise guidance	Executive \$100.00/hr		n/a		20 hrs	\$ (2,000)
(NUREG 0654 supplement,	Manager \$100.00/hr		n/a		80 hrs	\$ (8,000)
NUREG 0696, NUREG 0737	Staff \$100.00/hr		n/a		360 hrs	\$ (36,000)
supplement 1, Interim Staff	Clerical \$100.00/hr		n/a		40 hrs	\$ (4,000)
Guidance)	Attorney \$100.00/hr		n/a		40 hrs	\$ (4,000)
Total NRC Implementation Cost					540 hrs	\$ (54,000)
NRC OPERATIONS (ANNUAL)						
None.						
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)						
None.						
OTHER GOVERNMENT OPERATIONS (ANNUAL)						
None.						
TOTAL					540 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.
- (3) "n/a" means that the issue was not in the Orders or the Bulletin.

A.11: Backup Means for Alert and Notification Systems (ANS)

Existing regulations and guidance do not address requirements for backup alerting and notification capabilities when a major portion of the primary means is unavailable. The proposed rule would require licensees to select and implement a backup method of alerting and notification to be used in the event that the primary ANS is unavailable.

Assumptions:

- (1) Twenty-one sites already have backup power to sirens as a backup alerting mechanism. However, these sites would not be fully-compliant with the proposed rule. They would need to upgrade their siren activation system in order to comply.
- (2) Thirty-two sites already use route alerting as a backup means of alerting, which complies with the proposed rule. These sites, however, would need to review and verify their procedures to ensure there are adequate resources during hostile actions.
- (3) Twelve sites do not have any backup means of alerting. Six of the sites would need to implement backup power to sirens, while the other 6 would need to implement route alerting as backup.
- (4) Thirty-two sites have backup Emergency Alert System (EAS) capabilities for public notification.
- (5) Thirty-three sites do not have a backup EAS capability. These sites would incur incremental costs to acquire a backup EAS capability.

Requirement	Cost Inputs		Incremental Effort Due to Order & Bulletin		Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Affected Site
INDUSTRY IMPLEMENTATION (ONE-TIME)						
Review and select means of backup ANS	Executive	\$200.00/hr	45	n/a	40 hrs/site	\$ (8,000)
	Manager	\$150.00/hr	45	n/a	80 hrs/site	\$ (12,000)
	EP Staff	\$100.00/hr	45	n/a	480 hrs/site	\$ (48,000)
	Clerical	\$50.00/hr	45	n/a	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	45	n/a	40 hrs/site	\$ (4,000)
Implement backup alerting system	Upgrade sirens	\$10,000/siren	6	n/a	50 sirens/site	\$ (500,000)
	Implement route alerting	\$50,000/site	6	n/a	1 plan/site	\$ (50,000)
Review and verify existing ANS backup	Executive	\$200.00/hr	53	n/a	0 hrs/site	\$ -
	Manager	\$150.00/hr	53	n/a	8 hrs/site	\$ (1,200)
	EP Staff	\$100.00/hr	53	n/a	40 hrs/site	\$ (4,000)
	Clerical	\$50.00/hr	53	n/a	0 hrs/site	\$ -
	Licensing	\$100.00/hr	53	n/a	8 hrs/site	\$ (800)
Implement back-up to siren activation system	\$50,000/site	21	n/a	1 system/site	\$ (50,000)	
Implement EAS backup notification system	\$50,000/site	33	n/a	1 system/site	\$ (50,000)	
Develop administrative controls, maintenance procedures, training and testing program for means of backup ANS (full program)	Executive	\$200.00/hr	12	n/a	30 hrs/site	\$ (6,000)
	Manager	\$150.00/hr	12	n/a	60 hrs/site	\$ (9,000)
	EP Staff	\$100.00/hr	12	n/a	360 hrs/site	\$ (36,000)
	Clerical	\$50.00/hr	12	n/a	0 hrs/site	\$ -
	Licensing	\$100.00/hr	12	n/a	30 hrs/site	\$ (3,000)
Develop administrative controls, maintenance procedures, training and testing program for means of backup ANS (partial program)	Executive	\$200.00/hr	21	n/a	8 hrs/site	\$ (1,600)
	Manager	\$150.00/hr	21	n/a	8 hrs/site	\$ (1,200)
	EP Staff	\$100.00/hr	21	n/a	80 hrs/site	\$ (8,000)
	Clerical	\$50.00/hr	21	n/a	8 hrs/site	\$ (400)
	Licensing	\$100.00/hr	21	n/a	8 hrs/site	\$ (800)
Revise FEMA REP-10 ANS design report	Executive	\$200.00/hr	33	n/a	4 hrs/site	\$ (800)
	Manager	\$150.00/hr	33	n/a	24 hrs/site	\$ (3,600)
	EP Staff	\$100.00/hr	33	n/a	240 hrs/site	\$ (24,000)
	Clerical	\$50.00/hr	33	n/a	16 hrs/site	\$ (800)
Licensing	\$100.00/hr	33	n/a	24 hrs/site	\$ (2,400)	
Total Industry Implementation Cost					1,604 hrs/site	\$ (826,000)
INDUSTRY OPERATIONS (ANNUAL)						
Maintain back-up to siren system	\$200/siren	27	n/a		50 sirens/site	\$ (10,000)
Maintain route alerting system	\$5,000/site	38	n/a		1 system/site	\$ (5,000)
Maintain back-up to EAS	\$10,000/site	65	n/a		1 system/site	\$ (10,000)
Total Industry Operations Cost						\$ (25,000)
NRC IMPLEMENTATION (ONE-TIME)						
Review and revise guidance (NUREG-0654, inspection procedures)	Executive	\$100.00/hr		n/a	8 hrs	\$ (800)
	Manager	\$100.00/hr		n/a	20 hrs	\$ (2,000)
	Staff	\$100.00/hr		n/a	100 hrs	\$ (10,000)
	Clerical	\$100.00/hr		n/a	8 hrs	\$ (800)
	Attorney	\$100.00/hr		n/a	20 hrs	\$ (2,000)
Total NRC Implementation Cost					156 hrs	\$ (15,600)
NRC OPERATIONS (ANNUAL)						
None.						

Backup Means for Alert and Notification Systems (continued)

Requirement	Cost Inputs			Incremental Effort Due to Order & Bulletin	Additional Incremental Effort Due to Proposed Rule	
	Unit Cost	Sites Affected	Units	Savings (Cost) Per Site	Units	Savings (Cost) Per Affected Site
OTHER GOVERNMENT IMPLEMENTATION (ONE-TIME)						
FEMA to review and approve revised FEMA REP-10 ANS	Executive	\$100.00/hr	33	n/a	0 hrs/site	\$ -
	Manager	\$100.00/hr	33	n/a	8 hrs/site	\$ (800)
	Staff	\$100.00/hr	33	n/a	160 hrs/site	\$ (16,000)
	Clerical	\$100.00/hr	33	n/a	8 hrs/site	\$ (800)
	Attorney	\$100.00/hr	33	n/a	0 hrs/site	\$ -
FEMA to review and revise guidance (REP-10, Guidance Memorandum AN-1, REP program manual, Civil Preparedness Guide 1-17)	Executive	\$100.00/hr		n/a	8 hrs	\$ (800)
	Manager	\$100.00/hr		n/a	40 hrs	\$ (4,000)
	Staff	\$100.00/hr		n/a	240 hrs	\$ (24,000)
	Clerical	\$100.00/hr		n/a	16 hrs	\$ (1,600)
	Attorney	\$100.00/hr		n/a	40 hrs	\$ (4,000)
Total FEMA Implementation Cost					520 hrs	\$ (52,000)
OTHER GOVERNMENT OPERATIONS (ANNUAL)						
None.						
TOTAL					2,280 hrs	

Notes:

- (1) Hour estimates based on judgment of NRC staff.
- (2) See discussion of methodology in Section 3.2 of the Regulatory Analysis.
- (3) "n/a" means that the issue was not in the Orders or the Bulletin.
- (4) FEMA labor rates assumed to be the same as NRC wage rates.
- (5) Not all 65 sites would incur certain costs resulting from the provision. As a result, the cost for the average site would be less than the cost per affected site (which is shown above).