

**Regulatory Analysis for Proposed Rulemaking:  
Requirements for Fingerprint Based Criminal History Record  
Checks for Individuals Seeking Unescorted Access to  
Research or Test Reactors**

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**U.S. Nuclear Regulatory Commission**  
Office of Nuclear Reactor Regulation



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## **Executive Summary**

The Nuclear Regulatory Commission (NRC or Commission) is proposing to amend its regulations to require fingerprint-based criminal history record checks for research or test reactor licensees (RTRs, also referred to as nonpower reactors) to grant individuals unescorted access to their facilities. This action is necessary to comply with the requirements of Section 652 of the Energy Policy Act of 2005 (EPAct) which amended Section 149 of the Atomic Energy Act of 1954, as amended (AEA), to require fingerprinting and a Federal Bureau of Investigation (FBI) identification and criminal history record check of any person who is permitted unescorted access to a utilization facility. As a result of this action, RTR licensees would be subject to the fingerprinting and criminal history record check requirements specified in the NRC's regulations instead of NRC issued Orders EA-07-074 and EA-07-098 pertaining to this matter.

The analysis presented in this document examines the benefits and costs of the proposed requirements relative to the baseline of existing requirements, including current regulations and the relevant orders. The key findings of the analysis are as follows:

- **Total Cost to Industry.** The proposed rule is expected to lead to a total one-time cost across all 32 operating RTR licensees of approximately \$51,000, followed by a total annual cost of approximately \$13,000. The total present value of these costs is \$183,000 (using a 7-percent discount rate) and \$235,000 (using a 3-percent discount rate) over the next 20 years.
  - **Average Cost per RTR licensee.** The average RTR will incur a one-time cost of approximately \$1,600 followed by annual costs of approximately \$400. Should a new RTR be required to meet the rule without first being subjected to the orders, the corresponding costs would be higher, at an estimated \$28,200 in one-time costs, and \$9,900 in annual costs.
  - **Costs to NRC.** The rule will result in a total one-time cost to the NRC of approximately \$144,000, followed by annual costs of approximately \$38,000. The total present value of these annual costs is \$541,000 (using a 7-percent discount rate) and \$694,000 (using a 3-percent discount rate).
  - **Annual Impact to the Economy.** The proposed rule will result in an annual impact to the economy estimated at under \$85,000 (using a 7 percent discount rate, annualizing one-time costs and savings over 20 years, and adding these "annualized" one-time costs to annual costs), or under \$79,000 (using a 3 percent discount rate). This proposed rule is therefore not a major rule as defined by the Congressional Review Act.
  - **Value of Benefits Not Reflected Above.** The incremental benefits result from the application of fingerprint based criminal history checks to individuals prior to granting unescorted access to vital areas. This expanded applicability (not contained in the orders) better addresses the full range of RTR characteristics, and better fulfills the NRC's responsibility under Section 149 of the AEA (i.e., to promote the common defense and security and protect public health
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and safety). It also leads to related benefits in security and other attributes, and to better regulatory efficiency.

- Decision Rationale. This regulatory analysis concluded that the proposed rule is justified in view of the industry costs and the qualitatively analyzed benefits noted above.

## **Abbreviations**

AEA	Atomic Energy Act (AEA) of 1954, as amended
ANPR	Advance notice of proposed rulemaking
CFR	Code of Federal Regulations
CRGR	Committee to Review Generic Requirements
EPAct	Energy Policy Act of 2005 (EPAct)
FBI	Federal Bureau of Investigation
NRC	Nuclear Regulatory Commission
RTR	Research or test reactor
SGI	Safeguards Information
SNM	Special nuclear material

## **1. Introduction**

This document presents a regulatory analysis of a proposed rule that would establish new requirements for research or test reactors (RTRs, also referred to as nonpower reactors) as set forth by the U.S. Nuclear Regulatory Commission (NRC) in Title 10, Part 73, of the Code of Federal Regulations (10 CFR Part 73). This introduction is divided into three sections. Section 1.1 states the problem and the reasons for the proposed rulemaking, Section 1.2 provides other background information, and Section 1.3 discusses regulatory objectives.

### **1.1 Statement of the Problem and Reasons for the Rulemaking**

Section 652 of the Energy Policy Act of 2005 (EPAAct), enacted on August 8, 2005, amended the fingerprinting requirements of the Atomic Energy Act of 1954, as amended (AEA). Specifically, the EPAAct amended Section 149 of the AEA to require fingerprinting and Federal Bureau of Investigation (FBI) identification and criminal history records checks before an individual may have unescorted access to any utilization facility including RTRs, or radioactive material or other property subject to regulation by the NRC, or to Safeguards Information (SGI).

Although the NRC had previously taken several steps to provide additional regulatory oversight for unescorted access to RTRs, the EPAAct granted the NRC further authority to impose FBI identification and criminal history records checks based on fingerprints of any person permitted unescorted access to various NRC-regulated facilities, including RTRs.

### **1.2 Background**

#### **1.2.1 Current Regulations Governing Fingerprint Based Background Checks at RTRs**

NRC regulations currently do not address fingerprinting and criminal history record checks for RTR licensees, although they do address fingerprinting and criminal history records checks of individuals seeking access to SGI (including by RTR licensees), as well as unescorted access to nuclear power reactors. These regulations are located in 10 CFR § 73.57.

#### **1.2.2 Commission Orders**

To address the EPAAct amendments regarding fingerprinting and criminal history record checks for unescorted access at nonpower reactors, the NRC imposed two orders:

- EA-07-074, "Issuance of Order Imposing Fingerprinting and Criminal History Records Check Requirements for Unescorted Access to Research and Test Reactors," dated April 30, 2007 (72 FR 25337; May 4, 2007); and
  - EA-07-098, "Order Imposing Fingerprinting and Criminal History Records Check Requirements for Unescorted Access to the General Atomics' Research and Test Reactors," dated August 1, 2007 (72 FR 44590; August 8, 2007).
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Licenseses were required to submit fingerprints of individuals who were seeking or currently had unescorted access. Individuals who had previously been subjected to fingerprinting that would satisfy the requirements for unescorted access did not need to be fingerprinted again. These orders required that a reviewing official consider the results of the FBI criminal history records check in conjunction with other applicable requirements to determine whether an individual may be granted or allowed continued unescorted access. The reviewing official was allowed to be the same official previously approved by NRC for the Safeguards Information (SGI) order (i.e., Order EA-06-203 dated September 29, 2006 (71 FR 59140; October 6, 2006), that implemented the EAct fingerprinting and criminal history records check requirements for individuals seeking access to SGI). The order required that an NRC approved reviewing official was the only individual who could make the unescorted access determination. The decisions then had to be documented.

### **1.3 Regulatory Objective**

The NRC's objective for the current rulemaking is to establish generically applicable fingerprinting and criminal history check requirements for unescorted access to RTRs similar to those previously imposed by the Commission orders.

## **2. Identification and Preliminary Analysis of Alternative Approaches**

This section presents preliminary analysis of the alternatives that the staff considered to meet the regulatory goals identified in the previous section. (Section 4 presents a more detailed analysis of the proposed rule option.) The staff considered four alternatives for revising the RTR requirements, as discussed below.

### **2.1 Option 1: No Action**

Under Option 1, the no-action alternative, NRC would not amend the current regulations. Licensees would continue to comply with Commission orders EA-07-074, and EA-07-098. This option would avoid certain costs that the rule would impose. However, taking no action could present a problem for the licensing of new RTRs that did not receive the orders. The NRC's regulations would be out of date and not represent the minimum requirements the Commission deems necessary to ensure the adequate protection of public health and safety and the common defense and security. This would directly conflict with the Commission's licensing obligations set forth in Section 182 of the Atomic Energy Act of 1954, as amended (AEA).

### **2.2 Option 2: Amend Regulations to Incorporate Orders**

Under Option 2, NRC would conduct a rulemaking to address changes in 10 CFR § 73.57 to incorporate, on a generic basis, the same fingerprinting and criminal history check requirements for unescorted access to nonpower reactors as those previously imposed by the Commission orders. Consequently, it would require fingerprint based criminal history record checks only for individuals who possess the capability and knowledge to make unauthorized use of the special nuclear material (SNM) or to remove the SNM from the RTR. This option would *not* address unescorted access to risk-significant materials and equipment other than to SNM.

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Through a rulemaking, the NRC could improve regulatory efficiency and stability by ensuring that all RTR licensees would be subject to uniform regulatory requirements for the granting of unescorted access. In addition, codification of the requirements would enable the NRC to require appropriate measures for new RTR license applicants, permitting the agency to fulfill the NRC's statutory obligations under the AEA.

### **2.3 Option 3: Amend Regulations to Incorporate Orders and Address Unescorted Access to Vital Areas**

Option 3, like Option 2, would require fingerprint based criminal history record checks as a requirement for granting unescorted access to special nuclear materials by individuals who possess the capability and knowledge to make unauthorized use of the SNM or to remove the SNM from the RTR. In addition, Option 3 would address other potentially risk-significant materials and equipment by requiring such checks for any individual seeking unescorted access to "vital areas." Vital area is defined in § 73.2 as "any area which contains vital equipment," and vital equipment is in turn defined in § 73.2 as "any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. Equipment or systems which would be required to protect public health and safety following such failure, destruction, or releases are also considered to be vital." These definitions apply to all the provisions within 10 CFR Part 73, and accordingly apply to RTR licensees whose security requirements are governed by 10 CFR Part 73. The equipment, systems, devices, and material that fall within the § 73.2 vital equipment definition meet the utilization facility definition in Section 11.cc of the AEA. Hence fingerprinting individuals who wish to have unescorted access to vital areas (which contain vital equipment) is ensuring that individuals permitted access to the "utilization facility" as defined in the AEA, is properly implemented in the NRC's regulations.

Generally, the NRC expects that the "SNM material" criterion (present in both Option 2 and Option 3) would be the more useful criterion for many RTR situations. However, the "vital area" criterion in Option 3 adds sufficient flexibility to address the range of situations that could exist at RTR facilities, including RTRs that have vital equipment other than SNM. For this reason, the NRC believes that Option 3, and not Option 2, would better fulfill NRC's responsibilities under Section 149 of the Atomic Energy Act (i.e., to promote the common defense and security and to protect the health and safety of the public).

Because Option 3 could enlarge the pool of personnel that would require fingerprinting, it could result in higher costs to licensees relative to Option 2. However, NRC's expectation is that the "vital area" criterion would result in a similar group of people requiring fingerprinting when compared to the NRC orders previously issued to RTR licensees. Based on the comments submitted to the NRC in response to an advance notice of proposed rulemaking (ANPR) published in the *Federal Register* (74 FR 17115) on April 14, 2009, it appears that RTRs may not have to conduct any additional fingerprinting to comply with Option 3. Thus, the NRC believes that Option 3 would impose a minimal burden, if any, on licensees.

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The NRC has estimated the benefits and costs of this option, as described in Sections 3 and 4 of this regulatory analysis, and has pursued Option 3 in the proposed rule for the reasons discussed above and in Section 5.

## **2.4 Option 4: Amend Regulations to Incorporate Orders and Address Unescorted Access to Areas of Significance**

Option 4 would be similar to Option 3, but would require fingerprint based criminal history record checks for any individual seeking unescorted access to “areas of significance” (e.g., controlled access areas, or to a range of prescriptive locations regardless of whether the locations are “vital” at particular RTRs). Given the variation in RTR facilities, however, the NRC determined that this option would be difficult to implement in a manner that effectively promotes the common defense and security and/or protects the health and safety of the public. In addition, commenters on the ANPR indicated this option would be very burdensome relative to the orders. For example, one commenter indicated that 200 additional individuals would have to be fingerprinted to comply, with turnover of up to 25-50 percent per year.

## **3. Evaluation of Benefits and Costs**

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

### **3.1 Identification of Affected Attributes**

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

- Safeguards and Security Considerations – The actions are intended to establish requirements that will provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.
- Public Health (Accident) – The action will reduce the risk that public health will be affected by radiological releases resulting from radiological sabotage.
- Occupational Health (Accident) – The action will reduce the risk that occupational health will be affected by radiological releases resulting from radiological sabotage.
- Industry Implementation – The action will require licensees to develop procedures to address fingerprinting, processing of criminal history record

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

checks, granting unescorted access, protecting information, and recordkeeping.

- Industry Operation – The action will require licensees to conduct fingerprinting of certain individuals and to incorporate criminal history record checks into decisions on whether to grant unescorted access.
- NRC Implementation – Under the action, NRC will be available if needed to answer licensee questions regarding the new rule. NRC also will complete the rulemaking.
- NRC Operation – The action will require the NRC to process fingerprint requests from licensees by sending the requests to the FBI. The NRC also will conduct periodic inspections related to the new requirements.
- Regulatory Efficiency – The action will result in enhanced regulatory efficiency by replacing multiple orders with a single, uniform, and transparent rulemaking that will apply to current as well as future licensees.
- Off-Site Property – The action will reduce the risk that off-site property will be affected by radiological releases resulting from radiological sabotage.
- On-Site Property – The action will reduce the risk that on-site property will be affected by radiological releases resulting from radiological sabotage.

Attributes that are *not* expected to be affected under any of the rulemaking options include the following: occupational health (routine); public health (routine); environmental considerations; other government;<sup>2</sup> general public; improvements in knowledge; and antitrust considerations.

### **3.2 Analytical Methodology**

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

The analysis evaluates several attributes on a quantitative basis. These include industry implementation, industry operation, NRC implementation, and NRC operation. Quantitative analysis requires a baseline characterization, including factors such as the number of licensees affected, the nature of the activities currently being conducted, and the types of new or modified systems and procedures that licensees will implement, or will no longer implement, as a result

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<sup>2</sup> Although the rule requires licensees to send fingerprints to the FBI, this analysis does not address impacts on the FBI because the fingerprints must be accompanied by payment of a fee to cover the FBI's costs.

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of the rule. In fact, however, licensees may respond to the rule in different ways depending on their own site-specific characteristics, such as: (1) the physical characteristics of their sites; (2) the current contents of their procedures and/or security plans; and (3) the institutional activities occurring at or near their operations. It is beyond the scope of this analysis to characterize and analyze individually affected licensees, in part because the information that would be needed would include “Safeguards Information” that is protected under § 73.21.<sup>3</sup> Nevertheless, the analysis proceeds quantitatively for these attributes by making generalizing assumptions. Sections 3.2.1–3.2.4 describe the most significant analytical data and assumptions used in the quantitative analysis of these attributes. Additional details regarding the calculations used in the analysis are presented in an appendix to the analysis.

The analysis relies on a primarily qualitative (rather than quantitative) evaluation of several of the affected attributes (safeguards and security considerations, public health, occupational health, off-site property, and on-site property) due to the difficulty in quantifying the impact of the current rulemaking.<sup>4</sup> These attributes will be affected by the regulatory options through the associated reduction in the risks of radiological sabotage damage to or theft of the reactor fuel. Quantification of any of these attributes would require estimation of factors such as: (1) the frequency of attempted radiological sabotage and theft; (2) the frequency with which radiological sabotage and theft attempts are (i.e., pre-rule) and will be (i.e., post-rule) successful; and (3) the impacts associated with successful radiological sabotage attempts at nonpower reactors.

### **3.2.1 Baseline for Analysis**

This regulatory analysis measures the incremental impacts of the proposed rule relative to a “baseline,” which reflects the behavior anticipated should the proposed regulation not be imposed. The primary baseline used in this analysis assumes full licensee compliance with existing NRC requirements for the 32 currently operating RTRs, including current regulations and relevant orders, including in particular EA-07-074 and EA-07-098. Section 4.1 presents the estimated incremental costs and benefits of the proposed rule relative to this baseline. Unless otherwise noted, the estimated costs and benefits presented in this document reflect this baseline and are referred to as the “main analysis.”

The analysis also considers costs for a single new RTR that is planned but not yet built. This RTR would be subject to the proposed rule but not the orders. Therefore, in the main analysis, this facility will incur very different costs than the RTRs that already are operating. To avoid presenting results that are misleading or confusing, the costs to this future RTR are segregated from the other results in the main analysis.

The NRC staff also has prepared a sensitivity analysis as part of this regulatory analysis, in accordance with the agency’s regulatory analysis guidelines. The sensitivity analysis, like the main analysis, estimates the incremental savings and costs of the proposed rule, but it assumes an alternative baseline consisting of the RTR requirements that would be in place if NRC had not issued Orders EA-07-074 and EA-07-098. This analysis is referred to as the “pre-order baseline analysis,” and its results appear in Section 4.2. In the pre-order baseline, the results

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<sup>3</sup> Safeguards Information under 10 CFR 73.21 includes, for example, Security Plans and security procedures.

<sup>4</sup> The regulatory efficiency attribute also is evaluated qualitatively, by definition. See NRC’s *Regulatory Analysis Technical Evaluation Handbook*, Section 5.5.14.

for all 33 RTRs (i.e., the 32 that currently are operating plus the one planned RTR) are presented together (because, in contrast to the main analysis, it is not misleading to do so, as their pre-order baseline costs are very similar).

### **3.2.2 Research or Test Reactor Characteristics**

The analysis models a total of 33 nonpower reactors, including 32 operating RTRs and one planned RTR (as discussed in Section 3.2.1). It assumes that incremental costs and savings accrue to sites independent of the reactor design or the type of entity owning the reactor (i.e., academic, private, or federal). It also assumes that all nonpower reactors are in full compliance with current requirements imposed by NRC's regulations and Commission orders. As a result, the analysis applies the same average cost per activity to each site, even though in reality some sites will incur higher or lower costs. The analysis assumes that currently operating RTRs will continue to operate for 20 years. Therefore, costs and savings are estimated for the 33 reactor sites over a 20 year period, with each year's costs or savings discounted back at a 7-percent and 3-percent discount rate, in accordance with NUREG/BR-0058, Rev. 4, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission." (See Section 4.1 for these results.)

### **3.2.3 Data**

Information on operating reactors and shutdown dates has been taken from NUREG-1350, Vol. 21, *NRC Information Digest, 2009-2010 Edition*. To the extent practical, quantitative information (e.g., costs and savings) and qualitative information (e.g., the nature and magnitude of safeguards and security impacts) on attributes affected by the rule has been obtained from, or developed in consultation with, NRC staff and commercial vendors.

NRC headquarters staff discussed their understanding of the potential differences between the new requirements and the current measures in place at existing licensees and have incorporated available, non-safeguards, information into this regulatory analysis. The NRC sought insight from stakeholders on implementing costs and related issues via questions in the advance notice of proposed rulemaking published in the *Federal Register* (74 FR 17115, April 14, 2009).

### **3.2.4 Additional Assumptions**

The analysis employs a number of assumptions, including the following:

- The analysis covers a 20-year time horizon beginning in calendar year 2012, and assumes all current RTR licensees continue to operate through the 20-year period.
  - To help ensure continuity in the event of staff turnover, each RTR is assumed to seek and obtain approval from NRC for two individuals to serve as reviewing officials of criminal history reports, and to ensure that two individuals are qualified to obtain fingerprints. The analysis also assumes that one reviewing official and one fingerprinter must be replaced each year due to staff turnover.
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- The analysis includes costs for “manage ongoing fingerprint process,” which captures the following activities: (1) ordering fingerprinting forms; (2) ensuring that there is at least one employee (e.g., two) trained on how to take fingerprints; and (3) ensuring that there is at least one employee (e.g., two) that the NRC has approved to review fingerprinting records. If there is not an employee trained on taking fingerprints, they will identify an employee to be trained and make sure the training has been completed. Similarly, if there is not an employee who is approved by the NRC to review fingerprint records, the licensee will identify an employee to gain approval and make sure that employee has received approval.
  - At the time of the initial fingerprinting, 24 individuals per licensee will need to be fingerprinted plus 3 individuals annually thereafter due to staff turnover. The analysis also assumes that an additional authorization applicant per licensee would possess a favorably-decided criminal history check within the past five years and therefore would be required to complete an additional fingerprint application under the proposed rule (unless otherwise exempt), but not under the orders.
  - At the time of the initial fingerprinting, three individuals per licensee plus one individual annually per licensee thereafter will receive a final adverse determination based on the criminal history records received as a result of their fingerprint application. The analysis also assumes that one individual annually per licensee will appeal a final adverse determination.
  - The NRC will need to notify RTR licensees annually regarding fingerprint application fee changes.
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## **4. Results**

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

- Section 4.1 presents findings on the overall benefits and costs of the proposed rule under the main analysis.
- Section 4.2 summarizes the results of the sensitivity analysis addressing the pre-order baseline.
- Section 4.3 considers the findings relative to NRC's backfit rule.
- Section 4.4 considers the findings on a disaggregated basis.
- Section 4.5 addresses the applicability of a safety goal evaluation to the current rulemaking.
- Section 4.6 describes the information that is provided to the Committee to Review Generic Requirements (CRGR) for information only.

### **4.1 Benefits and Costs**

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

The results of the benefit-cost analysis are summarized in Exhibits 4-1 and 4-2. Relative to the no-action alternative (Option 1), the proposed rule (i.e., Option 3) would result in a net quantitative cost estimated between \$724,000 and \$929,000 (7-percent and 3-percent discount rate, respectively), with higher costs to the NRC than to industry.

The analysis also estimates that the proposed rule would result in minor qualitative benefits in the following attributes: regulatory efficiency, safeguards and security, public health (accident), occupational health (accident), off-site property, and on-site property. The benefits would be minor because most of the benefits are attributable to Orders EA-07-074 and EA-07-098 rather than the proposed rule (see Section 4.2 for a discussion of results under the pre-order baseline). The incremental benefits of the rule result from the expansion of the scope of fingerprint based criminal history checks to include individuals seeking unescorted access to vital areas. This expanded scope, which was not addressed in the orders, better fulfills NRC's responsibilities under Section 149 of the Atomic Energy Act (i.e., to promote the common defense and security and to protect the health and safety of the public). See additional discussion in Section 2.3.

Specific benefits would include enhanced regulatory efficiency through regulatory and compliance improvements. There also would be benefits in increased security and from the

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resulting decreased risks to public health, occupational health, off-site property, and on-site property.

**Exhibit 4-1  
Summary of Benefits/Savings and Costs/Burdens**

Net Monetary Savings (or Costs) - Total Present Value	Non-Monetary Benefits/Costs
<p><b>Option 1: No Action</b></p> <p>\$0</p>	<p><u>Qualitative Benefits and Costs:</u></p> <p>None.</p>
<p><b>Option 3: Proposed Rule</b></p> <p><b>Industry (32 operating RTRs):</b> (\$183,000) using a 7% discount rate (\$235,000) using a 3% discount rate</p> <p><b>NRC:</b> (\$541,000) using a 7% discount rate (\$694,000) using a 3% discount rate</p>	<p><u>Qualitative Benefits:</u></p> <p>Safeguards and Security: Increased level of assurance that RTRs are safeguarded from attacks and theft of SNM.</p> <p>Regulatory Efficiency: Enhanced regulatory efficiency through regulatory and compliance improvements.</p> <p>Public Health (Accident): Reduced risk that public health will be affected by radiological releases resulting from attacks and theft of SNM.</p> <p>Occupational Health (Accident): Reduced risk that occupational health will be affected by radiological releases resulting from attacks and theft of SNM</p> <p>Off-Site Property: Reduced risk that off-site property will be affected by radiological releases resulting from attacks and theft of SNM.</p> <p>On-Site Property: Reduced risk that on-site property will be affected by radiological releases resulting from attacks and theft of SNM.</p> <p><u>Qualitative Costs:</u></p> <p>None.</p>

**Exhibit 4-2  
Industry and NRC Savings and Costs**

Entity	Total Savings and Costs				Average per Licensee	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$51,200)	(\$12,800)	(\$183,496)	(\$234,545)	(\$1,600)	(\$400)
NRC	(\$144,000)	(\$38,400)	(\$540,887)	(\$694,034)	n/a	n/a
Total	(\$195,200)	(\$51,200)	(\$724,382)	(\$928,579)	(\$1,600)	(\$400)

- **Total Cost to Industry.** The proposed rule will lead to a total one-time cost across all RTR licensees of approximately \$51,000, followed by total annual costs on the order of \$13,000.

The total present value of these costs is \$183,000 (using a 7-percent discount rate) and \$235,000 (using a 3-percent discount rate) over the next 20 years.

- Average Cost per RTR licensee. The average RTR will incur a one-time cost of approximately \$1,600 followed by annual cost of approximately \$400.
- Value of Benefits Not Reflected Above. The cost figures shown above do not reflect the value of the benefits of the proposed rule. These benefits are evaluated qualitatively above.
- Costs to NRC. The rule will result in a total one-time cost to the NRC of approximately \$144,000, followed by annual costs of approximately \$38,000. The total present value of these annual costs is \$541,000 (using a 7-percent discount rate) and \$694,000 (using a 3-percent discount rate).

Exhibits 4-3 and 4-4 show the one-time and annual costs and savings of the rule to, respectively, RTR licensees and the NRC for each activity (or set of activities) that will need to be conducted under the proposed rule.

Exhibit 4-3  
Industry Savings and Costs by Activity

Activity	Average Cost per Licensee		Total Cost (All Licensees)	
	One-time Savings (Cost)	Annual Savings (Cost)	One-time Savings (Cost)	Annual Savings (Cost)
Develop procedures for protecting records from unauthorized disclosure (73.57(f)(1)) and ensuring the quality of fingerprinting (73.57(d)(1))	-	-	-	-
Manage ongoing fingerprinting process (73.57)	-	-	-	-
Evaluate security plan considering the constraints of vital areas (73.57(g)(2)(i))	(\$1,200)	-	(\$38,400)	-
Ensure capability of fingerprinter(s) per procedures, e.g., by training (73.57(d)(1))	-	-	-	-
Obtain NRC approval for reviewing official(s) of criminal history records (73.57(g)(1))	-	-	-	-
Fingerprint applicants for authorization (includes notifying them of the process, taking information and fingerprints, and sending fingerprint application and payment for each affected individual) (73.57(b)(1), (3), (6), 73.57(d)(1), (3)(i))	-	-	-	-



Fingerprint applicants for authorization (as above) for each affected individual with a favorably-decided U.S. Government criminal history check within the last 5 years unless otherwise exempt (exempt in orders)	(\$400)	(\$400)	(\$12,800)	(\$12,800)
Receive and review records from NRC and make a decision on approval or final adverse determination for each affected individual (73.57(b), (g))	-	-	-	-
Document decision for each individual fingerprinted (orders)	-	-	-	-
Inform each affected individual of final adverse determinations (73.57(e)(1), (e)(2))	-	-	-	-
Pay fingerprint application fee for individuals (73.57(d)(3))	-	-	-	-
Total	(\$ 1,600)	(\$ 400)	(\$ 51,200)	(\$ 12,800)

Exhibit 4-4  
NRC Savings and Costs by Activity

Requirement	Average Cost per Licensee		Total Cost (All Licensees)	
	One-time Savings (Cost)	Annual Savings (Cost)	One-time Savings (Cost)	Annual Savings (Cost)
Approve reviewing officials (73.57(g)(1))	-	-	-	-
Process fingerprint applications and criminal history records (73.57(b)(6), (d))	-	-	-	-
Finalize the rulemaking	(\$4,500)	-	(\$144,000)	-
Respond to individual appeals of final adverse determinations (76.57(e)(3))	-	(\$1,200)	-	(\$38,400)
Inspect licensees records to determine compliance with regulations (73.57(f)(4))	-	-	-	-
Directly notify licensees regarding any changes in fingerprinting application fees (73.57(d)(3)(ii))	-	-	-	-
Total	(\$4,500)	(\$1,200)	(\$144,000)	(\$38,400)

Finally, Exhibit 4-5 shows the cost results related to a single new RTR that is planned but not yet built. This RTR would be subject to the proposed rule but not the orders. Therefore, in the main analysis, this facility will incur different costs from the RTRs that already are operating. To avoid presenting misleading results, the costs to this future RTR are segregated from the other results.

Exhibit 4-5  
Industry and NRC Savings and Costs Related to a Single New RTR

Entity	Total Savings and Costs			
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)
Industry	(\$28,225)	(\$9,855)	(\$130,082)	(\$169,386)
NRC	(\$780)	(\$1,980)	(\$21,244)	(\$29,141)
<b>Total</b>	<b>(\$29,005)</b>	<b>(\$11,835)</b>	<b>(\$151,327)</b>	<b>(\$198,527)</b>

#### 4.2 Sensitivity Analysis – Pre-Order Baseline

The NRC has performed a sensitivity analysis using an alternative baseline (called the “pre-order baseline”) that considers the incremental costs of the proposed rule as if NRC had not issued Orders EA-07-074 and EA-07-098. Benefits and costs are higher under this baseline, because it reflects both the incremental benefits and costs of the proposed rule and the incremental benefits and costs of the orders. Note that the impacts of the orders already have been incurred, but they have not previously been analyzed. This analysis includes the results for the 32 operating RTRs as well as an additional RTR that is planned but not yet built.<sup>5</sup>

The key findings of the sensitivity analysis are presented in Exhibit 4-6 and are discussed below:

Exhibit 4-6  
Sensitivity Analysis under the Pre-Order Baseline:  
Industry and NRC Savings and Costs

Entity	Total Savings and Costs				Average per Licensee	
	One-Time Saving (Cost)	Annual Saving (Cost)	NPV (7 percent)	NPV (3 percent)	One-Time Saving (Cost)	Annual Saving (Cost)
Industry	(\$969,825)	(\$325,215)	(\$4,331,116)	(\$5,628,139)	(\$29,389)	(\$9,855)
NRC	(\$169,740)	(\$65,340)	(\$845,068)	(\$1,105,657)	n/a	n/a
<b>Total</b>	<b>(\$1,139,565)</b>	<b>(\$390,555)</b>	<b>(\$5,176,183)</b>	<b>(\$6,733,796)</b>	<b>(\$29,389)</b>	<b>(\$9,855)</b>

<sup>5</sup> As noted in the previous section, the main analysis cost results for the planned RTR were segregated from the results for operating RTRs because it would have been misleading to blend them. That is not an issue in the pre-order baseline, so the results for all 33 RTRs are presented together in Exhibit 4-6 and Exhibit 4-7.

- **Total Cost to Industry.** The proposed rule will lead to a total one-time cost across all RTR licensees of approximately \$970,000, followed by total annual costs of approximately \$325,000. The total present value of these costs is \$4.3 million (using a 7-percent discount rate) and \$5.6 million (using a 3-percent discount rate) over the next 20 years.
- **Average Cost per RTR licensee.** The average RTR will incur a one-time cost of approximately \$29,000 followed by annual costs of approximately \$10,000.
- **Value of Benefits Not Reflected Above.** The cost figures shown above do not reflect the value of the benefits of the proposed rule. Compared to the benefits that are evaluated qualitatively in Section 4.1, benefits under the pre-order baseline are much higher. It is likely that almost all of the benefit of the proposed rule has been obtained already through the imposition of Orders EA-07-074 and EA-07-098.
- **Costs to NRC.** The rule will result in a one-time cost to NRC of approximately \$170,000, followed by annual costs of approximately \$65,000. The total present value of these costs is \$845,000 (using a 7-percent discount rate) and \$1.1 million (using a 3-percent discount rate).

Exhibit 4-7 shows, relative to the pre-order baseline, the one-time and annual costs and savings of the rule to RTR licensees for each activity (or set of activities) that will need to be conducted under the proposed rule.

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Exhibit 4-7  
Sensitivity Analysis under the Pre-Order Baseline:  
Industry Savings and Costs by Activity

Activity	Average Cost per Licensee		Total Cost (All Licensees)	
	One-time Savings (Cost)	Annual Savings (Cost)	One-time Savings (Cost)	Annual Savings (Cost)
Develop procedures for protecting records from unauthorized disclosure (73.57(f)(1)) and ensuring the quality of fingerprinting (73.57(d)(1))	(\$7,000)	-	(\$231,000)	-
Manage ongoing fingerprinting process (73.57)	-	(\$6,000)	-	(\$198,000)
Evaluate security plan considering the constraints of vital areas (73.57(g)(2)(i))	(\$1,164)	-	(\$38,400)	-
Ensure capability of fingerprinter(s) per procedures, e.g., by training (73.57(d)(1))	(\$2,200)	(\$800)	(\$72,600)	(\$26,400)
Obtain NRC approval for reviewing official(s) of criminal history records (73.57(g)(1))	(\$2,000)	(\$400)	(\$66,000)	(\$13,200)
Fingerprint applicants for authorization (includes notifying them of the process, taking information and fingerprints, and sending fingerprint application and payment for each affected individual) (73.57(b)(1), (3), (6), 73.57(d)(1), (3)(i))	(\$9,600)	(\$1,200)	(\$316,800)	(\$39,600)
Fingerprint applicants for authorization (as above) for each affected individual with a favorably-decided U.S. Government criminal history check within the last 5 years, unless otherwise exempt (exempt in orders)	(\$400)	(\$400)	(\$13,200)	(\$13,200)
Receive and review records from NRC and make a decision on approval or final adverse determination for each affected individual (73.57(b), (g))	(\$1,875)	(\$225)	(\$61,875)	(\$7,425)
Document decision for each individual fingerprinted (orders)	(\$3,750)	(\$450)	(\$123,750)	(\$14,850)
Inform each affected individual of final adverse determinations (73.57(e)(1), (e)(2))	(\$750)	(\$250)	(\$24,750)	(\$8,250)
Pay fingerprint application fee for individuals (73.57(d)(3))	(\$650)	(\$130)	(\$21,450)	(\$4,290)
<b>Total</b>	<b>(\$29,389)</b>	<b>(\$9,855)</b>	<b>(\$969,825)</b>	<b>(\$325,215)</b>

Exhibit 4-8 shows the one-time and annual costs and savings of the rule to the NRC for each activity (or set of activities) that it will need to conduct under the proposed rule.

Exhibit 4-8  
Sensitivity Analysis under the Pre-Order Baseline:  
NRC Savings and Costs by Activity

Requirement	Average Cost per Licensee		Total Cost (All Licensees)	
	One-time Savings (Cost)	Annual Savings (Cost)	One-time Savings (Cost)	Annual Savings (Cost)
Approve reviewing officials (73.57(g)(1))	(\$480)	(\$240)	(\$15,840)	(\$7,920)
Process fingerprint applications and criminal history records (73.57(b)(6), (d))	(\$300)	(\$36)	(\$9,900)	(\$1,188)
Finalize the rulemaking	(\$4,364)	-	(\$144,000)	-
Respond to individual appeals of final adverse determinations (76.57(e)(3))	-	(\$1,200)	-	(\$39,600)
Inspect licensees records to determine compliance with regulations (73.57(f)(4))	-	(\$480)	-	(\$15,840)
Directly notify licensees regarding any changes in fingerprinting application fees (73.57(d)(3)(ii))	-	(\$24)	-	(\$792)
Total	(\$5,144)	(\$1,980)	(\$169,740)	(\$65,340)

### **4.3 Backfit Analysis**

The NRC's backfit provision are found in the regulations at 10 CFR §§ 50.109, 70.76, 72.62, 76.76, and in 10 CFR Part 52. Under § 50.2, nonpower reactors are research or test reactors licensed in accordance with Sections 103 or 104c of the AEA and 10 CFR §§ 50.21(c) or 50.22 for research and development. The NRC has determined that the backfit provision in § 50.109 does not apply to test, research, or training reactors. The NRC has further determined that the amendments to § 73.57 contained in this proposed rule do not involve any provisions that would impose backfits on nuclear power plant licensees or on licensees for special nuclear material, independent spent fuel storage installations or gaseous diffusion plants as defined in 10 CFR chapter I. Therefore, a backfit analysis was not prepared for this proposed rule.

### **4.4 Disaggregation**

In order to comply with the guidance provided in Section 4.3.2 ("Criteria for the Treatment of Individual Requirements") of the Regulatory Analysis Guidelines, the NRC conducted a screening review to ensure that the aggregate analysis does not mask the inclusion of individual rule provisions that are not cost-beneficial when considered individually and not necessary to meet the goals of the rulemaking. Consistent with the Regulatory Guidelines, the NRC evaluated, on a disaggregated basis, each of the new regulatory provisions expected to result in incremental costs or savings. Based on this screening review, the NRC staff has determined that each of the requirements is needed and is cost-justified relative to its qualitative benefits.

### **4.5 Safety Goal Evaluation**

Safety goal evaluations are applicable only to regulatory initiatives considered to be generic safety enhancement backfits subject to the substantial additional protection standard at § 50.109(a)(3).<sup>6</sup> Some aspects of the rule may qualify as generic safety enhancements because they may affect the likelihood of core damage or spent fuel damage, which generally are the focus of a quantitative safety goal evaluation. However, the magnitude of this change is not readily quantifiable due to uncertainties discussed in Section 3.2 above. A more dominant effect of the rule is to reduce the probability of other types of damage associated with acts of sabotage or theft, although this effect is equally difficult to quantify. Because the change in safety associated with the rulemaking cannot be quantified, the regulatory changes cannot be compared to NRC's safety goals.

### **4.6 CRGR Results**

This section addresses regulatory analysis information requirements for rulemaking actions or staff positions subject to review by the Committee to Review Generic Requirements (CRGR).

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<sup>6</sup> A safety goal evaluation is not needed, therefore, for new requirements falling within the backfit exceptions at 10 CFR 50.109(a)(4)(i)-(iii).

All information that would be provided to the CRGR is presented in this regulatory analysis, or in the Federal Register notice for the proposed rule. As a reference aid, Exhibit 4-9 provides a cross-reference between the relevant information and its location in this document or the Federal Register notice. This information is provided to the CRGR for information only, not for review and approval.

**Exhibit 4-9**  
Specific CRGR Regulatory Analysis Information Requirements

CRGR Charter Citation	Information Item to be Included in a Regulatory Analysis Prepared for CRGR Review (information only)	Where Item is Discussed
App. C (i)	Generic requirement or staff position as it is to be sent out to licensees or issued for public comments. When the objective or intended result of a generic requirement or staff position can be achieved by setting a readily quantifiable standard that has an unambiguous relationship to a readily measurable quantity and is enforceable, the requirements should specify the objective or result to be attained rather than prescribing how the objective or result is to be attained.	Rule text in Federal Register Notice
App. C (iii)	The sponsoring office’s position on whether the action will increase requirements or staff positions, implement existing requirements or staff positions, or relax or reduce existing requirements or staff positions.	Regulatory Analysis, Section 4.1
App. C (iv)	The method of implementation.	Regulatory Analysis, Section 6
App. C (vi)	Identification of the category of power reactors or nuclear materials facilities/activities to which the generic requirement or staff position will apply.	Regulatory Analysis, Section 3.2.2 and 4.2
App. C (vii) (viii)	If the action involves a backfit (other than a compliance or adequate protection backfit), a backfit analysis containing the required items and rationale.	Regulatory Analysis, Section 4.2
App C. (xi)	For each proposed power reactor backfit (other than a compliance or adequate protection backfit), an assessment of how the action relates to the Commission’s Safety Goal Policy Statement.	Regulatory Analysis, Section 4.4

**4.7 Regulatory Flexibility Analysis**

The NRC has determined that only one RTR licensee falls within the definition of “small entities” set forth in the size standards established by the NRC (10 CFR 2.810). Moreover, as discussed in Section 4.1, the proposed rule is expected to result in only very modest costs to RTRs.

Therefore, the NRC has determined that the proposed rule will not have a significant economic impact on a substantial number of small entities.





## **5. Decision Rationale**

Relative to the “no-action” alternative, the proposed rule will result in a net cost of approximately \$724,000 (total present value over a 20-year period), assuming a 7-percent discount rate, or approximately \$929,000 assuming a 3-percent discount rate. This impact can be apportioned as follows:

- The proposed rule will lead to a total one-time cost across all RTR licensees of approximately \$51,000, followed by total annual costs of approximately \$13,000. The total present value of these costs is \$183,000 (using a 7-percent discount rate) and \$235,000 (using a 3-percent discount rate) over the next 20 years. The average RTR will incur a one-time cost of approximately \$1,600 followed by annual costs of approximately \$400.
- The rule will result in a total one-time cost to the NRC of approximately \$144,000, followed by annual costs of approximately \$38,000. The total present value of these annual costs is \$541,000 (using a 7-percent discount rate) and \$694,000 (using a 3-percent discount rate).

The benefits of the proposed rule will be minor because most of the benefits have already accrued as a result of Orders EA-07-074 and EA-07-098. The incremental benefits of the rule result from the expansion of the scope of fingerprint based criminal history checks to include individuals seeking unescorted access to vital areas. This expanded scope (which was not addressed in the orders) better addresses the full range of RTR characteristics, and better fulfills NRC’s responsibilities under Section 149 of the Atomic Energy Act (i.e., to promote the common defense and security and to protect the health and safety of the public). While minor, the specific benefits of the proposed rule will include enhanced regulatory efficiency through regulatory and compliance improvements; increased security; and the resulting reductions in risk to public health, occupational health, off-site property, and on-site property.

Based on the NRC's assessment of the modest costs to industry and other benefits of the propose rule, the agency has concluded that the proposed rule provisions will be justified.

The proposed rule will result in an annual impact to the economy of less than \$85,000 (using a 7 percent discount rate, annualizing the one-time costs over 20 years, and adding these “annualized” one-time costs to the annual costs), or under \$79,000 (using a 3 percent discount rate). This proposed rule is therefore not a major rule as defined by the Congressional Review Act.

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## **6. Implementation**

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

### **6.1 Schedule**

The final rulemaking is expected to be published in August, 2011, and to become effective 120 days following publication in the Federal Register.

### **6.2 Impacts on Other Requirements**

The rulemaking will result in an annual expenditure of agency resources for the NRC to respond to appeals of adverse determinations from individuals denied unescorted access to RTRs due to the results of fingerprint based criminal history checks. The NRC does not plan to develop implementation guidelines. These activities will result in annual costs of approximately \$38,000.

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## Appendix: Cost Detail