



NUREG-1885, Rev. 13

Report to Congress on the Security Inspection Program for Operating Commercial Power Reactors and Category I Fuel Cycle Facilities: Results and Status Update

Annual Report for Calendar Year 2019

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Report to Congress on the Security Inspection Program for Operating Commercial Power Reactors and Category I Fuel Cycle Facilities: Results and Status Update

Annual Report for Calendar Year 2019

Manuscript Completed: July 2020
Date Published: October 2020

ABSTRACT

This report fulfills the requirements of Section 170D.e of the Atomic Energy Act (AEA) of 1954 (42 U.S.C. §2210d(e)), as amended, which states, “[n]ot less often than once each year, the Commission shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Energy and Commerce of the House of Representatives a report, in classified form and unclassified form, that describes the results of each security response evaluation conducted and any relevant corrective action taken by a licensee during the previous year.” Additionally, Section 170D.a of the AEA of 1954 (42 U.S.C. §2210d(a)) grants the U.S. Nuclear Regulatory Commission (NRC) the authority to determine which licensed facilities must undergo these security evaluations. Due to the nature, form, and quantity of nuclear material, the NRC is reporting the security response evaluation results for the Nation’s fleet of operating commercial nuclear power plants (NPPs) and Category I (CAT I) fuel cycle facilities. To aid in understanding how the NRC regulates, the NRC is also providing a description of relevant security programs, including: the Reactor Oversight Process, the Security Baseline Inspection Program for NPPs, a force-on-force evaluation description, and the CAT I Fuel Cycle Facilities Security Oversight Program. This report also includes a comprehensive overview of the combined results of these security programs for calendar year 2019.

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ABBREVIATIONS AND ACRONYMS

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ADAMS	Agencywide Documents Access and Management System
AEA	Atomic Energy Act of 1954, as amended
ERA	Energy Reorganization Act of 1974, as amended
CAT I	Category I
CY	calendar year
DBT	design-basis threat
FOF	force-on-force
HEU	highly enriched uranium
NOV	notice of violation
NPP	nuclear power plant
NRC	U.S. Nuclear Regulatory Commission
PI	performance indicator
ROP	Reactor Oversight Process
SDP	significance determination process
SL	severity level
SRM	Staff Requirements Memorandum
SSNM	strategic special nuclear material
U.S.C.	<i>United States Code</i>

1 INTRODUCTION

This report fulfills the requirements of Section 170D.e of the Atomic Energy Act (AEA) of 1954 (42 U.S.C. §2210d(e)), as amended, which states, “[n]ot less often than once each year, the Commission shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Energy and Commerce of the House of Representatives a report, in classified form and unclassified form, that describes the results of each security response evaluation conducted and any relevant corrective action taken by a licensee during the previous year.” Additionally, Section 170D.a of the AEA of 1954 (42 U.S.C. §2210d(a)) grants the U.S. Nuclear Regulatory Commission (NRC) the authority to determine which licensed facilities must undergo these security evaluations. Due to the nature, form, and quantity of nuclear material, the NRC is reporting the security response evaluation results for the Nation’s fleet of operating commercial nuclear power plants (NPPs) and Category I (CAT I) fuel cycle facilities.¹

Conducting force-on-force (FOF) inspections and implementing the security inspection program are two of many regulatory activities that the NRC performs to ensure the secure and safe use and management of radioactive and nuclear materials by the commercial nuclear power industry and at CAT I fuel cycle facilities. In support of these activities, the NRC evaluates relevant intelligence information and vulnerability analyses to determine realistic and practical security requirements and mitigating strategies for known or reasonable threats. The NRC takes a risk-informed, graded approach to establish appropriate regulatory controls, to enhance the agency’s inspection efforts, to assess the significance of security issues, and to require timely and effective corrective action for identified deficiencies by licensees of commercial nuclear power reactors and at CAT I fuel cycle facilities. The NRC also relies on interagency cooperation to develop an integrated approach to the security of nuclear facilities and to contribute to the NRC’s comprehensive evaluation of licensee security performance. Further, the NRC conducts public meetings and actively engages external stakeholders to inform them of its oversight program and to receive feedback, as appropriate.

In order to provide a holistic overview of how the NRC regulates, this report includes a description of relevant security programs, including: the Reactor Oversight Process (ROP), the Security Baseline Inspection Program for NPPs, an FOF evaluation description, and the CAT I Fuel Cycle Facility Security Oversight Program. This report also includes a comprehensive overview of the combined results of these security inspection programs for calendar year (CY) 2019.

¹ CAT I fuel cycle facilities are those that use or possess at least a formula quantity of strategic special nuclear material (SSNM). The term “formula quantity” is defined in Title 10, “Energy,” of the *Code of Federal Regulations* (10 CFR) 70.4, “Definitions,” as SSNM “in any combination in a quantity of 5,000 grams or more computed by the formula grams = (grams contained Uranium-235) + 2.5 (grams Uranium-233 + grams plutonium). This class of material is sometimes referred to as a Category I quantity of material.”

2 REACTOR SECURITY OVERSIGHT PROCESS

2.1 Reactor Oversight Process Framework

The NRC assesses an NPP licensee's performance pursuant to NRC regulations, license requirements, and licensee-adopted standards for implementing its corrective action programs. The ROP is the NRC's program to inspect, measure, and assess the safety and security performance of a licensee, and to respond to any decline in their performance. The ROP is anchored in the NRC's mission to provide reasonable assurance of adequate protection of public health and safety and to promote the common defense and security and to protect the environment. It is a risk-informed process with three key strategic performance areas:

- reactor safety (avoiding incidents and reducing consequences if they occur)
- radiation safety for both plant workers and the public during routine operations
- protection of the plant against radiological sabotage or other security threats

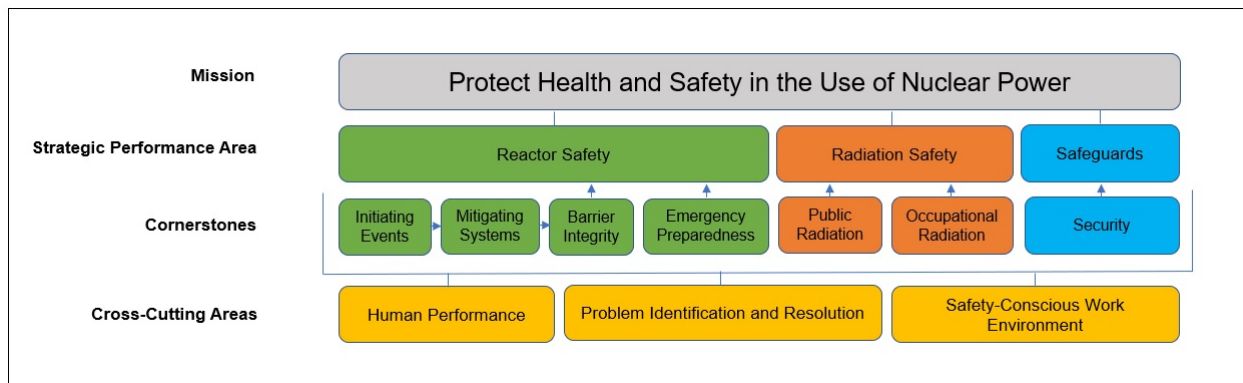


Figure 1 Reactor Oversight Framework²

The ROP provides a means to collect information about licensee performance, assess the information for its safety and security significance, and provide for appropriate licensee and NRC response. To measure NPP performance, the oversight program focuses on seven specific "cornerstones," which reflect and support the safety of NPP operations in three strategic performance areas. Satisfactory licensee performance in the cornerstones provides reasonable assurance of safe NPP operation and assurance that the NRC's safety mission is being accomplished. In addition to the cornerstones, the ROP features three "cross-cutting" elements, so named because they affect, and are therefore part of, each of the cornerstones.

2.2 Measuring and Inspecting Nuclear Power Plant Performance

The NRC evaluates NPP performance by analyzing two distinct inputs: inspection findings resulting from the NRC's inspection programs and performance indicators (PIs) reported by the licensees. The results of these inspections and PIs contribute to an overall assessment of licensee performance. Inspection activities closely focus on plant activities that have the

² The security cornerstone is further discussed in this report's third chapter, "Nuclear Reactor Security."

greatest impact on safety and security. In addition, the NRC conducts periodic reviews and annual assessments of the effectiveness of each licensee's programs to identify and correct problems.

PIs use objective data tracked by each NPP to monitor performance for each cornerstone. An NPP collects the data for each PI and submits this data to the NRC on a quarterly basis. Each PI is measured against established thresholds which are related to their effect on performance. The security inspection program is designed, in part, to verify the accuracy of PI information and to assess licensee performance that is not directly measured by PI data. The PIs complement the inspection program by providing additional insights into plant performance in selected areas.

2.3 Inspection Programs

The ROP includes baseline inspections that are common to all NPPs. The baseline inspection program focuses on activities and systems that are risk significant. The NRC may perform inspections beyond the baseline at plants with performance below established thresholds, as assessed through information gained from PIs and NRC inspections, and may also perform additional inspections in response to a specific event or problem that may arise. Inspections may be conducted by inspectors from the NRC headquarters office, any of the four regional offices, and/or NRC resident inspectors that are located at each NPP.

The baseline inspection program has three parts:

- inspections of areas not covered by PIs, or where a PI does not fully cover the inspection area
- inspections to verify the accuracy of a licensee's PI reports; and
- reviews of the licensees' effectiveness in independently finding and resolving problems.

2.4 Performance Evaluation

After compiling and reviewing PI data, the NRC posts PIs on the [NRC Web site](#). NRC staff evaluate PI data and integrate the data with inspection findings to develop an assessment of licensee performance. Each PI is measured against the ROP criteria using a color-coded system for safety performance:

- green indicates performance within an expected range where cornerstone objectives are met;
- white represents performance outside of an expected range, but cornerstone objectives are still being met;
- yellow indicates cornerstone objectives are being met, but with a minimal reduction in the safety margin; and,
- red indicates a significant reduction in safety margin that requires the NRC staff to evaluate and integrate the PI with findings of the security inspection program to provide a comprehensive assessment of the NPP's security performance.

The staff uses the NRC’s baseline security significance determination process (SDP) to evaluate security inspection-related findings and determine the significance of security program deficiencies.³ The SDP also has a color-coded system:

- green indicates a finding of very low safety or security significance;
- white indicates a finding of low to moderate safety or security significance;
- yellow indicates a finding of substantial safety or security significance; and,
- red indicates a finding of high safety or security significance.

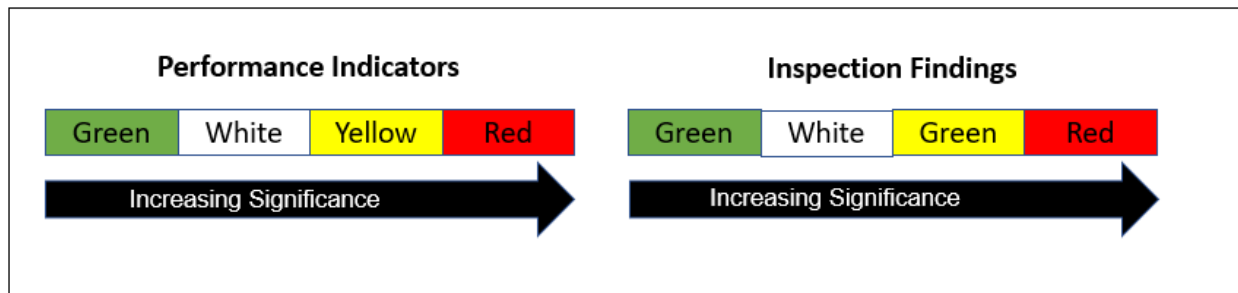


Figure 2 Reactor Oversight Action Matrix Performance Indicators

Information on all seven ROP cornerstones is available on the NRC’s public Web site. Security information is included in the quarterly updates to action matrix inputs.⁴ The Action Matrix Summary, posted on the [NRC’s public web page](#), only provides security inputs that are determined to be of very low significance (i.e., green); security inputs of greater significance (i.e., white, yellow, or red) are presented in a different color (i.e., blue) to reflect greater-than-green significance. Not specifying the actual color of greater-than-green security inputs is consistent with the Commission’s information protection policy. Similarly, specific information about all security performance deficiencies will continue to be withheld from public disclosure to be consistent with the Commission’s information protection policy.⁵

2.5 Assessing Reactor Performance

The SDP helps inspectors determine the safety significance of inspection findings. The staff uses the process for an initial screening review to identify those inspection findings that would not significantly increase risk and thus, do not need to be further analyzed (i.e., "green findings"). Remaining inspection findings will then be subject to a more thorough risk assessment, using the next phase of the SDP. The more thorough review will determine whether the finding is green, white, yellow, or red and whether further regulatory action is warranted.

³ The SDP for NPPs uses risk insights, where appropriate, to help the NRC to determine the significance of inspection findings. These findings include both programmatic and process deficiencies.

⁴ The action matrix identifies the range of NRC and licensee actions and the appropriate level of communication for different levels of licensee performance. Information on the action matrix is provided in section 2.6, "NRC Response to Plant Performance."

⁵ Staff Requirements Memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML043140175) ordered the NRC staff to withhold specific information relating to findings and PIs to ensure that security-related information is not provided to a potential adversary.

Each quarter, the NRC staff reviews the performance of all NPPs as measured by the PIs and by inspection findings. Every 6 months, the NRC staff will expand the review to include planning of inspections for the following 12-month period. Each year, the final quarterly review will involve a more detailed assessment of plant performance over the previous 12 months and preparation of a performance report, as well as the inspection plan for the following year.

The NRC's quarterly reviews of plant performance, which consider both PIs and inspection findings, will determine what additional actions, if any, the NRC will take if there are signs of declining performance. The process uses five levels of regulatory response with NRC regulatory review increasing as plant performance declines. The appropriate regional office manages the first three levels of heightened regulatory review. The last two levels call for an agency-level response involving senior management attention from both headquarters and regional offices.

ROP Action Matrix Assessment of Plant Performance		NRC Response
Column 5	Unacceptable Performance.	Response at Agency Level. Meeting with NRC Executive Director for Operations and senior plant management. Order to modify, suspend, or revoke license.
Column 4	Multiple/Repetitive Degraded Cornerstone. Repetitive degraded cornerstone, multiple degraded cornerstones, or multiple YELLOW inputs, or one RED input	Response at Agency Level. Meeting with NRC Executive Director for Operations and senior plant management. Plant operator improvement plan with NRC oversight. NRC team inspection focused on performance issues at the site. Demand for Information, Confirmatory Action Letter, or Order
Column 3	Degraded Performance. One degraded cornerstone (three WHITE inputs or one YELLOW input in a cornerstone) or three WHITE inputs in any strategic performance area	Response at Regional Level. Meeting with NRC regional management and senior plant management. Plant operator self-assessment with NRC oversight. Additional NRC inspections focused on cause of degraded performance.
Column 2	Regulatory Response. No more than two WHITE inputs in a strategic performance area	Response at Regional Level. Meeting with NRC and plant management. Plant operator corrective actions to address WHITE inputs. NRC inspection to follow up on WHITE inputs and corrective actions.
Column 1	Licensee Response. All performance indicators and cornerstone inspection findings GREEN	Normal Regional Oversight. Routine inspector and staff interaction. Baseline inspection program. Annual assessment public meeting.

Figure 3 NRC Response Plan to ROP Assessment of Nuclear Power Reactor Performance

2.6 Violations of NRC Requirements

The NRC's enforcement jurisdiction is derived from the AEA of 1954, as amended, and the Energy Reorganization Act of 1974 (ERA), as amended. The NRCs enforcement framework has graduated sanctions to reflect the fact that violations occur in a variety of activities and have varying levels of significance. The enforcement program has two goals: (1) to emphasize the importance of compliance with regulatory requirements, and (2) to encourage prompt and comprehensive identification as well as correction of violations.

Violations are identified through inspections and investigations. All violations are subject to civil enforcement action and may also be subject to criminal prosecution. Unlike the burden of proof standard for criminal actions (beyond a reasonable doubt), the NRC uses the preponderance of evidence standard (i.e., information that is of greater weight or credibility or is more likely correct than not) in enforcement proceedings. After an apparent violation is identified, it is assessed in accordance with the Commission's Enforcement Policy.

NRC uses three primary enforcement sanctions:

- Notice of Violation: A Notice of Violation (NOV) identifies a requirement and how it was violated, formalizes a violation pursuant to 10 CFR 2.201, and normally requires a written response.
- Civil Penalties: A civil penalty is a monetary fine issued under authority of Section 234 of the AEA or Section 206 of the ERA.
- Orders: Orders modify, suspend, or revoke licenses or require specific actions by licensees or other persons.

The Commission's authority to issue orders is broad and extends to any area of licensed activity that affects the public health and safety. NOVs and civil penalties are issued based on violations. Orders may be issued for violations, or in the absence of a violation, because of a public health or safety issue.

The NRC uses the traditional enforcement process at NPPs to evaluate violations that resulted in actual safety or security consequences, violations that may affect the ability of the NRC to perform its regulatory oversight function, or deliberate violations. The NRC staff categorizes these violations into four severity levels (SLs) that demonstrate the relative importance of the violation:

- SL I violations are those that resulted in, or could have resulted in, serious safety or security consequences;
- SL II violations are those that resulted in, or could have resulted in, significant safety or security consequences;
- SL III violations are those that resulted in, or could have resulted in, moderate safety or security consequences; and
- SL IV violations are those that are less serious but are of more-than-minor concern, that resulted in no or relatively inappreciable potential safety or security consequences.

3 NUCLEAR REACTOR SECURITY

3.1 NRC Security Cornerstone

The security cornerstone’s objective is to provide high assurance⁶ that a licensee’s security systems and material control and accounting programs use a defense-in-depth approach and can protect against the design-basis threats (DBT) as set forth in 10 CFR Part 73. The security cornerstone utilizes the various inspection activities discussed in this report’s first chapter. The security cornerstone focuses on the following seven key licensee performance attributes:

- access authorization
- access control
- physical protection systems
- material control and accounting
- response to contingency events
- protection of Safeguards Information
- cyber security

3.2 Security Baseline Inspection Program at Nuclear Power Reactors

The security baseline inspection program is a primary component of the security cornerstone. Like the baseline inspection program, the security baseline inspection program includes elements that are common to all NPPs. The security baseline inspection program covers the eleven inspectable areas provided in Figure 4.

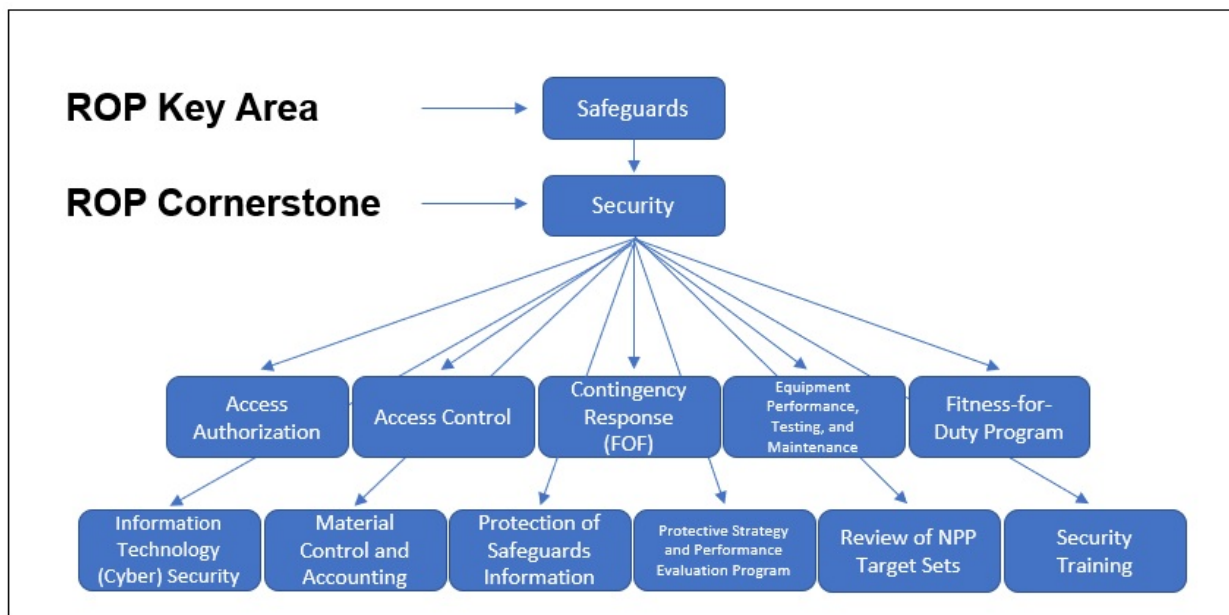


Figure 4 Inspectable Areas of the Security Cornerstone

⁶ In a memorandum to Victor M. McCree, Executive Director for Operations, from Annette L. Vietti-Cook, Secretary of the Commission, dated October 5, 2016, “Staff Requirements—SECY-16-0073—Options and Recommendations for the Force-on-Force Inspection Program in Response to SRM-SECY-14-0088,” the Commission provided the following direction: “In implementing the NRC’s regulatory program, either in developing new regulations, inspecting licensee compliance with regulations, or executing the FOF program, the staff should be mindful that the concept of ‘high assurance’ of adequate protection found in our security regulations is equivalent to ‘reasonable assurance’ when it comes to determining what level of regulation is appropriate” (ADAMS Accession No. ML16279A345).

The security baseline inspection program is the primary way that the agency verifies that each NRC licensee operates its facility pursuant to NRC regulations. The objectives of the security baseline inspection program are to:

- gather sufficient, factual inspection information to determine whether an NPP’s security strategy can protect against the radiological sabotage pursuant to 10 CFR 73.55(b);
- determine an NPP’s ability to identify, assess the significance of, and effectively correct security issues commensurate with the significance of the issue;
- verify the accuracy and completeness of PI data used in conjunction with inspection findings to assess the security performance of NPP licensees;
- provide a mechanism for the NRC to remain cognizant of an NPP’s security status and conditions; and,
- identify those significant issues that may have generic applicability or cross cutting applicability to the safe and secure operation of NPPs subject to the requirements of 10 CFR Part 73.

3.3 Inspection Results

Through its inspection program, the NRC has reasonable assurance that commercial NPPs continue to satisfy the NRC’s regulatory requirements. Table 1 summarizes the results of the security baseline inspection program for operating commercial NPPs in CY 2019. Table 1 indicates that 96 out of 97 security findings at NPPs issued in CY 2019 were of very low security significance (i.e., green or SL IV violations). Further, at the end of CY 2019, all licensees reported that their security PI was green. This means that protected area detection and assessment is operating at a performance level that does not warrant additional NRC inspection.

Table 1 Calendar Year 2019 Security Baseline Inspection Program Summary for Commercial Nuclear Power Reactors

Total number of security inspections conducted	170
Total number of inspection findings	97
Total number of green findings	93
Total number of greater-than-green findings	1
Total number of SL IV violations	3
Total number of greater-than-SL IV violations	0

4 CATEGORY I FUEL CYCLE FACILITY SECURITY OVERSIGHT PROGRAM

4.1 Overview

The NRC maintains regulatory oversight of safeguards and security programs at two CAT I fuel cycle facilities: BWX Technologies, Inc., located in Lynchburg, Virginia, and Nuclear Fuel Services, Inc., located in Erwin, Tennessee. These facilities manufacture fuel for government reactors and also down-blend highly enriched uranium (HEU) into low-enriched uranium for use in commercial nuclear power reactors. Each CAT I fuel cycle facility is licensed to use and process a formula quantity of SSNM. The SSNM must be protected against acts of radiological sabotage as well as theft and diversion.

The primary objectives of the CAT I fuel cycle facility security oversight program are to:

- determine if the fuel cycle facilities are operating safely, securely, and pursuant to the NRC's regulatory requirements and orders issued to fuel cycle facilities to implement compensatory security measures;
- detect indications of declining safeguards performance;
- investigate specific safeguards events and weaknesses; and
- identify generic security issues.

Like the ROP for NPPs, the CAT I fuel cycle facility oversight program includes an inspection program to identify findings, determine their significance, document the results, and assess licensees' corrective actions. The CAT I fuel cycle facility security inspection program uses traditional enforcement to assign the appropriate SL based on the significance of the finding; these SLs are described above. The core inspection program requires HEU-related physical security areas to be inspected either annually, biennially, or triennially using established inspection procedures. The results of these inspections contribute to an overall assessment of licensee performance.

The HEU inspectable security areas include:

- access authorization
- access control
- contingency response
- equipment performance
- fitness-for-duty
- material control and accounting
- protection of sensitive and classified information
- target area review
- security training
- transportation security

The core inspection program also includes FOF evaluations. In addition, like NPPs, NRC resident inspectors assigned to each CAT I fuel cycle facility provide an onsite NRC presence for direct observation and verification of a licensee's ongoing activities. Through the results obtained from all oversight efforts, the NRC determines whether licensees comply with regulatory requirements and can provide adequate protection against the DBTs of radiological sabotage and theft or diversion.

4.2 Inspection Results

Through its inspection program, the NRC has high assurance that CAT I fuel cycle facilities continue to satisfy the NRC's regulatory requirements. Table 3 summarizes the overall results of the security inspection program for CAT I fuel cycle facilities during 2019, excluding the FOF inspection results discussed in Section 3.3.2. Table 3 indicates that the baseline security finding issued in CY 2019 at CAT I fuel cycle facilities during 2019, was of very low security significance (i.e., SL IV violations).

**Table 2 Calendar Year 2019 Security Inspection Summary
for Category I Fuel Cycle Facilities**

Total number of security inspections conducted	10
Total number of inspection findings	1
Total number of SL IV findings	1
Total number of greater-than-SL IV findings	0

5 FORCE-ON-FORCE EVALUATIONS

5.1 Overview

FOF inspections include both tabletop drills and performance-based FOF inspection exercises. These FOF inspection exercises simulate combat between a mock adversary force and a licensee's security force. At an NPP, the mock adversary force attempts to reach and simulate damage to significant components of risk significant systems (referred to as "target sets") that protect the reactor's core or the spent fuel. Compromise of target sets could potentially cause a radioactive release to the environment. The licensee's security force, in turn, attempts to interdict and neutralize the mock adversary force to prevent the adversary from reaching target sets, thus preventing such a release. At a CAT I fuel cycle facility, a similar process is used to assess the effectiveness of a licensee's protective strategy capabilities relative to the DBT of radiological sabotage and theft or diversion of SSNM.

In conducting FOF inspections, the NRC notifies the licensees in advance, for operational and personnel safety reasons, as well as logistical purposes. This notification offers adequate planning time for licensee coordination of the FOF exercises. The licensee must ensure that on-duty security staff are aware of the exercise, maintain actual plant security, and provide additional security staff for participation in the exercises. In addition, the licensee must arrange for a group of individuals to control and monitor each exercise. A key NRC goal is to balance actual personnel and plant safety and security while conducting a security exercise.

In order to optimize its performance-based evaluations, FOF inspections are conducted in two 1-week segments. This includes a planning week, in which site tours are conducted and tabletop evolutions are performed in order to understand how the licensee will implement its protective strategy when an event occurs. This information provides valuable insights into any potential deficiencies in a licensee's protective strategy and is factored into adversary force attack scenarios. The FOF inspections also consider security baseline inspection results and security plan reviews in its planning process. Approximately 2 weeks following the planning week, NRC inspection teams return to the site to conduct the FOF exercise. The FOF exercise consists of a simulated terrorist attack where the licensee uses security response personnel and laser engagement systems to implement its response to the adversary actions. The NRC assesses the licensee's performance and makes a determination regarding the effectiveness of the licensee's response in preventing the adversary from completing its intended mission.

Any significant deficiencies in the protective strategy identified during FOF inspections are reviewed and corrected by the licensee. When a complete target set is simulated to be destroyed, and it is determined that the licensee's protective strategy does not meet the general performance objective, compensatory measures outlined in the licensee security plans are implemented. Compensatory measures will remain in place until a permanent solution resolving the deficiencies in the protective strategy is implemented.

5.2 Program Activities for 2019

Program activities in CY 2019 marked the final year of the fifth 3-year FOF inspection cycle, as well as the third year implementing the current FOF inspection procedure. On October 9, 2018, the Commission approved a proposal from the NRC staff to modify the FOF inspection program to include one NRC-conducted FOF exercise and an enhanced NRC inspection of a licensee-conducted annual FOF exercise at NPPs, in lieu of two NRC-conducted exercises per

inspection. The proposed framework was presented for the Commission’s review in COMSECY-19-0006, “Revised Security Inspection Program Framework (Option 3) in Response to SRM-17-0100.”⁷

5.3 Force-on-Force Evaluation Results

Pursuant to the FOF SDP, an effective exercise is one in which the licensee demonstrates effective implementation of its protective strategy in accordance with plans approved by the NRC and related implementation procedures, regulatory requirements, or other Commission requirements, such as orders or confirmatory action letters. An indeterminate exercise is one in which the results were significantly skewed by an anomaly or anomalies, resulting in the inability to determine the outcome of the exercise (e.g., site responders neutralize the adversaries using procedures or practices unanticipated by the design of the site protective strategy or in conflict with the training of security personnel to implement the site protective strategy, or significant exercise control failures were experienced, including controller performance failures). A marginal exercise is one in which the licensee’s performance prevented the loss of a complete target set; however, the site’s response force did not neutralize the adversary before the adversary simulated the loss of target set elements. An ineffective exercise is one in which the licensee did not demonstrate effective implementation of its protective strategy in accordance with plans approved by the NRC and related implementation procedures, regulatory requirements, or other Commission requirements, such as orders or confirmatory action letters.

In CY 2019, the NRC conducted 20 FOF inspections, which included two exercises per inspection, at 19 commercial power reactors and one CAT I fuel cycle facility and identified 3 findings that related to areas of the security baseline inspection program (See Figure 6 for total FOF findings issued by level of significance during CY 2013 to CY 2019). Table 2 summarizes the 20 FOF inspections conducted in CY 2019.

Table 3 Calendar Year 2019 Force-on-Force Evaluations Summary

Total number of inspections conducted (two exercises per inspection)	20
Total number of effective exercises	36
Total number of indeterminate exercises	1
Total number of marginal exercises	1
Total number of ineffective exercises	1
Total number of canceled exercises	1
Total number of inspection findings	3
Total number of green findings	3
Total number of greater-than-green findings	0
Total number of SL IV violations	0
Total number of greater-than-SL IV violations	0

⁷ “Security Baseline Inspection Program Assessment Results and Recommendations for Program,” NRC, October 14, 2017, ADAMS Accession No. ML17223A279.

In CY 2019, one exercise was deemed ineffective, another marginal, a third indeterminate, and a fourth cancelled. Details of the other than effective exercises are provided below:

- One exercise was evaluated as ineffective due to the licensee's inability to demonstrate an effective implementation of its protective strategy to defend the designated target set components.
- One exercise was evaluated as marginal due to the licensee's failure to ensure that all drill and exercise controllers were trained and qualified.
- One exercise was evaluated as indeterminate due to drill artificialities, insufficient exercise control, responder actions, and/or safety concerns for the exercise participants.
- One exercise was cancelled because of safety concerns due to adverse weather.

6 TOTAL SECURITY INSPECTION RESULTS FOR 2019

6.1 Overview

In CY 2019, the NRC conducted 180 security inspections at operating commercial NPPs and CAT I fuel cycle facilities (including FOF inspections). Those inspections resulted in a total of 98 findings.

6.2 Inspection Results

Table 4 summarizes the overall results of the NRC's security inspection program at operating commercial power reactors and CAT I fuel cycle facilities during CY 2019, including FOF inspections. Table 4 indicates that 97 out of 98 security inspection findings issued in CY 2019 were of very low security significance (i.e., green or SL IV violations). Figure 5 provides a graphic summary of the CY 2019 security inspection findings. This information gives an overview of licensee performance within the security cornerstone. The Official Use Only – Security Related Information version of this report (Enclosure 2) contains additional details on each finding.

Table 4 Security Inspection Results for 2019

180	Total number of security inspections conducted
98	Total number of inspection findings
93	Total number of Green findings
1	Total number of greater-than-Green findings
4	Total number of SL IV violations
0	Total number of greater-than-SL IV violations

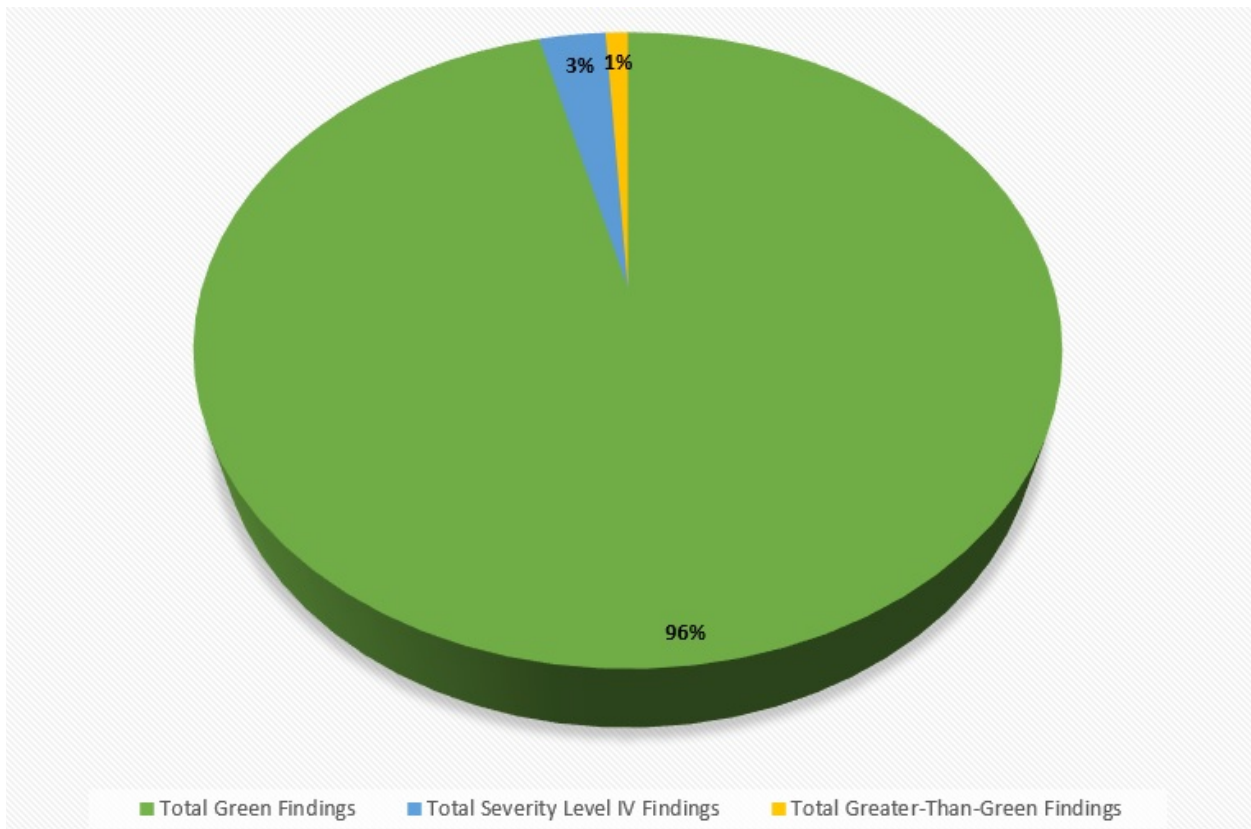
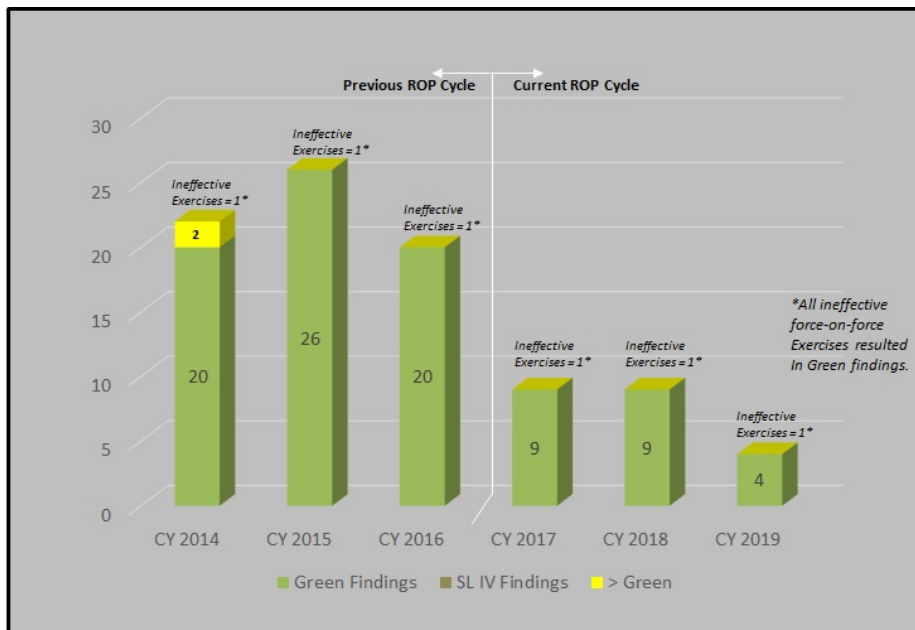


Figure 5 Summary of Security Inspection Program Results for Calendar Year 2019



Ineffective Exercise – an exercise where the licensee did not demonstrate effective implementation of its protective strategy in accordance with plans approved by the NRC and related implementation procedures, regulatory requirements, or other Commission requirements, such as orders or confirmatory action letters affecting protective strategy for the conduct of the FOF exercise.

Figure 6 Total Force-on-Force Findings Issued by Level of Significance

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

NUREG-1885, Rev. 13

2. TITLE AND SUBTITLE

**Report to Congress on the Security Inspection Program for Operating
Commercial Power Reactors and Category I Fuel Cycle Facilities:
Results and Status Update**

Annual Report for Calendar Year 2019

3. DATE REPORT PUBLISHED

MONTH

October

YEAR

2020

4. FIN OR GRANT NUMBER

5. AUTHOR(S)

Daryl Johnson, NSIR

6. TYPE OF REPORT

Technical

7. PERIOD COVERED (Inclusive Dates)

1/1/19-12/31/19

8. PERFORMING ORGANIZATION - NAME AND ADDRESS (If NRC, provide Division, Office or Region, U. S. Nuclear Regulatory Commission, and mailing address; if contractor, provide name and mailing address.)

Division of Security Operations
Office of Nuclear Security & Incident Response
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

9. SPONSORING ORGANIZATION - NAME AND ADDRESS (If NRC, type "Same as above", if contractor, provide NRC Division, Office or Region, U. S. Nuclear Regulatory Commission, and mailing address.)

Same as above

10. SUPPLEMENTARY NOTES

11. ABSTRACT (200 words or less)

This report fulfills the requirements of Section 170D.e of Chapter 14 of the Atomic Energy Act of 1954 (42 U.S.C. §2210d.e), as amended, which states, "[n]ot less often than once each year, the Commission shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Energy and Commerce of the House of Representatives a report, in classified form and unclassified form, that describes the results of each security response evaluation conducted and any relevant corrective action taken by a licensee during the previous year." This is the fifteenth annual report, which covers calendar year 2019. In addition to information on the security response evaluation program (force-on-force inspections), the U.S. Nuclear Regulatory Commission (NRC) is providing additional information regarding the overall security performance of the commercial nuclear power industry and Category I fuel cycle facilities to keep Congress and the public informed of the NRC's efforts to protect public health and safety, and the common defense and security through the effective regulation of the Nation's commercial nuclear power facilities and strategic special nuclear material.

12. KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

Category I Fuel Cycle Facilities
Commercial Power Reactors
Congressional Report
Force-on-Force Inspections
Report to Congress
Security Inspection Program
Security Response Evaluation Program

13. AVAILABILITY STATEMENT

unlimited

14. SECURITY CLASSIFICATION

(This Page)

unclassified

(This Report)

unclassified

15. NUMBER OF PAGES

16. PRICE



Federal Recycling Program



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001
OFFICIAL BUSINESS



NUREG-1885, Rev. 13

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Reactors and Category I Fuel Cycle Facilities: Results and Status Update**

October 2020