Regulatory Analysis for the Proposed Rule: Reporting Requirements for Nonemergency Events at Nuclear Power Plants

NRC-2020-0036; RIN 3150-AK71

U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Division of Rulemaking, Environmental, and Financial Support

ENTER DATE WHEN READY TO ISSUE

[Page Intentionally Blank]

ABSTRACT

The purpose of the proposed rule is to amend the regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.72, "Immediate notification requirements for operating nuclear power reactors," under 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The proposed rule would eliminate the reporting requirements associated with certain nonemergency events and allow licensees to use alternative, technology-inclusive methods for notifying the U.S. Nuclear Regulatory Commission of certain nonemergency events at commercial nuclear power plants. In addition, the rulemaking would provide updates to the associated guidance document, NUREG-1022, Revision 3, "Event Report Guidelines: 10 CFR 50.72 and 50.73," issued January 2013.

This regulatory analysis evaluates the costs and benefits of the proposed rule and implementing guidance relative to the baseline case, the "no action" alternative.

EXECUTIVE SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) is proposing to amend its regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.72, "Immediate notification requirements for operating nuclear power reactors," under 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The regulations in 10 CFR 50.72(b), "Non-emergency events," contain the nonemergency event reporting requirements for nuclear power plant licensees that the NRC established in 1983 and subsequently amended in 1992 and 2000. In 2018, a petitioner submitted a petition for rulemaking (PRM) requesting that the NRC amend 10 CFR 50.72 to remove all nonemergency event notification requirements for operating nuclear power reactors; the NRC docketed the request as PRM-50-116. In the related staff requirements memorandum, SRM-SECY-20-0109, "Staff Requirements—SECY-20-0109—Petition for Rulemaking and Rulemaking Plan on Immediate Notification Requirements for Nonemergency Events (PRM-50-116; NRC-2018-0201)," dated July 28, 2021 (Agencywide Documents Access and Management System Accession No. ML21209A947), the Commission directed the NRC staff to proceed with a rulemaking on the immediate notification requirements for nonemergency events in 10 CFR 50.72(b).

The proposed rule would amend 10 CFR 50.72 to eliminate the reporting associated with certain nonemergency event notifications and allow licensees to use alternative, technology-inclusive methods for notifying the NRC of nonemergency events at commercial nuclear power plants. The NRC would also update NUREG-1022, Revision 3, "Event Report Guidelines: 10 CFR 50.72 and 50.73," issued January 2013. The NRC will issue the draft guidance for comment, NUREG-1022, Revision 4. "Event Report Guidelines: 10 CFR 50.72 and 10 CFR 50.73; Draft Report," with the proposed rule. The purpose of the rule is to align the reporting requirements with the current needs of the agency and external stakeholders by eliminating those reports for events that are not important to safety, do not require prompt NRC action, or can be tracked using other existing agency processes. These changes would result in a reporting process that maintains openness; has enhanced regulatory stability and clarity; and addresses advances in technology.

This regulatory analysis evaluates the costs and benefits of the proposed rule and implementing guidance relative to the baseline case, the "no action" alternative.

The NRC has made the following key findings:

- Proposed Rule Analysis. The rulemaking proposed by the NRC would result in costs and benefits as shown in Table ES 1.

Table ES 1 Summary of Costs and Benefits

Description	Net Benefits (Costs) (2023 dollars)		
	Undiscounted	**7% NPV**	**3% NPV**
NRC Implementation	($332,000)	($289,000)	($312,000)
Industry Implementation	($309,000)	($252,000)	($283,000)
State and local Government Implementation of eliminated notifications	($263,000)	($222,000)	($244,000)
Implementation Benefits (Costs)	**($904,000)**	**($763,000)**	**($839,000)**
NRC Operation	$5,107,000	$2,489,000	$3,222,000

Description	Net Benefits (Costs) (2023 dollars)		
	Undiscounted	7% NPV	3% NPV
Industry Operation	$3,995,000	$1,969,000	$2,406,000
State and local Government Operation	($65,000)	($31,000)	($43,000)
Operational Benefits (Costs)	**$9,037,000**	**$4,427,000**	**$5,585,000**
Net Benefits (Costs)	**$8,133,000**	**$3,664,000**	**$4,746,000**

Totals differ slightly between and within tables due to rounding.

- Nonquantified Benefits. Based upon the assessment of total costs and benefits, the NRC concludes that the proposed rule, if issued, would increase regulatory efficiency and effectiveness for both the NRC and industry. The proposed rule is responsive to stakeholder concerns and is technology inclusive.

- Uncertainty Analysis. The regulatory analysis contains a Monte Carlo simulation analysis that shows the mean net benefit for this proposed rule is $3,667,000 with 90 percent confidence that the net benefit is between $1,580,000 and $6,060,000 using a 7 percent discount rate. The projected number of certain nonemergency event notifications per year over the analysis horizon is the factor responsible for the largest variation in costs, followed by the industry labor rate.

- Decision Rationale. The proposed rule would be quantitatively cost beneficial to both the NRC and industry. Local governments that require the eliminated nonemergency event notifications at the local level would incur some costs; however, based on available information, those costs would not outweigh the benefits. The proposed rule would not affect the NRC's ability to protect public health and safety and would increase regulatory efficiency.

- Implementation. The NRC expects that the effective date of the final rule would be in 2026. However, the proposed rule would eliminate reporting requirements, and NRC licensees that are subject to this rule would be required to continue to comply with the remaining reporting requirements, notwithstanding the effective date of the final rule. The only new provision to be implemented by these licensees would be the alternative reporting method, which licensees could use once the final rule goes into effect 30 days after publication of the final rule in the *Federal Register*.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

BLS	U.S. Department of Labor, Bureau of Labor Statistics
CFR	*Code of Federal Regulations*
CPI-U	consumer price index for all urban consumers
LER	licensee event report
NPV	net present value
NRC	U.S. Nuclear Regulatory Commission
NUREG	NRC technical publication
PERT	program evaluation and review technique
PRM	petition for rulemaking
SECY	the written issue paper and primary decision-making tool submitted by the NRC staff to the Commission describing policy, security, rulemaking, and adjudicatory matters and general information
SRM	staff requirements memorandum
U.S.C.	United States Code

1 STATEMENT OF PROBLEM AND OBJECTIVE

The U.S. Nuclear Regulatory Commission (NRC) is proposing to update its regulations for nonemergency event notifications in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.72, "Immediate notification requirements for operating nuclear power reactors," under 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." Specifically, the proposed rule would alter 10 CFR 50.72 to remove six reporting requirements, update guidance for two reporting requirements, and allow for the use of alternative methods to submit certain nonemergency event notifications. The proposed rule would retain reporting criteria that are important to plant safety and maintain appropriate NRC awareness of nonemergency events at nuclear power plants.

The NRC established its event reporting requirements for nuclear power plant licensees in 10 CFR 50.72 in the final rule, "Immediate Reporting of Significant Events at Operating Nuclear Power Plants" (45 FR 13434; February 29, 1980) (NRC, 1980). Licensees were required to report 12 types of significant events to the NRC within 1 hour, including serious events that could result in an impact to public health and safety, such as the nuclear power plant being in an uncontrolled condition, the exceedance of a safety limit, or an uncontrolled release of radioactivity. The purpose of the reporting requirements was to grant the NRC the ability to make timely decisions and to provide adequate assurances regarding actual or potential threats to public health and safety, which the NRC stated depends heavily on the rapidity with which nuclear power reactor licensees communicate significant events to the NRC.

Subsequent experience led the NRC to amend the requirements three times, in the following actions:

(1) "Immediate Notification Requirements of Significant Events at Operating Nuclear Power Reactors; Final Rule," August 29, 1983 (46 FR 39039) (NRC, 1983b)

(2) "Minor Modifications to Nuclear Power Reactor Event Reporting Requirements; Final Rule," September 10, 1992 (57 FR 41378) (NRC, 1992)

(3) "Reporting Requirements for Nuclear Power Reactors and Independent Spent Fuel Storage Installations at Power Reactor Sites; Final Rule," October 25, 2000 (65 FR 63769) (NRC, 2000)

The amendments clarified the list of reportable events, divided emergency events and nonemergency events into two separate groupings, eliminated several categories of events, and modified the reporting requirements for nonemergency events contained in 10 CFR 50.72(b) by dividing them into 1-hour, 4-hour, and 8-hour groupings.

In 2018, a petitioner submitted a petition for rulemaking (PRM) under 10 CFR 2.802, "Petition for rulemaking—requirements for filing," requesting that the NRC amend 10 CFR 50.72 to remove all nonemergency event notification requirements. The staff sent a rulemaking plan to the Commission under SECY-20-0109, "Petition for Rulemaking and Rulemaking Plan on Immediate Notification Requirements for Nonemergency Events (PRM-50-116; NRC-2018-0201)," dated November 30, 2020 (Agencywide Documents Access and Management System Accession No. ML20073G004) (NRC, 2020b). In that rulemaking plan, the staff recommended evaluating within the NRC's rulemaking process the nonemergency event reporting requirements of 10 CFR 50.72(b).

In the related staff requirements memorandum, SRM-SECY-20-0109, "Staff Requirements—SECY-20-0109—Petition for Rulemaking and Rulemaking Plan on Immediate Notification Requirements for Nonemergency Events," dated July 28, 2021 (ML21209A947) (NRC, 2021), the Commission directed the staff to proceed with a rulemaking on the immediate notification requirements for nonemergency events in 10 CFR 50.72(b) and the closure of the docket for PRM-50-116.

1.1 Description of the Proposed Action

The proposed rulemaking includes updates to the regulations for nonemergency event notifications to eliminate some, but not all, of the reporting requirements and associated updates to NUREG-1022, Revision 3, "Event Report Guidelines: 10 CFR 50.72 and 50.73," issued January 2013 (ML13032A220) (NRC, 2013). The proposed rule also provides for alternative technology-inclusive methods for notifying the NRC of certain nonemergency events. The proposed rule language and updates to NUREG-1022 would maintain appropriate NRC awareness of nonemergency events at commercial nuclear power plants and support the Principles of Good Regulation.

1.2 Need for the Proposed Action

The need for all the current nonemergency event notification requirements contained in 10 CFR 50.72(b) is not supported by recent experience regarding the frequency of nonemergency events, updates to methods of reporting these events, the potential safety impact of amending the regulations, the burden of the reporting requirements on licensees, and the needs of the NRC and external stakeholders.

1.3 Existing Regulatory Framework

The regulations in 10 CFR 50.72(a) require, in part, that each nuclear power reactor licensee notify the NRC Headquarters Operations Center through the Emergency Notification System of nonemergency events specified in 10 CFR 50.72(b).

The regulations in 10 CFR 50.72(b) regarding the nonemergency event notifications are split into several different paragraphs, depending on the notification condition, each with a corresponding time within which the licensee must notify the NRC. Table 1 shows the various conditions and time requirements.

Table 1 Conditions and Time Requirements

10 CFR 50.72 Paragraph	Condition Requiring Notification	Time (hr)
(b)(1)	Deviation from technical specifications under 10 CFR 50.54(x)	1
(b)(2)(i)	Plant shutdown required by technical specifications	4
(b)(2)(iv)(A)	Emergency core cooling system discharge	4
(b)(2)(iv)(B)	Reactor protection system actuation	4
(b)(2)(xi)	News release or notifications of other government agency	4
(b)(3)(ii)(A)	Degraded condition	8
(b)(3)(ii)(B)	Unanalyzed condition	8
(b)(3)(iv)	System actuation (valid or invalid actuation)	8

10 CFR 50.72 Paragraph	Condition Requiring Notification	Time (hr)
(b)(3)(v)	Event or condition that could have prevented fulfillment of a safety function	8
(b)(3)(xii)	Transport of contaminated person to offsite medical facility	8
(b)(3)(xiii)	Loss of emergency assessment, offsite communications, or offsite response capabilities	8

NUREG-1022 contains guidelines that the NRC considers acceptable to meet the requirements of 10 CFR 50.72 and 10 CFR 50.73, "Licensee event report system." The NRC issued NUREG-1022 in January 2013, superseding Revision 2, which had been issued with the 2000 10 CFR 50.72 final rule. The NRC published NUREG-1022, Revision 3, Supplement 1, "Event Report Guidelines: 10 CFR 50.72(b)(3)(xiii)," in September 2014 (ML14267A447) (NRC, 2014). Supplement 1 contains additional guidance for reporting a major loss of the capability to provide emergency assessment, offsite response, or offsite communications under 10 CFR 50.72(b)(3)(xiii). The NRC published in the *Federal Register* draft NUREG-1022, Revision 3, Supplement 2, "Event Report Guidelines: 10 CFR 50.72(b)(3)(ii) and 50.73(a)(2)(ii)," in April 2024 (89 FR 27463) (NRC, 2024). Supplement 2 contains clarifications and updates to the existing guidance in section 3.2.4 of NUREG-1022, Revision 3.

2 IDENTIFICATION AND PRELIMINARY ANALYSIS OF ALTERNATIVE APPROACHES

To address the regulatory issues related to the retention, elimination, or modification of the nonemergency event reporting requirements of 10 CFR 50.72(b), the NRC considered Alternatives 1–3 below for each of the nonemergency event notification categories. Alternative 4 was considered solely for 10 CFR 50.72(b)(3)(xii).

2.1 Alternative 1: No Action Alternative

The “no action” alternative is to maintain the status quo. Under the no action alternative, the NRC would maintain the current event reporting procedural requirements and framework. The NRC would not pursue any changes to current reporting requirements under 10 CFR 50.72 or to guidance in NUREG-1022. This alternative would result in no new direct costs to the NRC, local governments, or industry and serves as the baseline for this analysis. This alternative would not alleviate the inconsistency between the requirements imposed by the current reporting regulations and recent operating experience regarding the frequency of nonemergency events, updates to methods of reporting these events, the potential safety impact of amending the regulations, and the burden of certain reporting requirements on licensees and the NRC.

2.2 Alternative 2: Rulemaking to Extend the Reporting Period

Under this alternative, the NRC would pursue rulemaking to extend the timeframe for reporting events consistent with other nonemergency event reporting requirements for which the NRC may not need to take prompt action. The NRC would also update existing guidance to reflect the revised regulation. This rulemaking alternative also would revise the nonemergency event notification regulations to allow for the submission of 4- and 8-hour nonemergency event reports using alternative, technology-inclusive reporting methods.

Licensees would still have to compose nonemergency event notifications, which the NRC would review. However, this alternative would allow licensees more time to focus resources on the immediate assessment of and response to the conditions that triggered the notification. Although licensees and the NRC may use fewer resources under this alternative because licensees may use some of the extra time to determine that reports would not need to be submitted, whereas under the current timeframes licensees would have submitted and later retracted the reports, such instances would produce only marginal reductions in resources. See footnote 10 below for a fuller discussion.

2.3 Alternative 3: Rulemaking to Eliminate Reporting Requirements

Under this alternative, the NRC would pursue rulemaking to remove the requirement to report certain nonemergency events. The proposed rule also would revise the nonemergency event notification regulations to allow for the submission of 4- and 8-hour nonemergency event reports using alternative, technology-inclusive reporting methods. The NRC would update the existing guidance for nonemergency event notifications submitted under 10 CFR 50.72 and NRC Form 361, “Reactor Plant Event Notification Worksheet.”

Licensees would not have to report events for each requirement removed under this alternative, which would align with plant operating experience regarding the event category and reduce the resources licenses devote to reporting those events. Licensees would be able to devote fewer

resources to reporting the nonemergency events, and the NRC would no longer have to devote resources to reviewing the event reports for each category eliminated. Table 2 contains a summary of the proposed revisions to the nonemergency event reporting criteria under Alternative 3.

Table 2 Alternative 3 Nonemergency Event Reporting Criteria Changes

Reporting Criteria Changes		
Deviation from technical specifications under 10 CFR 50.54(x)	50.72(b)(1)	No Change
Plant shutdown required by technical specifications	50.72(b)(2)(i)	No Change
Emergency core cooling system discharge	50.72(b)(2)(iv)(A)	Eliminate
Reactor protection system actuation	50.72(B)(2)(iv)(B)	No Change
News release or notification of other government agency	50.72(b)(2)(xi)	Eliminate
Degraded condition	50.72(b)(3)(ii)(A)	No Change
Unanalyzed condition	50.72(b)(3)(ii)(B)	No Change
System actuation (valid)	50.72(b)(3)(iv)(A)	Eliminate
Safety function (shut down and maintain in a safe shutdown condition)	50.72(b)(3)(v)(A)	Eliminate
Safety function (decay heat)	50.72(b)(3)(v)(B)	Eliminate
Safety function (loss of containment)	50.72(b)(3)(v)(C)	Eliminate
Safety function (structures or systems needed to mitigate the consequences of an accident)	50.72(b)(3)(v)(D)	Eliminate
Transport of contaminated person to offsite medical facility	50.72(b)(3)(xii)	Eliminate
Loss of emergency assessment, offsite communications, or offsite response capabilities	50.72(b)(3)(xiii)	Eliminate

2.4 Alternative 4: Rulemaking to Remove Emergency Notification Requirement and Add Licensee Event Report Requirement

Under this alternative, which was considered only for reporting criterion 10 CFR 50.72(b)(3)(xii), the NRC would pursue rulemaking to remove the 8-hour reporting requirement and add a new requirement for a 60-day licensee event report (LER) for events requiring the transport of a survey-confirmed radioactively contaminated person to an offsite medical facility for treatment. The NRC would update NRC Form 366, “Licensee Event Report,” to reflect the revised regulation. Licensees would have to revise their internal reporting procedures and train their operators to implement this alternative.

3 ESTIMATION AND EVALUATION OF COSTS AND BENEFITS

This section examines the costs and benefits expected to result from the NRC's proposed rule. All costs and benefits are monetized, when possible. The total costs and benefits are then summed to determine whether the difference between the costs and the benefits results in a positive benefit. In some cases, costs and benefits are not monetized because meaningful quantification is not possible.

3.1 Identification of Affected Attributes

This section identifies the components of the public and private sectors, commonly referred to as attributes, that are expected to be affected by the alternatives identified in section 2. The staff developed an inventory of the impacted attributes using the list in NUREG/BR-0058, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," Revision 5, January 2020 (NRC, 2020a).

The proposed alternatives would affect the attributes described below.

3.1.1 Industry Implementation

This attribute accounts for the projected net economic effect on licensees to place the alternative into operation. Licensees would incur costs resulting from any new, amended, or eliminated requirements, which may also result from the revised guidance. Licensees would have to revise their procedures to implement the new or amended reporting requirements, remove procedures for eliminated reporting requirements, and train their staff on the new or amended procedures. In addition, licensees would incur costs associated with setting up access to an alternative reporting system and training employees in its usage.

3.1.2 Industry Operation

This attribute accounts for the projected net economic effect on all affected licensees as a result of the routine and recurring activities required by the alternatives. Licensees would avert costs associated with the expected number of nonemergency events that they would no longer need to report over the remaining operating life of their plants.[1] Licensees would incur costs associated with support of an alternative reporting system. However, they would also avert costs per event notification, associated with the use of an alternative reporting system.

3.1.3 NRC Implementation

This attribute accounts for the projected net economic effect on the NRC to place the alternative into operation. To implement Alternatives 2, 3, and 4, the NRC would incur costs in relation to Alternative 1 (i.e., no action alternative, current regulatory baseline) to issue a rule. The NRC would also incur costs to support licensee implementation of an alternative reporting system. In addition, the NRC would incur costs to revise NUREG-1022 and to revise NRC Form 361, NRC Form 366, or both.

[1] The NRC received public comments on the regulatory basis for this rulemaking that two states, Connecticut and Vermont, may require the nonemergency event notifications eliminated under Alternative 3. Of the two states, only Connecticut has an operating reactor. Therefore, the NRC assumes that the licensee for the Millstone Nuclear Power Plant, located in Connecticut, will continue to provide to the NRC or the State of Connecticut all nonemergency event notifications currently required by the NRC, and its specific costs will not be averted.

3.1.4 NRC Operation

This attribute accounts for the projected net economic effect on the NRC as a result of the routine and recurring activities required by the alternatives. For each nonemergency event notification eliminated by the proposed rule, the NRC would avert costs associated with processing nonemergency events on a per-event basis over the remaining lifetime of the nuclear power plant fleet. The NRC would also avert annual costs associated with the submission of nonemergency event notifications, as use of an alternative reporting system would require less labor to process. The NRC would, however, incur annual costs to support the use of that alternative reporting system.

3.1.5 Other Government Entities

Any States that intend to initiate a rulemaking to require the nonemergency event notifications eliminated by the proposed rule would incur rulemaking costs to require the notifications on a local basis and to continue processing nonemergency event notifications for any nuclear plants subject to those requirements.

3.1.6 Regulatory Efficiency

This attribute accounts for regulatory and compliance improvements resulting from the implementation of the alternatives under consideration compared to Alternative 1. The alternatives would better align the reporting requirements of 10 CFR 50.72(b) with the current needs of the NRC and ensure that resources are devoted to the most risk-significant events while maintaining appropriate NRC and stakeholder awareness of events at commercial nuclear power plants. The changes would result in a more efficient reporting process that has enhanced regulatory stability and clarity.

3.1.7 Other Considerations

The rulemaking alternatives would increase regulatory reliability by updating the NRC's regulations and demonstrate the agency's ability to adapt to regulatory needs identified by stakeholders, provide opportunities for stakeholders to submit input to any changes to the reporting requirements, and maintain the NRC's role as an effective regulator. Since the promulgation of the original reporting requirements in 10 CFR 50.72(b), the NRC has periodically updated the reporting requirements to respond to external stakeholder concerns and modify the reporting requirements to meet current agency needs. In addition, the rulemaking process includes the greatest opportunity for the NRC and the public to engage on the issues related to the reporting requirements for nonemergency events at nuclear power plants. Public notice and comment during rulemaking would provide the widest range of viewpoints for Commission consideration during the rule's development.

3.1.8 Attributes with No Effects

The following attributes are not expected to contribute to the results under any of the alternatives:

- Public Health (Accident)
- Public Health (Routine)
- Occupational Health (Accident)
- Occupational Health (Routine)
- Offsite Property
- Onsite Property

- General Public
- Improvement in Knowledge
- Safeguards and Security Considerations
- Environmental Considerations

3.2 Analytical Methodology

This section describes the process used to evaluate costs and benefits associated with the proposed alternatives. The benefits include any desirable changes in affected attributes (e.g., monetary savings, improved safety, and improved security). The costs include any undesirable changes in affected attributes (e.g., monetary characterization costs, increased exposures).

Of the seven affected attributes, the analysis quantitatively evaluated five—Industry Implementation, Industry Operation, NRC Implementation, NRC Operation, and Other Government Entities. Quantitative analysis requires a baseline of the affected society, including factors such as the number of affected entities, the nature of the activities currently performed, and the types of systems and procedures that licensees would implement, or would no longer implement, because of the proposed alternatives. Where possible, the NRC calculated costs for these attributes using distributions to quantify the uncertainty in these estimates. The detailed cost tables used in this regulatory analysis are included in the individual sections for each of the provisions. The NRC evaluated the remaining attributes qualitatively because the benefits relating to regulatory efficiency and the other considerations are not easily quantifiable or because the data necessary to quantify and monetize the impacts on these attributes are not available.

3.2.1 Regulatory Baseline

This regulatory analysis provides the incremental impacts of the proposed rule relative to a baseline that reflects anticipated behavior if the NRC does not undertake regulatory or nonregulatory action. The regulatory baseline assumes full compliance with existing NRC requirements (i.e., all current nonemergency event notification reporting requirements contained in 10 CFR 50.72). This assumption is consistent with NUREG/BR-0058, which states that “in evaluating a new requirement…the staff should assume that all existing NRC and Agreement State requirements have been implemented.” Section 3 of this regulatory analysis presents the estimated incremental costs and benefits of the alternatives compared to this baseline. This regulatory baseline is the no action alternative (i.e., Alternative 1).

3.2.2 Affected Entities

The staff assumes that the rulemaking alternative would affect multiple entities, including all currently operating nuclear power plant licensees and those in the decommissioning process. The analysis assumes that Vogtle Electric Generating Plant, Unit 4, begins operations in the second quarter of 2024 and that current nuclear power reactor plants transition to decommissioning at the end of their renewed 60-year license term unless the plant has notified the NRC of earlier cessation of operations. The analysis also assumes that Diablo Canyon Power Plant will cease operations no later than October 31, 2029, for Unit 1 and no later than October 31, 2030, for Unit 2. The staff did not include power plant licensees that are currently decommissioning or include a decommissioning period for any of the currently operating plants. This is because those units are expected to experience a low number of events that would qualify under the requirements for nonemergency event notifications and, if modeled, would produce marginal costs and benefits. The total number of entities is based on the staff’s level of

knowledge from publicly available information on operating nuclear power reactors, primarily contained in NUREG-1350, "2022–2023 Information Digest," Volume 34, issued February 2023 (NRC, 2023). One unit currently in a decommissioned status—Palisades Nuclear Plant—is undergoing activities for the potential re-authorization of power operations. The unit's potential resumption of power operations was not considered in this evaluation as the addition of one operating unit would have a minimal impact on the final analysis.

The staff did not include small modular reactors or advanced reactors in its estimates for this proposed rule. Because the requirements for nonemergency event notifications are contained in 10 CFR Part 50, those requirements may not be applicable to some small modular reactors or advanced reactors, which may be licensed under other parts within the next 60 years. Furthermore, the staff based the projected number of future nonemergency event notifications on historical data from large light-water reactors, which may not be applicable to small modular reactors or advanced reactors given the expected enhanced safety features and reduced radiological risks of advanced reactor designs compared to the current fleet.

Staff used the projected lifetime of the affected entities to calculate the cumulative number of operating reactor years, which was used to calculate the operating costs analyzed in this regulatory analysis. The results of that calculation are shown in Table 3.

Table 3 Cumulative Reactor Operating Years

	Undiscounted	7% NPV	3% NPV
Cumulative reactor operating years	1431	687	1006

3.2.3 Base Year

All monetized costs are expressed in 2023 dollars. The NRC's implementation costs to prepare and issue a final rule and guidance are expected to be incurred in 2025. Ongoing costs of operation related to Alternative 3 are assumed to begin no earlier than 30 days after publication of the final rule in the *Federal Register* unless otherwise stated, and they are modeled on an annual cost basis. Estimates are made for recurring annual operating expenses. The values for annual operating expenses are modeled as a constant expense for each year of the analysis horizon. The staff performed a discounted cash flow calculation to discount these annual expenses to 2023 dollar values.

3.2.4 Discount Rates

In accordance with the NRC's guidance in NUREG/BR-0058, net present value (NPV) calculations are used to determine how much society would need to invest today to ensure that the designated dollar amount is available in a given year in the future. By using NPV calculations, costs and benefits, regardless of when the cost or benefit is incurred, are valued to a reference year for comparison. The choice of a discount rate and its associated conceptual basis is a topic of ongoing discussion within the Federal Government. Consistent with NRC past practice and guidance, present-worth calculations in this analysis use 3 percent and 7 percent real discount rates. A 3 percent discount rate approximates the real rate of return on long-term government debt, which serves as a proxy for the real rate of return on savings to reflect

reliance on a social rate of time preference discounting concept.[2] A 7 percent discount rate approximates the marginal pretax real rate of return on an average investment in the private sector, and it is the appropriate discount rate whenever the main effect of a regulation is to displace or alter the use of capital in the private sector. A 7 percent rate is consistent with an opportunity cost[3] of capital concept to reflect the time value of resources directed to meet regulatory requirements.

3.2.5 Cost/Benefit Inflators

The staff estimated the analysis inputs for some attributes based on the values published in NUREG/BR-0058, or other sources as referenced, which are provided in prior-year dollars. To evaluate the costs and benefits consistently, these inputs are put into base-year dollars. The most common inflator is the consumer price index for all urban consumers (CPI-U), developed by the U.S. Department of Labor, Bureau of Labor Statistics (BLS). Using the CPI-U, the prior-year dollars are converted to 2023 base year dollars. The following formula is used to determine the amount in 2023 base year dollars from 2022:

$$\frac{(CPI-U)_{\text{BaseYear}}}{(CPI-U)_{2022}}\ x\ Value_{2022} = Value_{\text{Base Year}}$$

Table 4 summarizes the values of CPI-U used in this regulatory analysis.

Table 4 CPI-U Inflator

Year	CPI-U Annual Average[a]
2022	292.61
2023	305.84

[a] Statista, 2023

3.2.6 Labor Rates

For the purposes of this regulatory analysis, the NRC applied incremental cost principles to develop labor rates that include only labor and material costs that are directly related to the implementation and operation and maintenance of the proposed rule requirements. This approach is consistent with the guidance in NUREG/CR-3568, "A Handbook for Value-Impact Assessment," issued December 1983 (NRC, 1983a), and general cost-benefit methodology. The NRC incremental labor rate is $143 per hour.[4] The NRC used the 2022 BLS Occupational Employment and Wages data (BLS, 2023), which provide labor categories and the mean hourly

2 The "social rate of time preference" discounting concept refers to the rate at which society is willing to postpone a marginal unit of current consumption in exchange for more future consumption.

3 "Opportunity cost" represents what is foregone by undertaking a given action. If the licensee personnel were not engaged in revising procedures, they would be performing other work activities. Throughout the analysis, the NRC estimates the opportunity cost of performing these incremental tasks as the industry personnel's pay for the designated unit of time.

4 The NRC labor rates presented here differ from those developed under the NRC's license fee recovery program (10 CFR Part 170, "Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services under the AEA, as Amended"). NRC labor rates for fee recovery purposes are appropriately designed for full-cost recovery of the services rendered and thus include nonincremental costs (e.g., overhead, administrative, and logistical support costs).

wage rate by job type, and applied the inflator discussed above to inflate these labor rate data to 2023 dollars. The labor rates used in the analysis reflect total hourly compensation, which includes wages and nonwage benefits (using a fringe factor of 1.95, applicable for local government and licensee employees).[5] The NRC used the BLS data tables to select appropriate hourly labor rates for performing the anticipated tasks necessary during and following implementation of the proposed alternative. To compose the licensee labor rate, the NRC grouped each position it selected into a category and created an average labor rate for the category. The NRC then weighted each of the categories by the amount of work the NRC estimated each category would undertake if the proposed regulation were finalized and put into effect. In establishing this labor rate, wages paid to the individuals performing the work plus the associated fringe benefit component of labor cost (i.e., insurance premiums, pension, and legally required benefits and the time for plant management exceeding those directly expensed) are considered incremental expenses and are included. Table 5 presents these rates. The NRC used BLS labor rates at the 25th percentile, 50th percentile, and 75th percentile and adjusted to 2023 dollars as input into the uncertainty analysis, which is described in section 4.

Table 5 Labor Cost Assumptions (Period: May 2022)

Position Category	Labor Role Weight	Occupation (SOC Code)	Hourly Mean Wage (2022 dollars)	Hourly 25th Percentile Wage (2022 dollars)	Hourly 75th Percentile Wage (2022 dollars)
Management	5%	General and Operations Managers (111021)	$98.62	$77.34	$106.32
		Industrial Production Managers (113051)	$87.13	$73.82	$98.93
		Average	***$92.88***	***$75.58***	***$102.63***
Managers	10%	First-Line Supervisors of Production and Operating Workers (511011)	$49.45	$36.97	$68.69
		First-Line Supervisors of Mechanics Installers and Repairers (491011)	$46.77	$37.26	$60.18
		Industrial Production Managers (113051)	$65.54	$51.90	$82.89
		General and Operations Managers (111021) (1)	$71.74	$64.74	$78.74
		Average	***$58.38***	***$47.72***	***$72.63***
Technical Staff	15%	Nuclear Engineers (172161)	$56.84	$47.34	$64.35
		Nuclear Technicians (194051)	$49.83	$46.35	$54.44
		First-Line Supervisors of Mechanics, Installers, and Repairers (491011)	$50.23	$43.56	$58.23
		Industrial Machinery Mechanics (499041)	$27.57	$21.28	$32.39
		First-Line Supervisors of Production and Operating Workers (511011)	$73.88	$62.83	$82.92
		Average	***$51.67***	***$44.27***	***$58.47***

[5] The NRC discusses use of a fringe factor in NUREG/BR-0058, Revision 5. The NRC selected 1.95 to reflect an increase in licensee costs since publication of that document.

Position Category	Labor Role Weight	Occupation (SOC Code)	Hourly Mean Wage (2022 dollars)	Hourly 25th Percentile Wage (2022 dollars)	Hourly 75th Percentile Wage (2022 dollars)
Plant Operators	70%	Nuclear Power Reactor Operators (518011)	$57.06	$48.47	$63.31
		Average	***$57.06***	***$48.47***	***$63.31***
State, Local, and Tribal Government	N/A	Emergency Management Directors (119161)	$39.45	$27.62	$48.38
State, Local, and Tribal Government	N/A	Database and Network Administrators and Architects (151240)	$44.92	$34.05	$52.62
State, Local, and Tribal Government	N/A	Lawyers (231011)	$59.62	$40.45	$74.35
		Average	***$48.00***	***$34.04***	***$58.45***

3.2.7 Sign Conventions

The sign conventions used in this analysis are that all favorable consequences for the action under consideration are positive and all adverse consequences are negative. Negative values are shown using parentheses (e.g., negative $500 is displayed as ($500)).

3.2.8 Analysis Horizon

The analysis horizon extends over the remaining lifetime of the nuclear power plant fleet, including any applicable license renewals.

3.3 Data

To estimate the number of nonemergency event notifications that would occur over the analysis horizon, the staff used annual data from the Event Notification Trending Tool[6] for the period of 2000 through 2022 to create a data set for each nonemergency event notification category under consideration. Staff then fitted each data set with an appropriate distribution to calculate a mean number of expected nonemergency event notifications per year. To forecast the future number of nonemergency event notifications, the staff assumed that the mean value of nonemergency event notifications is directly correlated to the number of operating plants in the base year. Because the mean number of nonemergency event notifications for each category under consideration calculated in this step was based on data sets comprising all operating units in the nuclear power plant fleet, staff then converted the mean number of nonemergency event notifications to a per operating unit basis. Doing so allowed staff to use these amounts and publicly available information about the remaining life of the nuclear power plant fleet to calculate the number of nonemergency events notifications that would occur each year over the analysis horizon. The results of this calculation are shown in Table 6. Treating the mean number of nonemergency event notifications as proportional to the number of operating plants in the base year causes the number of predicted nonemergency events to decrease proportionally as plants cease operation at the end of their operating licenses and increase proportionally as new plants enter commercial operation. To estimate the number of nonemergency event notifications that licensees would submit through an alternative reporting system, staff performed the same

[6] The Event Notification Trending Tool is an internal NRC tool that tracks all notifications submitted to the Emergency Notification System.

calculation using a data set comprised of the total number of nonemergency event notifications from the years 2017-2022.[7] The data sets also included all nonemergency event notifications that licensees ultimately retracted, so the analysis captures the total amount of licensee labor hours spent composing nonemergency event notifications.

Table 6 Nonemergency event notifications per year per operating unit

Nonemergency event notification	10 CFR 50.72 Paragraph	Event notifications per operating unit per Year
Deviation from technical specifications under 10 CFR 50.54(x)	50.72(b)(1)	0.005
Plant shutdown required by technical specifications	50.72(b)(2)(i)	0.171
Emergency core cooling system discharge	50.72(b)(2)(iv)(A)	0.045
Reactor protection system actuation	50.72(B)(2)(iv)(B)	0.466
News release or notification of other government agency	50.72(b)(2)(xi)	0.527
Degraded condition	50.72(b)(3)(ii)(A)	0.138
Unanalyzed condition	50.72(b)(3)(ii)(B)	0.262
System actuation (valid)	50.72(b)(3)(iv)(A)	0.478
Safety function (shut down and maintain in a safe shutdown condition)	50.72(b)(3)(v)(A)	0.079
Safety function (decay heat)	50.72(b)(3)(v)(B)	0.100
Safety function (loss of containment)	50.72(b)(3)(v)(C)	0.210
Safety function (structures or systems needed to mitigate the consequences of an accident)	50.72(b)(3)(v)(D)	0.354
Transport of contaminated person to offsite medical facility	50.72(b)(3)(xii)	0.032
Loss of emergency assessment, offsite communications, or offsite response capabilities	50.72(b)(3)(xiii)	0.778

3.4 Results

This section presents the quantitative and qualitative results by attribute for Alternatives 2 through 4, relative to the regulatory baseline (Alternative 1). As described in the previous

[7] Staff used a more recent and restricted data set, as opposed to that comprising the totality of data on the nonemergency event notifications contained in the Event Notification Trending Tool, to project the use of an alternative notification system because it more accurately captures the dissemination and adoption of solely digital notification practices.

sections, costs and benefits are quantified where possible and are shown to be either positive or negative, depending on whether the alternative has a favorable or adverse effect relative to the regulatory baseline (Alternative 1). Those attributes that are not easily represented in monetary values are discussed in qualitative terms. This "ex ante cost-benefit analysis"[8] provides helpful information that the NRC can use when selecting an alternative.

The potential benefits and costs of the alternatives are analyzed for (1) licensees, (2) the NRC and (3) local governments. The analyses in this section are based on the NRC's assessment and input from stakeholders. As described in section 2, some of the alternatives only pertain to certain nonemergency event notifications.

3.4.1 Industry Implementation

Under Alternative 2, licensees would need to modify their procedures for all 54 nuclear power plant sites to reflect the extended reporting period and train their personnel on the new procedures. The NRC estimates that approximately 25 personnel per plant would need to be trained. Licensees would incur costs to set up the alternative notification system at each of the 54 currently operating nuclear power plant sites, with an expected five accounts per site for a total of 270 accounts. Licensees would also incur costs to issue procedures for the alternative notification system application setup, troubleshooting, and reporting. Table 7 presents these costs.

Table 7 Industry Implementation (Alternative 2)

Year	Activity	No. of Plant Sites	Quantity	Hours	Hourly Rate	Total Cost		
						Undiscounted	7% NPV	3% NPV
2026	Modify procedures to reflect extended reporting period	54	1	20	$129	($139,000)	($113,000)	($127,000)
2026	Train personnel on extended reporting procedures	54	25	0.50	$129	($87,000)	($71,000)	($79,000)
2026	Issue procedure for alternative reporting system application setup, troubleshooting, and reporting	54	1	24	$129	($167,000)	($136,000)	($152,000)
2026	Alternative reporting system initial setup	N/A	270	0.75	$129	($26,000)	($21,000)	($24,000)
Total Benefits (Costs)						**($419,000)**	**($341,000)**	**($382,000)**

[8] An "ex ante cost-benefit analysis" is prepared before the implementation of a policy, program, or alternative and can assist in deciding whether to allocate resources to that alternative.

Under Alternative 3, licensees would incur similar costs to Alternative 2, including all the alternative notification system costs. However, modification of their licensee procedures to eliminate reporting requirements would be less complex than modifying them to extend the reporting window under Alternative 2 and require less labor. Table 8 presents these costs.

Table 8 Industry Implementation (Alternative 3)

Year	Activity	No. of Plant Sites	Quantity	Hours	Hourly Rate	Total Cost		
						Undiscounted	7% NPV	3% NPV
2026	Modify industry procedures to eliminate nonemergency event reporting	54	1	10	$129	($69,000)	($57,000)	($64,000)
2026	Train industry personnel on eliminated reporting requirements	54	25	0.27	$129	($47,000)	($38,000)	($43,000)
2026	Issue procedure for alternative reporting system application setup, troubleshooting, and reporting	54	1	24	$129	($167,000)	($136,000)	($152,000)
2026	Conduct initial setup of alternative reporting system	N/A	270	0.75	$129	($26,000)	($21,000)	($24,000)
Total Benefits (Costs)						**($309,000)**	**($252,000)**	**($283,000)**

Under Alternative 4, which was considered only for reporting criterion 10 CFR 50.72(b)(3)(xii), licensees would incur costs to revise their procedures to eliminate the 8-hour event notification requirement and add a requirement to submit an LER within 60 days for the transport of contaminated personnel off site. In addition, licensees would incur costs to train their personnel, which would be necessary at all operating reactor sites. These costs would be incurred for each of the personnel trained on internal procedures. Table 9 presents these costs.

Table 9 Industry Implementation (Alternative 4)

Year	Activity	No. of Plant Sites	Quantity	Hours	Hourly Rate	Net Benefits (Costs)		
						Undiscounted	7% NPV	3% NPV
2026	Revise procedure to eliminate 8-hour event notification and add the 60-day LER for the transport of contaminated persons off site	54	1	1.4	$129	($10,000)	($8,000)	($9,000)
2026	Train personnel	54	25	0.35	$129	($61,000)	($50,000)	($56,000)
Total Benefits (Costs)						**($71,000)**	**($58,000)**	**($65,000)**

3.4.2 Industry Operation

Under Alternative 2, licensees could incur costs annually over the analysis horizon associated with providing alternative notification system application support for new users and

troubleshooting. Those costs could total 30 hours annually over the analysis horizon.[9] However, licensees could expect to avert costs by using the alternative notification system instead of the current notification system to report and process emergency notifications. Based on the data discussed in section 3.3, each operating unit would submit 2.3 nonemergency event notifications per year to the alternative notification system. Table 10 presents these costs.

Table 10 Industry Operation (Alternative 2)

Year	Activity	Quantity	Hours	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2026–2085	Alternative reporting system application support (new users, troubleshooting)	59	30	$129	($228,000)	($54,000)	($106,000)
2026–2085	Averted hours in reporting and processing using alternative reporting system, per event notification	2.3	0.5	$129	$208,000[a]	$100,000[a]	$146,000[a]
Total Benefits (Costs)					**($20,000)**	**$46,000**	**$40,000**

aHourly costs associated with nonemergency event processing are based on operating fleet estimated lifespan

Under Alternative 3, licensees could expect to avert significant costs over the analysis horizon associated with each nonemergency event notification category eliminated by the rulemaking. Based on the mean number of expected nonemergency event notifications per year and the expected remaining life of the existing nuclear power plant fleet and that of the projected new plants, each nonemergency event notification category eliminated would avert licensee costs for composing and reporting the corresponding nonemergency notifications.[10] Each operating unit would avert submitting 2.6 nonemergency event notifications per year.[11] For licensees that operate in States that implement rulemaking processes to require the nonemergency event notifications eliminated under the proposed rule, those particular licensees would continue to incur costs for composing and reporting the nonemergency event notifications to the applicable State and, as such, are deducted from the averted costs. Licensees would incur costs associated with an alternative notification system similar to those for Alternative 2. Table 11 presents these costs.

9 The NRC expects that by 2085, all operating units under consideration in this analysis will have entered decommissioning and there will be no or marginal costs associated with support of the alternative notification system. Thus, 59 years are used instead of 60 to represent the analysis horizon.

10 The elimination of the nonemergency event notification categories under consideration would also lead to the elimination of retractions by licensees of any nonemergency event notification in those categories that licensee later deemed erroneous. The NRC has not quantified the averted costs to licensees for the elimination of these retractions because the rate of retraction for the categories under consideration have all trended downwards in recent years and the NRC anticipates that licensees would continue to improve performance for these categories with additional operating experience would they not be eliminated under Alternative 3. Thus, any averted costs for the retractions under Alternative 3 would be marginal and potentially disappear over the analysis period.

11 The amount of annual averted nonemergency event notifications per operating unit is comprised of the annual mean number of expected nonemergency event notifications described in section 3.3 for each nonemergency event notification category eliminated under Alternative 3.

Table 11 Industry Operation (Alternative 3)

Year	Activity	Quantity	Hours	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2026–2085	Alternative reporting system application support (new users, troubleshooting)	59	30	$129	($228,000)	($54,000)	($106,000)
2026–2085	Industry averted hours in reporting and processing using alternative reporting system, per event notification	2.3	0.5	$129	$208,000[a]	$100,000[a]	$146,000[a]
2026–2085	Averted hours reporting and processing event notifications for eliminated requirements	2.6	100	$129	$4,015,000[a]	$1,923,000[a]	$2,366,000[a]
Total Benefits (Costs)					**$3,995,000**	**$1,969,000**	**$2,406,000**

a Hourly costs associated with nonemergency event processing are based on operating fleet estimated lifespan

Under Alternative 4, licensees could expect to avert a marginal amount of costs associated with the elimination of the nonemergency event notifications for 10 CFR 50.72(b)(3)(xii). However, licensees would incur costs associated with composing the 60-day LER for each qualifying event under 10 CFR 50.72(b)(3)(xii). Table 12 presents these costs.

Table 12 Industry Operation (Alternative 4)

Year	Activity	Quantity	Hours	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2026–2085	Elimination of 8-hour event notification reporting for the transport of contaminated persons offsite.	0.03	4	$129	$23,000[a]	$11,000[a]	$16,000[a]
2026–2085	Addition of 60-day LER for the transport of contaminated persons offsite	0.03	80	$129	($467,000)[a]	($224,000)[a]	($328,000)[a]
Total Benefits (Costs)					**($444,000)**	**($213,000)**	**($312,000)**

a Hourly costs associated with nonemergency event processing are based on operating fleet estimated lifespan

3.4.3 NRC Implementation

NRC implementation includes both development and implementation costs. NRC development costs are the costs of preparing a regulation before its issuance and implementation. Such costs may include expenditures for research in support of this regulatory action, publishing notices of rulemaking, holding public meetings, responding to public comments, and preparing preliminary rule text. NRC implementation costs are those “front-end” costs necessary to put into force the regulatory action and include actions such as performing rulemaking or developing procedures and guidance to assist licensees in complying with the final action. Costs already incurred, including those activities performed by the NRC in making the regulatory decision (e.g., development of the proposed rule), are viewed as “sunk” costs and are excluded from this analysis.

Developmental and implementation costs within the scope of this analysis of Alternatives 2, 3, and 4 are the costs of preparing a final rule. The NRC would also incur costs under the alternatives to revise and issue NRC Form 361. Under Alternatives 2 and 3, the NRC would incur costs to issue the final guidance. The NRC would also incur costs under Alternative 2 and 3 supporting the setup of an alternative notification system for industry users. Under Alternative 4, the NRC would incur costs to revise and issue NRC Form 366. Tables 13-15 present these costs.

Table 13 NRC Implementation (Alternative 2)

Year	Activity	Hours	Quantity	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2025	Develop/issue final rule	1,854	N/A	$143	($265,000)	($232,000)	($250,000)
2025	Develop/issue guidance for final rule	318	N/A	$143	($46,000)	($40,000)	($43,000)
2025	Issue NRC Form 361	80	N/A	$143	($11,000)	($10,000)	($11,000)
2026	Support setup of NRC alternative notification system	0.25	270	$143	($10,000)	($8,000)	($9,000)
Total Benefits (Costs)					**($332,000)**	**($290,000)**	**($313,000)**

Table 14 NRC Implementation (Alternative 3)

Year	Activity	Hours	Quantity	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2025	Develop/issue final rule	1,854	N/A	$143	($265,000)	($232,000)	($250,000)
2025	Develop/issue guidance for final rule	318	N/A	$143	($46,000)	($40,000)	($43,000)
2025	Issue NRC Form 361	80	N/A	$143	($11,000)	($10,000)	($11,000)
2026	Support setup of NRC alternative notification system	0.25	270	$143	($10,000)	($8,000)	($9,000)
Total Benefits (Costs)					**($332,000)**	**($290,000)**	**($313,000)**

Table 15 NRC Implementation (Alternative 4)

Year	Activity	Hours	Quantity	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2025	Develop/issue final rule	1,854	N/A	$143	($265,000)	($232,000)	($250,000)
2025	Issue NRC Form 361	80	N/A	$143	($11,000)	($10,000)	($11,000)
2025	issue NRC Form 366	4	N/A	$143	($570)	($500)	($540)
Total Benefits (Costs)					**($277,000)**	**($243,000)**	**($262,000)**

3.4.4 NRC Operation

Under Alternative 2, the NRC could expect to incur costs over the analysis horizon associated with setting up and supporting the alternative notification system. Those costs would decrease approximately 4 percent annually over time as the NRC gains experience with providing support and as licensees gain expertise with the alternative system. The NRC used a discount factor to represent the 4 percent annual decrease in costs that it calculated for each year in the analysis

horizon.[12] The NRC could expect to incur a marginal amount of costs associated with processing and reviewing nonemergency event notifications submitted through the alternative notification system. The sum of the mean number of expected nonemergency event notifications that would be submitted through the alternative notification system over the analysis horizon is 2.3. Table 16 presents these costs.

Table 16 NRC Operation (Alternative 2)

Year	Activity	Quantity	Hours	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2026–2085	NRC alternative notification system application annual support	23	100	$143	($327,000)	($113,000)	($190,000)
2026–2085	NRC averted hours in processing using alternative notification system, per event notification	2.3	0.25	$143	$115,000[a]	$55,000[a]	$81,000[a]
Total Benefits (Costs)					**($212,000)**	**($58,000)**	**($109,000)**

a Hourly costs associated with nonemergency event processing are based on operating fleet estimated lifespan

Under Alternative 3, the NRC could expect to avert significant costs over the analysis horizon associated with each nonemergency event notification category eliminated by the rulemaking. Based on the mean number of expected nonemergency event notifications per year and the expected remaining life of the existing nuclear power plant fleet and that of the projected new plants, each nonemergency event notification category eliminated would avert costs that include a reduction in the number of nonemergency event notifications that the staff would have otherwise processed and reviewed. The NRC would incur similar costs to those under Alternative 2 associated with supporting the alternative notification system. Table 17 presents these costs.

Table 17 NRC Operation (Alternative 3)

Year	Activity	Quantity	Hours	Industry Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2026–2085	NRC alternative notification system application annual support	N/A	100	$143	($327,000)	($113,000)	($190,000)
2026–2085	NRC averted hours in processing using alternative notification system, per event notification	2.3	0.25	$143	$115,000[a]	$55,000[a]	$80,000[a]

[12] The sum of the individual discount factors is 23 (rounded).

Year	Activity	Quantity	Hours	Industry Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2026–2085	Averted hours reporting and processing event notifications for eliminated requirements	2.6	104	$143	$5,318,000[a]	$2,547,000[a]	$3,732,00[a]
Total Benefits (Costs)					**$5,106,000**	**$2,489,000**	**$3,623,000**

a Hourly costs associated with nonemergency event processing are based on operating fleet estimated lifespan

Under Alternative 4, the NRC could expect to avert costs associated with the elimination of nonemergency event notifications submitted under 10 CFR 50.72(b)(3)(xii). However, the NRC would incur costs associated with processing and reviewing the 60-day LER for each qualifying event submitted by licensees under 10 CFR 50.72(b)(3)(xii). Table 18 presents these costs.

Table 18 NRC Operation (Alternative 4)

Year	Activity	Quantity	Hours	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2026–2085	Elimination of 8-hour event notification reporting for the transport of contaminated persons off site	0.03	6	$143	$39,000[a]	$19,000[a]	$27,000[a]
2026–2085	Addition of 60-day LER for the transport of contaminated persons offsite	0.03	10	$143	($65,000)[a]	($31,000)[a]	($46,000)[a]
Total Benefits (Costs)					**($26,000)**	**($12,000)**	**($19,000)**

a Hourly costs associated with nonemergency event processing are based on operating fleet estimated lifespan

3.4.5 State and Local Government Implementation

Based on public comments received during the regulatory basis phase, the NRC expects that two States would begin their rulemaking process in 2025 to require the nonemergency event notifications eliminated under Alternatives 3 and 4. The NRC assumes that each State that requires the nonemergency event notifications after the NRC proposed rulemaking would create its own database to track nonemergency event notifications and train staff in its usage. The States would also incur costs associated with those rulemaking processes. Tables 19 and 20 present these costs.

Table 19 State and Local Government Implementation (Alternative 3)

Year	Activity	Quantity	Hours Per Licensee	Hourly Rate	Total Cost		
					Undiscounted	7% NPV	3% NPV
2025	Prepare and publish proposed rule to require the eliminated notifications	2	650	$97	($126,000)	($110,000)	($118,000)
2026	Prepare and publish final rule to require the eliminated notifications	2	450	$97	($87,000)	($71,000)	($80,000)
2026	Local government creation of reporting database	2	250	$97	($48,000)	($39,000)	($44,000)
2026	Local government training personnel for implementation of reporting database	2	2	$97	($387)	($316)	($354)
2026	Local government training personnel for review of notifications	2	8	$97	($2,000)	($1,000)	($1,000)
Total Benefits (Costs)					**($263,000)**	**($221,000)**	**($243,000)**

Table 20 State and Local Government Implementation (Alternative 4)

Year	Activity	Quantity	Hours Per Licensee	Hourly Rate	Total Cost		
					Undiscounted	7% NPV	3% NPV
2025	Prepare and publish proposed rule to require the eliminated notifications	2	650	$97	($126,000)	($110,000)	($118,000)
2026	Prepare and publish final rule to require the eliminated notifications	2	450	$97	($87,000)	($71,000)	($80,000)
2026	Local government creation of reporting database	2	250	$97	($48,000)	($39,000)	($44,000)
2026	Local government training of personnel for implementation of reporting database	2	2	$97	($387)	($316)	($354)
2026	Local government training of personnel for review of notifications	2	8	$97	($2,000)	($1,000)	($1,000)
Total Benefits (Costs)					**($263,000)**	**($221,000)**	**($243,000)**

3.4.6 State and Local Government Operation

Under Alternative 3, those local governments that require the eliminated nonemergency event notifications could expect to incur costs associated with reviewing and processing the nonemergency event notifications for plants in their jurisdictions.[13] Table 21 presents these costs.

[13] Under Alternative 4, the number of expected nonemergency event notifications associated with the eliminated requirement would result in marginal operational costs.

Table 21 State and Local Government Operation (Alternative 3)

Year	Activity	Quantity	Hours	Hourly Rate	Net Benefits (Costs)		
					Undiscounted	7% NPV	3% NPV
2026–2085	Hours reviewing and processing event notifications for the eliminated notifications required by local government	2.6	104	$97	($65,000)[a]	($31,000)[a]	($48,000)[a]
Total Benefits (Costs)					**($65,000)**	**($31,000)**	**($48,000)**

a Hourly costs associated with nonemergency event processing are based on operational plant lifespan in states that require the eliminated nonemergency event notifications

3.4.7 Regulatory Efficiency

Under Alternatives 2 and 3, implementation of an alternative reporting system for nonemergency event notifications would create a more efficient submission process for licensees and the NRC. The alternative reporting system would streamline the flow of information, such as event notifications, from licensees to the NRC and warehouse data for operational analytics.

An extension of the deadline to provide notifications under Alternative 2 would result in licensees having more time to analyze events and determine whether the event breached reporting thresholds, rather than preemptively submitting a notification. This could lead to a reduction in the number of retracted nonemergency event notifications, which would increase the efficiency of the reporting process for all involved stakeholders.

Eliminating the nonemergency event notifications under consideration in Alternative 3 and Alternative 4 would better align the reporting requirements of 10 CFR 50.72(b) with the current needs of the NRC to take prompt action in response to safety-significant nonemergency events at operating nuclear power plants and modify or eliminate those reports that do not require immediate action or that could be tracked using other existing agency processes. The proposed changes also would ensure that the agency's resources are devoted to the most risk-significant events while maintaining appropriate NRC and stakeholder awareness of events at commercial nuclear power plants. These changes would result in a more efficient reporting process that has enhanced regulatory stability and clarity.

The proposed changes would modify or eliminate certain reports that are not needed within the timeframes specified in the current 4-hour and 8-hour reporting requirements of 10 CFR 50.72(b), thereby reducing unnecessary regulatory burden on licensees. The proposed change to the reporting method could also reduce the burden on licensees stemming from having to call the NRC's Headquarters Operations Center to report nonemergency events.

3.4.8 Other Considerations

Alternatives 3 and 4 would demonstrate the agency's ability to adapt to regulatory needs identified by stakeholders, provide opportunities for stakeholders to submit input to any changes to the reporting requirements, and maintain the NRC's role as an effective regulator. The NRC has periodically updated the nonemergency event reporting requirements to respond to external stakeholder concerns and meet current agency needs.

By eliminating the nonemergency event notifications under consideration in Alternative 3 or Alternative 4, there would be a nonquantified cost to the public of reduced transparency for the three requirements that do not have corresponding requirements under 10 CFR 50.73 for submitting an LER. For the three requirements with corresponding LER reporting criteria, transparency would be postponed until submittal of the LER. State, local, and Tribal governments that rely on the nonemergency event notifications in their interactions with the public will no longer have prompt insight into licensees' operations that the nonemergency event notifications provide to inform their interactions. However, given the frequency of the nonemergency event notifications and their severity, the NRC assumes this cost is limited and difficult to measure without information on how frequently stakeholders address the nonemergency events when interacting with the public.

3.4.9 Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 et seq.), enacted in September 1980, requires agencies to consider the impact of their regulatory proposals on small entities, analyze alternatives that minimize small entity impacts, and make their analyses available for public comment. The NRC uses the following size standards, codified at 10 CFR 2.810, "NRC size standards," to qualify a licensee as a small entity:

- A small business is a manufacturing concern with an average number of 500 or fewer employees based upon employment during each pay period for the preceding 12 calendar months.

- A small organization is a not-for-profit organization that is independently owned and operated and has annual gross receipts of $8 million or less.

- A small governmental jurisdiction is a government of a city, county, town, township, village, school district, or special district with a population of less than 50,000.

- A small educational institution is one that is (1) supported by a qualifying small governmental jurisdiction or (2) not State or publicly supported and has 500 or fewer employees.

None of the operating reactor licensees fall within the definition of "small entities" in 10 CFR 2.810. Therefore, the NRC's proposed rulemaking would not have a significant economic impact on a substantial number of small entities.

4 SUMMARY OF THE RESULTS

4.1 Summary

This regulatory analysis identifies both quantifiable and nonquantifiable costs and benefits that would result from the alternatives. Although quantifiable costs and benefits appear to be more tangible, decisionmakers should not discount costs and benefits that cannot be quantified. Such benefits or costs can be as important as or even more important than benefits or costs that can be quantified and monetized.

4.1.1 Quantified Net Benefits

Table 22 summarizes the estimated quantified benefits and costs for the alternatives, compared to the regulatory baseline (Alternative 1). The quantitative analysis used best estimate values.

4.1.2 Nonquantified Benefits

In addition to the quantified costs, the NRC analyzed numerous benefits and costs that could not be monetized but would affect the general public, industry, and the NRC. Table 22 summarizes these benefits.

Table 22 Summary of Results

Net Monetary Savings or (Costs)—Total Present Value	**Nonquantified Benefits or (Costs)**
Alternative 1: No Action $0	None
Alternative 2: **Industry:** ($296,000) using a 7% discount rate ($343,000) using a 3% discount rate **NRC:** ($347,000) using a 7% discount rate ($421,000) using a 3% discount rate **State and Local Government:** ($0) using a 7% discount rate ($0) using a 3% discount rate **Net Benefit (Cost):** ($643,000) using a 7% discount rate ($764,000) using a 3% discount rate	**Benefits:** • **Regulatory Efficiency—**Alternative 2 would implement an alternative notification system, which would lead to a more efficient process, and extend the deadline for providing nonemergency event notifications, which would lead to more accurate submissions.
Alternative 3 (proposed): **Industry:** $1,717,000 using a 7% discount rate $2,123,000 using a 3% discount rate **NRC:**	**Benefits:** • **Regulatory Efficiency—**Alternative 3 would implement an alternative notification system, which would lead to a more efficient process.

Net Monetary Savings or (Costs)—Total Present Value	Nonquantified Benefits or (Costs)
$2,200,000 using a 7% discount rate $2,909,000 using a 3% discount rate **State and Local Government:** ($253,000) using a 7% discount rate ($287,000) using a 3% discount rate **Net Benefit (Cost):** $3,664,000 using a 7% discount rate $4,746,000 using a 3% discount rate	• **Other Considerations—**Alternative 3 would align the NRC's nonemergency event notification regulations with operating experience and respond to stakeholder interests. **Costs:** • **Other Considerations—**Alternative 3 would reduce transparency for the public by reducing or postponing the amount of information available for lower significance events when that information is not needed by the NRC or could be tracked using other existing agency processes.
Alternative 4: **Industry:** ($271,000) using a 7% discount rate ($377,000) using a 3% discount rate **NRC:** ($255,000) using a 7% discount rate ($280,000) using a 3% discount rate **State and Local Government:** ($222,000) using a 7% discount rate ($244,000) using a 3% discount rate **Net Benefit (Cost):** ($748,000) using a 7% discount rate ($901,000) using a 3% discount rate	**Costs:** • **Other Considerations—**Alternative 4 would postpone transparency for the public for events involving the transport of a contaminated person to an offsite medical facility by removing the immediate reporting requirement and adding a requirement for a licensee event report.

Totals differ slightly between and within tables due to rounding.

4.2 Uncertainty Analysis

The NRC completed a Monte Carlo sensitivity analysis for this regulatory analysis using the specialty software @Risk. The Monte Carlo approach answers the question, "What distribution of net costs and benefits results from multiple draws of the probability distribution assigned to key variables?"

4.2.1 Uncertainty Analysis Assumptions

The NRC provides the following analysis of the variables with the greatest uncertainty on estimates of values. To perform this analysis, the staff performed a Monte Carlo simulation using the @Risk software program.[14] Monte Carlo simulations involve introducing uncertainty

[14] Information about this software is available at https://www.palisade.com.

into the analysis by replacing the point estimates of the variables used to estimate base case costs and benefits with probability distributions. By defining input variables as probability distributions instead of point estimates, the influence of uncertainty on the results of the analysis (i.e., the net benefits) can be effectively modeled.

The probability distributions chosen to represent the different variables in the analysis were bounded by the range-referenced input and the staff's professional judgment. When defining the probability distributions for use in a Monte Carlo simulation, summary statistics are needed to characterize the distributions. These summary statistics include the mean expected value of a fitted exponential distribution,[15] the mean expected value of a fitted triangular or trigen distribution,[16] and the minimum and maximum values of a program evaluation and review technique (PERT) distribution.[17]

Appendix A identifies the data elements, the distribution, and the low, most likely, and high estimates of the distribution that were used in the uncertainty analysis.

4.2.2 Uncertainty Analysis Results

The NRC performed the Monte Carlo simulation for Alternative 3 by repeatedly recalculating the results 10,000 times. For each iteration, the values identified in appendix A were chosen randomly from the probability distributions that define the input variables. The values of the output variables were recorded for each iteration, and these values were used to define the resultant probability distribution.

For the analysis shown in each figure below, 10,000 simulations were run in which the key variables were changed to assess the resulting effect on costs and benefits. Figures 1 through 5 display the histograms of the incremental costs and benefits from the regulatory baseline (Alternative 1) for each affected entity and the total net benefit of the rule. The analysis shows that all affected entities would incur costs if this rule becomes effective.

---

15 An exponential distribution is a probability distribution of the time between events in a Poisson point process, that is, a process in which events occur continuously and independently at a constant average rate.

16 A trigen distribution is a triangular distribution with three points representing a bottom percentile, a most likely value, and a top percentile.

17 A PERT distribution is a curved density distribution with three points representing specified minimum, most likely, and maximum values.

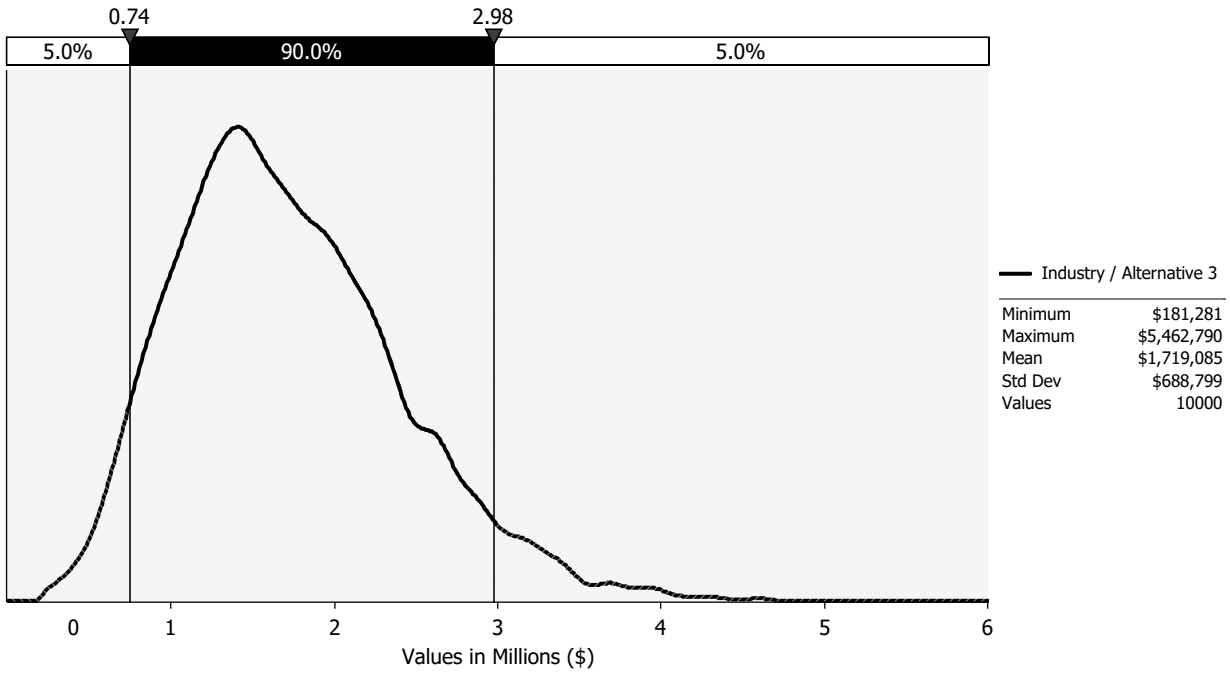

Figure 1 Total industry costs (7 percent NPV)—Alternative 3

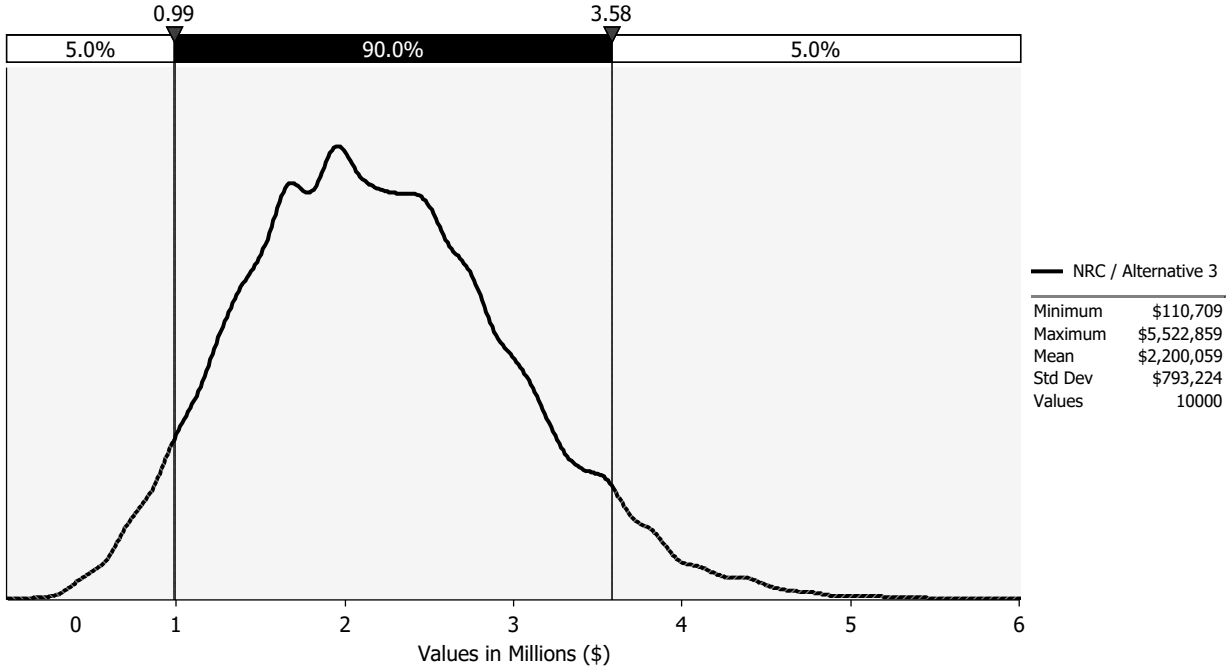

Figure 2 Total NRC costs (7 percent NPV)—Alternative 3

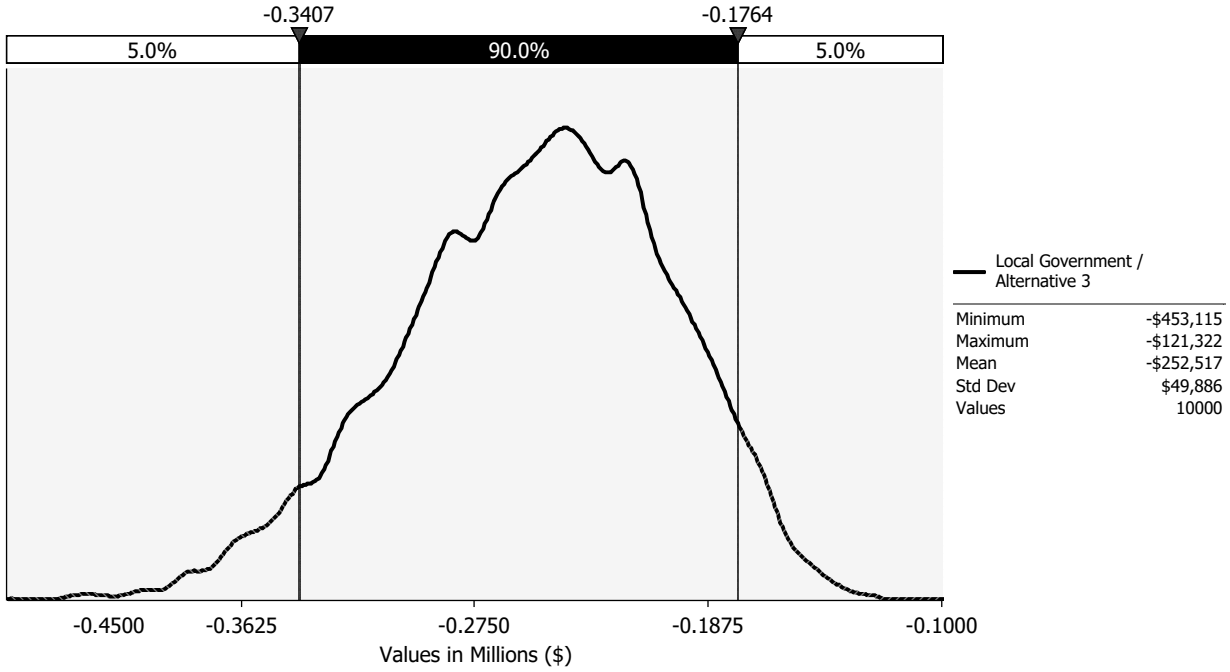

Figure 3 Total State and local government costs (7 percent NPV)—Alternative 3

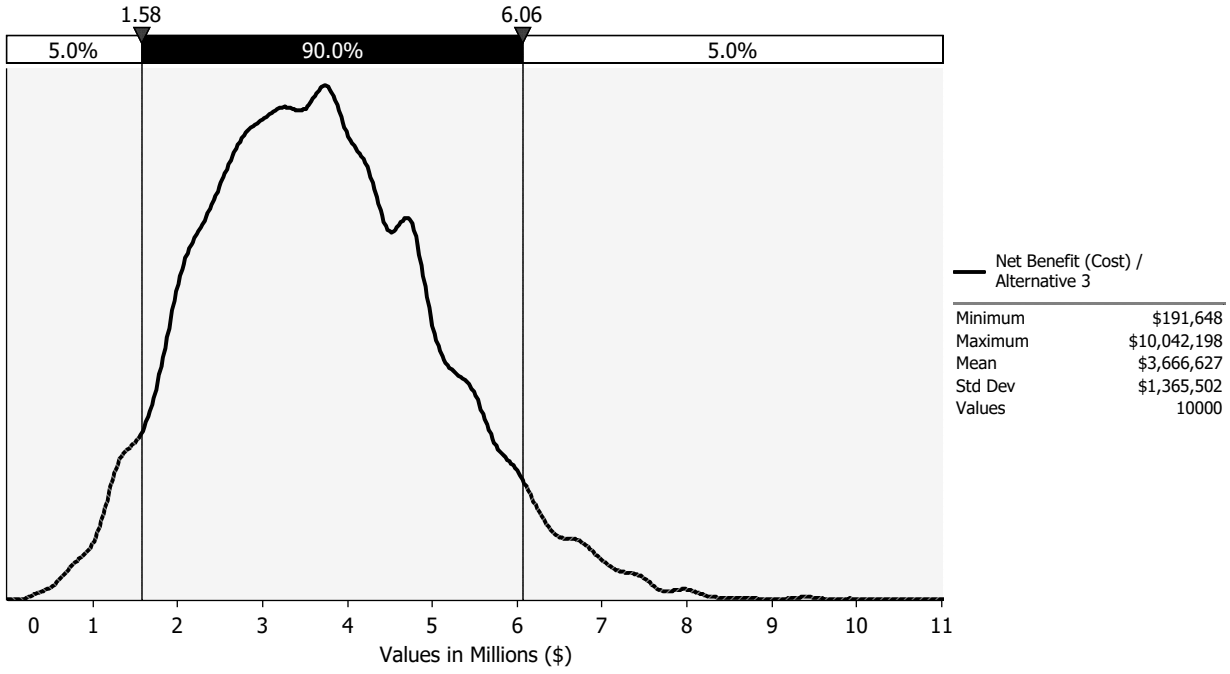

Figure 4 Total net benefit (cost) (7 percent NPV)—Alternative 3

Table 23 presents descriptive statistics for the uncertainty analysis.

Table 23 Descriptive Statistics for Uncertainty Results (7 Percent NPV)

Uncertainty Result	Incremental Cost-Benefit (2023 Million Dollars)				
	Min	Mean	Max	5%	95%
Net Industry Benefit (Cost)	$0.18	$1.70	$5.46	$0.74	$2.98
Net NRC Benefit (Cost)	$0.11	$2.20	$5.52	$0.99	$3.58
Net State and Local Government Benefit (Cost)	($0.45)	($0.25)	($0.12)	($0.34)	($0.18)
Total Net Benefit (Cost)	**$0.19**	**$3.67**	**$10.04**	**$1.58**	**$6.06**

This table displays the key statistical results, including the 90 percent confidence interval in which the net benefits would fall between the 5 percent and 95 percent values.

Figure **Error! Reference source not found.**5 shows a tornado diagram that identifies the main cost drivers for this proposed rulemaking. The largest cost drivers are the projected annual number of nonemergency event notifications related to the following events: potential inoperability of safety-related equipment, Loss of emergency assessment, offsite communications, or offsite response capabilities, loss of containment, system actuation (valid), and news release or other government agency. The nonemergency notifications triggered by these events have the largest impact on cost because they require the largest amount of labor to process when compared to the other nonemergency event notifications. The next largest cost driver is the industry labor rate. These variables are the largest cost drivers and generate the largest variations in the total net benefit due to uncertainty. The remaining variables have diminishing significance and have been suppressed from the figure.

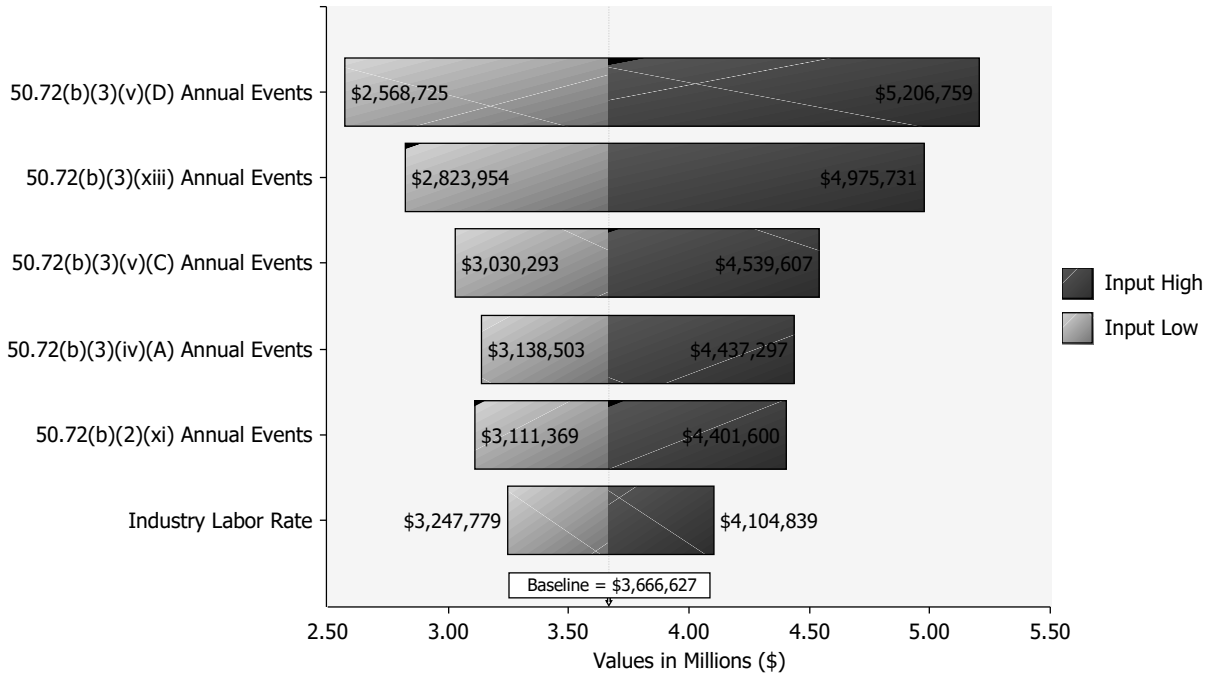

Figure 5 Top cost drivers for which uncertainty impacts the total net costs (7 percent NPV)—Alternative 3

4.2.3 Summary of Uncertainty Analysis

The simulation analysis shows that the estimated mean benefit (i.e., positive averted costs or savings) for this proposed rule would be $3,667,000, with 90 percent confidence that the net benefit would be between $1,580,000 and $6,060,000 using a 7 percent discount rate. The NRC's quantitative estimates show that the proposed rulemaking would be cost beneficial. A major assumption affecting this finding is that the number of nonemergency event notifications would continue at a level fitting the data set for the performance of the operating fleet over the measured period. If licensees continue to improve operations in a way that reduces the number of nonemergency event notifications beyond the distribution predicted by the historical data, the measured benefit may be reduced proportionally.

4.3 Disaggregation

The NRC performed a screening review to determine whether any of the individual requirements (or set of integrated requirements) of the rule would be unnecessary to achieve the objectives of the rulemaking. The objectives of this rulemaking are to respond to the PRM, eliminate those nonemergency event reporting criteria that are no longer needed, and allow for alternative reporting methods for nonemergency events. The NRC concludes that each of the rule's requirements would be necessary to achieve the objectives of the rulemaking and found that the provisions considered separately would not mask the inclusion of other unnecessary requirements.

5 DECISION RATIONALE AND IMPLEMENTATION

The decision rationale is based on the main analysis. The assessment of total costs and benefits discussed previously leads the NRC to conclude that implementation of the proposed rule in Alternative 3 would be justified and would outweigh the costs to implement the rule. Based solely on quantified costs and benefits, Alternative 3 would be the most cost beneficial alternative. The estimated net benefit for Alternative 3 would be $3,664,000, assuming a 7 percent discount rate, or $4,746,000, assuming a 3 percent discount rate. Alternatives 2 and 4 would not be quantitatively beneficial, with net benefits of ($643,000) and ($748,000), assuming a 7 percent discount rate, or ($764,000) and ($901,000), assuming a 3 percent discount rate, respectively.

The elimination of nonemergency event notifications under Alternative 3 would not affect the NRC's ability to provide reasonable assurance of adequate protection of public health and safety, and, based on operating experience, those notifications are no longer necessary. The averted costs associated with processing and reviewing the nonemergency event notifications that would be eliminated for both the NRC and industry over the remaining operational life of the nuclear power plant fleet would be significant. While the implementation and operation of a technology-inclusive alternative notification system would incur costs for both the NRC and local governments, these costs are marginal. Industry would also incur a small operational benefit from the implementation of an alternative system, averting hours that it would spend submitting nonemergency event notifications through the existing emergency notification system. The NRC acknowledges that local governments that either choose to require the eliminated nonemergency event notifications or are otherwise statutorily mandated to do so would incur costs. However, those costs do not outweigh the overall benefit accrued by the other stakeholders to this action and are based on notional information about the extent of these costs and the associated benefits of reimposing the requirements. The NRC will update its analysis should it receive any further information on these costs.

The implementation of Alternative 3 would increase regulatory efficiency for both the NRC and industry. The averted hours associated with processing the eliminated nonemergency event notifications would allow the NRC to devote its resources to other areas and to addressing events of a higher risk significance. Industry would experience a similar benefit. Importantly, the proposed rule demonstrates that the NRC is responsive to stakeholder concerns and is willing to adapt its regulatory regime based on operating experience. The other alternatives under consideration would only partially respond to the stakeholder concerns in the PRM. As noted above, the benefits accrued by the proposed rule would be sensitive to the number of nonemergency event notifications that occur over the analysis period.

The NRC assumed, for this analysis, that any final rule would be effective in 2026.

6 REFERENCES

U.S. Code of Federal Regulations, "NRC size standards," Section 2.810, Chapter I, Title 10, "Energy."

U.S. Code of Federal Regulations, "Domestic Licensing of Production and Utilization Facilities," Part 50, Chapter I, Title 10, "Energy."

U.S. Code of Federal Regulations, "Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services under the AEA, as Amended," Part 170, Chapter I, Title 10, "Energy."

BLS, 2023. U.S. Department of Labor, Bureau of Labor Statistics, "May 2022 National Occupational Employment and Wage Estimates." Available at https://www.bls.gov/soc/home.htm; last accessed on August 30, 2023.

NRC, 1980. U.S. Nuclear Regulatory Commission, "Immediate Reporting of Significant Events at Operating Nuclear Power Plants," 45 FR 13434, February 29, 1980.

NRC, 1983a. U.S. Nuclear Regulatory Commission, "A Handbook for Value-Impact Assessment," NUREG/CR-3568, December 1983 (ML062830096).

NRC, 1983b. U.S. Nuclear Regulatory Commission, "Immediate Notification Requirements of Significant Events at Operating Nuclear Power Reactors; Final Rule," 46 FR 39039, August 29, 1983.

NRC, 1992. U.S. Nuclear Regulatory Commission, "Minor Modifications to Nuclear Power Event Reporting Requirements; Final Rule," 57 FR 41378, September 10, 1992.

NRC, 2000. U.S. Nuclear Regulatory Commission, "Reporting Requirements for Nuclear Power Reactors and Independent Spent Fuel Storage Installations at Power Reactor Sites; Final Rule," 65 FR 63769, October 25, 2000.

NRC, 2014. U.S. Nuclear Regulatory Commission, "Event Report Guidelines 10 CFR 50.72(b)(3)(xiii)," NUREG-1022, Revision 3, Supplement 1, September 2014 (ML14267A447).

NRC, 2020a. U.S. Nuclear Regulatory Commission, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," NUREG/BR-0058, draft Revision 5, January 2020 (ML17221A005).

NRC, 2020b, U.S. Nuclear Regulatory Commission, "Petition for Rulemaking and Rulemaking Plan on Immediate Notification Requirements for Nonemergency Events (PRM-50-116; NRC-2018-0201)," SECY-20-0109, November 30, 2020 (ML20073G004).

NRC, 2021. U.S. Nuclear Regulatory Commission, "Staff Requirements—SECY-20-0109—Petition for Rulemaking and Rulemaking Plan on Immediate Notification Requirements for Nonemergency Events," SRM-SECY-20-0109, July 28, 2021 (ML21209A947).

NRC, 2023. U.S. Nuclear Regulatory Commission, "2022–2023 Information Digest," NUREG-1350, Vol. 34, Section 2, February 2023 (ML23047A374).

Statistica, 2023. Statistica Research Department, “Projected Consumer Price Index in the United States from 2010 to 2028,” released April 2023. Available at https://www.statista.com/statistics/244993/projected-consumer-price-index-in-the-united-states/; last accessed on May 11, 2023.

APPENDIX A: UNCERTAINTY ANALYSIS VARIABLES

Activity	Mean Estimate	Distribution	Low Estimate	Best Estimate	High Estimate
General					
Base year	2023				
Year rule is active	2026				
Analysis horizon	2085				
Discount rate	7%				
Supplemental discount rate	3%				
NRC staff labor rate	$143				
States with operating reactors that would implement eliminated notifications	1.00				
Local government staff labor rate	$97	PERT	$69	$98	$119
Industry labor rate	$129	PERT	$101	$127	$161
Labor rate multiplier	1.95	Uniform	1.50		2.40
Number of operating nuclear plant sites in 2023	54				
NRC Implementation					
Rulemaking					
Prepare proposed rule and supporting documents	2,337 hours	PERT	1,980	2,286	2,895
Prepare draft guidance	318 hours	PERT	220	300	490
Revise Form 361 and submit to the Office of Management and Budget	80 hours	PERT	40	80	120
Prepare final rule and supporting documents	1,854 hours	PERT	1,524	1,828	2,286
Prepare and issue guidance	398 hours	PERT	300	380	570
Issue Form 361 for use	80 hours	PERT	40	80	120
Industry Implementation					
Number of personnel trained on internal procedures per site	25	PERT	20	25	30
Event Notifications					
Number of commercially operating nuclear power plants in 2023	94				
Number of commercially operating nuclear power plant sites in 2023	54				
Mean Number of Future Event Notifications per Commercially Operating Nuclear Power Unit per Year Using Fitted Historical Data					
Nonemergency Notifications #1—Deviation from technical specifications under 10 CFR 50.54(x)	0.005	Exponential			
Nonemergency Notifications #2—Plant shutdown required by technical specifications	0.17	Triangular			

Activity	Mean Estimate	Distribution	Low Estimate	Best Estimate	High Estimate
Nonemergency Notifications #3—Emergency core cooling system Discharge	0.05	Triangular			
Nonemergency Notifications #4—Reactor protection system actuation	0.47	Triangular			
Nonemergency Notifications #5—News release or notification of other government agency	0.53	Triangular			
Nonemergency Notifications #6—Degraded condition	0.14	Triangular			
Nonemergency Notifications #7—unanalyzed condition	0.26	Triangular			
Nonemergency Notifications #8A—System actuation (valid)	0.48	Triangular			
Nonemergency Notifications #9A—Safety function (shut down and maintain in a safe shutdown condition)	0.08	Triangular			
Nonemergency Notifications #9B—Safety function (decay heat)	0.10	Triangular			
Nonemergency Notifications #9C—Safety function (loss of containment)	0.21	Triangular			
Nonemergency Notifications #9D—Safety function (structures or systems needed to mitigate the consequences of an accident)	0.35	Triangular			
Nonemergency Notifications #10—Transport of contaminated person to offsite medical facility	0.03	Triangular			
Nonemergency Notifications #11—Loss of emergency assessment, offsite communications, or offsite response capabilities	0.78	Triangular			
Alternative 2—Extend Reporting Period and Add New Reporting Alternative					
Industry modifying procedures to reflect extended reporting period	20. hours	PERT	10.00	18.00	38.00
Time to train industry personnel on extended reporting period procedures	0.5 hours	PERT	0.25	0.50	0.75
Issue industry procedure for alternative reporting system application setup, troubleshooting, and reporting	24. hours	PERT	8.00	24.00	40.00
Add New Reporting Alternative—Alternative Reporting System					
Mean number of future event notifications per commercially operating nuclear power unit per year	2.26	Triangular			
NRC averted hours in processing using alternative reporting system, per event notification	0.25 hours	Uniform	0.00		0.50
Initial NRC setup support per alternative reporting system user	0.25 hours	Uniform	0.00		0.50
NRC alternative reporting system application support per year	100 hours	Uniform	40.00		160.00
Percentage decrease in NRC alternative reporting system application support hours annually	4%	Uniform	0.03		0.05
Initial local government alternative reporting system user setup and registration, per user	0.75 hours	Uniform	0.50		1.00

Activity	Mean Estimate	Distribution	Low Estimate	Best Estimate	High Estimate
Annual local government alternative reporting system application support (new users, troubleshooting)	12 hours	Uniform	4.00		20.00
Industry averted hours in reporting and processing using alternative reporting system, per event notification	0.5 hours	Uniform	0.25		0.75
Initial industry alternative reporting system user setup and registration, per user	0.75 hours	Uniform	0.50		1.00
Annual industry alternative reporting system application support (new users, troubleshooting)	30 hours	Uniform	20.00		40.00
Number of industry alternative reporting system users	270	Uniform	162.00		378.00
Alternative 3—Eliminate Reporting Requirement					
Industry modifying procedures to eliminate reporting requirement	10 hours	PERT	4.00	8.00	24.0
Train industry personnel on eliminated reporting requirements	0.27 hours	PERT	0.13	0.25	0.5
Hours to prepare and publish proposed rule to require the eliminated notifications	650.00	PERT	325.00	650.00	975.0
Hours to prepare and publish final rule to require the eliminated notifications	450.00	PERT	225.00	450.00	675.0
Local government creation of reporting database	250.00	PERT	125.00	250.00	375.0
Local government training personnel for implementation of reporting database	2.00	PERT	1.00	2.00	3.0
Local government training personnel for review of notifications	8.00	PERT	4.00	8.00	12.0
Nonemergency Notifications #1—Deviation from technical specifications under 10 CFR 50.54(x)					
NRC averted review of eliminated technical specification deviation event notification	8.50	PERT	4.25	8.50	12.8
Local government review of technical specification deviation event notification	8.50	PERT	4.25	8.50	12.8
Industry averted reporting of eliminated technical specification deviation event notification	4.00	PERT	2.00	4.00	6.0
Nonemergency Notifications #2—Plant shutdown required by technical specifications					
NRC averted review of eliminated plant shutdown event notifications	8.50	PERT	4.25	8.50	12.8
Local government review of plant shutdown event notifications	8.50	PERT	4.25	8.50	12.8
Industry averted reporting of eliminated plant shutdown event notifications	4.00	PERT	2.00	4.00	6.0
Nonemergency Notifications #3—Emergency core cooling system discharge					
NRC averted review of eliminated emergency core cooling system discharge event notification	10.50	PERT	5.25	10.50	15.8
Local government review of emergency core cooling system discharge event notification	10.50	PERT	5.25	10.50	15.8
Industry averted reporting of eliminated emergency core cooling system discharge event notification	4.00	PERT	2.00	4.00	6
Nonemergency Notifications #4—Reactor protection system actuation					

Activity	Mean Estimate	Distribution	Low Estimate	Best Estimate	High Estimate
NRC averted review of eliminated reactor protection system actuation event notification	10.50	PERT	5.25	10.50	15.8
Local government review of reactor protection system actuation event notification	10.50	PERT	5.25	10.50	15.8
Industry averted reporting of eliminated reactor protection system actuation event notification	4.00	PERT	2.00	4.00	6.0
Nonemergency Notifications #5—News release or notification of other government agency					
NRC averted review of eliminated news release event notification	6.00	PERT	3.00	6.00	9.0
Local government review of news release event notification	6.00	PERT	3.00	6.00	9.0
Industry averted reporting of eliminated news release event notification	4.00	PERT	2.00	4.00	6.0
Nonemergency Notifications #6—Degraded condition					
NRC averted review of eliminated degraded condition event notification	16.00	PERT	8.00	16.00	24.0
Local government review of degraded condition event notification	16.00	PERT	8.00	16.00	24.0
Industry averted reporting of eliminated degraded condition event notification	20.00	PERT	10.00	20.00	30.0
Nonemergency Notifications #7—Unanalyzed condition					
NRC averted review of eliminated unanalyzed condition event notification	16.00	PERT	8.00	16.00	24.0
Local government review of unanalyzed condition event notification	16.00	PERT	8.00	16.00	24.0
Industry averted reporting of eliminated unanalyzed condition event notification	20.00	PERT	10.00	20.00	30.0
Nonemergency Notifications #8A—System actuation (valid)					
NRC averted review of eliminated system actuation event notification	8.00	PERT	4.00	8.00	12.0
Local government review of system actuation event notification	8.00	PERT	4.00	8.00	12.0
Industry averted reporting of eliminated system actuation event notification	4.00	PERT	2.00	4.00	6.0
Nonemergency Notifications #9A—Safety function (shut down and maintain in a safe shutdown condition)					
NRC averted review of eliminated safety function (reportable) event notification	16.00	PERT	8.00	16.00	24.0
Local government review of safety function (reportable) event notification	16.00	PERT	8.00	16.00	24.0
Industry averted reporting of eliminated safety function (reportable) event notification	20.00	PERT	10.00	20.00	30.0
Nonemergency Notifications #9B—Safety function (decay heat)					
NRC averted review of eliminated decay heat event notification	16.00	PERT	8.00	16.00	24.0
Local government review of decay heat event notification	16.00	PERT	8.00	16.00	24.0
Industry averted reporting of eliminated decay heat event notification	20.00	PERT	10.00	20.00	30.0

Activity	Mean Estimate	Distribution	Low Estimate	Best Estimate	High Estimate
Nonemergency Notifications #9C—Safety function (loss of containment)					
NRC averted review of eliminated loss of containment event notification	16.00	PERT	8.00	16.00	24.0
Local government review of loss of containment event notification	16.00	PERT	8.00	16.00	24.0
Industry averted reporting of eliminated loss of containment event notification	20.00	PERT	10.00	20.00	30.0
Nonemergency Notifications #9D—Safety function (structures or systems needed to mitigate the consequences of an accident)					
NRC averted review of eliminated inoperability of equipment event notification	16.00	PERT	8.00	16.00	24.0
Local government review of inoperability of equipment event notification	16.00	PERT	8.00	16.00	24.0
Industry averted reporting of eliminated inoperability of equipment event notification	20.00	PERT	10.00	20.00	30.0
Nonemergency Notifications #10—Transport of contaminated person to offsite medical facility					
NRC averted review of eliminated offsite medical event notification	6.00	PERT	3.00	6.00	9.0
Local government review of offsite medical event notification	6.00	PERT	3.00	6.00	9.0
Industry averted reporting of eliminated offsite medical event notification	4.00	PERT	2.00	4.00	6.0
Nonemergency Notifications #11—Loss of emergency assessment, offsite communications, or offsite response capabilities					
NRC review of loss of capabilities event notifications	9.00	PERT	4.50	9.00	13.5
Local government review of loss of capabilities event notifications	9.00	PERT	4.50	9.00	13.5
Industry reporting of loss of capabilities event notifications	4.00	PERT	2.00	4.00	6.0
Alternative 4—Eliminate 10 CFR 50.72 Reporting Requirements (Alternative 3) and Add 10 CFR 50.73 LER Requirement					
Nonemergency Notifications #10—Transport of contaminated person to offsite medical facility					
NRC averted review of elimination of offsite medical event notifications	6.00	PERT	3.0	6.00	9.0
Local government averted review of elimination of offsite medical event notifications	6.00	PERT	3.0	6.00	9.0
Industry averted reporting of elimination of offsite medical event notifications	4.00	PERT	2.0	4.00	6.0
NRC revise Form 366 and submit to the Office of Management and Budget	4.00	PERT	2.0	4.00	6.0
NRC issue Form 366	4.00	PERT	2.0	4.00	6.0
NRC review of new 60-day LER	10.00	PERT	4.0	10.00	16.0
Local government review of new 60-day LER	0.00	PERT	0	0.00	0
Industry preparation and reporting of new 60-day LER	80.00	PERT	40	80.00	120
Revise industry procedure to eliminate 8-hour event notification and add the 60-day LER for the transport of contaminated persons off site	76.00	PERT	16	80.00	120

Activity	Mean Estimate	Distribution	Low Estimate	Best Estimate	High Estimate
Train personnel on new LER requirement	0.35	PERT	0.13	0.25	1.0
Hours to prepare and publish proposed rule to require the eliminated notifications	650.00	PERT	325.00	650.00	975.0
Hours to prepare and publish final rule to require the eliminated notifications	450.00	PERT	225.00	450.00	675.0

LER = licensee event report, PERT = program evaluation and review technique