



ENFORCEMENT PROGRAM ANNUAL REPORT

Calendar Year 2018

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U.S. Nuclear Regulatory Commission
Office of Enforcement
Washington, DC 20555

Executive Summary

The U.S. Nuclear Regulatory Commission (NRC) effectively carried out the agency's Enforcement Policy and Program in calendar year (CY) 2018. NRC regional and Headquarters offices continued to focus on appropriate and consistent enforcement of the agency's regulations.

During CY 2018, the NRC issued 45 escalated enforcement actions under traditional enforcement, the Reactor Oversight Process, and the Construction Reactor Oversight Process. Of these actions, 12 involved civil penalties (CPs) totaling \$489,500, 2 were enforcement orders without an imposed CP, and 31 were escalated notices of violation (NOVs) without a proposed CP.

The total number of escalated enforcement actions across all regulatory oversight programs decreased in CY 2018 by approximately 54 percent compared to actions in CY 2017. Operating reactors and nuclear material users continue to account for the majority of escalated enforcement actions. Accordingly, the total number of escalated enforcement actions in these program areas decreased in CY 2018 by approximately 50 percent from CY 2017. Section I of this annual report provides additional information on these trends.

Operating reactors and nuclear material users also accounted for most of the non-escalated enforcement actions, i.e., Severity Level (SL) IV NOVs and non-cited violations (NCVs) under traditional enforcement, and NOVs and NCVs associated with Green Significance determination process (SDP) findings under the Reactor Oversight Process (ROP). The total number of non-escalated enforcement actions for operating reactors also declined in CY 2018. However, the total number of non-escalated enforcement actions for nuclear material users rose slightly from CY 2017 and remain relatively consistent over the past several years.

Noteworthy Program Accomplishments

In March 2018, the Office of Enforcement (OE) submitted a Commission paper requesting an explicit delegation of authority to the Executive Director for Operations to update the table of base CPs in the NRC's Enforcement Policy. This delegation of authority will result in a more efficient and streamlined process when policy revisions are required as a result of annual civil monetary penalty adjustments in accordance with the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015.

In April and August 2018, OE issued Changes 2 and 3, respectively, to the current revision (10) of the Enforcement Manual. These changes were necessary to reflect current enforcement practices and provide clarifying guidance where needed. The manual contains procedures the NRC uses to develop and process enforcement actions; the staff typically revises the manual at least annually.

OE issued two enforcement guidance memoranda (EGM) in 2018, one in May and one in August. These documents provide inspection staff guidance in the disposition of noncompliance issues and are used as temporary staff guidance. The EGM issued in May 2018 provided guidance for the dispositioning of potential violations to licensees that use direct ion storage dosimetry for personnel monitoring. The EGM issued in August 2018 provided guidance for dispositioning potential violations that involve a failure to control and maintain constant surveillance of portable gauges in a controlled or unrestricted area when not

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in storage.

Significant Cases

In CY 2018, the agency processed a number of significant cases that required extensive coordination and cooperation with stakeholders. The following are two of the more significant cases:

- The agency issued an SL II NOV with a proposed CP of \$11,600 to Providence Alaska Medical Center for failure to have an authorized user date and sign a written directive before administering therapeutic doses of radiation (Title 10 of the *Code of Federal Regulations* (10 CFR 35.40(a)); failure to develop, implement, and maintain written procedures to provide high confidence that each administration is in accordance with the written directive (10 CFR 35.41(a)); and failure to follow procedures specified on its license.
- The agency issued an SL II NOV with a proposed CP of \$232,000 to Wolf Creek Nuclear Operating Corporation for discriminating against a contract employee for engaging in protected activities.

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I. Program Overview

A. Mission and Authority

The U.S. Nuclear Regulatory Commission (NRC) regulates the civilian uses of nuclear materials in the United States to protect public health and safety, the environment, and the common defense and security. The agency accomplishes its mission through licensing of nuclear facilities and the possession, use, and disposal of nuclear materials; the development and implementation of requirements governing licensed activities; and inspection and enforcement activities to ensure compliance with these requirements (see Figure 1).

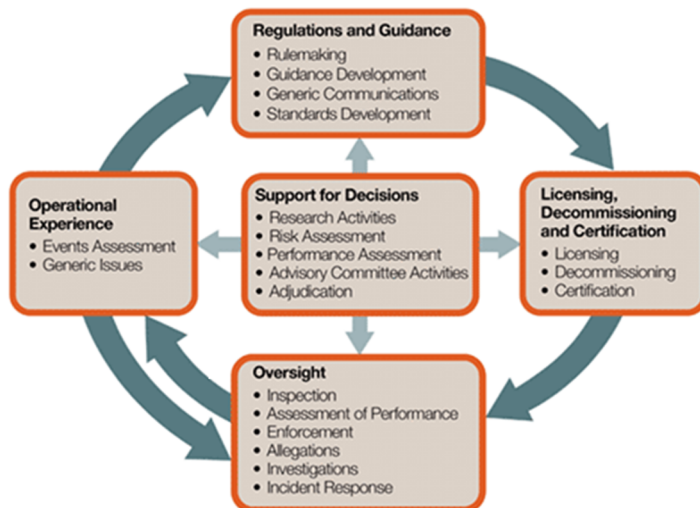


Figure 1 How the NRC regulates

The NRC conducts various types of inspections and investigations designed to ensure that the activities it licenses are conducted in strict compliance with the Commission’s regulations, the terms of the licenses, and other requirements.

The sources of the NRC’s enforcement authority are the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and the Energy Policy Act of 2005. These statutes give the NRC broad authority with respect to its Enforcement Program. The Energy Policy Act of 2005 also expanded the definition of byproduct material, placing additional byproduct material under the NRC’s jurisdiction, including both naturally occurring and accelerator-produced radioactive materials. The agency carries out its broad enforcement authority through Title 10 of the *Code of Federal Regulations* (10 CFR) Part 2, “Agency Rules of Practice and Procedure,” Subpart B, “Procedure for Imposing Requirements by Order, or for Modification, Suspension, or Revocation of a License, or for Imposing Civil Penalties.” Congress also provides the statutory framework for the Federal Government to use alternative dispute resolution (ADR) in conjunction with its enforcement authority through the Administrative Dispute Resolution Act of 1996.

The NRC Enforcement Policy establishes the general principles governing the agency’s Enforcement Program and specifies a process for implementing the agency’s enforcement authority in response to violations of NRC requirements. This statement of policy is based on the NRC’s view that compliance with its requirements plays a critical role in ensuring safety, maintaining security, and protecting the environment. The Enforcement Policy applies to all NRC licensees, to various categories of nonlicensees, and to individual employees of licensed and nonlicensed firms involved in NRC-regulated activities.

The NRC enforces compliance as necessary. Enforcement actions serve as a deterrent, emphasize the importance of compliance with regulatory requirements, and encourage the

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prompt identification and comprehensive correction of violations. In addition, because violations occur in a variety of activities and vary in significance, the NRC Enforcement Policy contains graduated sanctions.

Enforcement authority includes using notices of violation (NOVs); civil penalties (CPs); demands for information; and orders to modify, suspend, or revoke a license. The NRC staff may exercise discretion in determining appropriate enforcement sanctions. Most violations are identified through inspections and investigations and are normally assigned a severity level (SL) ranging from SL IV for those of more than minor concern to SL I for the most significant violation.

The Reactor Oversight Process (ROP) supplements the enforcement process for operating nuclear reactors. The NRC has implemented a similar process to assess findings at new reactor construction sites. Under the ROP, violations are not normally assigned an SL but instead are assigned “significance” by assessing their associated inspection findings through the ROP. Under the ROP, the NRC determines the risk significance of inspection findings using the significance determination process (SDP), which in turn assigns the colors of Green, White, Yellow, or Red with increasing risk significance. Findings under the ROP may also include licensee failures to meet self-imposed standards. In such cases, ROP findings may or may not involve a violation of a regulatory requirement. Violations and findings assigned a greater-than-Green color are considered escalated enforcement actions.

Although the ROP applies to most violations at operating power reactors, some aspects of violations (e.g., willfulness) cannot be addressed solely through the SDP; such violations require the NRC to follow the traditional enforcement process. The NRC uses traditional enforcement for violations that result in actual safety or security consequences, affect the ability of the NRC to perform its regulatory oversight function, or involve willfulness.

In addition, although ROP findings are not normally subject to CPs, the NRC does consider CPs for any violation that involves actual consequences. SL IV violations and violations associated with Green ROP findings are normally dispositioned as noncited violations (NCVs) if certain criteria are met. Inspection reports or records document NCVs and briefly describe the corrective action that the licensee has taken or plans to take, if these actions are known at the time the NCV is documented. Additional information about the ROP is available at <https://www.nrc.gov/reactors/operating/oversight.html>.

The NRC Office of Enforcement (OE) develops policies and programs for the enforcement of NRC requirements. In addition, OE oversees NRC enforcement activities, giving programmatic and implementation guidance to regional and Headquarters offices that conduct or are involved in enforcement activities, to ensure that regional and program offices are consistent in their implementation of the agency’s Enforcement Program.

The NRC’s Enforcement Web site, available at <http://www.nrc.gov/about-nrc/regulatory/enforcement.html>, presents a variety of information, such as the Enforcement Policy, the Enforcement Manual, and current temporary enforcement guidance contained in enforcement guidance memoranda (EGMs). This Web site also has information about escalated enforcement actions that the NRC has issued to reactor and materials licensees, nonlicensees (vendors, contractors, and certificate holders), and individuals. In keeping with NRC practices and policies, the NRC’s public Web site does not provide details associated with most security-related actions and activities.

B. Assessment of Escalated Enforcement Actions

Escalated enforcement actions include the following:

- NOVs, including SL I, II, or III violations
- SL IV violations to individuals
- NOVs associated with Red, Yellow, or White SDP findings (for operating reactor facilities)
- CP actions
- enforcement orders (including confirmatory orders (COs) that result from the ADR process and orders to suspend, revoke, or modify an NRC license)

During calendar year (CY) 2018, the NRC issued 45 escalated enforcement actions to licensees, nonlicensees, and individuals. Figure 2 shows the distribution of these actions by category of action.

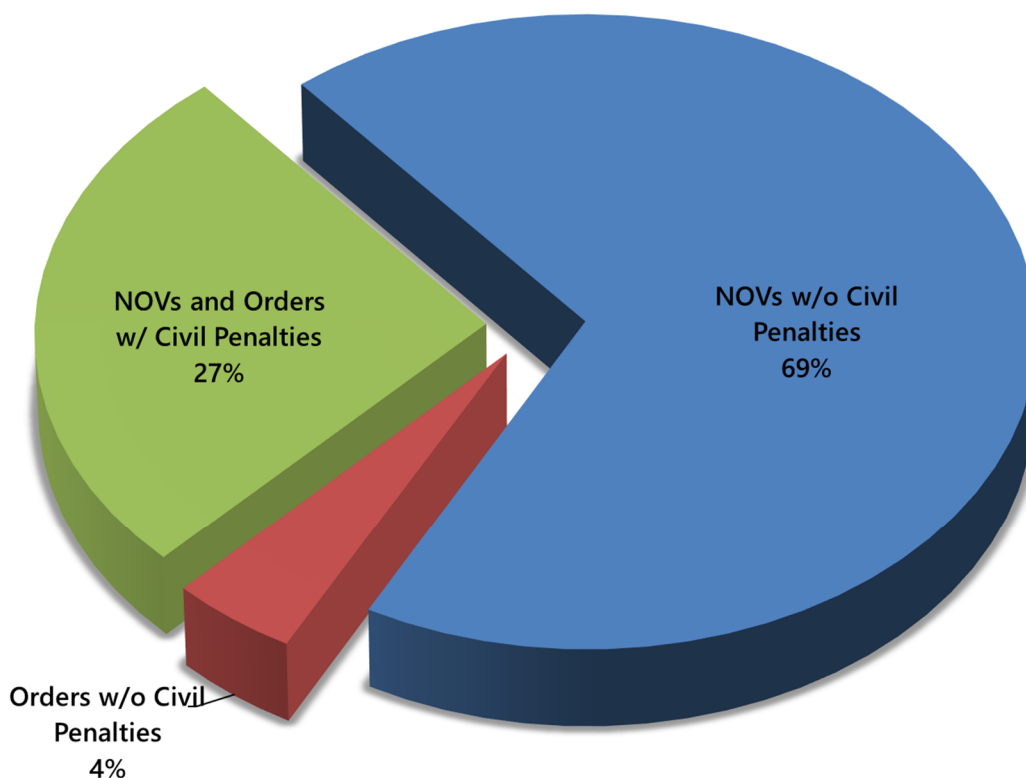


Figure 2 Escalated enforcement by type of action (CY 2018)

The most common type of escalated enforcement action was an NOV without a CP—31 of the 45 escalated actions (or 69 percent) issued during CY 2018. This percentage is slightly lower than the average of NOVs without a CP issued from CY 2014 through CY 2018 (approximately 72 percent). In general, the NRC considers a large percentage of NOVs

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without CPs as a positive outcome because it demonstrates that most licensees identify and correct violations—a goal of the Enforcement Program.

NOVs and orders with CPs comprised 27 percent of the escalated enforcement actions. This type of action consisted of one order imposing a CP, 1 order proposing a CP, and 10 NOVs with an associated CP. The remaining type of action consisted of two orders without CPs (4 percent).

Figure 3 shows the distribution of escalated enforcement actions issued in CY 2018 by business line, or type of licensee. This figure, includes individual actions in the appropriate category of licensee instead of counting the actions separately.

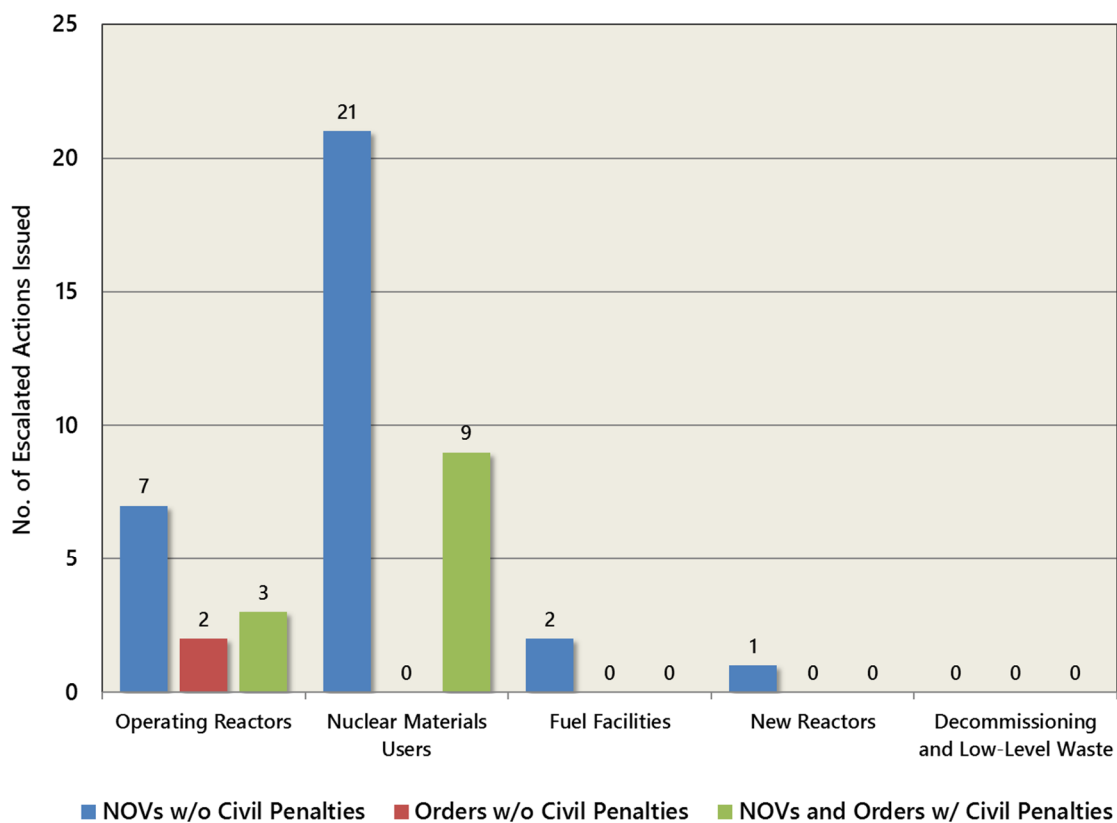


Figure 3 Escalated enforcement by business line (CY 2018)

As shown in Figure 3, nuclear materials users received the largest number of escalated enforcement actions in CY 2018 (a total of 30), accounting for 67 percent of all actions issued. This was followed by operating reactor licensees, which received 12 (or 27 percent) of all actions. The NRC also issued two escalated actions to fuel facilities, one to new reactors, and none to decommissioning and low-level waste licensees. Nuclear materials users received approximately 64 percent of the non-CP actions and 75 percent of all CP actions.

Table 1 breaks down the escalated enforcement actions issued in CY 2018 by region and program office. Since Region II does not process nuclear materials user cases, which account for 66 percent of the total escalated enforcement actions, its output reflects the fewest regional escalated actions. However, Region II is responsible for the oversight of

fuel facilities, which account for the two NOVs without CPs listed in Table 1. The program offices remain consistent with past escalated action output.

Table 1 CY 2018 Escalated Enforcement Actions by Region and Program Office

	NOVs w/o Civil Penalties	Orders w/o Civil Penalties	NOVs and Orders w/ Civil Penalties	Total
REGION I	4	0	2	6
REGION II	2	0	1	3
REGION III	11	0	1	12
REGION IV	10	2	5	17
NMSS	1	0	1	2
NRO	1	0	0	1
NRR	0	0	1	1
NSIR	1	0	0	1
OE	0	0	1	1
OIP	1	0	0	1
Total	31	2	12	45

Key to Offices

- NMSS—Office of Nuclear Material Safety and Safeguards
- NRO—Office of New Reactors
- NRR—Office of Nuclear Reactor Regulation
- NSIR—Office of Nuclear Security and Incident Response
- OE—Office of Enforcement
- OIP—Office of International Programs

1. Escalated Enforcement Trends

As previously noted, the NRC issued 45 escalated enforcement actions in CY 2018. The 45 actions represent a decrease of approximately 54 percent from the number of actions issued in CY 2017. Table 2 breaks down the total number of escalated enforcement actions the NRC has issued over the past 5 years by type of enforcement action. As shown in Table 2, the number of escalated enforcement actions issued in CY 2018 is also considerably lower than the most recent 5-year average.

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Table 2 Escalated Action Trends

	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018	Average
Escalated NOV (w/o CPs)	61	63	63	63	31	56
NOVs and Orders w/ CPs	11	13	14	10	11	12
Orders Imposing CPs	3	2	2	1	1	2
Orders (w/o CPs)	13	4	12	10	2	8
Total	88	82	91	84	45	78

Note: The staff may have adjusted information reported for the previous CYs in this year's annual report to reflect more accurate data that were not available when the previous annual report was published.

Table 2 and Figure 4 show that the number of NOV issued in 2018 that do not involve a CP have decreased by approximately half from the previous 4 years. However, the number of NOVs and orders with CPs, and orders imposing CPs, is relatively consistent with the number in the previous 4 years.

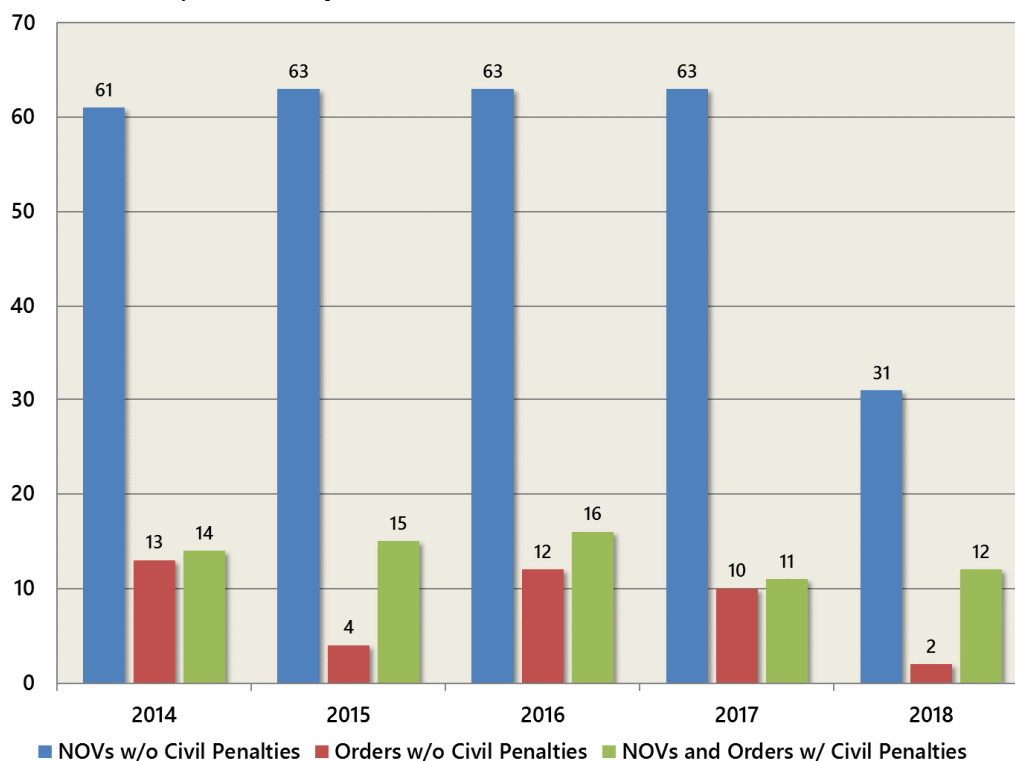


Figure 4 Escalated enforcement actions issued (CY 2014 through CY 2018)

Figure 5 presents escalated enforcement trends from CY 2014 through CY 2018 by business line. As shown in Figure 5, enforcement actions for both operating reactors and nuclear materials users have decreased over the past 2 years. Further, the number of escalated enforcement actions for operating reactors from 2016 through 2018 was lower than the number from CY 2009 through CY 2015, which averaged approximately 38 actions per year (data taken from previous annual reports).

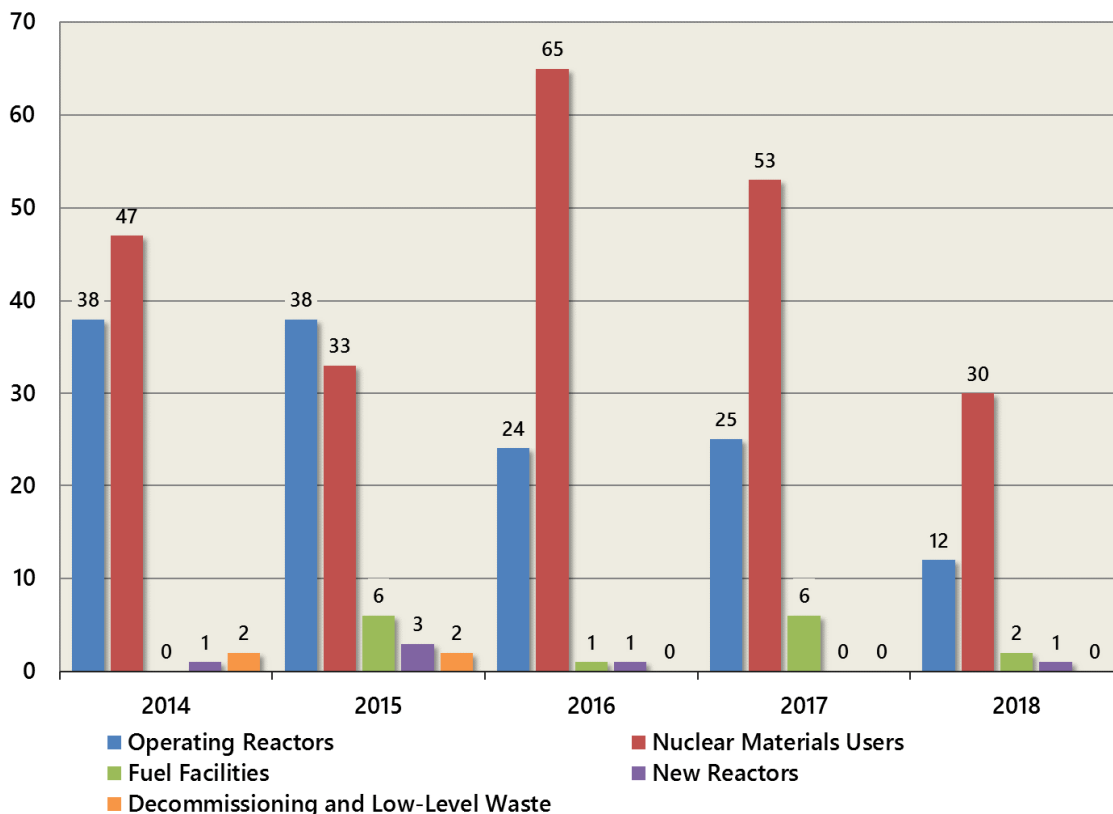


Figure 5 Escalated enforcement by business line (CY 2014 through CY 2018)

Enforcement actions for nuclear materials users reflect a cyclical trend, with CY 2018 being the low point in the cycle for the CY 2009 through CY 2018 timeframe (data before 2014 were taken from earlier annual reports and are not shown on Figure 5). Almost half of the 30 actions are from gauge users and radiographers (see Table 3).

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Table 3 CY 2018 Escalated Enforcement Actions by Type of Licensee, Nonlicensee, or Individual

	NOVs w/o Civil Penalties	Orders w/o Civil Penalties	NOVs and Orders w/ Civil Penalties	Total
Operating Reactor	4	2	2	8
Gauge	5	0	2	7
Radiographer	7	0	0	7
Hospital	1	0	4	5
Other	3	0	1	4
Academic	2	0	1	3
Materials Distributor	0	0	1	1
Fuel Facility	2	0	0	2
Licensed Operator	2	0	0	2
Individual Actor - Materials	1	0	0	1
Pharmacy	1	0	0	1
Individual Actor - Reactors	1	0	0	1
Import / Export	1	0	0	1
Research Reactor	0	0	1	1
Individual Actor - Vendor	1	0	0	1
Total	31	2	12	45

Table 4, shows that in general, escalated enforcement actions to licensees, nonlicensees and individuals were fewer in CY2018 (collectively, an almost 50 percent reduction) than in CY 2017. The table also shows that there is a significant drop in both operating reactors and gauge user actions. The considerable reduction in gauge user actions could be attributed to a combination of the overall reduction in escalated enforcement actions and the use of EGM 18-002, "Interim Guidance for Dispositioning Violations for Failure to Control and Maintain Constant Surveillance for Portable Gauges," dated August 1, 2018, which provides guidance on how to disposition these gauge user cases.

Table 4 CY 2018 Escalated Enforcement Actions by Type of Licensee, Nonlicensee or Individual

	2014	2015	2016	2017	2018	Total
Operating Reactor	29	27	17	22	8	103
Gauge	18	10	18	20	7	73
Radiographer	6	4	10	7	7	34
Hospital	4	5	5	9	5	28
Individual Actor - Materials	6	1	8	5	1	21
Materials Distributor	1	7	10	0	1	19
Individual Actor - Reactors	5	8	3	2	1	19
Fuel Facility	0	5	1	5	2	13
Licensed Operator	4	2	4	1	2	13
Academic	3	1	1	1	3	9
Physician (M)	5	1	1	2	0	9
Pharmacy	0	0	2	2	1	5
Import / Export	0	1	2	0	1	4
Irradiator	1	0	2	1	0	4
Vendor - New Reactors	1	1	1	0	0	3
Well Logger	0	1	1	1	0	3
Non-Operating Reactor	1	2	0	0	0	3
Research Reactor	0	1	0	0	1	2
New Construction - Reactor	0	1	0	0	0	1
Waste Disposal	0	0	0	1	0	1
Decommissioned Reactor/Site	1	0	0	0	0	1
Individual Actor - Vendor	0	1	0	0	1	2
Individual Actor - Fuel Facility	0	1	0	1	0	2
Mill	0	0	0	1	0	1
Other	3	2	5	3	4	17
Total	88	82	91	84	45	390

2. Civil Penalty Actions

In CY 2018, the agency processed 12 enforcement actions that involved CPs (11 proposed, 1 imposed) totaling \$489,500. Of these actions, 10 were associated with nuclear materials user licensees and 2 were associated with operating reactor licensees. The largest CP proposed was \$232,000 to Wolf Creek Nuclear Operating Corporation for an SL II violation for discriminating against a contract employee for engaging in protected activities.

Of the 12 CP cases, 3 also involved “willfulness,” which is defined as either deliberate misconduct or careless disregard. The Commission is particularly concerned with the identification of willful violations. The NRC’s regulatory program is based on licensees and their contractors, employees, and agents acting with integrity and communicating with candor; therefore, the agency may consider a violation involving willfulness to be more egregious than the underlying violation taken alone, and the agency may increase the SL accordingly.

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Table 5 compares CP assessments proposed, imposed, and paid for the most recent 5 CYs and the 5-year average. When reviewing the information in this table, it is important to note that an enforcement action may include more than one CP or more than one violation. In addition, a CP may be proposed one year and paid or imposed in another year. In some cases, the NRC has also approved a CP payment plan which permits a licensee to pay the CP in regular installments. Finally, the amount of a proposed CP may be reduced, or even eliminated, if the agency exercises enforcement discretion as part of a settlement agreement developed during ADR.

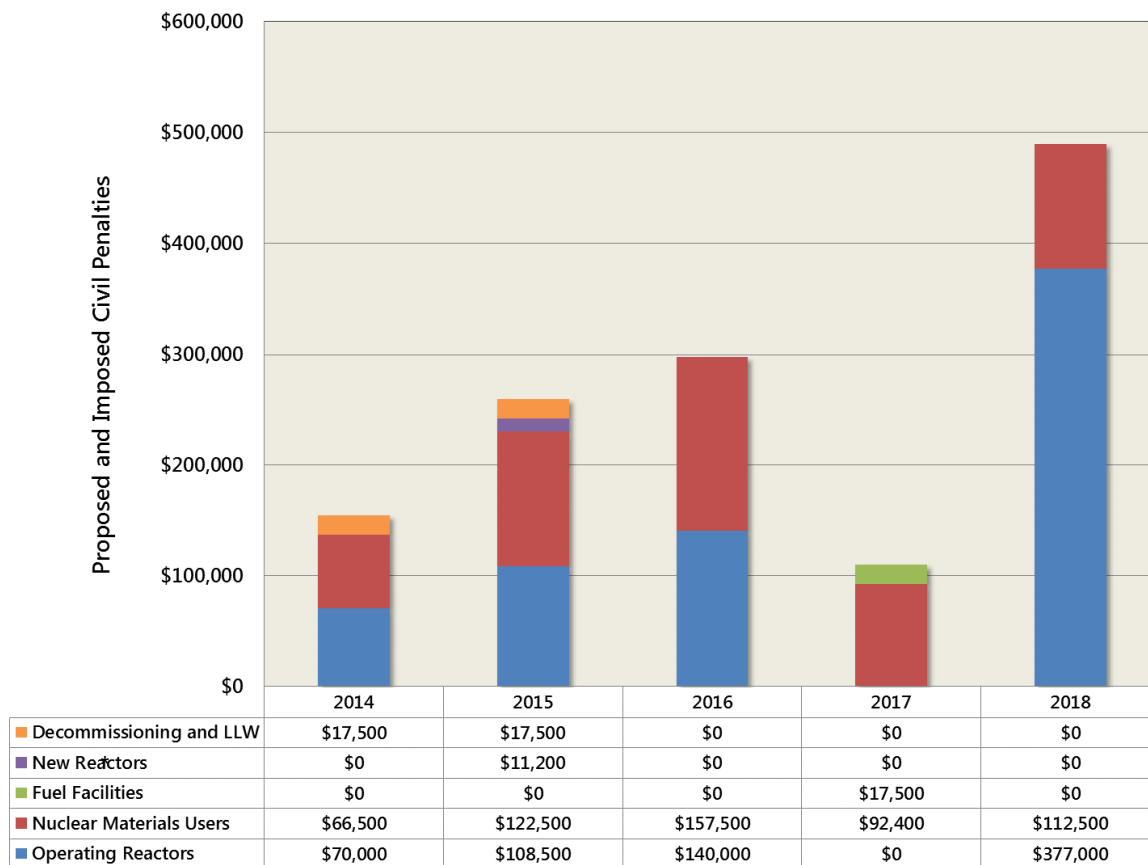
Table 5 Civil Penalty Information

	2014	2015	2016	2017	2018	Average
No. of Proposed Civil Penalties	9	12	14	8	11	11
No. of Imposed Civil Penalties	3	3	2	1	1	2
No. of Paid Civil Penalties	8	12	12	9	14	11
Amount of Proposed Civil Penalties	\$56,700	\$214,200	\$262,500	\$88,900	\$467,100	\$217,880
Amount of Imposed Civil Penalties	\$85,400	\$45,500	\$35,000	\$7,000	\$22,400	\$39,060
Amount of Paid Civil Penalties	\$110,362	\$176,364	\$206,500	\$61,500	\$206,500	\$152,245

Imposition cases and associated CP amounts reflect CPs issued through an order and include both (1) orders imposing a CP after a licensee does not pay a proposed CP and (2) CPs agreed to in an ADR case that are included in the case CO. In the first scenario, the case is a subset of the proposed CP cases as imposing the CP is the next step after a licensee does not pay a proposed CP. However, in the second scenario, an ADR settlement, potentially with a CP, typically occurs before any proposed CP.

The number of proposed CPs issued in CY 2018 was higher than the number of CPs issued in CY 2017 and matched the 5-year average. One CP was imposed in both CY2018 and CY 2017, while the 5-year average was two. The total dollar amount of paid CPs (proposed and imposed amounts) in CY2018 was significantly higher than that in CY 2017. Two cases primarily contributed to this higher dollar amount (both operating reactor licensees): Wolf Creek Nuclear Operating Corporation (\$232,000) and Southern Nuclear Operating Company, Inc. (\$145,000). One nuclear materials user case (Harman International Industries, Inc.) was associated with an ADR settlement agreement that involved a proposed CP of \$7,250 in CY 2018.

Figure 6 shows the total dollar amount of proposed and imposed CPs from CY 2014 through CY 2018 by business line.



The New Reactors business line includes CPs proposed and imposed on vendors and suppliers.

Figure 6 Civil penalties by business line (CY 2014 through CY 2018)

Figure 7 shows the share of the total CP amounts issued over the past 5 years among each of the business lines. Often, total CP amounts may peak in a particular year because of one or two substantial CP actions.

This is exactly the case for CY 2018. Two licensees, Southern Nuclear Operating Co. Inc., and Wolf Creek Nuclear Operating Corporation, each received proposed CPs for \$145,000 and \$232,000, respectively. This \$377,000 constitutes the total CP for operating reactors during CY 2018 (Figure 6). Nuclear materials users comprise the remaining \$112,500 of the total CP. Although the NRC issued an action involving a CP to a total of 10 nuclear material users, the CPs for Qal-Tek Associates, LLC (\$22,400), and Terracon Consultants, Inc. (\$29,000) comprised nearly half of the total \$112,500 CP for this group.

Appendix A to this report briefly describes each of the actions that assessed a CP in CY 2018. Although the appendix does not address security-related issues involving NOVs with CPs, the data discussed in this report include the number of NOVs associated with security-related issues.

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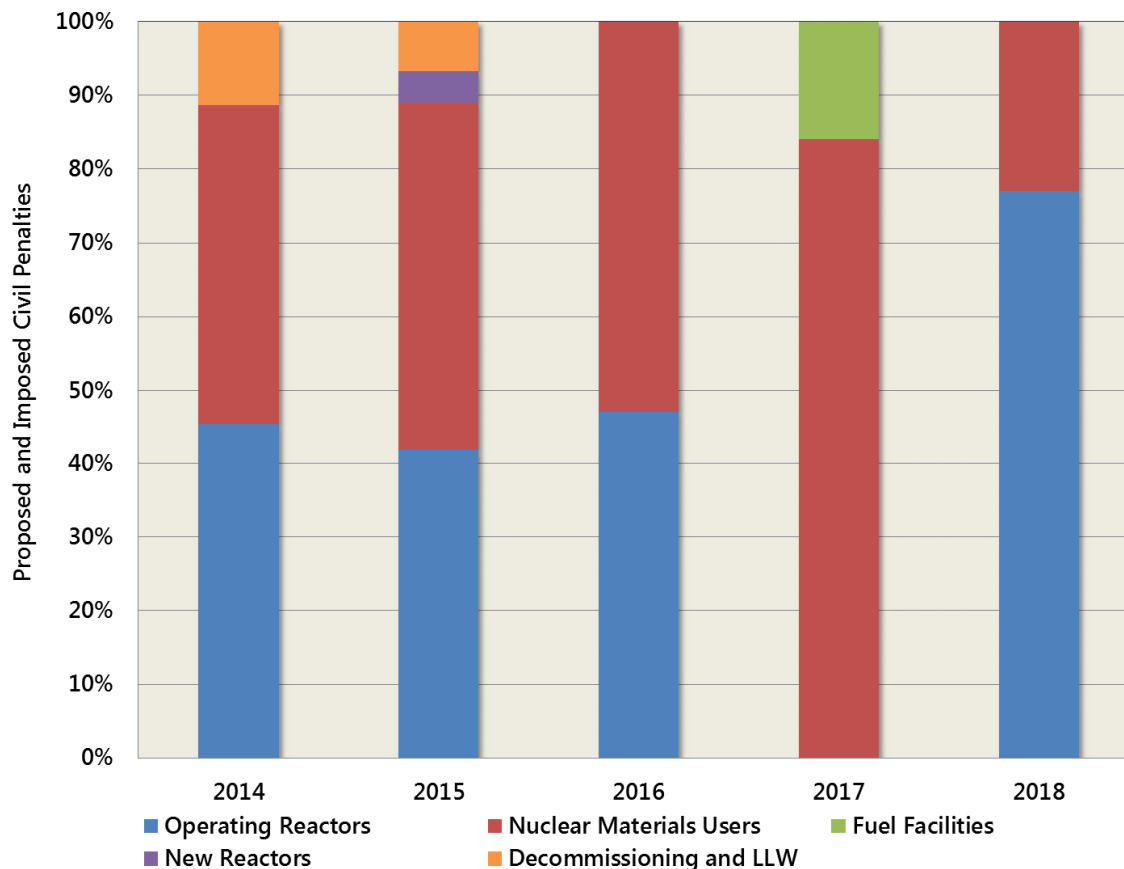


Figure 7 Percentage of civil penalties by business line

3. Notices of Violation without Civil Penalties

In accordance with Section 2.3.4 of the Enforcement Policy, a CP may not be warranted for escalated enforcement actions evaluated under traditional enforcement if certain criteria are met. For example, (1) the identified violation is the first nonwillful SL III violation identified during the past 2 years or during the last two inspections (whichever period is longer) at the licensee's facility and the licensee took adequate corrective action to prevent its recurrence, or (2) this was not the first nonwillful SL III violation identified during the past 2 years or during the last two inspections, but the licensee self-identified the violation and took adequate corrective action to prevent its recurrence. Violations assessed under the ROP SDP are normally not considered for CPs unless they involve actual consequences. In addition, the agency may use enforcement discretion, when appropriate, to refrain from proposing a CP, regardless of the normal CP assessment process described above.

In CY 2018, the NRC issued a total of 31 escalated NOV without CPs to nuclear materials user licensees (21), operating reactor licensees (7), fuel facilities (2), and new reactors (1). Of the 21 NOVs issued to nuclear materials user licensees, 11 were associated with either radiographers or gauge users. Of the seven operating reactor licensee violations, three were associated with White SDP findings under the ROP, and three SL III violations and one SL IV violation were processed under traditional enforcement. No violations were

associated with Yellow SDP findings, and for the sixth consecutive year, the NRC issued no Red SDP findings with associated violations.

Figure 8 shows escalated NOV trends associated with SDP findings at operating reactors over the past 5-years. As Figure 8 indicates, the escalated actions associated with SDP findings issued in CY 2018 (three) is the lowest number of NOV in the past 5-years. Appendix B to this report summarizes each of the NOVs issued without a CP, as well as the NOVs associated with SDP findings. Appendix B does not address security-related issues involving NOVs without CPs; however, the data discussed in this report include the number of NOVs associated with security-related issues.

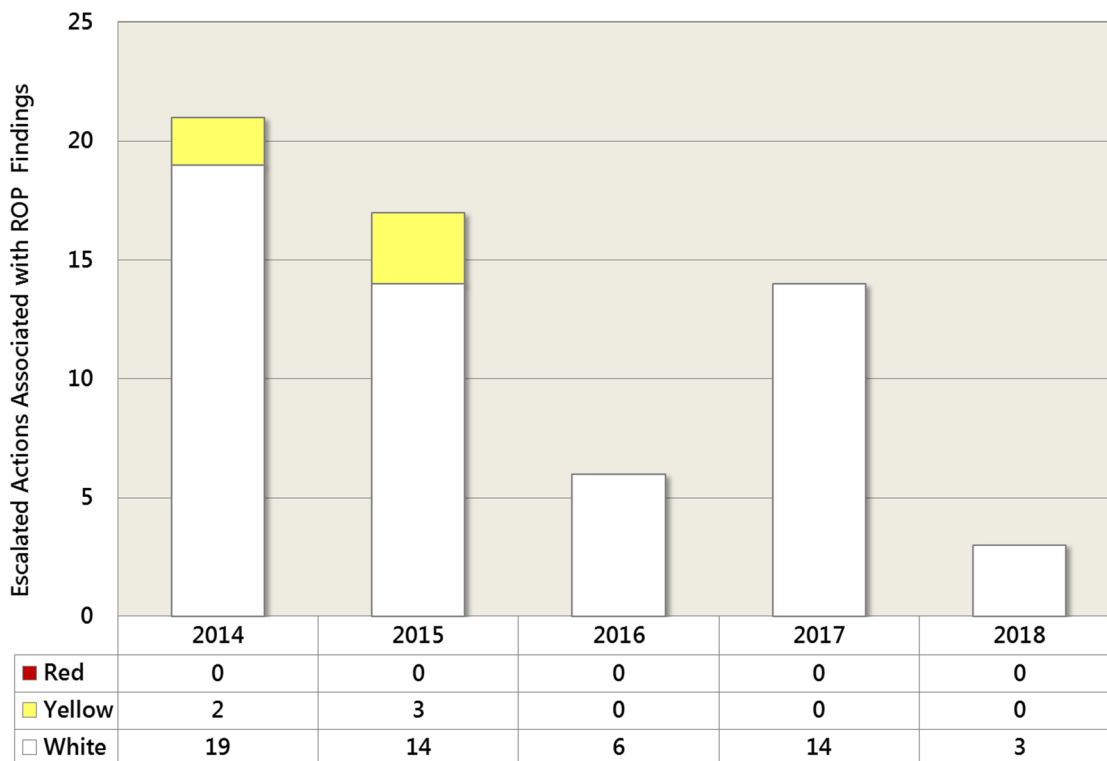


Figure 8 Escalated enforcement associated with ROP SDP findings at operating reactors

4. Enforcement Program Timeliness

The NRC issues escalated enforcement actions in cases involving violations assessed at SL I, II, or III (and SL IV for individuals) dispositioned under the traditional enforcement process; violations associated with White, Yellow, or Red findings issued to reactors participating in the ROP; and orders that impose sanctions. The timeliness associated with issuing escalated enforcement actions to reactor and materials licensees is an output measure (external goal) reported annually to Congress as part of the NRC’s Performance Accountability Report. The external goals, modified in 2012 to stress the importance of timely escalated enforcement actions, are (1) 100 percent of cases not based on investigations by the Office of Investigations (OI) are to be completed within an NRC processing time of less than or equal to 160 days, and (2) 100 percent of OI based cases are to be completed within an NRC processing time of less than or equal to 330 days.

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The NRC processing time starts on the latest of (1) the inspection exit for non-OI cases, (2) the date of the memorandum forwarding the OI report to the staff for OI-related cases, (3) the date that the U.S. Department of Justice indicates that the NRC may proceed for cases either prosecuted or reviewed for an extended period of time by the Department, or (4) the date of the U.S. Department of Labor decision that is the basis for the action. For timeliness reporting purposes, the NRC may group multiple escalated enforcement actions together and treat them as a single case if the enforcement actions are related to each other. For example, the NRC may disposition a violation and take escalated enforcement action against a licensee and one or more individuals. Although it took multiple enforcement actions, the NRC will treat these actions as one case for timeliness purposes so that timeliness data are not skewed in either a positive or negative direction.

In CY 2018, the NRC staff issued all 28 non-OI-related actions within 160 processing days, and all 7 OI-related actions within 330 processing days, thus meeting the external goals. A streamlined process implemented in CY 2016 is likely to have contributed significantly to the staff's ability to meet these goals. This process, the modified enforcement panel process, used for both traditional and ROP cases helped to elevate and resolve potentially differing views earlier in the enforcement process. OE will continue to work closely with the regional and program office staff in identifying, early on, enforcement cases that are likely to involve complex technical issues or other case-specific challenges.

Figure 9 shows that, on average, the agency took 89 processing days to issue non-OI-related enforcement actions. This is significantly less than the congressional goal of 160 processing days and is generally consistent with the overall average for the past 5 years. Although the number of cases processed in CY 2018 is approximately half of the number processed in previous years, the average case processing time remains relatively unchanged with respect to the last 4-years.

Figure 10 shows the case processing timeliness trends for OI-related escalated enforcement actions for the past 5 CYs. On average, the agency required 191 days to issue an OI-related enforcement action in CY 2018. This is less than the congressional goal of 330 processing days and is generally consistent with the overall average for the past 5 years. Again, as noted for the non-OI related case timeliness, the number of cases for CY 2018 is approximately half of the previous 4-years, however, the average case processing time is consistent with the previous 4-years.

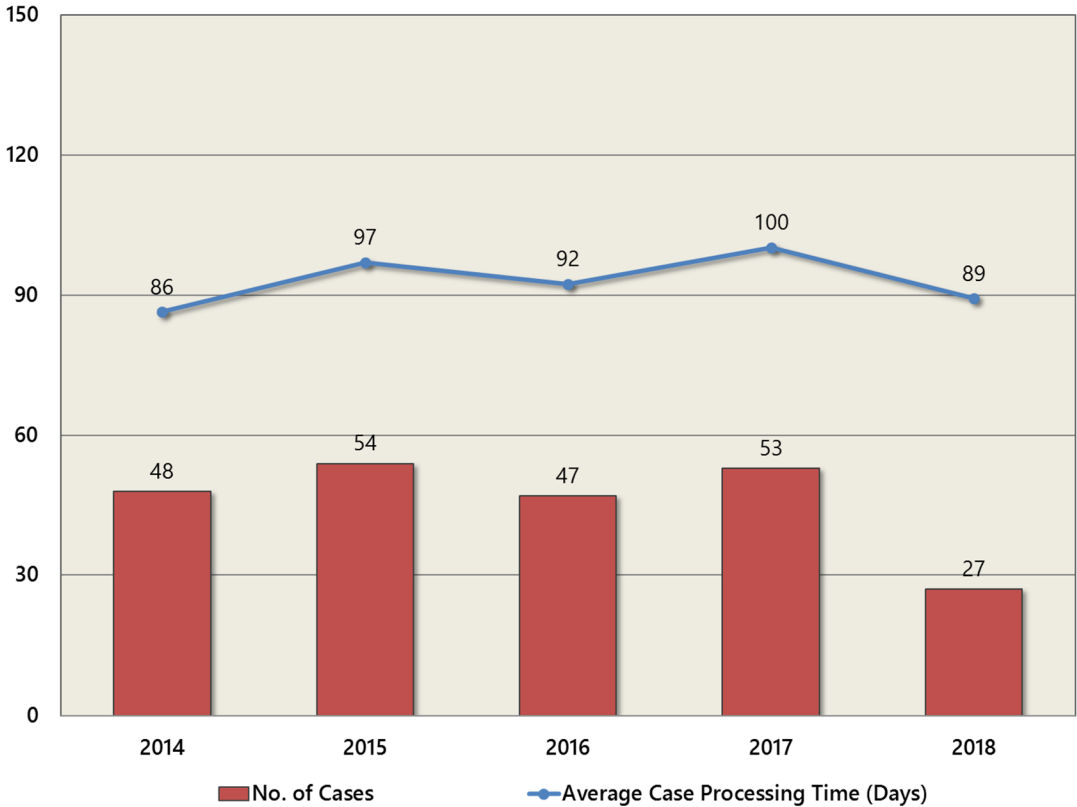


Figure 9 Non-OI related case timeliness (CY 2014 through CY 2018)

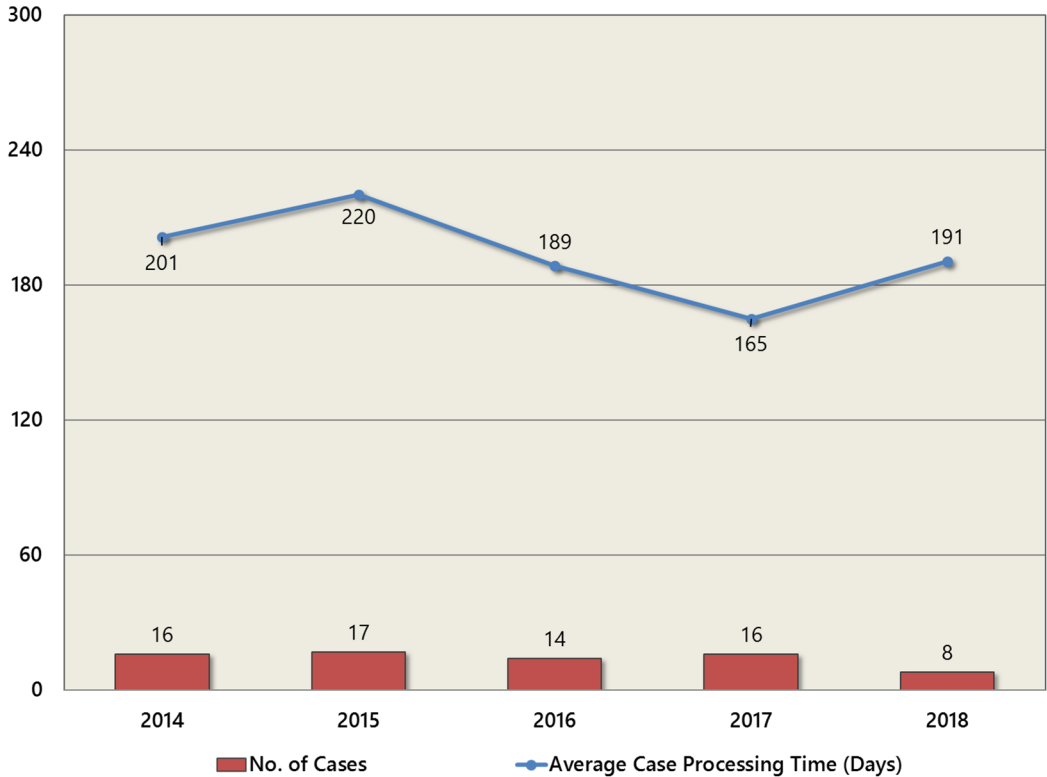


Figure 10 OI-related case timeliness (CY 2014 through CY 2018)

5. Alternative Dispute Resolution

ADR refers to a variety of voluntary processes, such as mediation and facilitated dialogue, to assist parties in resolving disputes and potential conflicts outside of courts by using a neutral third party. The NRC employs mediation for its enforcement ADR program using a neutral third party, with no decision-making authority, to help the parties reach an agreement. Participation in the process is voluntary, and the content of the final, mutual agreement is normally formalized in a CO published in the *Federal Register*.

The term “enforcement ADR” refers to the use of mediation (1) after OI has completed its investigation and an enforcement panel has concluded that pursuit of an enforcement action appears to be warranted, and (2) associated with escalated nonwillful, traditional enforcement cases with the potential for CPs.

Under OE’s enforcement ADR process, the NRC may offer mediation at three points in the enforcement process: (1) before a predecisional enforcement conference, (2) after the initial enforcement action (typically the issuance of an NOV or proposed imposition of a CP), or (3) with the imposition of a CP and before a hearing request. The NRC believes that for certain escalated enforcement actions, mediation gives the industry an opportunity to institute broader or more comprehensive corrective actions to better ensure public health, safety, and security than outcomes typically achieved through the traditional enforcement process.

As Figure 11 shows, the NRC opens an average of approximately six new cases each year under the enforcement ADR program. In CY 2018, the NRC participated in three ADR mediations: two resulted in orders confirming the terms of the parties’ agreement, and the third case is in process as of the date of this report. Over the past 5 years, all the enforcement cases that have used ADR have resulted in a settlement agreement.

In CY 2018, the staff continued to focus on enhancing the enforcement ADR program’s timeliness, transparency, and overall effectiveness. Although the program enhancements initiated over the past several years had a positive effect on the ADR process OE continues to develop and implement additional process improvements to increase the overall efficiency and, thus the timeliness of the program. Some process improvements include enhancement of guidance and other tools related to mediation session preparation and internal coordination and communication to support successful mediation sessions and order issuance.

As Figure 12 indicates, the average time to process an ADR case, from the date of the mediation offer to the issuance of a CO, increased this year. However, the increase in ADR processing time during CY 2017 and CY 2018 is directly attributed to an increase in the length of time between the mediation session and the issuance of the CO. This increase is a result of the complexity of cases and comprehensiveness of terms of the issued COs.

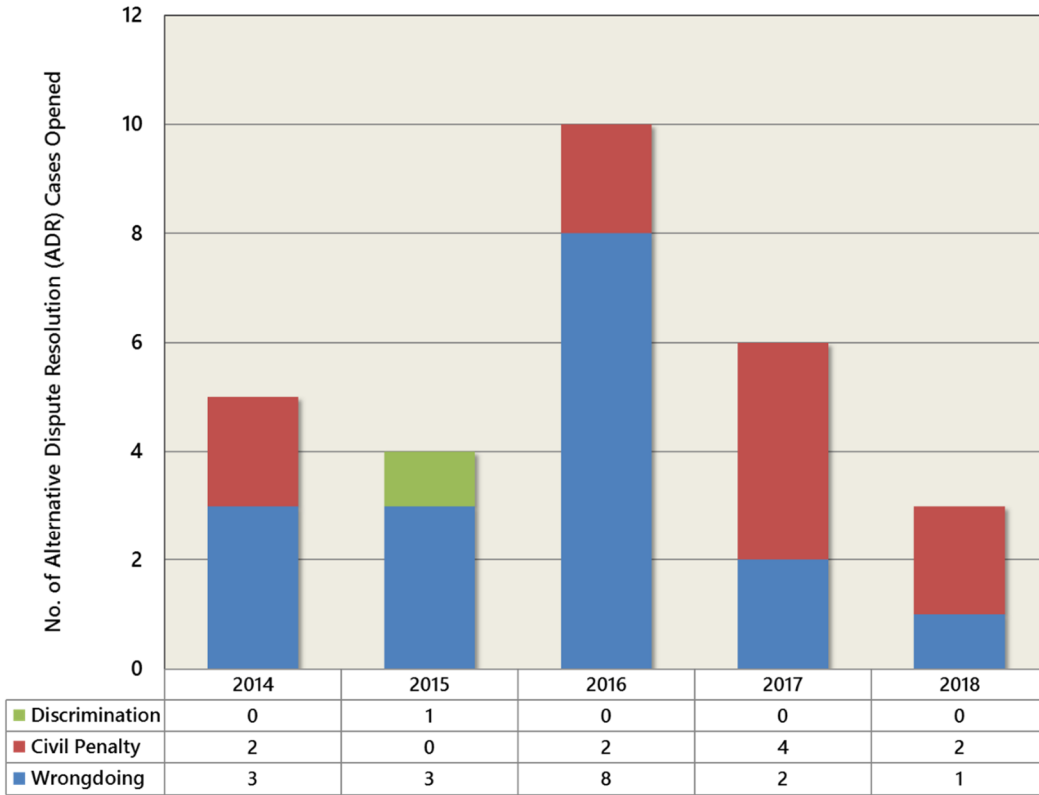


Figure 11 ADR cases opened (CY 2014 through CY 2018)

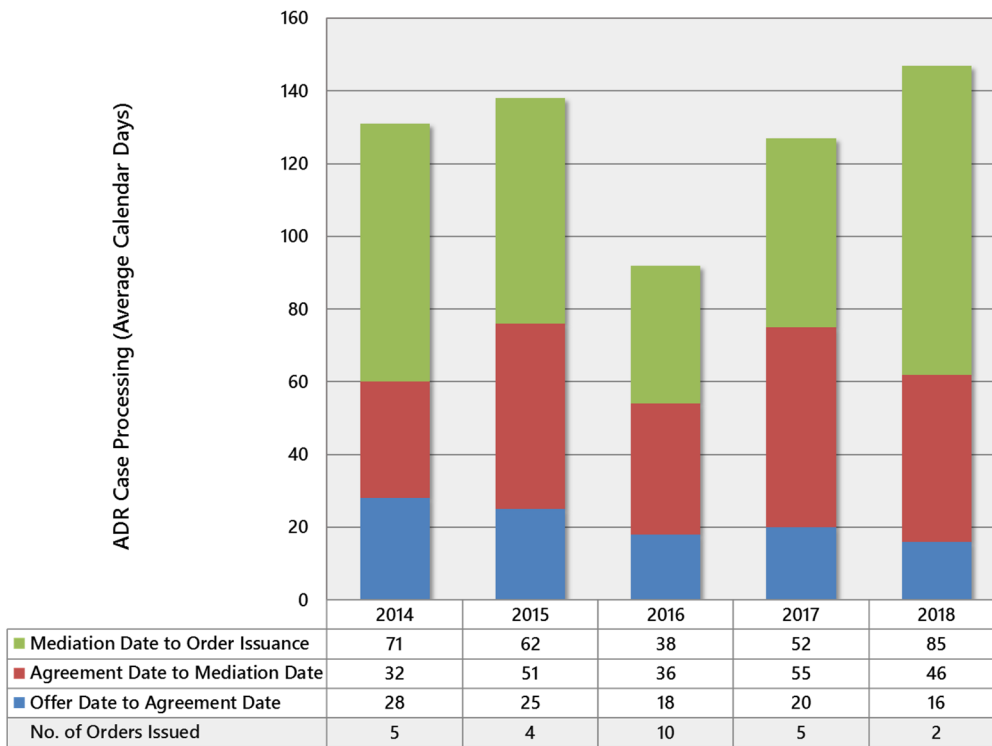


Figure 12 Calendar days from ADR offer to issuance of CO

C. Nonescalated Enforcement

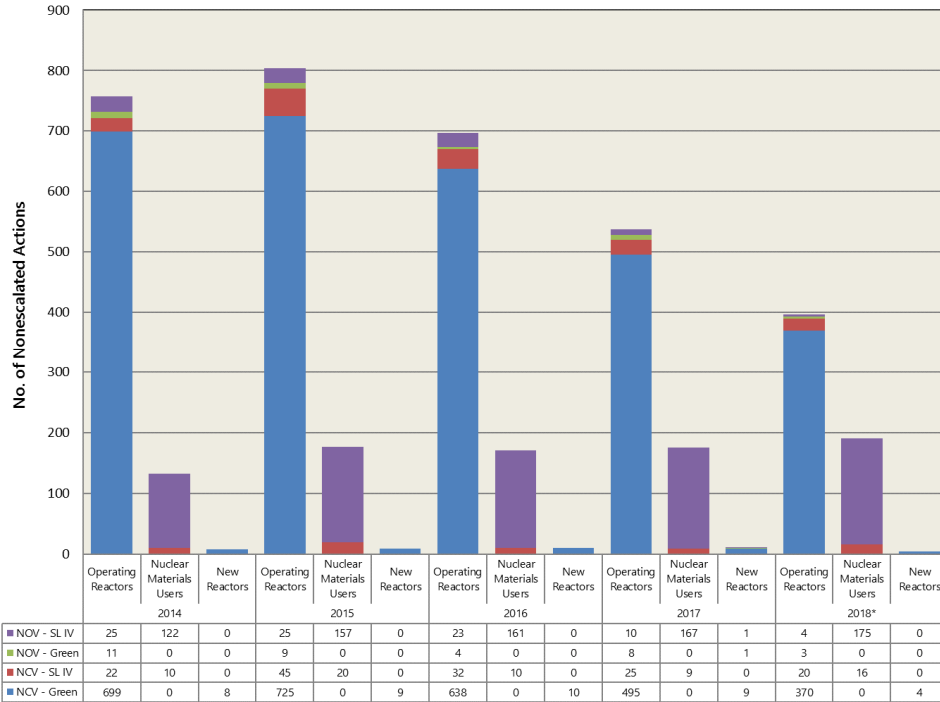
When OE first published the Enforcement Program Annual Report, it focused solely on escalated enforcement actions while providing limited information on nonescalated enforcement. Nonescalated enforcement actions include SL IV NOVs and NCVs under traditional enforcement and NOVs and NCVs associated with Green SDP findings under the ROP. In recent years, recognizing that most enforcement actions fall into the nonescalated category, OE began to collect more information on nonescalated enforcement trends. Operating reactors information is recorded in the Replacement Reactor Program System (RRPS), which replaced the old Reactor Program System database. The staff can now more easily obtain RRPS data through the NRC's internal Web site. Nuclear materials users' nonescalated actions are stored in the Web-Based Licensing (WBL) system, and new reactor construction data are maintained in the Construction Inspection Program Information Management System (CIPIMS).

Figure 13 provides information obtained from RRPS, the WBL system, and CIPIMS. There has been a notable overall downward trend in operating reactor SL IV NOVs and NCVs issued under traditional enforcement and NOVs and NCVs associated with Green SDP findings issued under the ROP. This is consistent with an overall downward trend in the number of inspection findings, event notifications, licensee event reports, and reactor scrams observed over the last several years.

Figure 14 shows the trend of nonescalated enforcement actions the regional offices have issued for the past 5-years. The information, obtained from the new RRPS, was "normalized" to show the average number of nonescalated actions per operating reactor in each of the regions. Figure 14 indicates that consistency has steadily improved among the regional offices in the number of nonescalated enforcement actions issued since CY 2013; in particular Regions I, II, and III are averaging around four nonescalated enforcement actions per operating reactor. Although Region IV had six nonescalated enforcement actions per operating reactor in CY 2018, the trend has moved progressively downward over the past several years. This trend coincides with similar escalated enforcement action trends observed across all regulatory oversight programs (i.e., licensee business lines).

Figure 15 provides information similar to that in Figure 14, noting the differences from the average number of nonescalated actions per operating reactor (i.e., the average number of actions per operating reactor is equal to zero). Region IV exhibits the most notable change from the previous year, a decrease of approximately four actions per reactor to nearly two, a reduction of about half.

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Note: The information for CY 2018 reflects RRPS, the WBL system, and CIPIMS data recorded as of March 5, 2019.

Figure 13 Nonescalated enforcement (CY 2014 through CY 2018)

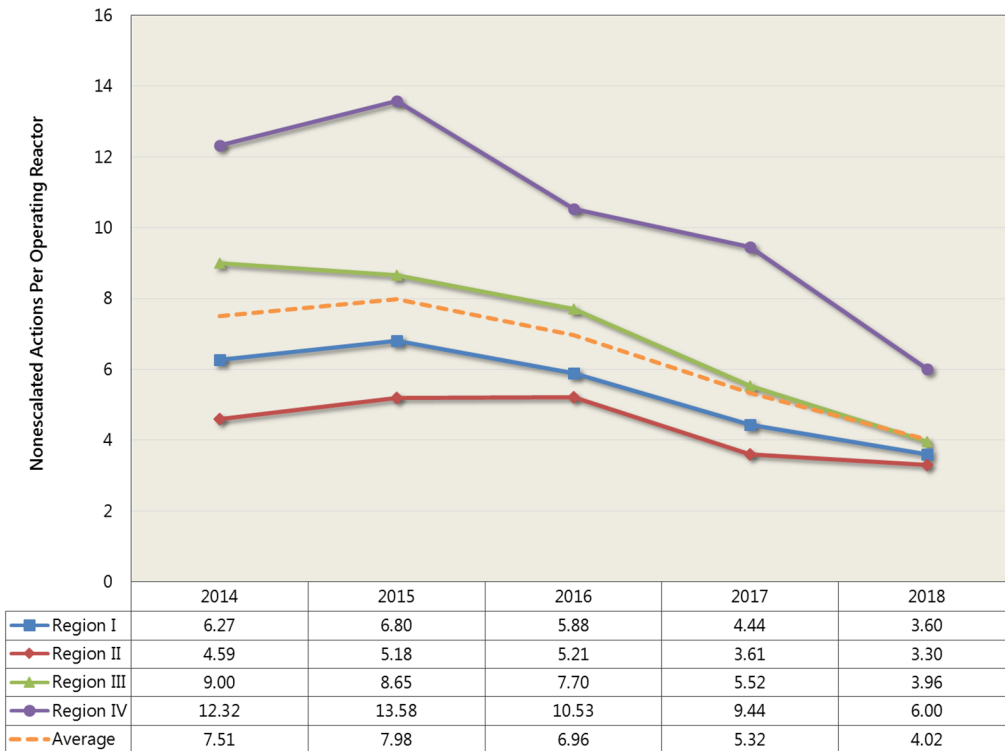
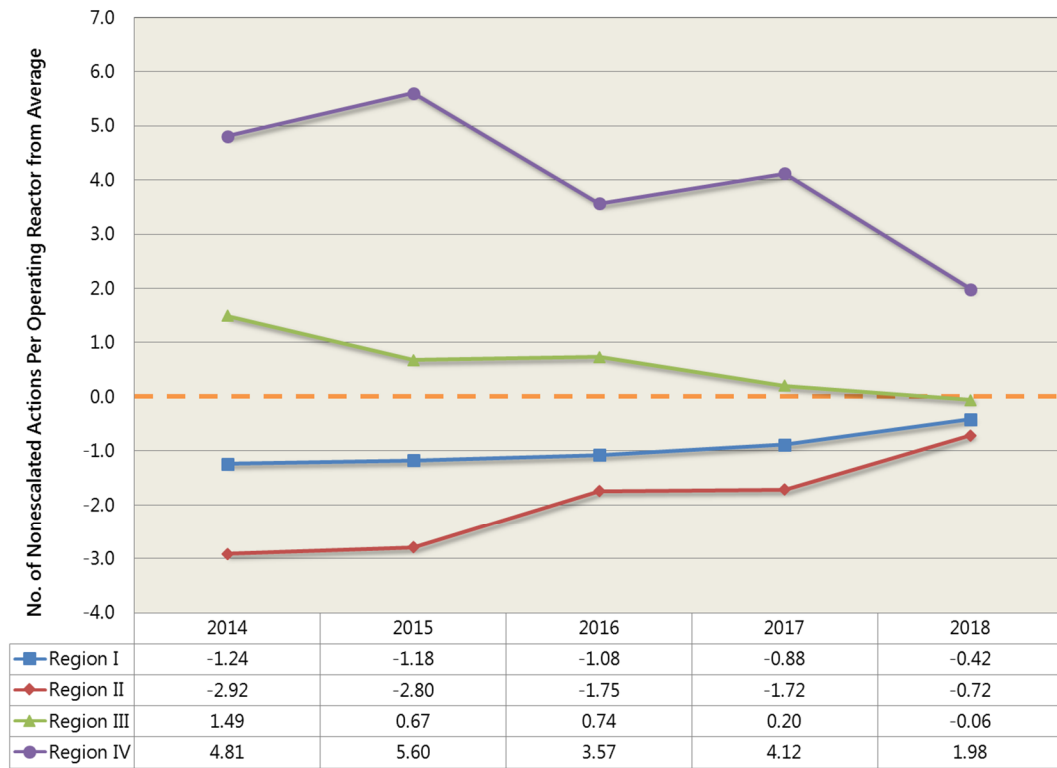


Figure 14 Nonescalated enforcement per operating reactor by region (CY 2013 through CY 2018)

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Note: These trends reflect information available from RRPS as of March 2019.

Figure 15 Nonescalated enforcement per operating reactor difference from average by region (CY 2013 through CY 2018)

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II. Enforcement Case Work

A. Significant Enforcement Actions

In CY 2018, the agency was involved in several noteworthy enforcement actions, as described below.

Providence Alaska Medical Center

On April 24, 2018, the NRC issued an SL II NOV and proposed imposed CP for \$11,600 to Providence Alaska Medical Center (licensee) for three violations: (1) failure to have an authorized user date and sign a written directive before administering therapeutic doses of radiation (10 CFR 35.40 (a)), (2) failure to develop, implement, and maintain written procedures to provide high confidence that each administration is in accordance with the written directive (10 CFR 35.41(a)), and (3) failure to follow procedures specified on the license, including training (License Condition 18). These violations are cited as a combined SL II problem. Specifically, from January 1, 2015 to June 27, 2017, the licensee failed to have the written directives dated and signed for approximately 40 therapeutic doses of yttrium-90 microspheres. During the same period, the licensee also failed to develop its procedure to assure that the written directive was followed; failed to verify that ordered and received doses matched those planned; and failed to have the medical physicist review the written directive, dose calculations, and to provide direction on doses ordered. Additionally, from October 28, 2016, to June 27, 2017, the licensee failed to provide training on its yttrium-90 microspheres procedure to its staff, including staff who ordered and prepared doses of the yttrium-90 microspheres. These failures are associated with a medical event that occurred when the licensee administered yttrium-90 microspheres to a patient liver in the amount of 54,000 centigray instead of the prescribed dose of 11,000 centigray.

Wolf Creek Nuclear Operating Corporation

On December 17, 2018, the NRC issued an SL II NOV with proposed imposition CP for \$232,000 to Wolf Creek Nuclear Operating Corporation (Wolf Creek) for a violation of 10 CFR 50.7, "Employee Protection." Specifically, between October 31, and November 10, 2016, Wolf Creek discriminated against a contract employee for engaging in protected activities. The contract employee was removed from the site, placed on paid administrative leave, and made the subject of an investigation, at least in part, for (1) submitting a condition report within the licensee's corrective action program related to alleged polar crane contact with equipment while operating within containment, (2) raising the safety concern during a safety stand-down meeting, and (3) raising retaliation concerns directly to Wolf Creek management.

B. Hearing Activities

No hearing activities resulted from enforcement actions in CY 2018.

C. Enforcement Orders

In CY 2018, the NRC issued four orders to licensees, nonlicensees, and individuals. The four orders included three COs that were issued to confirm commitments associated with

ADR settlement agreements and one order to impose a CP. One of the ADR-related COs included a requirement to pay a CP as a result of the settlement agreement. As shown in Section I, Table 1, of this report, the number of orders the NRC issued in CY 2018 decreased from CY 2017. This is consistent with the overall decrease in total enforcement actions for CY 2018. Appendix C to this document briefly describes the enforcement orders the NRC issued in 2018.

D. Enforcement Actions Supported by the Office of Investigations

In CY 2018, OI investigations supported 20 percent of the escalated enforcement actions (9 of the 46) the agency issued. This figure is approximately 12 percent lower than the percentage of cases that OI investigated in CY 2017 (32 percent). The escalated actions that OI investigated include the following:¹

- 3 of the 12 escalated NOVs and orders with CPs (25 percent)
- 4 of the 31 escalated NOVs without CPs (13 percent)
- 2 of the 3 enforcement orders without CPs (67 percent)

The number of enforcement actions OI investigated (9) is considerably lower than the average number of enforcement actions OI investigated over the previous 4 years (the average number of actions from CY 2014 through CY 2017 was 26). The average percentage of enforcement actions OI investigated over the past 5 years (CY 2014 through CY 2018) is approximately 30 percent.

E. Actions Involving Individuals and Nonlicensee Organizations

In CY 2018, the agency issued five escalated enforcement actions to licensed and unlicensed individuals, all of which were NOVs. The total number of escalated enforcement actions (NOVs and orders) that the agency issued in CY 2018 included this number. The number of escalated actions issued to individuals in CY 2018 is less than the average number of actions issued between CY 2014 and CY 2018 (11 per year). The NRC issued one of these five actions to a nonlicensee. Appendix C to this document summarizes the orders that the agency issued to individuals, and Appendix D summarizes the NOVs the agency issued to individuals in CY 2018.

F. Enforcement Action Involving Discrimination

In CY 2018, one escalated enforcement action resulted from a substantiated allegation of discrimination. The allegation arose from an incident involving a former contract employee for raising a safety concern during a safety stand-down meeting and raising retaliation concerns directly to his management. The licensee requested a predecisional enforcement conference and eventually received an NOV and CP. Between CY 2014 and CY 2018, the NRC handled, on average, one substantiated discrimination case each year; however, it is not unprecedented to have a year with no escalated enforcement action taken because of discrimination.

¹ The number of escalated actions reported in this section differs from the number of cases shown in Figure 10 because a single case may encompass multiple actions.

G. Use of Judgment and Discretion in Determining Appropriate Enforcement Sanctions

Within its statutory authority, the NRC may choose to exercise discretion and either escalate or mitigate enforcement sanctions or otherwise refrain from taking enforcement action. The exercise of discretion allows the NRC to determine actions that are appropriate for a particular case, consistent with the Enforcement Policy. After considering the general tenets of the policy and the safety and security significance of a violation and its surrounding circumstances, the NRC may exercise judgment and discretion in determining the severity levels of violations and the appropriate enforcement sanctions.

In CY 2018, the NRC exercised discretion in 39 enforcement cases to address violations of NRC requirements. This number reflects a slight increase in the number of cases in which the agency used discretion in CY 2017 (36 cases) and is comparable to recent trends. A discussion of the more significant cases dispositioned using enforcement discretion in CY 2018 follows.

1. Discretion Involving Temporary or Interim Enforcement Guidance

The NRC used enforcement discretion in accordance with either an interim enforcement policy or an EGM 15 times in CY 2018, compared to 18 in CY 2017.

- The NRC continued to perform fire protection inspections at power reactor sites to verify compliance with the requirements of 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities,” Appendix R, “Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979.” Violations of these requirements that were identified at sites transitioning to the National Fire Protection Association Standard 805, “Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants,” and that met the criteria as stated in the Interim Enforcement Policy 9.1, “Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48),” warranted enforcement discretion, and the NRC did not issue NOVs. Only one documented case involved this type of discretion in CY 2018.
- On August 1, 2018, the staff issued EGM-18-002, “Interim Guidance for Dispositioning Violations for Failure to Control and Maintain Constant Surveillance for Portable Gauges.” This EGM allows the use of a graded approach to evaluate the likelihood for opportunity for loss or theft of a portable gauge, or exposure to workers or the public. This approach would allow for 10 CFR 20.1802 violations that are less serious, but are of more than minor concern, that resulted in no or relatively inappreciable potential safety or security consequences to be cited as a SL IV. Only one action utilized this discretion.
- On June 10, 2015, the staff issued the initial revision to EGM-15-002, “Enforcement Discretion for Tornado-Generated Missile Protection Noncompliance.” On February 7, 2017, the agency revised EGM-15-002 to incorporate the lessons learned from the implementation of the original guidance. The NRC issued this EGM because, over the past several years, operating reactor licensees and the agency have identified facilities that have not conformed to their licensing basis for tornado-generated missile protection and are therefore not in compliance with applicable regulations. Because the overall risk resulting from these nonconformances is typically low, this

EGM provides guidance on exercising enforcement discretion for tornado-generated missile noncompliances in certain circumstances. In CY 2018, the agency dispositioned eight cases that met the criteria under this guidance.

- On April 8, 2013, the staff issued EGM-13-003, “Interim Guidance for Dispositioning Violations Involving 10 CFR 35.60 and 10 CFR 35.63 for the Calibration of Instrumentation to Measure the Activity of Rubidium-82 and the Determination of Rubidium-82 Patient Dosages.” This EGM is intended to address two instances in which it is not possible to meet the current NRC regulatory requirements. The agency dispositioned two cases that met the criteria under this guidance.
- In 2011, the staff issued EGM-11-003, “Dispositioning Boiling Water Reactor Licensee Noncompliance with Technical Specification Containment Requirements during Operations with a Potential for Draining the Reactor Vessel”, the latest revision is dated January 15, 2016. The NRC may exercise enforcement discretion for violations of certain technical specification (TS) requirements at boiling-water reactors under this EGM. In CY 2018, the agency dispositioned two cases that met the criteria in this EGM, compared to seven in CY 2017.
- On May 13, 2009, the staff issued EGM-09-004, “Dispositioning Violations of Naturally Occurring and Accelerator-Produced Radioactive Materials (NARM) Requirements.” Enforcement discretion may be exercised for violations of the NARM requirements if certain criteria are met as described in this EGM. In CY 2018, the agency dispositioned two cases that met the criteria in this EGM.

2. Discretion Involving Violations Identified Because of Previous Enforcement Actions

The staff may exercise enforcement discretion, in accordance with Section 3.3, “Violations Identified Because of Previous Enforcement Action,” of the Enforcement Policy if the licensee identified the violation as part of the corrective action for a previous enforcement action, and the violation has the same or a similar root cause as the violation causing the previous enforcement action. In CY 2018, the NRC dispositioned two violations consistent with the guidance in Section 3.3 of the policy.

3. Discretion Involving Special Circumstances

Section 3.5, “Special Circumstances,” of the Enforcement Policy states that the NRC may reduce or refrain from issuing a CP or an NOV for an SL II, III, or IV violation based on the merits of the case after considering the guidance in the policy and such factors as the age of the violation, the significance of the violation, the clarity of the requirement and associated guidance, the appropriateness of the requirement, the overall sustained performance of the licensee, and other relevant circumstances, including any that may have changed since the violation occurred. This discretion is expected to be exercised only if application of the normal guidance in the policy is unwarranted.

The NRC cited Section 3.5 of the policy six times in CY 2018 to disposition violations of its requirements.

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- U.S. Department of the Navy (Master Materials License (MML))—The NRC conducted a review of an event with regard to a temporary failure to control a device used for radiography at the Portsmouth Naval Shipyard, Kittery, ME. The NRC evaluated the facts and circumstances of this case and concluded that the Navy, in accordance with its enforcement program, identified the violation and issued the appropriate action. Therefore, the NRC determined that it was appropriate not to issue a violation.
- QSA Global Inc.—The NRC believed that QSA Global Inc. took reasonable actions to ensure that its Canadian customer would provide the necessary 7-day import notification in accordance with 10 CFR 110.50, “Terms.” However, that customer inadvertently shipped a Category 2 quantity of Se-75 from Canada in a container that was previously intended to be shipped empty. The NRC staff determined that the actions of this Canadian customer were beyond QSA Global Inc.’s control.
- CM Energy Operations, LP (CM Energy)—CM Energy received and possessed licensed material, specifically fixed gauges and coal analyzer, but did not have an NRC license to receive or possess such licensed material. This is a violation of 10 CFR 30.3, “Activities Requiring License.” However, the NRC decided to exercise enforcement discretion because (1) this was the first occurrence CM Energy was involved in, (2) the failure did not result in an actual safety, health or security consequence, (3) the failure was not willful, (4) CM Energy, once aware of the requirements, took appropriated action, and (5) CM Energy kept the material in secure storage.
- Hospital Andres Grillasca—During an inspection, the NRC found that Hospital Andres Grillasca had not conducted principal activities for a period of 24 months, which is a violation of 10 CFR 30.36, “Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas.” However, because the licensee properly transferred and disposed of the sealed sources, and agreed to terminate its license, the NRC issued enforcement discretion for the violation.
- Department of the Air Force (MML)—When shipping radioactive material on publicly accessible highways, Eglin Air Force Base (AFB) did not assess the shipped material, did not verify compliance with the applicable U.S. Department of Transportation requirements, and did not have documentation or records accounting for the shipments. Eglin AFB subsequently implemented or planned to implement corrective actions that included an extensive upgrade of the transportation program at Eglin AFB. The NRC Enforcement Manual states, in part, that discretion to mitigate an escalated enforcement action regarding an MML may be considered when (1) the violation was not willful, (2) the MML has done a thorough investigation and has reported its findings to the MML project manager, and (3) a source is not lost. The NRC determined the MML met all criteria and granted enforcement discretion.
- South Texas Project Nuclear Operating Company (STPNOC)—Over the past several years STPNOC chose to dispose of licensed material via an exempt waste facility in Texas. This method is in violation of 10 CFR 20.2001, “Occupational Dose Limits for Adults,” even though STPNOC had an agreement with the State of Texas for this

disposal method. Because the NRC acknowledges that there may have been issues between the associated Regulatory Issue Summary and NRC previous guidance, the NRC is providing enforcement discretion until a resolution is identified and communicated to affected licensees.

4. Discretion in Determining the Amount of a Civil Penalty

Section 3.6, “Use of Discretion in Determining the Amount of a Civil Penalty,” of the Enforcement Policy states that, notwithstanding the outcome of the normal CP assessment process addressed in Section 2.3.4, the NRC may exercise discretion by (1) proposing a CP where application of the CP assessment factors would otherwise result in zero penalty, (2) escalating the amount of the resulting CP to ensure that the proposed penalty appropriately reflects the significance of the issue, or (3) mitigating the amount based on the merits of the case and the ability of the various classes of licensees to pay. In 2018, one documented case cited Section 3.6 of the policy to mitigate the entire amount of a potential CP based on the facts of the case.

5. Discretion Involving No Significance Determination Process Performance Deficiency

Section 3.10, “Reactor Violations with No Performance Deficiencies” of the Enforcement Policy states that violations of NRC requirements normally falling within the ROP SDP process for operating power reactors for which there are no associated SDP performance deficiencies (e.g., a violation of TS, which is not a performance deficiency) may be dispositioned using enforcement discretion, similar to the approach described in Section 3.2, “Violations Involving Old Design Issues,” of the Enforcement Policy. In 2018, the NRC exercised enforcement discretion in accordance with Section 3.10 of the policy in 12 cases. All 12 involved violations of TS attributable to equipment failures that were not considered avoidable.

- Limerick Generating Station, Unit 2—While performing a reactor pressure vessel pressure test, the licensee identified a leak from an instrumentation nozzle. The root cause investigation determined the most probable cause was inter-granular stress corrosion cracking originating from a defect in the Alloy 82 overlay cladding. Although this constituted a violation of TS involving the reactor coolant pressure boundary, the NRC concluded that the violation was not within the licensee's ability to reasonably prevent and, therefore, did not identify an associated performance deficiency.
- Limerick Generating Station, Units 1 and 2—From October 19, 2016 to December 5, 2016, the main control room heating, ventilating, and air conditioning (HVAC) system experienced four failures. Three of these failures were determined to be an intermittent dropout or chattering of the loss of offsite power start relay for the “B” main control room HVAC supply and return fans. Manufacturer testing of the failed relays identified a defect that had caused the relay failures. As a result of the relay failures, the “B” main control room HVAC system was inoperable for 47 days, which is longer than the TS for that system. Because a manufacturing issue caused these failures, the NRC determined there was no performance deficiency.
- Peach Bottom Atomic Power Station, Unit 3—On October 23, 2017, during a containment walk-down, an operator identified a leak in a socket weld on a 1-inch

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instrument line. This line is connected to the discharge piping for the 'B' recirculation pump and is part of the reactor coolant system (RCS) pressure boundary. Because the leak was misting, the leakage rate could not be quantified. However, the RCS unidentified leakage before plant shutdown was 0.18 gallons per minute, and any RCS pressure boundary leakage, while in Mode 1, is a TS violation. The cause of the weld leakage was a combination of a fusion defect in the weld and the normal vibrations of the line. The NRC did not identify an associated performance deficiency for the violation and determined that this issue was not within the licensee's ability to foresee and correct.

- R.E. Ginna Nuclear Power Plant, LLC— Exelon staff performed as-found setpoint testing for eight main steam safety valves (MSSVs) and found that three of the valves lifted outside of the TS surveillance required acceptance range. Exelon staff concluded that the cause of the setpoint drift was attributed to normal variances in the valves lift setpoint and minor corrosion bonding between the valve disc ball and seating surface. This resulted in a violation of Technical Specification 3.7.1, which requires that eight MSSVs be operable. The NRC determined that the existence of the inoperable MSSVs was not reasonably within Exelon's ability to foresee and correct and therefore, was not a performance deficiency.
- Calvert Cliffs Nuclear Power Plant—On February 20, 2017, at the off-site testing facility, the as-found lift setting for the pressurizer safety valve previously installed was measured outside the TS allowable values (valve lifted low). The valve had been installed during the 2015 Unit 2 refueling outage and was removed during the 2017 Unit 2 refueling outage for scheduled testing and maintenance. Exelon determined that the valve had likely been inoperable for longer than the TS-allowed outage time. The failure was caused by set-point drift. The NRC concluded that the issue was not within Exelon's ability to foresee and correct, and Exelon's actions did not contribute to the degraded condition.
- Edwin I. Hatch Nuclear Plant—During a recent refueling outage, two primary containment isolation valves, in the Unit 2 drywell vent line containment penetration had seat leakage that exceeded TS limits. The NRC found that the operators had no indication that the subject penetration was leaking during the previous operating cycle and there were no deficiencies identified with the previous valve maintenance and testing. The NRC did not identify an associated performance deficiency for this TS violation and determined that this issue was not within the licensee's ability to foresee and correct.
- Edwin I. Hatch Nuclear Plant—During the February 2017 Unit 2 refueling outage, the licensee removed and replaced all 11 three-stage safety relief valves (SRVs). The "as-found" testing results indicated that 2 of the 11 SRVs had experienced a setpoint drift during the previous operating cycle which resulted in their failure to meet the TS opening setpoint pressure. The licensee determined that the abutment gap closed pre-maturely most likely because of loose manufacturing tolerances. Additionally, neither operator nor maintenance personnel had any indication of the potential for the set point drift before post-service testing. The NRC determined that the violation was not associated with a licensee performance deficiency.

- Joseph M. Farley Nuclear Plant, Unit 2—On October 26, 2017, a main steam safety valve (MSSV) was removed from service and was tested with steam at an offsite facility. The as-found lift testing determined that the valve opened slightly higher than the plant TS allowable lift setting range. The licensee determined that the MSSV high as-found lift set-point did not have an adverse impact on the main steam system over-pressurization protection, because the valve as-found lift setpoint was lower than 110 percent of steam generator design pressure and this condition would not have resulted in a loss of safety function. The NRC concluded that the violation was not within the licensee's ability to identify beforehand by reasonable quality assurance measures or management controls. Therefore, the NRC determined that the violation was not associated with a licensee performance deficiency.
- Joseph M. Farley Nuclear Plant, Unit 2—On October 26, 2017, a pressurizer safety valve was removed from service and tested with steam at an offsite facility. The as-found lift testing determined that the valve opened low outside the plant technical specification allowable lift setting range. The licensee determined that the safety valve low as-found lift set-point did not have an adverse impact on RCS over-pressurization protection, since the valve continued to perform its RCS over-pressurization protection function to prevent the system from exceeding the design pressure. Therefore, the NRC determined that the violation was not associated with a licensee performance deficiency.
- Three Mile Island, Unit 1—On September 5, 2018, Unit 1 was operating at 100 percent power and preparing for a scheduled maintenance and refueling outage. During a planned entry through the primary containment personnel airlock of the equipment hatch, the inner and outer doors were open simultaneously for less than 1 minute because of a failure of the interlock mechanism. An operator immediately recognized the breach and closed the inner door of the equipment hatch airlock. The opening of both airlock doors constitutes a violation of the TS, which requires at least one door in each of the personnel or emergency air locks to be closed and sealed during personnel passage through the air locks. Although this is a violation, the NRC determined that the failure mechanism of the containment door interlock was not within the licensee's ability to foresee and correct and, therefore, is not a performance deficiency.
- Peach Bottom Atomic Power Station, Unit 3—On April 22, 2018, during a routine surveillance test of the reactor core isolation cooling (RCIC) system, the RCIC turbine tripped approximately 28 seconds after startup, before the system reached rated flow and pressure. Concurrent with the RCIC trip, an alarm was received for RCIC turbine high exhaust pressure; however, local indications did not indicate a true high pressure. Therefore, the RCIC system was declared inoperable in accordance with TS. Troubleshooting determined that the "B" RCIC exhaust pressure switch had prematurely tripped at normal operating pressure from an age-related failure of the instrument diaphragm and O-ring. However, the licensee determined that the system was probably inoperable for a period longer than the TS-allowed outage time. The NRC determined that the maintenance strategy for these switches was consistent with requirements and standards that existed at the time and that there was no relevant operating experience that would have reasonably necessitated consideration of additional maintenance actions. As a result, the NRC did not identify a performance deficiency.

6. Notices of Enforcement Discretion

Occasionally, a power reactor licensee's compliance with a TS or other license condition requires a plant transient or performance testing, inspection, or other system realignment that is of greater risk than the current specific plant conditions. In these circumstances, the NRC staff may choose not to enforce the applicable requirements. The staff exercises this enforcement discretion, designated as a notice of enforcement discretion (NOED), in accordance with Section 3.8, "Notices of Enforcement Discretion for Operating Power Reactors and Gaseous Diffusion Plants," of the Enforcement Policy, only if the staff is clearly satisfied that the action is consistent with protecting public health and safety. The staff may also issue NOEDs in cases involving severe weather or other natural phenomena when it determines that exercising this discretion will not compromise safety. Licensees or certificate holders must provide justification for NOEDs that documents the safety basis for the request and provides other information the staff deems necessary to issue an NOED. In CY 2018, the NRC issued the following two NOEDs:

- Catawba Nuclear Station, Unit 2, (NOED 18-2-001)—On June 14, 2018, the NRC verbally granted enforcement discretion for compliance with the actions required in Catawba Nuclear Station Unit 2, TS Limiting Condition for Operation (LCO) 3.8.1 – "AC Sources – Operating" (primary TS), TS 3.7.8, "Nuclear Service Water System (NSWS)," TS 3.7.5, "Auxiliary Feedwater (AFW) System," and TS 3.6.6, "Containment Spray System."

On June 11, 2018, as part of a scheduled maintenance activity, the Unit 2A emergency diesel generator was declared inoperable. During the post maintenance test, the Unit 2A diesel generator and associated breaker tripped on a lockout relay trip when trying to load the machine and therefore failed the post maintenance test.

During troubleshooting, the licensee identified two disconnected cables in the voltage regulator circuitry. The likely cause of the disconnected cables was a failure to properly reassemble the connection after maintenance. An extent of damage visual inspection of the voltage regulator cabinet was performed, and evidence of arcing was discovered. This arcing activity caused circuitry damage and required the replacement of rectifiers and diodes in the cabinet, along with the current transformer.

Once replaced the licensee performed a functional run and determined that the voltage regulator module was not operating correctly. Further troubleshooting revealed additional damage in the voltage regulator module. This additional repair time would cause the licensee to exceed the TS LCO associated with the generator and loads powered from the generator. Therefore, the licensee requested, and the NRC granted enforcement discretion to avoid an unnecessary shutdown of the unit. This request to extend the LCO time by 48 hours met Section 03.03, Criterion b, of Inspection Manual Chapter 0410, "Notices of Enforcement Discretion," by avoiding an unnecessary down-power or the shutdown of a reactor without a corresponding health and safety benefit.

- Beaver Valley Power Station, Unit 2 (NOED No. 18-1-01)—On August 13, 2018, the NRC verbally granted enforcement discretion for compliance with the actions

required in TS 3.8.4, “DC Sources - Operating” and TS 3.8.9 “Distribution Systems – Operating” for Beaver Valley Power Station Unit 2.

A loss of the 2-9P 480-volt bus occurred from a trip of its 4kV feeder bus, which resulted in the loss of the “B” train battery charger and “B” train alternating current vital bus electrical power distribution subsystem. A failed relay caused the trip of the 4kV feeder breaker to the 2-9P bus. This relay was replaced, and a successful post-maintenance test was performed. However, the restoration of the electrical subsystem required bringing the “B” train batteries to full charge and was expected to take longer than the allowed TS completion time.

The licensee requested, and the NRC granted the NOED, which would be in effect from the end of the TS-allowed outage time, until the “B” train batteries were fully charged. This NOED request satisfied Section 3.0.3(b) of Inspection Manual Chapter 0410, in that compliance with this TS would result in an unnecessary cooldown and shutdown transient of the reactor without a corresponding public health and safety benefit.

H. Withdrawn Actions

Licensees can challenge enforcement actions for several reasons; for example, a licensee might dispute the requirements, the facts of the case, the agency’s application of the Enforcement Policy, or the significance of the violation. Licensees may also provide clarifying information that was not available at the time of the inspection. For any of these reasons, the NRC may have to revisit an enforcement action and, in some instances, recategorize an action.

OE has established a metric for the quality of enforcement actions based on the number of disputed and withdrawn enforcement actions in a fiscal year (FY) however, this report covers CY 2018. The metric is less than or equal to four per FY of withdrawn disputed enforcement actions (maximum of four per FY for the agency, not to exceed two per office or region). This metric does not include violations that are withdrawn on the basis of supplemental information that was not available to an inspector before the assessment of an enforcement action

In CY 2018, the NRC issued approximately 594 nonescalated enforcement actions to operating reactor, nuclear materials user, fuel cycle facility, and new reactor licensees. This number is generally consistent with the trend in recent years. Of these actions, nine were disputed. This number is consistent with the average number of actions disputed in the past 5 years. In CY 2018, the NRC withdrew five of the nine nonescalated actions that were disputed. In these cases, the agency withdrew the actions after (1) the licensee presented additional information not previously disclosed, and information not known and/or considered at the time of the enforcement action or (2) the NRC developed new technical, policy, or regulatory guidance interpretations after the action was issued. The withdrawal of five nonescalated actions exceeded the OE metric listed above for FY 2018 however, the NRC withdrew only four violations in CY 2018. As a result, the NRC did not meet the metric for disputed violations in FY 2018, which indicates that an additional analysis may be needed to determine the reason for the upward trend in withdrawn violations and whether the OE metric captures the correct performance criteria with regard to the way OE tracks withdrawn violations.

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In CY 2018, the agency issued 45 escalated enforcement actions, and one NOV associated with White SDP finding was disputed. In this case, the agency denied and did not withdraw the disputed NOV.

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III. Ongoing Activities

A. Enforcement Policy and Guidance

1. Enforcement Policy Revisions

Periodically, the NRC revises its Enforcement Policy to reflect congressional mandates, regulatory changes, operating experience, and stakeholder input.

- On March 5, 2018, the staff submitted SECY-18-0032, “Delegation of Authority to the Executive Director for Operations to Revise the Enforcement Policy Table of Base Civil Penalties Due to Annual Civil Monetary Penalty Adjustments,” to the Commission for its review (Notation Vote). The purpose of the paper was to request that the Commission approve an explicit delegation of authority to the Executive Director for Operations to update the table of base CPs in the NRC’s Enforcement Policy. The staff made this request to help ensure that the staff can make timely adjustments to the policy while adjustments are made through rulemaking to NRC civil monetary penalty amounts on an annual basis, as the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015 now requires.
- On April 16, 2018, the Commission approved the staff’s request for an explicit delegation of authority (SECY-18-0032) to the Executive Director for Operations to update the table of base CP’s in the policy.
- On May 15, 2018, OE revised the Enforcement Policy to incorporate the adjusted civil monetary penalties for 2018, in accordance with the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015.

2. Enforcement Manual Guidance

The staff periodically revises the NRC Enforcement Manual to reflect changes to the policy, operating experience, and stakeholder input.

- On April 30, 2018, OE issued Change 2 to the current revision (10) of the Enforcement Manual. The following are highlights of the changes:
 1. added a new section to provide staff guidance on the encryption of sensitive (e.g., security) information transmitted outside the NRC
 2. revised guidance on orders and updated criteria for the staff to consider when determining whether there is ‘good cause’ to relax the requirements of an order that the Commission approved as necessary for adequate protection
 3. revised guidance on OE’s role in reviewing documents relating to the closure of CALs.

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4. updated guidance associated with the actions the NRC staff took after the U.S. Department of Labor/Occupational Safety and Health Administration issued a determination that discrimination occurred
 5. removed specific references the maximum daily CP amounts and referenced the Enforcement Policy for current CP amounts.
- On August 1, 2018, OE issued Change 3 to the current revision (10) of the Enforcement Manual when EGM 18-002 was added to the manual. The change also sunset EGM-13-001, "Pilot Program – Post-Investigation Alternative Dispute Resolution Expansion," and EGM-11-006, "Enforcement Actions Related to the Construction Reactor Oversight Process."

Enforcement Guidance Memoranda

OE issues EGMs to provide temporary guidance on the interpretation of specific provisions of the Enforcement Policy. The full text of all publicly available EGMs (Appendix A to the Enforcement Manual) are on the NRC's public Web site, <https://www.nrc.gov/reading-rm/basic-ref/enf-man/app-a.html>. During CY 2018, OE issued two EGMs.

- On May 11, 2018, the staff issued EGM-18-001, "Interim Guidance for Dispositioning Apparent Violations of 10 CFR Parts 34, 36, and 39 Requirements Resulting from the Use of Direct Ion Storage Dosimetry during Licensed Activities." This EGM provides guidance for dispositioning potential violations under 10 CFR Part 34, "Licensees for Industrial Radiography and Radiation Safety Requirements for Industrial Radiographic Operations," 10 CFR Part 36, "Licensees and Radiation Safety Requirements for Irradiators," and 10 CFR Part 39, "Licenses and Radiation Safety Requirement for Well Logging," to licensees that use direct ion storage dosimetry for personnel monitoring.
- On August 1, 2018, the staff issued EGM-18-002, "Interim Guidance for Dispositioning Violations for Failure to Control and Maintain Constant Surveillance for Portable Gauges." The EGM provides enforcement guidance to disposition violations involving a failure to control and maintain constant surveillance of portable gauges in a controlled or unrestricted area when not in storage.

B. Enforcement Program Initiatives

In CY 2018, OE engaged in several activities designed to enhance and continuously improve the agency's Enforcement Program. Some of the ongoing program activities include developing internal office procedures, maintaining adequate staff knowledge and supporting training, mentoring new staff members by more experienced staff, and conducting counterpart meetings.

1. Program Enhancements

Throughout the year OE staff worked on several initiatives to help maintain an effective and efficient enforcement program, including the following:

- In response to challenges presented in the processing of a disputed violation, OE developed a temporary directive to enhance the level of oversight from Headquarters. OE assigned an enforcement specialist to coordinate and track agency responses to disputed and denied violation letters from licensees to ensure the agency was providing consistent, complete and accurate responses to the issues raised in the letters. No additional administrative requirements were levied but reviews in Headquarters were increased when the disputed issues impacted potentially agency-wide issues or new areas of review not previously contested by the industry. This increased level of response will continue for the near future as OE drafts, reviews, and implements changes to the Enforcement Manual to formally memorialize these process improvements.
- OE staff led a focus group of regional and program office staff tasked with (1) reviewing the Louisiana Energy Services (LES) independent assessment report and recommendations, (2) proposing which recommendations should be pursued, modified, or not pursued and aligning on the scope and deliverable for each recommendation, (3) adding any additional actions to pursue that might address an underlying issue in the report, and (4) proposing a timeline and responsible office for each action. The report was generated to determine the cause of the failure to meet a timeliness goal of the LES enforcement case. OE staff managed, tracked, and assisted in the completion of the proposed recommendations and ensured that the actions were assessed, developed, and implemented in the enforcement process.
- OE, in collaboration with the Office of General Counsel (OGC) and OI began developing of a process to monitor and manage the statute of limitations (SOL) expirations for traditional enforcement cases. This new process will enhance communications among OE, OI, and OGC to increase awareness of any applicable case that may be approaching the SOL expiration date and assist in the development of an action to prevent exceeding the expiration date.

2. Continuous Improvement and Organizational Effectiveness

Activities and accomplishments associated with continuous improvement and organizational effectiveness this year included the following:

- On July 26, 2018, OE submitted COMSECY-18-0013, "Using National SAFER Response Center Resources during Exigent Situations" to the Commission for action. Licensees use the Strategic Alliance for FLEX Emergency Response (SAFER) resources to comply with the Mitigation Strategies Order. This order directed addressees to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event, using a phased approach. Specifically, the final phase requires licensees to obtain sufficient offsite resources to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities. Because of recent natural disasters, Federal agencies and the nuclear industry discussed the potential use of SAFER resources from a National SAFER Response Center to support recovery efforts following a hurricane or other exigent situations that do not involve a nuclear emergency. In the COMSECY, the

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staff requested that the Commission address the use of the SAFER equipment for non-nuclear emergency scenarios.

- OE participated in several working groups resolving diverse agency issues associated with (1) continued enforcement discretion related to tornado missile noncompliance, (2) Target Rock safety valve setpoint drift, (3) the Continuity of Operations Working Group associated with exercise participation and office accountability, and (4) the PG&E Bankruptcy Response Group.

3. Knowledge Management

Activities associated with training and the transfer of knowledge included the following:

- To preserve knowledge and facilitate successful future employee training associated with the steps involved in case processing, OE updated its case processing operating instruction, “Case Processing for Enforcement Specialist.” OE rewrote this office instruction to support management’s initiative to have the case processing steps memorialized in order to promote office effectiveness and continuity among the staff. This procedure is used in conjunction with the Enforcement Manual.
- The regional and Headquarters enforcement staff held a combined counterpart meeting on November 6–8, 2018, to discuss ways to improve the enforcement process and enhance communications among staff. Representatives from OGC and OI also participated with the enforcement staff from NRC Headquarters and regional offices. Topics included an overview of the processing for discrimination cases and possible concerns related to the number of cases in FY 2018, a discussion on the staff’s assessment of licensee denial of NCVs, potential issues related to disputed violations, issuance of temporary guidance in the Enforcement Manual, and ways to improve the Alternative Dispute Resolution Program and process. In addition, the OI Office Director provided an overview of the Counterfeit, Fraudulent, and Suspect Items Initiative. The meeting resulted in several action items to explore ways to improve the program.
- OE continued an initiative to create an electronic files and retrieval system within the office’s SharePoint site to capture documents associated with precedent-setting enforcement cases and Policy changes. The system leverages the full capabilities of the Agencywide Documents Access and Management System (ADAMS) and SharePoint to make it easier for staff members to search and retrieve enforcement-related documents that have shaped the NRC’s Enforcement Policy throughout its history.
- OE initiated development of a series of training modules to provide an agency-wide on-demand refresher training capability for qualified inspectors. Subject areas will include overviews of both the nonescalated and escalated enforcement processes and guidance on writing notices of violation and NCVs.
- OE sponsored several rotational assignment opportunities for Headquarters and regional staff and supported rotations to other offices for personal growth and development.

C. Regional Accomplishments

In CY 2018, the regional offices conducted periodic self-assessments of the Enforcement Program to ensure effective performance and to identify opportunities for continuous improvement. The self-assessments encompassed both the reactor and materials arenas, considered performance associated with the development and issuance of both nonescalated and escalated enforcement actions, and included activities that required a high degree of coordination with other NRC stakeholders. Overall, the self-assessments showed that the regions were effectively implementing the Enforcement Program. For any weaknesses identified, the assessments recommended improvements.

In addition to periodic self-assessments, regional enforcement staff also took the following actions:

- participated on a working group to make OI reports electronically available when issued, which should increase efficiency and reduce case processing time
- assisted in the development of the interim guidance for implementing a process change for the dispositioning of SL IV violations with no performance deficiency
- developed and presented to representatives from the Japanese regulatory agency a presentation on the enforcement process that included both the traditional and ROP aspects of enforcement

D. Calendar Year 2019 Focus Areas

During CY 2019, OE plans to address the following focus areas:

- Continue to develop and fine tune the process for tracking and reporting potential enforcement actions that could challenge the statute of limitations.
- Revise the Enforcement Manual to incorporate some of the following processes: expanding the modified enforcement process, a rewrite of the enforcement panel process, incorporation of the Notice of Enforcement Discretion procedure into the manual, and an enhancement to the guidance for licensee denials/disputes of non-escalated enforcement actions in a timely and effective manner.
- Assess the need for an Enforcement Policy revision that will encompass several topics
- In cooperation with OGC, OI and the Office of the Chief Information Officer, continue the efforts to streamline electronic distribution of investigative reports and exhibits.
- Continue knowledge management activities and further develop internal office procedures to enhance the reliability of Enforcement Program implementation and decision making.
- Conduct focused reviews of selected enforcement process elements to verify consistent, effective, and efficient application of the Enforcement Program.

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- Complete development of voluntary, computer-based enforcement refresher training for qualified inspectors.
- Further develop internal office procedures to enhance the reliability of Enforcement Program implementation and decision-making.

Appendix A—Summary of Cases Involving Civil Penalties*

Civil Penalties Issued to Operating Reactor Licensees

Southern Nuclear Operating Company, Inc. EA-17-166
Vogtle Electric Generating Plant, Units 1 and 2

On February 20, 2018, the NRC issued a SL III NOV and proposed imposition of CP in the amount of \$145,000 to Southern Nuclear Operating Company, Inc. for a problem associated with two violations at the Vogtle Electric Generating Plant, Units 1 and 2. At least 13 non-licensed operators entered data related to equipment status, general area inspections, and housekeeping conditions for specific areas without actually entering those areas as required by a site procedure and NRC regulations - 10 CFR 50.9, "Completeness and Accuracy of Information;" 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings;" and 10 CFR 50, Appendix B, Criterion XVII, "Quality Assurance Records."

Wolf Creek Nuclear Operating Corporation EA-18-037
Wolf Creek

On December 17, 2018, the NRC issued a SL II NOV with proposed imposition of CP in the amount of \$232,000 to Wolf Creek Nuclear Operating Corporation (Wolf Creek) for a violation of 10 CFR 50.7, "Employee Protection." Specifically, between October 31 and November 10, 2016, Wolf Creek discriminated against a contract employee for engaging in protected activities. Specifically, the contract employee was removed from the site, placed on paid administrative leave, and made the subject of an investigation, at least in part, for (1) submitting a condition report within the licensee's corrective action program related to alleged polar crane contact with equipment while operating within containment; (2) raising the safety concern during a safety stand down meeting; and (3) raising retaliation concerns directly to Wolf Creek management.

U.S. Geological Survey EA-18-111
Reston, VA

On December 31, 2018, the NRC issued a SL III NOV and proposed imposition of a CP in the amount of \$7,250 to the U.S. Geological Survey (USGS), for a violation of 10 CFR 50.9. The violation involves the failure of USGS to maintain complete and accurate records in all material respects. Specifically, on or about April 11, 2017, the reactor manager created inaccurate records by deliberately preparing documents indicating that all operators had completed their required training when the required training had not taken place, and then provided these documents to an NRC inspector during an inspection at the USGS reactor facility.

* Cases involving security-related issues are not included.

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Civil Penalties Issued to Materials Licensees

Qal-Tek Associates, LLC
Idaho Falls, ID

EA-17-101

On December 12, 2017, the NRC issued a SL II NOV and proposed imposition of CP in the amount of \$22,400 to Qal-Tek Associates, LLC (Qal-Tek). The violations involved the failure to comply with 10 CFR 71.5(a), which requires licensees that deliver licensed material to a carrier for transport to comply with the applicable U.S. Department of Transportation requirements in 49 CFR Parts 171 to 180. Specifically, Qal-Tek shipped five radioactive sources in a single 10-gallon steel drum shipping container, of which three were located in an inner lead container (commonly referred to as a “pig”). Although a licensee radiation safety officer prepared the package, the lid of the pig opened during transport, resulting in three of the sources moving from the pig into the surrounding sealed steel drum. Although dose rates measured at 1 meter and on contact exceeded NRC regulatory limits; NRC analysis concluded that a member of the public was unlikely to have received a dose in excess of regulatory limits.

Providence Alaska Medical Center
Anchorage, AK

EA-17-182

On April 24, 2018, the NRC issued a SL II NOV and proposed imposition of CP in the amount of \$11,600 to Providence Alaska Medical Center (licensee) for three violations: (1) failure to have a written directive dated and signed by an authorized user before administering therapeutic doses of radiation (10 CFR 35.40 (a)); (2) failure to develop, implement, and maintain written procedures to provide high confidence that each administration is in accordance with the written directive (10 CFR 35.41(a)); and (3) failure to follow procedures specified on the license, including training (License Condition 18 of an NRC license). These violations are cited as a combined SL II problem. Specifically, from January 1, 2015 to June 27, 2017, the licensee failed to have the written directives dated and signed for approximately 40 therapeutic doses of yttrium-90 microspheres. During the same period, the licensee failed to develop its procedure to assure that the written directive was followed: failed to verify that ordered and received doses matched those planned; and failed to have the medical physicist review the written directive, dose calculations, and provide direction on the doses ordered. Additionally, from October 28, 2016 to June 27, 2017, the licensee failed to provide training on its yttrium-90 microspheres procedure to its staff, including staff that ordered and prepared doses of the yttrium-90 microspheres. These failures are associated with a medical event that occurred when the licensee administered yttrium-90 microspheres to a patient liver in the amount of 54,000 centigray instead of the prescribed dose of 11,000 centigray.

Idaho State University
Pocatello, ID

EA-17-206

On May 3, 2018, the NRC issued a SL III NOV and proposed imposition of CP in the amount of \$8,500 to Idaho State University (licensee) for two violations (1) 10 CFR 74.13, “Materials Status Reports,” and (2) 10 CFR 20.1801, “Security of Stored Material,” with 10 CFR 20.1802, “Control of Material Not in Storage.” Specifically, from 2004 until 2017, the licensee failed to secure from unauthorized removal or access the material stored in a controlled or unrestricted area that resulted in the licensee reporting to the NRC that it could not locate a sealed source of licensed material. Further, from November 2004 to March

2017, the licensee failed to provide the NRC with complete and accurate information in all material respects by including the lost source on its report to the NRC as being in the licensee's possession.

Harman International Industries, Inc.
Elkhart, IN

EA-2018-033

On September 27, 2018, the NRC issued a Confirmatory Order (CO) to Harman International Industries, Inc. (Harman) confirming commitments reached as part of an alternative dispute resolution (ADR) mediation session. The session was associated with three apparent violations identified during an NRC records review: (1) initially transferring, for sale or distribution, lamps containing krypton-85 without an NRC license for such activity pursuant to 10 CFR 30.3(a), 10 CFR 30.15(a)(8)(iv), and 10 CFR 32.14; (2) possession of material (krypton-85) without an NRC license for such activity in accordance with 10 CFR 30.3; "Activities Requiring License" and (3) importing material (krypton-85) into the United States without an NRC or Agreement State license for possession of the material containing byproduct material in accordance with 10 CFR 110.5, "Licensing Requirements," 10 CFR 110.9a, "List of Nuclear Equipment and Material under NRC Import Licensing Authority," 10 CFR 110.20(a), and 10 CFR 110.27(a). The licensee agreed to take a number of actions, in addition to steps already taken, including but not limited to: (1) maintaining the position of compliance manager, this role is in addition to the radiation safety officer for the license, (2) maintaining its established New Product Introduction/Product Lifecycle Management (NPI/PLM) process, (3) issuing a letter from the compliance manager to the President, Vice Presidents, and the Directors who report to the Vice President for Operations and Procurement, to ensure awareness of the violations and actions taken, (4) issuing a communication to foreign suppliers of lighting products to Harman to promote awareness of the NRC requirements, (5) conducting training for the participants in the NPI/PLM process, (6) continuing to conduct training for all employees handling radioactive material, (7) performing an annual audit to ensure compliance with NRC requirements beginning in calendar year 2020, and (8) conducting an audit using an independent third-party consultant to evaluate compliance with NRC requirements. Additionally, Harman agreed to pay a CP of \$7,250. In consideration of the commitments from Harman identified in the CO and the CP, the NRC agreed not pursue any further enforcement action based on the apparent violations identified in the NRC's June 7, 2018 letter.

Automated Packaging Systems, Inc.
Keyser, WV

EA-18-043

On August 13, 2018, the NRC issued a SL III NOV and proposed imposition of CP in the amount of \$8,500 to Automated Packaging Systems, Inc. (licensee), for violations of 10 CFR 31.5(c)(8)(i) and 10 CFR 31.5(c)(13). Specifically, as of November 2016, the licensee could no longer account for a gauge containing a licensed radioactive source and had failed to transfer or dispose of the device as required. Further, on May 1, 2017, the licensee failed to provide information to the Commission that was complete and accurate in all material respects when it submitted a required registration form to the NRC certifying that information for one of the licensed sources had been verified through physical inventory and checking of label information; however, the gauge with the source was actually missing during this time period.

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Terracon Consultants, Inc.
Olathe, KS

EA-18-106

On December 20, 2018, the NRC issued a SL III NOV and proposed imposition of CP in the amount of \$29,000 to Terracon Consultants, Inc. (licensee) for a violation associated with two related portable nuclear gauges. The violations involved the licensee's failure to: 1) use a minimum of two independent physical barriers to secure a portable nuclear gauge from unauthorized removal when not under the control and constant surveillance of the licensee in accordance with 10 CFR 30.34(i), and 2) maintain constant surveillance of a portable nuclear gauge that was not in storage in accordance with 10 CFR 20.1802. Specifically, on June 28, 2018, a licensee portable nuclear gauge user placed the gauge on the tailgate of pickup truck for approximately 30 minutes while the gauge user was inside the cab of the truck. The gauge user subsequently drove the vehicle off the work-site and onto a public highway with the gauge still in the unsecured position on the tailgate of the pickup truck.

Christiana Care Health Services
Newark, DE

EA-18-112

On December 3, 2018, the NRC issued a SL III NOV and proposed imposition of CP in the amount of \$3,500 to Christiana Care Health Services (licensee) for a violation of 10 CFR 20.1802. Specifically, as of March 16, 2018, the licensee failed to control and maintain constant surveillance of licensed material, unused Iodine-125 seeds, which were in a controlled or unrestricted area and not in storage. On May 30, 2018, the licensee discovered that unused Iodine-125 seeds were missing. The licensee searched for the missing material, but the licensee was unable to recover the material and determined that the material was dropped into the facility waste container.

Civil Penalties Issued to Fuel Cycle Facility Licensees

None

Civil Penalties Issued to New Reactor Licensees

None

Civil Penalties Issued to Decommissioning and Low-Level Waste Licensees

None

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Appendix B—Summary of Escalated Notices of Violation without Civil Penalties*

Notices of Violation Issued to Operating Reactor Licensees

Exelon Generation Company
Clinton Power Station

EA-17-203

On February 22, 2018, the U.S. Nuclear Regulatory Commission (NRC) issued a notice of violation (NOV) to Exelon Generation Company (Exelon) for a violation of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities,” Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” Criterion XVI, “Corrective Action,” at Clinton Power Station, associated with a White significance determination process (SDP) finding. Contrary to the requirements, Exelon failed to assure that it had corrected a condition adverse to quality. Specifically, Exelon failed to correct a degraded condition identified during an evaluation performed as a result of a Division 3 shutdown service water pump failure in 2014. This failure resulted in a subsequent failure of the pump to run when tested in June 2017, rendering the pump inoperable since the last surveillance performed in March 2017. Additionally, there are associated violations of Technical Specification 3.5.1, “ECCS-Operating,” which requires high-pressure core spray to be restored to operable within 14 days, and Technical Specification 3.7.2, “Division 3 Shutdown Service Water (SX) Subsystem,” which requires high-pressure core spray to be declared inoperable immediately when service water is inoperable.

FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station

EA-18-008

On April 13, 2018, the NRC issued an NOV to FirstEnergy Nuclear Operating Company (FENOC) for a violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” at Davis-Besse Nuclear Power Station, associated with a White significance determination process finding. Contrary to the requirements, FENOC failed to assure that documented instructions, procedures, or drawings prescribe activities affecting quality. Specifically, FENOC failed to provide appropriate instructions to calibrate the turbine bearing oil sight glasses for the auxiliary feedwater pumps. This failure resulted in a low oil level in the inboard turbine bearing reservoir on the number 1 auxiliary feedwater pump from June 21 through September 15, 2017. Additionally, there was an associated violation of Technical Specification 3.7.5, “Emergency Feedwater,” which requires three trains of emergency feedwater available at power or restored to operable within 72 hours and plant shutdown if the 72-hour requirement cannot be met.

Vistra Operations Company LLC
Comanche Peak Nuclear Power Plant

EA-18-064

On December 10, 2018, the NRC issued a Severity Level (SL) III NOV to Comanche Peak Nuclear Power Plant for violations of 10 CFR 50.9, “Completeness and Accuracy of Information,” and 10 CFR Part 50, Appendix B, Criterion XVII, “Quality Assurance Records.”

* Cases involving security-related issues are not included.

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Specifically, the violation involved a condition report completed by a licensed operator about an unexplained plant water level transient while shut down. The report documented false potential causes for the transient and for the potential condition adverse to quality, which ultimately led to confusion about a plant system's status. The actual cause of the event was not a plant component failure but an underlying procedure violation not originally reported to plant supervision but known by the operator responsible for the condition report.

Exelon Generation Company
Peach Bottom Atomic Power Station

EA-18-107

On December 11, 2018, the NRC issued an NOV to Exelon Generation Company (Exelon) for a violation of 10 CFR Part 50, Appendix B, Criterion XVI, at Peach Bottom Atomic Power Station, associated with a White SDP finding. Contrary to the requirements, Exelon failed to assure that it had promptly identified and corrected a condition associated with the E-3 emergency diesel generator (EDG) scavenging air check valve. Specifically, after identifying on April 1, 2017, that the E-3 EDG scavenging air check valve assembly was loose from wear around the interference fit pin, and after identifying on September 20, 2017, that there was an oil leak on the scavenging air check valve dashpot assembly, Exelon did not take adequate corrective actions to address these adverse conditions. On June 13, 2018, the EDG failed the quarterly surveillance run, rendering the EDG inoperable. As a result, both units were in violation of Technical Specification 3.8.1, "ECCS—Operating."

Notices of Violation Issued to Materials Licensees

Prein & Newhof, Inc.
Grand Rapids, MI

EA-17-201

On March 16, 2018, the NRC issued an SL III NOV to Prein & Newhof, Inc. (licensee). The violation involved a failure to use two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal in accordance with 10 CFR 30.34(i). Specifically, on multiple occasions between November 9 and November 17, 2017, the licensee left portable gauges in two different vehicles, each with only one physical control to prevent unauthorized removal when the gauges were not under the control and constant surveillance of the licensee.

Jubilant DraxImage Radiopharmacies, Inc.
Saginaw, MI

EA-17-202

On March 16, 2018, the NRC issued an SL III NOV to Jubilant DraxImage Radiopharmacies, Inc. (licensee), for a problem involving two violations. The first violation involved a failure to include a containment system securely closed by a positive fastening device within a Type A package to avoid opening unintentionally or by pressure during normal transport, in accordance with 10 CFR 71.5(a). The second violation involved a failure to limit the external radiation level of a package containing radioactive material with a WHITE-I label, in accordance with 10 CFR 71.5(a) and 49 CFR 172.403(c). Specifically, on October 23, 2017, the licensee failed to securely close, with a positive fastening device, the lid of a shielded containment system that formed a separate unit of a Type A package containing a radioactive material, and the package was received with the external radiation levels that exceeded the required limits.

U.S. Department of Defense, Defense Threat Reduction Agency
Fort Belvoir, VA

EA-18-046

On August 2, 2018, the NRC issued an SL III NOV to the U.S. Department of Defense, Defense Threat Reduction Agency (DTRA). The violation involved DTRA's failure to document and carry out its NRC-approved quality assurance program by implementing procedures for applicable areas, in accordance with 10 CFR 71.105(a). Specifically, DTRA performed transportation activities under the provisions of 10 CFR 71.22, "General License: Fissile Material," from December 2015 through April 2018 without quality assurance procedures in place.

Missouri Baptist Medical Center
St. Louis, MO

EA-18-047

On July 12, 2018, the NRC issued an SL III Notice of Violation to Missouri Baptist Medical Center (licensee) for the failure to implement 10 CFR 35.41(a) requirements. The violation involved the licensee's failure to develop, implement, and maintain procedures to provide high confidence that an administration requiring a written directive was performed in accordance with the written directive. Specifically, as of January 29, 2018, the licensee's procedures for administrations using a high-dose-rate remote after-loader unit did not include a verification that the treatment plan would deliver the dose specified by the written directive.

The NACHER Corporation
Houma, LA

EA-18-050

On August 2, 2018, the NRC issued two SL III NOVs to The NACHER Corporation (licensee) for (1) the failure to perform an adequate equipment check, in accordance with 10 CFR 34.31(a), and (2) the failure to follow emergency procedures in accordance with 10 CFR 150.20(b)(5). Specifically, on March 31, 2018, the licensee's operability check did not ensure that the grease, dirt, and grime was cleared from the guide tube's connection to the exposure device, which ultimately resulted in the inability to return the source to the shielded position. Additionally, the radiographic personnel (1) failed to contact the radiation safety officer (RSO) when a source could not be fully retracted to the fully shielded position and (2) performed source recovery operations without having been properly trained and without RSO approval.

Professional Testing & Inspection
Waikoloa, HI

EA-18-060

On October 25, 2018, the NRC issued an SL III NOV to Professional Testing & Inspection for (1) failure to provide complete and accurate information to the NRC (in accordance with 10 CFR 30.9, "Completeness and Accuracy of Information") and (2) the possession of byproduct material before applying for and receiving an NRC-specific license to possess the material (10 CFR 30.2(a) and 10 CFR 30.3(c)(3)). Specifically, from April 10 through November 24, 2015, information provided to the Commission by an applicant for a license was not complete and accurate in all material respects. The statements provided in the application for an NRC-specific license and during an onsite pre-licensing visit did not disclose that Professional Testing & Inspection was in possession of byproduct material without a current or valid license. Professional Testing & Inspection possessed and used

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radium-226 gauges and failed to obtain the required license within 12 months of August 7, 2009.

Jefferson Asphalt Company
Jefferson City, MO

EA-18-069

On September 5, 2018, the NRC issued an SL III NOV to Jefferson Asphalt Company (licensee). The violation involved the licensee's failure to control and maintain constant surveillance of a licensed portable gauge in an unrestricted area (in accordance with 10 CFR 20.1802) and failure to use a minimum of two independent physical controls to secure the gauge from unauthorized removal when the gauge was not under the control and constant surveillance of the licensee (10 CFR 30.34(i)). Specifically, on April 17, 2018, the authorized user failed to secure the gauge with any physical controls and did not maintain control and constant surveillance of the gauge for more than 5 minutes.

Curators of the University of Missouri
Columbia, MO

EA-18-095

On November 20, 2018, the NRC issued an SL III NOV to Curators of the University of Missouri (licensee). The violation involved the licensee's failure to secure radioactive materials from unauthorized removal or access, in accordance with 10 CFR 20.1801, "Security of Stored Material." Specifically, on May 11, 2017, a licensee's technologist unknowingly left the radiation waste room door open, and the licensed material was unsecured for about 30 minutes. On May 14, 2018, the nuclear medicine hot lab door was left propped open, and the licensed material was left unsecured for a few minutes.

Environmental Protection Industries Inc.
South Holland, IL

EA-18-099

On September 10, 2018, the NRC issued an SL III NOV to Environmental Protection Industries Inc. (EPII), a licensee of the State of Illinois. The violation involved EPII's failure to file NRC Form 241, "Report of Proposed Activities in Non-Agreement States," at least 3 days before engaging in licensed activities within NRC jurisdiction, in accordance with 10 CFR 150.20, "Recognition of Agreement State Licenses." Specifically, on several occasions between June 11 and July 5, 2018, EPII possessed and used a portable gauge containing licensed materials within NRC jurisdiction without filing the required documentation with the NRC.

Source Production & Equipment Company, Inc.
St. Rose, LA

EA-18-116

On November 16, 2018, the NRC issued an SL III NOV to Source Production & Equipment Company, Inc. (SPEC), for the failure to obtain the required licenses to import byproduct material into the United States in accordance with 10 CFR 110.5, "Licensing Requirements," 10 CFR 110.9a(d), 10 CFR 110.20(a), and 10 CFR 110.27(a). Specifically, on or about May 25, 2015, SPEC imported 100 microcuries of liquid strontium-89 from Russia to its Louisiana facility without having a possession license issued by the NRC or Agreement State (Louisiana). SPEC's Louisiana Department of Environmental Quality Radioactive Material License authorized strontium-89 in pellet form and as sealed sources, but it did not authorize strontium-89 in liquid form. Therefore, the import was not authorized under the provisions of a general license.

Notices of Violation Issued to Fuel Cycle Facility Licensees

BWXT Nuclear Operations Group, Inc.
Lynchburg, VA

EA-17-190

On March 8, 2018, the NRC issued an SL III NOV to the BWXT Nuclear Operations Group, Inc. (licensee), facility in Lynchburg, VA. Specifically, the violations involved the licensee's (1) failure to apply sufficient controls to limit the likelihood of an inadvertent criticality to highly unlikely in two unfavorable geometry desiccant vessels located in the research and test reactor (RTR) area (10 CFR 70.61(a) and (b)), (2) failure to assure that two unfavorable geometry desiccant vessels located in the RTR area remained subcritical under normal and credible abnormal conditions (10 CFR 70.61(d)), and (3) failure to maintain process safety information pertaining to the hazards, and information pertaining to the technology and equipment, of an air purification system servicing a glovebox line in the RTR area (10 CFR 70.62(b)).

Louisiana Energy Services, LLC
Eunice, NM

EA-18-023

On June 14, 2018, the NRC issued an SL III NOV to the Louisiana Energy Services, LLC (LES) ,facility in Eunice, NM, for a violation of 10 CFR 70.62(d), 10 CFR 70.61(a), and 10 CFR 70.61(b). Specifically, the implementing procedure for items relied on for safety (IROFS) did not provide adequate guidance to verify the type of cylinder to be processed on LES's logistics software and ensure that the correct IROFS was implemented. Consequently, before filling a cylinder with enriched uranium hexafluoride, operators failed to verify that the cylinder being loaded was a heeled cylinder and performed the incorrect IROFS that corresponded to a new/cleaned cylinder. As a result, the appropriate IROFS were not applied to limit the risk of a credible high-consequence event during product cylinder loading to the extent needed to reduce the likelihood of occurrence so that the event was highly unlikely.

Notices of Violation Issued to New Reactor Licensees

None.

Civil Penalties Issued to Decommissioning and Low-Level Waste Licensees

None.

Notices of Violation Issued to Individuals

Appendix D discusses NOVs issued to individuals.

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Appendix C—Summary of Orders*

Orders Issued to Operating Reactor Licensees

Entergy Nuclear Operations, Inc.
Multiple Entergy sites

EA-17-132

On March 12, 2018, the U.S. Nuclear Regulatory Commission (NRC) issued a confirmatory order (CO) to Entergy Nuclear Operations, Inc., and Entergy Operations, Inc. (Entergy), to formalize commitments made as a result of an alternative dispute resolution (ADR) mediation session held on February 6, 2018. The commitments were made as part of a settlement agreement between Entergy and the NRC based on evidence gathered during two separate investigations in which the NRC had identified multiple examples of apparent violations of the NRC's deliberate misconduct rule by employees at the Grand Gulf Nuclear Station. Entergy first reported the apparent willful violations to the NRC, which include (1) an examination proctor providing inappropriate assistance on general employee training examinations given to nonutility (contractor) personnel, and (2) nonlicensed operators failing to tour all required areas of their watch station and entering inaccurate information into the operator logs. At the ADR session, Entergy agreed to complete additional wide-ranging and fleet wide corrective actions and enhancements. In consideration of the corrective actions and commitments outlined in the CO, the NRC agreed not to pursue any further enforcement action (including issuance of a civil penalty (CP)) relating to the notice of apparent violations.

Orders Issued to Materials Licensees

Qal-Tek Associates, LLC
Idaho Falls, ID

EA-17-101

On December 12, 2017, the NRC issued a Severity Level (SL) II notice of violation (NOV) and proposed imposition of CP in the amount of \$22,400 to Qal-Tek Associates, LLC (Qal-Tek). The violations involved the failure to comply with Title 10 of the *Code of Federal Regulations* (10 CFR) 71.5(a), which requires licensees that deliver licensed material to a carrier for transport to comply with the applicable U.S. Department of Transportation requirements in 49 CFR Parts 171–180. Specifically, Qal-Tek shipped five radioactive sources in a single 10-gallon steel drum shipping container. Three of these sources were located in an inner lead container (commonly referred to as a “pig”). Although a licensee radiation safety officer prepared the package, the lid of the pig opened during transport, resulting in three of the sources moving from the pig into the surrounding sealed steel drum. Although dose rates measured at 1 meter and on contact exceeded NRC regulatory limits, the NRC analysis concluded that a member of the public was unlikely to have received a dose in excess of regulatory limits.

* Cases involving security-related issues are not included.

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Harman International Industries, Inc.
Northridge, CA

EA-18-033

On September 27, 2018, the NRC issued a CO to Harman International Industries, Inc. (Harman), confirming commitments reached as part of an ADR mediation session. The session was associated with three apparent violations identified during an NRC records review: (1) initially transferring, for sale or distribution, lamps containing krypton-85 without an NRC license for such activity pursuant to 10 CFR 30.3(a), 10 CFR 30.15(a)(8)(iv), and 10 CFR 32.14, "Certain Items Containing Byproduct Material; Requirements for License to Apply or Initially Transfer," (2) possession of material (krypton-85) without an NRC license for such activity pursuant to 10 CFR 30.3, "Activities Requiring License," and (3) importing material (krypton-85) into the United States without an NRC or an Agreement State license for possession of the material containing byproduct material pursuant to 10 CFR 110.5, "Licensing Requirements"; 10 CFR 110.9a, "List of Nuclear Equipment and Material under NRC Import Licensing Authority"; 10 CFR 110.20(a); and 10 CFR 110.27(a). Harman agreed to take a number of actions, in addition to steps already taken, including but not limited to (1) maintaining the position of compliance manager; this role is in addition to the radiation safety officer for the license, (2) maintaining its established New Product Introduction/Product Lifecycle Management (NPI/PLM) process, (3) issuing a letter from the compliance manager to the President, Vice Presidents, and the Directors who report to the Vice President for Operations and Procurement, to ensure awareness of the violations and actions taken, (4) issuing a communication to foreign suppliers of lighting products to Harman to promote awareness of the NRC requirements, (5) conducting training for the participants in the NPI/PLM process, (6) continuing to conduct training for all employees handling radioactive material, (7) performing an annual audit to ensure compliance with NRC requirements beginning in calendar year 2020, and (8) conducting an audit using an independent third-party consultant to evaluate compliance with NRC requirements. Additionally, Harman agreed to pay a CP of \$7,250. In consideration of the commitments from Harman identified in the CO and the CP, the NRC agreed not to pursue any further enforcement action based on the apparent violations identified in the NRC's June 7, 2018 letter.

Orders Issued to Fuel Cycle Facility Licensees

None.

Orders Issued to New Reactor Licensees

None.

Orders Issued to Decommissioning and Low-Level Waste Licensees

None.

Orders Issued to Individuals

None.

Appendix D—Summary of Escalated Enforcement Actions against Individuals*

Orders

Appendix C discusses orders issued to individuals during calendar year 2018.

Notices of Violation

Mr. Vincent Doolittle

IA-18-030

On August 16, 2018, the U.S. Nuclear Regulatory Commission (NRC) issued a Severity Level (SL) IV notice of violation (NOV) to Mr. Vincent Doolittle for a violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.5(a). Specifically, on or about October 12, 2012, while serving as the quality assurance manager for System One Solutions, LLC, Mr. Doolittle engaged in the forging of a training document for a nondestructive examiner, which is a violation of 10 CFR 50.5(a)(1). This resulted in the submission of an individual for employment who did not meet the requirements for employment in the position assigned, which is a violation of 10 CFR 50.5(a)(2).

Mr. Ben Welch

IA-18-031

On December 10, 2018, the NRC issued an SL III NOV to Mr. Ben Welch for a violation of 10 CFR 50.5(a)(2). Specifically, Mr. Welch submitted to the licensee information that he knew to be incomplete and inaccurate and, in some respect, material to the NRC. He initiated a condition report, which he knew contained incomplete and inaccurate information, that stated there were suspected leaking valves in a reactor system when he knew that his failure to perform a step in a procedure caused an inadvertent transfer of water in the system.

Mr. Craig Schneider

IA-18-035

On October 18, 2018, the NRC issued an SL IV NOV to Mr. Craig Schneider for a violation of 10 CFR 55.53(d), which requires that an operator's license is subject to, and the licensee shall observe, all applicable rules, regulations, and orders of the Commission. Mr. Schneider's license states, in part, while performing licensed duties, he must observe the operating procedures and other conditions in the facility license authorizing operation of the facility. The facility licensee's procedure on the NRC license and medical requirements stated that the individual licensee (licensed reactor operator) is responsible for notifying the facility licensee of changes in health status. From December 20, 2016, to November 27, 2017, Mr. Schneider failed to notify Quad Cities Nuclear Power Station of prescribed medical actions by his personal physician and thereby failed to comply with a condition of his operator's license.

* Cases involving security-related issues are not included.

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Mr. James P. Chaisson

IA-18-047

On November 30, 2018, the NRC issued an SL IV NOV to Mr. James P. Chaisson for violation of a condition of his June 30, 2015, settlement agreement with the NRC. Specifically, Mr. Chaisson failed to contact NRC Region IV by e-mail about his engagement in NRC-licensed activities and failed to provide a brief summary of these activities for the calendar quarters October 1 through December 31, 2017, and January 1 through March 31, 2018.

Mr. Brycen Roy

IA-18-038

On December 31, 2018, the NRC issued a n SL III NOV to Mr. Brycen Roy, a U.S. Geological Survey TRIGA reactor supervisor, for violating 10 CFR 50.5, "Deliberate Misconduct." Mr. Roy engaged in deliberate misconduct that caused the U.S. Geological Survey to be in violation of regulatory requirements. Specifically, on approximately April 11, 2017, Mr. Roy prepared documents indicating that all operators had completed their requalification training, in accordance with 10 CFR 55.59, "Requalification," when required operator training had not taken place. Mr. Roy then provided these documents to an NRC inspector for review.

**Appendix E—Summary of Escalated Enforcement Actions against
Nonlicensees
(Vendors, Contractors, and Certificate Holders)***

Orders Issued to Nonlicensees

None.

* Cases involving security-related issues are not included.

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