

## **APPENDIX IV: VERIFICATION AND VALIDATION OF NRC'S MEASURES AND METRICS**

### **The NRC's Data Collection Procedures**

Most of the data used to measure the U.S. Nuclear Regulatory Commission's (NRC's) performance against its strategic goals related to safety are obtained or derived from the NRC's abnormal occurrence (AO) data and reports submitted by licensees. The AO criteria have been amended to ensure that they are consistent with the NRC's Strategic Plan for Fiscal Year (FY) 2008-2013, and the NRC rule making on Title 10, Part 35, of the Code of Federal Regulations (10 CFR Part 35), "Medical Use of Byproduct Materials."

The NRC developed its AO criteria in order to comply with the legislative intent of Section 208 of the Energy Reorganization Act of 1974, as amended. The Act requires the NRC to inform Congress of unscheduled incidents or events that the Commission determines to be significant from the standpoint of public health and safety. Events that meet the AO criteria are included in an annual "Report to Congress on Abnormal Occurrences" (NUREG-0090). In addition, in 1997, the Commission determined that events occurring at Agreement State licensed facilities that meet the AO criteria should be reported in the annual AO report to Congress. Therefore, the AO criteria developed by the NRC are uniformly applied to events that occur at facilities licensed or otherwise regulated by the NRC and the Agreement States.

Data for abnormal occurrences originate from external sources, such as Agreement States and NRC licensees. The NRC believes these data are credible because (1) the information needed from external sources is required to be reported to the NRC by regulations; (2) the NRC maintains an aggressive inspection program that, among other activities, audits licensees and evaluates Agreement State programs to determine whether information is being reported as required by the regulations; and (3) there are agency procedures for reviewing and evaluating licensees. The NRC database systems that support this process include the Licensee Event Report Search System (LERSearch), the Accident Sequence Precursor (ASP) Database, the NMED, and the Radiation Exposure Information Report System.

The NRC has established procedures for the systematic review and evaluation of events reported by NRC licensees and Agreement State licensees. The objective of the review is to identify events that are significant from the standpoint of public health and safety based on criteria that include specific thresholds. The NRC uses a number of sources to determine the reliability and the technical accuracy of event information reported to the NRC. Such sources include (1) the NRC licensee reports, which are carefully analyzed, (2) NRC inspection reports, (3) Agreement State reports, (4) periodic review of Agreement State regulatory programs, (5) NRC consultant/contractor reports, and (6) U.S. Department of Energy Operating Experience Weekly Summaries. In addition, there are daily interactions and exchanges of event information between headquarters and the regional offices, as well as periodic conference calls between headquarters, the regions, and Agreement States to discuss event information. Identified events that meet the AO criteria are validated and verified by all applicable NRC headquarters program offices, regional offices, and agency management before submission to Congress.

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The Agency Action Review meeting provides another opportunity for NRC's senior management to discuss significant events, licensee performance issues, trends, and the actions NRC needs to take to mitigate recurrences.

Data protection is maintained by the agency's computer security program, which provides administrative, technical, and physical security measures to protect the agency's information, automated information systems, and information technology infrastructure. These measures include special safeguards to protect classified information, unclassified safeguards information, and sensitive unclassified information that are processed, stored, or produced on designated automated information systems.

**Goal 1 - Safety: Ensure adequate protection of public health and safety and the environment.**

### **Nuclear Reactor Safety**

#### **Strategic Outcomes:**

- *Prevent the occurrence of any nuclear reactor accidents.*
- *Prevent the occurrence of any inadvertent criticality events.*
- *Prevent the occurrence of any acute radiation exposures resulting in fatalities.*
- *Prevent the occurrence of any releases of radioactive materials that result in significant radiation exposures.*
- *Prevent the occurrence of any releases of radioactive materials that cause significant adverse environmental impacts.*

**Verification:** Licensees report any nuclear reactor events at their facilities in licensee event reports (LERs). NRC reviews the LER data and the NRC's AO coordinators then discuss each potential AO during their periodic meetings at headquarters and the regional offices to determine whether it meets the AO reporting criteria. Any nuclear reactor accidents, deaths from acute radiation exposures, events that result in significant radiation exposure or releases of radioactive materials that cause significant adverse environmental impacts that meet the criterion for an abnormal event would be identified through LERs. In addition, NRC specialists periodically conduct inspections to assess licensee compliance with reporting criteria as well as radiological and environmental release criteria. If a licensee reports an event involving core damage, NRC inspectors carefully investigate the event to ensure the validity of the information contained in the licensee's report. In addition, a resident inspector on duty at each reactor monitors the facility on a real-time basis. The resident inspector verifies the safe operation of the facility and would be aware of any instances in which core damage

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has occurred or any instance in which radiation was released from the reactor in excess of reporting limits.

The NRC staff prepares AO writeups and evaluates events using specific criteria to select those events that the staff recommends to the Commission to be considered abnormal occurrences. The NRC's Office of Nuclear Regulatory Research makes the final determination of which events should be recommended to be considered potential AOs. NRC Management Directive 8.1 "Abnormal Occurrence Reporting Procedure," provides thorough documentation of the abnormal occurrence reporting process.

### ***Validation:***

Prevent the occurrence of any nuclear reactor accidents. Nuclear reactor accidents are defined in the NRC Severe Accident Policy Statement as those events that result in substantial damage to the reactor fuel, whether or not serious offsite consequences occur.

Prevent the occurrence of any inadvertent criticality events. Events collected under this strategic outcome are actual occurrences of accidental criticality. Such events could compromise public health and safety, the environment, and the common defense and security. Events of this magnitude are not expected and would be rare. If such an event occurred, it would result in prompt and thorough investigation, including its consequences, root causes, and necessary actions by the licensee and the NRC to mitigate the situation and prevent recurrence.

Prevent the occurrence of any acute radiation exposures resulting in fatalities. Determining whether or not any deaths result from acute radiation exposure is fundamentally essential to protecting public health and safety. Events of this magnitude are rare. If such an unlikely event occurred, it would result in prompt and thorough investigation of the event, its consequences, its root causes, and the necessary actions by the licensee and/or the NRC to mitigate the situation and prevent recurrence. This strategic outcome measure is a direct measurement of the occurrence of radiation-related deaths at nuclear reactors.

Prevent the occurrence of any releases of radioactive materials that result in significant radiation exposures. Nuclear power generation produces radiation, which can be harmful if not properly controlled. Measuring the number of events resulting in significant radiation exposures, as well as any deaths from radiation exposure indicates whether radiation-related deaths and illness are being prevented. Significant radiation exposures are defined as those that result in unintended permanent functional damage to an organ or a physiological system as determined by a physician in accordance with Abnormal Occurrence Criterion 1.A.3.

Prevent the occurrence of any releases of radioactive materials that cause significant adverse environmental impacts. The radiation produced in the process of generating power from nuclear materials can also potentially harm the environment if it is not properly controlled. Releases that

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have the potential to adversely impact the environment are currently undefined. As a surrogate for this performance measure, the NRC collects data on the frequency with which radioactive material is released into the environment in excess of specified limits. NUREG-0090, Appendix A, Criterion 1.B.1, defines such releases as those involving “the release of radioactive material to an unrestricted area in concentrations which, if averaged over a period of 24 hours, exceed 5,000 times the values specified in Table 2 of Appendix B to 10 CFR Part 20, unless the licensee has demonstrated compliance with 20.1301 using 20.1302(b)(1) or 20.1302 (b)(2)(ii).” The essence of the criterion is that events that result in unintended permanent functional damage to an organ or a physiological system as determined by a physician are used as the measure for events that result in releases of radioactive material causing an adverse impact on the environment. Such events are reported in LERs, which are sent to the NRC as reportable occurrences. This strategic outcome measure is a direct measurement of instances in which harmful impacts on the environment occur from nuclear reactors.

### **Performance Measures:**

- ***Number of new conditions evaluated as red by the NRC’s reactor oversight process.  
Reactor Safety Target: Less than or equal to 3***

**Verification:** The data for this performance measure is collected in two ways as part of the NRC’s reactor oversight process (ROP). Inspection findings are collected at least quarterly by NRC inspectors. Inspectors use formal detailed inspection procedures to review plant operations and maintenance. Inspection findings are reviewed by NRC managers to assess their significance as part of the ROP’s significance determination process. The data for performance indicators is collected by licensees and submitted to the NRC at least quarterly. The significance of the data is determined by thresholds for each indicator. The NRC conducts inspections of licensees processes for collecting and submitting the data to ensure completeness, accuracy, consistency, timeliness, and validity.

The NRC enhances the quality of its inspections through inspector feedback and periodic reviews of results, and inspectors are trained through a rigorous qualification program. The quality of performance indicators is improved through continuous feedback from licensees and inspectors that is incorporated into guidance documents. The NRC publishes the inspection findings and performance indicators on the agency’s web site, and incorporates feedback received from all stakeholders as appropriate.

**Validation:** The inspection findings and performance indicators used by the ROP cover a broad range of plant operations and maintenance. NRC managers review significant issues that are identified and inspectors conduct supplemental inspections of selected aspects of plant operations as appropriate. Plants that are identified as having performance issues, as well as a self-assessment of the ROP, are reviewed by senior agency managers on an annual basis, and the results are reported to the Commission.

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This measure is the number of new red inspection findings during the fiscal year plus the number of new red performance indicators during the fiscal year. Programmatic issues at multi-unit sites that result in red findings for each individual unit are considered separate conditions for purposes of reporting for this measure. A red performance indicator and a red inspection finding that are due to an issue with the same underlying causes are also considered separate conditions for purposes of reporting for this measure. Red inspection findings are included in the fiscal year in which the final significance determination was made. Red performance indicators are included in the fiscal year in which the Reactor Oversight Process external web page was updated to show the red indicator.

- ***Number of significant accident sequence precursors (ASP) of a nuclear accident.***

***Reactor Safety Target: Zero***

***Verification:*** The Commission has an ASP program to systematically evaluate U.S. nuclear power plant operating experience to identify, document, and rank those operating events that were most significant in terms of the potential for inadequate core cooling and core damage (i.e., precursors). The ASP program evaluation process has five steps. First, the NRC screens operating experience data to identify events and/or conditions that may be potential precursors to a nuclear accident. The data that are evaluated include LERs from a Licensee Event Report Search System (LERSearch) database; Incident Investigation Team or Augmented Inspection Team reviews; the NRC's daily screening of operational events; and other events identified by NRC staff as candidates. The second step is to conduct an engineering review of these screened events, using specific criteria, to identify those events requiring detailed analyses as candidate precursors. Third, the NRC staff calculates a conditional core damage probability by mapping failures observed during the event to accident sequences in risk models. Fourth, the preliminary potential precursor analyses are provided to the NRC staff and the licensee for independent peer review. However, for ASP analyses of noncontroversial, low-risk, precursors in which the ASP results reasonably agree with the Significant Determination Process (SDP) results, formal peer reviews by licensees may not be performed. The NRC staff will continue to perform an in-house review process for all analyses. Lastly, findings from the analyses are provided to the licensee and the public.

It must also be noted that there is a time lag in obtaining ASP analysis results since they are often based on LERs (submitted up to 60 days after an event) and most analyses take approximately 6 months to finalize. Final data will be reported in the year in which the event occurred.

***Validation:*** The ASP program identifies significant precursors as those events that have a 1/1000 ( $10^{-3}$ ) or greater probability of leading to a nuclear reactor accident. Significant Accident Sequence Precursor events have a conditional core damage probability (CCDP) or  $\Delta$ CDP of  $\geq 1 \times 10^{-3}$ .

- ***Number of operating reactors whose integrated performance entered the Manual Chapter 0350 process, the multiple/repetitive degraded cornerstone column, or the unacceptable performance column of the Reactor Oversight Process (ROP) Action Matrix.***

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### ***Reactor Safety Target: Less than or equal to 3***

**Verification:** The data for this performance measure is collected by the NRC' ROP on a continuous basis, and the information is published at least quarterly. NRC inspectors use detailed formal procedures to conduct inspections of licensee performance and NRC managers review the results to ensure the completeness, accuracy, consistency, timeliness, and validity of the data.

The NRC enhances the quality of its inspections through inspector feedback and periodic reviews of results and inspectors are trained through a rigorous qualification program. The quality is also improved through continuous feedback from licensees and inspectors that is incorporated into guidance documents. The NRC publishes the data on the agency's web site, and incorporates feedback received from all stakeholders as appropriate.

**Validation:** The information collected by the ROP covers a broad range of plant operations and maintenance. NRC managers review significant issues that are identified and inspectors conduct supplemental inspections of selected aspects of plant operations as appropriate. Plants that are identified as having performance issues are reviewed by senior agency managers on an annual basis, and the results are reported to the Commission. The same is true of the agency's self-assessment of the ROP.

This measure is the number of plants that have entered the Manual Chapter 0350 process, the multiple/repetitive degraded cornerstone column, or the unacceptable performance column during the fiscal year (i.e., were not in these columns or process the previous fiscal year). Data for this measure are obtained from the NRC external web Action Matrix Summary page that provides a matrix of the five columns with the plants listed within their applicable column and notes the plants in the Manual Chapter 0350 process. For reporting purposes, plants that are the subject of an approved deviation from the Action Matrix are included in the column or process in which they appear on the web page.

- ***Number of significant adverse trends in industry safety performance.***

### ***Reactor Safety Target: Less than or equal to 1***

**Verification:** The data for this performance measure are derived from data supplied by all power plant licensees in LERs, and from monthly operating reports, as well as performance indicator data submitted for the ROP. These data are required by 10 CFR 50.73 and/or plant-specific technical specifications, or are submitted by all plants as part of the ROP. Detailed NRC guidelines and procedures are in place to control each of these reporting processes. The NRC reviews these procedures for appropriateness both periodically and in response to licensee feedback. The NRC also conducts periodic inspections of licensees' processes for collecting and submitting the data to ensure completeness, accuracy, consistency, timeliness, and validity.

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All licensees report the data at least quarterly. The NRC staff reviews all of the data and conducts inspections to verify safety-significant information. The NRC also employs a contractor to review the data submitted by licensees, input the data into a database, and compile the data into various indicators. Quality assurance processes for this work have been established and included in the statement of work for the contract. The experience and training of key personnel are controlled through administration of the contract. The contractor identifies discrepancies to both licensees and the NRC for resolution. The NRC reviews the indicators and publishes them on the agency's web site on a quarterly basis. The agency also incorporates feedback from licensees and the public, where appropriate.

The target value is set based on the expected addition of several indicators and a change in the long-term trending methodology.

**Validation:** The data and indicators that support reporting against this performance measure provide a broad range of information on nuclear power plant performance. The NRC staff tracks indicators and applies statistical techniques to provide an indication of whether industry performance is improving, steady, or degrading over time. If the staff identifies any adverse trends, the NRC addresses the problem through its processes for addressing generic safety issues and issuing generic communications to licensees. The NRC is developing additional, risk-informed indicators to enhance the current set of indicators. In doing so, the staff considers the costs and benefits of collecting the data through ongoing, extensive interactions with industry regarding the indicators. The Industry Trends Program is reviewed by senior agency managers on an annual basis, and the results are reported to the Commission.

- ***Number of events with radiation exposures to the public and occupational workers from nuclear reactors that exceed Abnormal Occurrence Criteria I.A.***

***Reactor Safety Target: Zero***

**Verification:** Licensees report overexposures through the SCSS LER database, maintained at the Oak Ridge National Laboratory, which receives all LERs and codes them into a searchable database. The SCSS database is used to identify those LERs that report overexposures. NRC resident inspectors stationed at each nuclear power plant provide a high degree of assurance that all events meeting reporting criteria are reported to the NRC. In addition, the NRC conducts inspections if there is any indication that an exposure exceeded, or could have exceeded, a regulatory limit. Finally, areas of the facility that may be subject to radiation contamination have monitors that record radiation levels. These monitors would immediately reveal any instances in which high levels of radiation exposure occurred.

**Validation:** Given the nature of the process of using radioactive materials to generate power, overexposure to radiation is a potential danger from the operation of nuclear power plants. Such

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exposure to radiation in excess of the applicable regulatory limits may potentially occur through either a nuclear accident or other malfunctions at the plant. Consequently, tracking the number of overexposures that occur at nuclear reactors is an important indicator of the degree to which safety is being maintained.

- *Number of radiological releases to the environment from nuclear reactors that exceed applicable regulatory limits.*

### ***Reactor Safety Target: 0***

**Verification:** As with worker overexposures, licensees report environmental releases of radioactive materials that are in excess of regulations or license conditions through the SCSS LER database maintained at the Oak Ridge National Laboratory. The SCSS database will be utilized to identify those LERs reporting releases and the number of reported releases is then applied to this measure. The NRC also conducts periodic inspections of licensees to ensure that they properly monitor and control releases to the environment through effluent pathways. In addition, onsite monitors would record any instances in which the plant releases radiation into the environment. If the inspections or the monitors reveal any indication that an accident or inadvertent release has occurred, the NRC conducts follow-up inspections.

**Validation:** The generation of nuclear power creates radioactive materials that are released into the environment in a controlled manner. These radioactive discharges are subject to regulatory controls which limit the amount discharged and the resultant dose to members of the public. Consequently, the NRC tracks all releases of radioactive materials in excess of regulatory limits as a performance measure because large releases in excess of regulatory limits have the potential to endanger public safety or harm the environment. The NRC inspects every nuclear power plant for compliance with regulatory requirements and specific license conditions related to radiological effluent releases. The inspection program includes enforcement actions to be taken for violations of the regulations or license conditions, based on the severity of the event.

This performance measure includes dose values that are classified as being as low as reasonably achievable (ALARA), contained in Appendix I to 10 CFR Part 50 as well as the public dose limits contained in 10 CFR Part 20. Because the performance measure includes ALARA values, which are not safety limits, and because Appendix I to Part 50 allows licensees to temporarily exceed, for good reason, the ALARA dose values, the performance measure is set to 2.

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### **Goal 1 - Safety: Ensure protection of public health and safety and the environment.**

#### **Nuclear Material and Waste Safety**

##### **Strategic Outcomes:**

- *Prevent the occurrence of any inadvertent criticality events.*
- *Prevent the occurrence of any acute radiation exposures resulting in fatalities.*
- *Prevent the occurrence of any releases of radioactive materials that result in significant radiation exposures.*
- *Prevent the occurrence of any releases of radioactive materials that cause significant adverse environmental impacts.*

**Verification:** Prevent the occurrence of any inadvertent criticality events. Inadvertent criticality events must be reported, regardless of whether they result in exposures or injuries to workers or the public, and regardless of whether they result in adverse impacts to the environment. Licensees immediately report criticality events to the NRC Headquarters Operations Center by telephone through the cognizant licensee safety officer. Follow up written reports are required to be submitted to the NRC within 30 days of the initial report. Such reports must contain specific information concerning the event, as specified by 10 CFR 70.50(c)(2) and 10 CFR 76.120(d)(2). The NRC then dispatches an inspection team to confirm the reliability of the data. The event is also tracked through the NMED. An event of this nature would be immediately investigated and followed up by the NRC. Should an event meeting this threshold occur, it would be reported to the NRC through a number of sources, but primarily through required licensee notifications. These events are summarized in event notifications and preliminary notifications, which are used to widely disseminate the information to internal and external stakeholders.

The fuel facilities, materials, high-level waste repository, decommissioning, and spent fuel storage and transportation inspection programs are key elements in verifying the completeness and accuracy of licensee reports. The Integrated Materials Performance Evaluation Program (IMPEP) also provides a mechanism to verify that NRC regions are consistently properly collecting and reporting such events as received from the licensees, and entering them into NMED.

The NRC has taken a number of steps to improve the timeliness and completeness of materials event data. These steps include assessment of the NMED data during monthly staff reviews, emphasis and analysis during the IMPEP reviews, NMED training in headquarters, the regions and Agreement States, and discussions at all Agreement States and Conference of Radiation Control Program Directors (CRCPD) meetings.

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**Validation:** Events collected under this strategic outcome are actual occurrences of accidental criticality. Such events could compromise public health and safety, the environment, and the common defense and security. Events of this magnitude are not expected and would be rare. If such an event occurred, it would result in prompt and thorough investigation, of its consequences, its root causes, and the necessary actions by the licensee and the NRC to mitigate the situation and prevent recurrence. Therefore, the strategic outcome of no inadvertent criticalities represents a valid measure of ensuring adequate protection of public health and safety.

In assessing the validity of the data being collected as being appropriate for the strategic outcome, the staff has determined that there is a logical relationship between the data collected and the strategic outcome. Given the magnitude and rarity of a criticality event, NRC believes the probability of not being aware of an inadvertent criticality is very small.

**Verification:** Prevent the occurrence of any acute radiation exposures resulting in fatalities. Determining whether or not a death resulted from acute radiation exposure is fundamentally essential to ensure protection of public health and safety. Should an event meeting this threshold occur, it would be reported to the NRC and/or Agreement States through a number of sources, but primarily through required licensee notifications. These events are summarized in event notifications and preliminary notifications, which are used to widely disseminate the information to internal and external stakeholders.

The fuel facilities, materials, high-level waste repository, decommissioning, and spent fuel storage and transportation, inspection programs are key elements in verifying the completeness and accuracy of licensee reports. The IMPEP also provides a mechanism to verify that Agreement States and NRC regions are consistently collecting and reporting such events as received from the licensees, and entering them into NMED.

The NRC has taken a number of steps to improve the timeliness and completeness of materials event data. These steps include assessment of the NMED data during monthly staff reviews, emphasis and analysis during the IMPEP reviews, NMED training in headquarters, the regions and Agreement States, and discussions at all Agreement States and Conference of Radiation Control Program Directors (CRCPD) meetings.

**Validation:** NRC's regulatory process, including licensing, inspection, guidance, regulations, and enforcement activities, is sufficient to ensure that there are no fatalities due to acute radiation exposure. Events of this magnitude are not expected and would be rare. In the unlikely event that a death should occur, the decision on whether or not to ascribe the cause of a death to conditions related to acute radiation exposures, or exposure to other radioactive hazardous materials (for fuel cycle activities, this extends to other hazardous materials used with, or produced from, licensed material consistent with 10 CFR Part 70) is made by the NRC or Agreement State technical specialists, with input provided by expert consultants, as necessary.

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NRC believes the data collected to meet this strategic outcome are free from bias. NRC does not use statistical sampling of data to determine results. Rather, all events data are reviewed to determine if the strategic outcome has been met. There are two important data limitations in determining this strategic outcome. These include delay time for receiving information and/or the failure of NRC to become aware of an event that results in a fatality. NRC regulations and procedures associated with event reporting include specific requirements for timely notifications, there is a lag time separating the occurrence of an event and the known consequences of an event.

NRC believes the probability of not being aware of a fatality due to acute radiation exposure is very small. Periodic licensee inspections and regulatory reporting requirements are sufficient to ensure an event of this magnitude would become known.

If such an event occurred, it would result in prompt and thorough investigation of the event, its consequences, its root causes, and the necessary actions by the licensee and the NRC to mitigate the situation and prevent recurrence. In addition to these immediate actions, the NRC holds periodic meetings, where staff and management review events that appear to meet this strategic outcome.

***Verification:*** Prevent the occurrence of any releases of radioactive materials that result in significant radiation exposures. The NRC defines this strategic outcome as any discharge or dispersal of radioactive materials from the intended place of confinement, or discharge or dispersal of radioactive wastes during storage, transport, or disposal, which cause significant radiation exposures to a member of the public or occupational worker that directly results in unintended permanent functional damage to an organ or physiological system, as determined by a physician, in accordance with AO Criteria I.A.3. (This metric does not include exposures from sealed sources. Exposure from sealed sources would be counted under the performance measure, “Number of events with radiation exposures to the public and occupational workers from radioactive material that exceed AO Criterion I.A.”)

Should an event meeting this threshold occur, it would be reported to the NRC and/or Agreement States through a number of sources, but primarily through required licensee notifications. These events are summarized in event notifications and preliminary notifications, which are used to widely disseminate the information to internal and external stakeholders. For activities of the NMSS and FSME, the NMED is an essential system used to collect information on such events.

The fuel facilities, materials, high-level waste repository, decommissioning, and spent fuel storage and transportation inspection programs are key elements in verifying the completeness and accuracy of licensee reports. The IMPEP also provides a mechanism to verify that Agreement States and NRC regions are consistently collecting and reporting such events as received from the licensees, and entering them into NMED.

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The NRC has taken a number of steps to improve the timeliness and completeness of materials event data. These steps include assessment of the NMED data during monthly staff reviews, emphasis and analysis during the IMPEP reviews, NMED training in headquarters, the regions and Agreement States, and discussions at all Agreement State and CRCPD meetings.

**Validation:** “Significant radiation exposures” are defined as those that result in unintended permanent functional damage to an organ or a physiological system as determined by a physician in accordance with AO Criterion I.A.3. Events of this magnitude are not expected and would be rare. In the unlikely event that a significant exposure should occur, the decision on whether or not to ascribe the permanent functional damage to conditions related to acute radiation exposures, or exposure to other radioactive hazardous materials (for fuel cycle activities, this extends to other hazardous materials used with, or produced from, licensed material consistent with 10 CFR Part 70), is made by the NRC or Agreement State technical specialists, with input provided by our expert consultants, as necessary.

NRC does not use statistical sampling of data to determine results. Rather, all event data are reviewed to determine if the strategic outcome has been met. There are two important data limitations in determining this strategic outcome. These include delay time for receiving information and/or the failure of NRC to become aware of an event that results in significant radiation exposures. NRC regulations and procedures associated with event reporting include specific requirements for timely notifications, there is a lag time separating the occurrence of an event and the known consequences of an event. NRC believes the probability of not being aware of an event that results in significant radiation exposures is very small. Periodic licensee inspections and regulatory reporting requirements are sufficient to ensure an event of this magnitude would become known. If such an event occurred, it would result in prompt and thorough investigation of the event, its consequences, its root causes, and the necessary actions by the licensee and NRC to mitigate the situation and prevent recurrence. In addition to these immediate actions, the NRC holds periodic meetings, where staff and management review events that appear to meet this strategic outcome.

**Verification:** Prevent the occurrence of any releases of radioactive materials that cause significant adverse environmental impacts. Releases that have the potential to cause “adverse environmental impact” are currently undefined. As a surrogate, we will use any discharge or dispersal of radioactive materials from the intended place of confinement or discharge or dispersal of radioactive wastes during storage, transport, or disposal that exceeds the limits for reporting abnormal occurrences as given in Abnormal Occurrence criteria 1.B.1.

Should an event meeting this threshold occur, it would be reported to the NRC and/or Agreement States through a number of sources, but primarily through required licensee notifications. These events are summarized in event notifications and preliminary notifications, which are used to widely disseminate the information to internal and external stakeholders.

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The fuel facilities, materials, high-level waste repository, decommissioning, and spent fuel storage and transportation, inspection programs are key elements in verifying the completeness and accuracy of licensee reports. The IMPEP also provides a mechanism to verify that Agreement States and NRC regions are consistently collecting and reporting such events as received from the licensees, and entering them into NMED.

The NRC has taken a number of steps to improve the timeliness and completeness of materials event data. These steps include assessment of the NMED data during monthly staff reviews, emphasis and analysis during the IMPEP reviews, NMED training in headquarters, the regions and in Agreement States, and discussions at all Agreement State and CRCPD meetings.

***Validation:*** Releases that have the potential to cause “adverse environmental impact” are those that exceed the limits for reporting abnormal occurrences as given by AO Criterion 1.B.1. NRC’s regulatory process, including licensing, inspection, guidance, regulations, and enforcement activities, is sufficient to ensure that there are no releases of radioactive materials that cause significant adverse environmental impacts.

Events of this magnitude are not expected and would be rare. In the unlikely event of a release of radioactive materials (for fuel cycle activities, this extends to other hazardous materials used with, or produced from, licensed material consistent with 10 CFR Part 70), the decision on whether or not the release caused a significant adverse environmental impact is made by the NRC or Agreement State technical specialists, with input provided by expert consultants as necessary.

The NRC does not look at statistical sampling of data to determine results. Rather, all event data are reviewed to determine if the strategic outcome has been met. There are two important data limitations in determining this strategic outcome. These include delay time for receiving information and/or the failure of NRC to become aware of an event that causes significant adverse environmental impacts. NRC regulations and procedures associated with event reporting include specific requirements for timely notifications, there is a lag time separating the occurrence of an event and the known consequences of an event.

NRC believes the probability of not being aware of an event that causes significant adverse environmental impacts is very small. Periodic licensee inspections and regulatory reporting requirements are sufficient to ensure an event of this magnitude would become known.

If such an event occurred, it would result in prompt and thorough investigation of the event, its consequences, its root causes, and the necessary actions by the licensee and NRC to mitigate the situation and prevent recurrence. In addition to these immediate actions, the NRC holds periodic meetings, where staff and management review events that appear to meet this strategic outcome.

#### **Performance Measures:**

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- *Number of events with radiation exposures to the public or occupational workers from radioactive material that exceed AO Criteria I.A.*

*Materials Safety Target: Less than or equal to 2*

*Waste Safety Target: Zero*

**Verification:** This performance measure includes any event involving licensed radioactive materials, which results in significant radiation exposures to members of the public and/or occupational workers that exceed the dose limits in of the AO reporting criteria. Due to the extremely high doses employed during medical applications of radioactive materials, it is also appropriate to use a radiation exposure that results in unintended permanent functional damage to an organ or a physiological system as determined by a physician as a criterion for this measure. AO Criteria I.A is used as the basis for this measure.

Should an event meeting this threshold occur, it would be reported to the NRC and/or Agreement States through a number of sources, but primarily through required licensee notifications. These events are summarized in event notifications and preliminary notifications, which are used to widely disseminate the information to internal and external stakeholders.

The fuel facilities, materials, high-level waste repository, decommissioning, and spent fuel storage and transportation, inspection programs are key elements in verifying the completeness and accuracy of licensee reports. The IMPEP also provides a mechanism to verify that Agreement States and NRC regions are consistently collecting and reporting such events as received from the licensees, and entering them into NMED.

The NRC has taken a number of steps to improve the timeliness and completeness of materials event data. These steps include assessment of the NMED data during monthly staff reviews, emphasis and analysis during the IMPEP reviews, NMED training in headquarters, the regions and in Agreement States, and discussions at all Agreement State and CRCPD meetings.

**Validation:** There is a logical basis for using events involving radiation exposures to the public and occupational workers from radioactive material that exceed AO Criteria I.A., as a performance measure for ensuring the protection of public health and safety. An event is considered an abnormal occurrence if it is determined to be significant from the standpoint of public health or safety. NRC's regulatory process, including licensing, inspection, guidance, regulations, and enforcement activities, is designed to mitigate the likelihood of an event that would exceed AO Criteria I.A.

Events of this magnitude are rare. In the unlikely event that an abnormal occurrence should occur, NRC or Agreement State technical specialists will confirm whether the criteria were met, with input provided by expert consultants, as necessary.

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NRC does not use statistical sampling of data to determine results. Rather, all event data are reviewed to determine if the performance measure has been met. There are two important data limitations in determining this performance measure. These include delay time for receiving information and/or the failure of NRC to become aware of an event that causes significant radiation exposures to the public or occupational workers. Although NMSS and FSME procedures and NRC regulations associated with event reporting include specific requirements for timely notifications, there is a lag time separating the occurrence of an event and the known consequences of an event.

NRC believes the probability of not being aware of an event that causes significant radiation exposures to the public or occupational workers is very small. Periodic licensee inspections and regulatory reporting requirements are sufficient to ensure that an event of this magnitude would become known. If such an event occurred, it would result in prompt and thorough investigation of the event, its consequences, its root causes, and the necessary actions by the licensee and NRC to mitigate the situation and prevent recurrence. In addition to these immediate actions, the NRC holds periodic meetings, where staff and management validate the occurrence of these events.

- ***Number of radiological releases to the environment that exceed applicable regulatory limits.***

***Materials Safety Target: Less than or equal to 2***

***Waste Safety Target: Zero***

***Verification:*** This performance measure is defined as any release to the environment from the following activities: fuel facilities, materials, high-level waste repository, decommissioning, and spent fuel storage and transportation, activities that exceeds applicable regulations as defined in 10 CFR 20.2203(a)(3). A 30 day written report is required on such releases. The nuclear materials safety performance measure target is less than or equal to five releases a year that meet this reporting criteria. The nuclear waste safety target is to have no releases that meet the reporting criteria.

Should an event meeting this threshold occur, it would be reported to the NRC and/or Agreement States through a number of sources, but primarily through required licensee notifications. These events are summarized in event notifications and preliminary notifications, which are used to widely disseminate the information to internal and external stakeholders.

The fuel facilities, materials, high-level waste repository, decommissioning, and spent fuel storage and transportation, inspection programs are key elements in verifying the completeness and accuracy of licensee reports. The IMPEP also provides a mechanism to verify that Agreement States and NRC regions are consistently collecting and reporting such events as received from the licensees, and entering them into NMED.

The NRC has taken a number of steps to improve the timeliness and completeness of materials event data. These steps include assessment of the NMED data during monthly staff reviews, emphasis and

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analysis during the IMPEP reviews, NMED training in headquarters, the regions and in Agreement States, and discussions at all Agreement State and CRCPD meetings.

**Validation:** The regulations in 10 CFR Part 20 provides standards for protection against radiation. There is a logical basis for tracking releases subject to the 30-day reporting requirement under 10 CFR 20.2203(a)(3)(ii) as a performance measure for ensuring the protection of the environment. NRC's regulatory process, including licensing, inspection, guidance, regulations, and enforcement activities, is sufficient to ensure that releases of radioactive materials that exceed regulatory limits are infrequent.

In the unlikely event that a release to the environment exceeds regulatory limits, NRC or Agreement State technical specialists or our consultants will confirm whether the criteria were met, with input provided by expert consultants, as necessary.

NRC does not look at statistical sampling of data to determine results. Rather, all event data are reviewed to determine if the performance measure has been met. There are two important data limitations in determining this performance measure. These include delay time for receiving information and/or the failure of NRC to become aware of an event that causes environmental impacts. Although NMSS and FSME procedures and NRC regulations associated with event reporting include specific requirements for timely notifications, there is a lag time separating the occurrence of an event and the known consequences of an event.

NRC believes the probability of not being aware of an event that causes a radiological release to the environment that exceeds applicable regulations is very small. Periodic licensee inspections and regulatory reporting requirements are sufficient to ensure that an event of this magnitude would become known.

If such an event occurred, it would result in a prompt and thorough investigation of the event, its consequences, its root causes, and the necessary actions by the licensee and NRC to mitigate the situation and prevent recurrence. In addition to these immediate actions, the NRC holds periodic meetings, where staff and management validate the occurrence of these events.

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### **Goal 2—Security: Ensure the secure use and management of radioactive materials**

#### Strategic Outcome

- *No instances where licensed radioactive materials are used domestically in a manner hostile to the security of the United States*

#### Performance Measures

- *Unrecovered losses or thefts of risk-significant radioactive sources is 0.*

Under the AO Criterion I.C.1, the agency counts any unrecovered lost, stolen, or abandoned sources that exceed the values listed in Appendix P, “Category 1 and 2 Radioactive Material,” to 10 CFR Part 110, “Export and Import of Nuclear Equipment and Material.” Excluded from reporting under this criterion are those events involving sources that are lost, stolen, or abandoned under certain conditions, specifically (1) sources abandoned in accordance with the requirements of 10 CFR 39.77(c), (2) sealed sources contained in labeled, rugged source housings, (3) recovered sources with sufficient indication that doses in excess of the reporting thresholds specified in AO Criteria I.A.1 and I.A.2 did not occur during the time the source was missing, (4) unrecoverable sources lost under such conditions that doses in excess of the reporting thresholds specified in AO Criteria I.A.1 and I.A.2 were not known to have occurred, and (5) other sources that are lost or abandoned and declared unrecoverable; for which the agency has determined that the risk-significance of the source is low based on the location (e.g., water depth) or physical characteristics (e.g., half life, housing) of the source and its surroundings; where all reasonable efforts have been made to recover the source; and where it has been determined that the source is not recoverable and would not be considered a realistic safety or security risk under this measure.

**Verification:** Losses or thefts of radioactive material that are greater than or equal to 1000 times the quantity specified in Appendix C, “Quantities of Licensed Material Requiring Labeling,” to 10 CFR Part 20 must be reported (per 10 CFR 20.2201(a)) by telephone to the NRC Headquarters Operations Center or Agreement State immediately (interpreted as within 4 hours) if the licensee believes that an exposure could result to persons in unrestricted areas. If an event meeting the thresholds described above occurs, it would be reported through a number of sources, but primarily through this required licensee notification. Events that are publicly available are then entered and tracked in NMED, which is an essential system used to collect and store information on such events. Separate methods are used to track events that are not publicly available. Additionally, licensees must meet the reporting and accounting requirements in 10 CFR Part 73, “Physical Protection of Plants and Materials,” and 10 CFR Part 74, “Material Control and Accounting of Special Nuclear Material.”

The NRC’s inspection programs are key elements in verifying the completeness and accuracy of

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licensee reports. The IMPEP also provides a mechanism to verify that Agreement States and NRC regions are consistently collecting and reporting such events as received from the licensees and are entering these events in NMED. In some cases, upon receiving a report, the NRC or Agreement State initiates an independent investigation that verifies the reliability of the reported information. When performed, these investigations enable the NRC or Agreement State to verify the accuracy of the reported data.

The regulation in 10 CFR 20.2201(b) requires a 30-day written report for lost or stolen sources that are greater than or equal to 10 times the quantity specified in Appendix C to 10 CFR Part 20 if the source is still missing at that time. In addition, 10 CFR 20.2201(d) requires an additional written report within 30 days of a licensee learning any additional substantive information. The NRC interprets this requirement as including reporting recovery of sources.

The NRC issued guidance in the form of a regulatory information summary (RIS 2005-21) to clarify the current 10 CFR 20.2201(d) requirement for reporting recovery of a risk-significant source. FSME will ask the Agreement States to send copies of the RIS (or equivalent document) to their licensees. The NRC issued the National Source Tracking System final rule in November 2006. Implementation of this system will create and maintain an inventory of risk-significant sources. This rulemaking codifies and clarifies reporting requirements for risk-significant sources (including reporting timeframes) by adding specific requirements to 10 CFR 20.2201, "Reports of Theft or Loss of Licensed Material," for risk-significant sources, including a requirement for licensees to report the recovery of a risk-significant source within 30 days of recovery. In conjunction with this rulemaking, FSME will modify its Procedure SA-300 to specifically require Agreement States to report the recovery of a risk-significant source immediately to the NRC Headquarters Operations Center when notified by a licensee.

**Validation:** Events collected under this performance measure are actual losses, thefts, or diversions of materials described above. Such events could compromise public health and safety, the environment, and the common defense and security. Events of this magnitude are expected to be rare. The information reported under 10 CFR Part 73 and 10 CFR Part 74 is required so that the NRC is aware of events that could endanger public health and safety or national security. Any failures at the level of the strategic plan would result in immediate investigation and followup.

If an event subject to the reporting requirements described above occurs, it would result in a prompt and thorough investigation of the event, its consequences, its root causes, and the necessary actions by the licensee, the NRC, and/or an Agreement State to mitigate the situation and prevent recurrence.

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- ***Number of substantiated cases of actual theft or diversion of licensed risk-significant radioactive sources or a formula quantity of special nuclear material or act that results in radiological sabotage is 0.***

**Verification:** The AO Criterion I.C.2, “substantiated” means a situation that requires additional action by the agency or other proper authorities because of an indication of loss, theft, or unlawful diversion—such as an allegation of diversion, report of lost or stolen material, statistical processing difference, or other indication of loss of material control or accountability—that cannot be refuted following an investigation. A formula quantity of special nuclear material is defined in 10 CFR 70.4, “Definitions.” Radiological sabotage is defined in 10 CFR 73.2, “Definitions.” Licensees subject to the requirements of 10 CFR Part 73 must call the NRC within 1 hour of an occurrence, to report any breaches of security or other event that may potentially lead to theft or diversion of material or to sabotage at a nuclear facility. The NRC’s safeguards requirements are described in 10 CFR 73.71, “Reporting of Safeguards Events”; Appendix G, “Reportable Safeguards Events,” to 10 CFR Part 73; and 10 CFR 74.11, “Reports of Loss or Theft or Attempted Theft or Unauthorized Production of Special Nuclear Material.” The information assessment team composed of NRC Headquarters and regional staff members would conduct an immediate assessment for any significant events to determine any further actions that are needed, including coordination with the intelligence community and law enforcement. In accordance with 10 CFR 73.71(d), the licensee must also file a written report within 60 days of the incident describing the event and the steps that the licensee took to protect the nuclear facility. This information will enable the NRC to adequately assess whether radiological sabotage has occurred.

**Validation:** Events subject to reporting requirements are those that endanger the public health and safety and the environment through deliberate acts of theft or diversion of material or through sabotage directed against the nuclear facilities that the agency licenses. Events of this type are extremely rare. If such an event occurs, it would result in a prompt and thorough investigation of the event, its consequences, its root causes, and the necessary actions by the licensee and/or the NRC to mitigate the situation and prevent recurrence. The investigation ensures the validity of the information and assesses the significance of the event.

- ***Number of substantiated losses of a formula quantity of special nuclear material or substantiated inventory discrepancies of a formula quantity of special nuclear material that are judged to be significant relative to normally expected performance or regulatory limits and that are judged to be caused by theft or diversion or substantial breakdown of the accountability system is 0.***

**Verification:** Licensees must record events associated with AO Criterion I.C.3 within 24 hours of the identified event in a safeguards log maintained by the licensee. The licensee must retain the log as a record for 3 years after the last entry is made or until termination of the license. The NRC relies on its safeguards inspection program to ensure the reliability of recorded data. The NRC makes a

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determination of whether a substantiated breakdown has resulted in a vulnerability to radiological sabotage, theft, diversion, or unauthorized enrichment of special nuclear material. When making substantiated breakdown determinations, the NRC evaluates the materials event data to ensure that licensees are reporting and collecting the proper event data.

**Validation:** “Substantiated” means a situation that requires additional action by the agency or other proper authorities because of an indication of loss, theft, or unlawful diversion—such as an allegation of diversion, report of lost or stolen material, statistical processing difference, other system breakdown closely related to the material control and accounting program (such as an item control system associated with the licensee’s facility information technology system), or other indication of loss of material control or accountability—that cannot be refuted following an investigation. A formula quantity of special nuclear material is defined in 10 CFR 70.4. Events collected under this performance measure may indicate a vulnerability to radiological sabotage, theft, diversion, or loss of special nuclear materials. Such events could compromise public health and safety, the environment, and the common defense and security. The NRC relies on its safeguards inspection program to help validate the reliability of recorded data and determine whether a breakdown of a physical protection or material control and accounting system has actually resulted in vulnerability.

- ***Number of substantial breakdowns of physical security or material control (i.e., access control containment or accountability systems) that significantly weaken the protection against theft, diversion, or sabotage is 0.***

**Verification:** The AO Criterion I.C.4, a “substantial breakdown” is defined as a red finding in the security oversight program or significant performance problems and/or operational events resulting in a determination of overall unacceptable performance or in a shutdown condition (inimical to the effective functioning of the Nation’s critical infrastructure). Radiological sabotage is defined in 10 CFR 73.2. Licensees are required to report to the NRC, immediately after the occurrence becomes known, any known breakdowns of physical security, based on the requirements in 10 CFR 73.71 and Appendix G to 10 CFR Part 73. If a licensee reports such an event, the headquarters operations officer prepares an official record of the initial event report. The NRC begins responding to such an event immediately upon notification, with the activation of its information assessment team. A licensee must follow its initial telephone notification with a written report submitted to the NRC within 30 days.

The licensee records breakdowns of physical protection resulting in a vulnerability to radiological sabotage, theft, diversion, or loss of special nuclear materials or radioactive waste within 24 hours in a safeguards log maintained by the licensee. The licensee must retain the log as a record for 3 years after the last entry is made or until termination of the license. Licensees subject to 10 CFR Part 73 must also meet the reporting requirements detailed in 10 CFR 73.71. The NRC evaluates all of the reported events based on the criteria in 10 CFR 73.71 and Appendix G to 10 CFR Part 73. The NRC also maintains and relies on its safeguards inspection program to ensure the reliability of recorded

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and reported data.

**Validation:** Events assessed under this performance measure are those that threaten nuclear activities by deliberate acts, such as radiological sabotage, directed against facilities. If a licensee reports such an event, the information assessment team evaluates and validates the initial report and determines any further actions that may be necessary. Tracking breakdowns of physical security indicates whether the licensee is taking the necessary security precautions to protect the public, given the potential consequences of a nuclear accident attributable to sabotage or the inappropriate use of nuclear material either in this country or abroad.

Events collected under this performance measure may indicate a vulnerability to radiological sabotage, theft, diversion, or loss of special nuclear materials or radioactive waste. Such events could compromise public health and safety, the environment, and the common defense and security.

The NRC relies on its safeguards inspection program to help validate the reliability of recorded data and determine whether a breakdown of a physical protection or material control and accounting system has actually resulted in a vulnerability.

- ***Number of significant unauthorized disclosures (loss, theft, and/or deliberate acts) of classified and/or safeguards information is 0.***

**Verification:** With regard to AO Criterion I.C.5, any alleged or suspected violations by NRC licensees of the Atomic Energy Act, Espionage Act, or other Federal statutes related to classified or safeguards information must be reported to the NRC under the requirements of 10 CFR 95.57(a) (for classified information), 10 CFR Part 73 (for safeguards information), and NRC orders (for safeguards information subject to modified handling requirements). However, for performance reporting, the NRC would only count those disclosures or compromises that actually cause damage to the national security or to public health and safety. Such events would be reported to the cognizant security agency (i.e., the security agency with jurisdiction) and the regional administrator of the appropriate NRC regional office, as listed in Appendix A, "U.S. Nuclear Regulatory Commission Offices and Classified Mailing Addresses," to 10 CFR Part 73. The regional administrator would then contact the Division of Security Operations at NRC Headquarters, which would assess the violation and notify other NRC offices and other Government agencies, as appropriate. A determination would be made as to whether the compromise damaged the national security or public health and safety. Any unauthorized disclosures or compromises of classified or safeguards information that damaged the national security or public health and safety would result in immediate investigation and followup by the NRC. In addition, NRC inspections will verify that licensees' routine handling of classified and safeguards information (including safeguards information subject to modified handling requirements) conforms to established security information management requirements.

Any alleged or suspected violations of this performance measure by NRC employees, contractors, or

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other personnel would be reported in accordance with NRC procedures to the Director of Division of Facilities and Security at NRC Headquarters. The NRC maintains a strong system of controls over national security and safeguards information, including (1) annual required training for all employees, (2) safe and secure document storage, and (3) physical access control in the form of guards and badged access.

**Validation:** Events collected under this performance measure are unauthorized disclosures of classified or safeguards information that damage the national security or public health and safety. Events of this magnitude are not expected and would be rare. If such an event occurs, it would result in a prompt and thorough investigation, including consequences, root causes, and necessary actions by the licensees and the NRC to mitigate the consequences and prevent recurrence. NRC investigation teams also validate the materials event data to ensure that licensees are reporting and collecting the proper event data.

### **Goal 3 - Openness: Ensure openness in our regulatory process.**

#### **Strategic Outcome:**

- *Stakeholders are informed and involved in NRC processes as appropriate.*

#### **Performance Measures:**

- *Percentage of selected openness output measures that achieve performance targets is equal to or greater than 88 percent.*

**Verification:** The NRC views nuclear regulation as the public's business and, as such, it should be transacted openly and candidly in order to maintain the public's confidence. The goal to ensure openness explicitly recognizes that the public must be informed about, and have a reasonable opportunity to participate meaningfully in, the NRC's regulatory processes. In assessing how the NRC will gauge its openness with our stakeholders, NRC will (1) provide accurate and timely information to the public about the uses and risks of radioactive materials; (2) enhance the awareness of the NRC's independent role in protecting public health and safety and the environment; (3) provide accurate and timely information about the safety performance of the licensees regulated by the NRC; (4) provide a fair and timely process to allow public involvement in NRC decision-making in matters not involving sensitive unclassified, safeguards, classified, or proprietary information; (5) provide a fair and timely process to allow authorized (appropriately cleared with a need to know) stakeholders to participate in NRC decision-making in matters involving sensitive unclassified, safeguards, classified, or proprietary information; and (6) Obtain early public involvement on issues most likely to generate substantial interest and promote two-way communication to enhance public confidence in the NRC's regulatory processes.

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**Validation:** Overall actual performance will be measured by determining the percent of the associated output measures that delivered their intended openness outcome. At a minimum, in order to meet the overall target, 78 percent of the output measure targets must be met.

The process of collecting the data and making sure the information is complete, accurate, and consistent will be the responsibility of the individual office director who will review and approve the data submitted by staff.

**Goal 4 - Effectiveness: Ensure that NRC actions are effective, efficient, realistic, and timely.**

### **Strategic Outcome:**

- *No significant licensing or regulatory impediments to the safe and beneficial uses of radioactive materials.*

### **Performance Measures:**

- *The percentage of selected processes that deliver desired efficiency improvement is > 70 percent. (Goal is > 90 percent by 2008).*

**Verification:** NRC has challenges that are coming at a time when initiatives such as the Government Performance and Results Act are challenging Federal agencies to become more effective and efficient and to justify their budget requests with demonstrated program results. The drive to improve performance in Government, coupled with increasing demands on the NRCs finite resources, clearly indicates a need for the agency to become more effective and efficient. NRC has established a performance measure to improve desired efficiency which supports the two primary goals of safety and security and also addresses management excellence.

On an annual basis, candidate processes would be selected as part of this performance measure. For the purposes of this measure, a desired efficiency improvement is defined as an improvement or positive change in the processes' cost, quality, productivity, and/or timeliness. A desired efficiency improvement would be expressed as resource savings or cost avoidance for the agency or as a positive benefit to external stakeholders with respect to effectiveness, efficiency, or realism.

Offices will use the following process to identify and report on desired efficiency improvements:

- (1) Select and define a candidate process - Offices will identify processes at the beginning of each fiscal year which they will measure for desired efficiency improvement.
- (2) Analyze process for areas in need of improvement - This could include cost reduction, quality and or timeliness of work, or other unique factors as appropriate which can be measured for desired efficiency improvement.

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(3) Establish targets for efficiency improvements - Based on past experience and if previous trend data is available, offices will identify specific desired targets which they feel are challenging but can be achieved. The targets could involve improvements in cost, quality, productivity, and/or timeliness.

(4) Report progress annually - Offices will report the actual data at the end of each fiscal year and may adjust the target accordingly based on previous years results.

**Validation:** Overall actual performance will be measured by determining the percent of the processes selected annually that delivered their intended desired efficiency improvement. At a minimum, 70 percent of the selected processes must have achieved their targets.

The process of collecting the data and making sure the information is complete, accurate, and consistent will be the responsibility of the individual office director who will review and approve the data submitted by staff.

- *No more than one instance per program where licensing or regulatory activities unnecessarily impede the safe and beneficial uses of radioactive materials.*

**Target:**        *Reactor Program = 2 (1 per Tier II program).*  
                          *Materials/Waste Program = 5 (1 per Tier II program)*

***Verification and Validation:***

This measure is intended to serve as a precursor to the strategic-level outcome of “no significant licensing or regulatory impediments to the safe and beneficial uses of radioactive materials.” The purpose of the measure is to provide an indication of overall agency performance with respect to the strategic objective of enabling the safe use of radioactive materials for beneficial civilian purposes. The following table describes how the agency fulfills its role in “enabling” at various phases of the business cycle:

	Potential applicants	Applicants	Current licensees
Intent of “enabling” in each category	Provide an effective and efficient regulatory infrastructure so that this group is inclined to pursue licenses if they so choose. Ensure that the NRC is not a barrier to entry due to unnecessary regulatory burden.	Provide stable and predictable processes so that applicants can enter the business in a timely fashion, only constrained by their ability to operate safely and securely (i.e., abide by NRC regulations).	Ensure that the regulation does not pose an unnecessary regulatory burden.

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The key difference between this performance measure and the related strategic outcome is that the strategic outcome focuses on significant impediments, while the performance measure does not contain this qualifier. Thus, the performance measure is designed to capture lower-level instances where NRC programs may have unnecessarily impeded. The following types of examples could count against this performance measure (and possibly against the strategic outcome as well, depending on severity):

- missing a key timeliness measure (e.g., for fuel cycle licensing actions or reactor power uprates) or milestone (e.g., completing license termination for complex decommissioning cases)
- not adjusting the regulatory framework to support new technologies or otherwise respond to significant changes in the regulatory environment
- imposing unnecessary regulatory burden on licensees or applicants to the extent that the NRC becomes a barrier to entry or sustainability

Efforts to risk inform regulatory programs, improve programmatic effectiveness and efficiency, and reduce unnecessary regulatory burden are all positive steps that can be taken to enable the safe use of radioactive materials.

Because the NRC does not have prior experience in applying this type of measure, the metric will likely require adjustment over the first few years. The intent is to set aggressive annual targets that reflect the agency's commitment to continuous improvement. Consequently, it should be expected that some impediments will occur at the performance level due to resource limitations, emergent high-priority demands, or other circumstances beyond the control of program managers. Exceptions reported under this measure are considered in the agency's assessment of the related strategic outcome.

**Goal 5 - Management: Ensure excellence in agency management to carry out the NRC's strategic objective.**

### **Strategic Outcomes:**

- *Continuous improvement in NRC's leadership and management effectiveness in delivering the mission.*
- *A diverse, skilled workforce and an infrastructure that fully supports the agency's mission and goals.*

### **Performance Measures:**

- *Percentage of selected NRC management programs reported by support offices that delivered intended outcomes is equal to or greater than 80 percent.*

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**Verification:** The NRC considered the management and support needed to achieve the agency's mission, preexisting management challenges, and other initiatives. This goal includes strategies for the management of human capital, infrastructure management, improved financial performance, expanded electronic government, budget and performance integration, and internal communications. The process of collecting the data and making sure the information is complete, accurate, and consistent will be the responsibility of the individual office director who will review and approve the data submitted by staff.

**Validation:** Overall actual performance will be measured by determining the percent of the five programs that delivered their intended management outcomes. At a minimum, in order to meet the overall target of 90 percent, all 5 programs must achieved an average score of 90 percent of the activity targets.

- ***The percentage of selected processes reported by support offices that deliver desired efficiency improvement is equal to or greater than 90 percent. (Goal is > 90 percent by 2008).***

**Verification:** NRC has challenges that are coming at a time when initiatives such as the Government Performance and Results Act are challenging Federal agencies to become more effective and efficient and to justify their budget requests with demonstrated program results. The drive to improve performance in Government, coupled with increasing demands on the NRC's finite resources, clearly indicates a need for the agency to become more effective and efficient. NRC has established a performance measure to improve desired efficiency which supports the two primary goals of safety and security, and also addresses management excellence.

On an annual basis, candidate processes would be selected as part of this performance measure. For the purposes of this measure, a desired efficiency improvement is defined as an improvement or positive change in the processes' cost, quality, productivity, and/or timeliness. Desired efficiency improvement would be expressed as resource savings or cost avoidance for the agency or as a positive benefit to external stakeholders with respect to effectiveness, efficiency or realism.

Support offices will use the following process to identify and report on desired efficiency improvements:

- (1) Select and define a candidate process - Offices will identify processes at the beginning of each fiscal year which they will measure for desired efficiency improvement.
- (2) Analyze process for areas in need of improvement - This could include cost reduction, quality and or timeliness of work, or other unique factors as appropriate which can be measured for desired efficiency improvement.

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(3) Establish targets for efficiency improvements - Based on past experience and if previous trend data is available, offices will identify specific desired targets which they feel are challenging but can be achieved. The target improvements could involve cost, quality, productivity, and/or timeliness.

(4) Report progress annually - Offices will report the actual data at the end of each fiscal year and may adjust the target accordingly based on previous years results.

**Validation:** Overall actual performance will be measured by determining the percent of the processes selected annually that delivered their intended desired efficiency improvement. At a minimum, 75 percent of the selected processes must have achieved their targets.

The process of collecting the data and making sure the information is complete, accurate, and consistent will be the responsibility of the individual office director who will review and approve the data submitted by staff.

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