

FISCAL YEAR 2012 - PROGRAM PERFORMANCE

MEASURING AND REPORTING

This chapter presents detailed information on the NRC's performance in achieving its mission during FY 2012. It describes the NRC's performance results and program achievements in accomplishing its two strategic goals of Safety and Security.

Safety is the primary goal of the NRC. The agency's Safety goal is to ensure adequate protection of public health and safety and the environment. The agency achieves this goal by ensuring that the performance of licensees is at or above acceptable safety levels. This chapter addresses the NRC's safety activities that regulate operating reactors, new reactors, fuel facilities, nuclear material users, decommissioning and low-level waste, spent fuel storage and transportation, and the proposed high-level waste repository licensees.

The agency's Security goal is to ensure adequate protection in the secure use and management of radioactive materials. The NRC must remain vigilant in ensuring the security of nuclear facilities and materials in an elevated threat environment. The agency achieves its common defense and Security goal using licensing and oversight programs for licensees similar to those employed in achieving its Safety goal. The agency's security activities are also addressed in this chapter.

In addition, this chapter describes the agency's progress in achieving its Organizational Excellence Objectives of Openness, Effectiveness, and Operational Excellence. Finally, it describes information on data sources, data quality, and completeness and reliability of performance data.

STRATEGIC GOAL 1: SAFETY

Ensure Adequate Protection of Public Health and Safety and the Environment

STRATEGIC OUTCOMES

The strategic outcomes specify the conditions under which an assessment can be made about whether the NRC has met its Safety goal. The NRC's Safety goal has five strategic outcomes that determine whether the agency has achieved its objective to ensure adequate protection of public health and safety and the environment:

- 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.

In FY 2012, the NRC achieved all of its Safety goal strategic outcomes.

PERFORMANCE MEASURES

The NRC also uses annual performance measures to assess whether the agency met its Safety goal. Performance measures are aligned at a lower risk level than the strategic outcomes. As a result, not fully achieving a performance measure may not cause harm to the public or environment. Missing a performance measure signals that safety levels may have deteriorated at the agency strategic planning level. If the NRC misses a performance measure, the agency will take corrective actions to bring the measure back into the target range. Table 1 below shows the agency's annual performance measures, and results of FY 2007 - 2012.

Table 1 FY 2012 Safety Goal Performance Measures

1. Number of new conditions evaluated as red by the NRC's reactor oversight process¹						
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	≤3	≤3	≤3	≤3	≤3	≤3
Actual:	0	0	0	0	1	1
<p>1 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 multiunit 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 Reactor Oversight Process (ROP) external web page was updated to show the red indicator.</p>						
2. Number of significant accident sequence precursors of a nuclear reactor accident²						
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	0	0	0	0	0	0
Actual:	0	0	0	0	0	0
<p>2 Significant Accident Sequence Precursor (ASP) events have a conditional core damage probability (CCDP) or ΔCDP of > 1x 10⁻³. Such events have a 1/1000 (10⁻³) or greater probability of leading to a reactor accident involving core damage. An identical condition affecting more than one plant is counted as a single ASP event if a single accident initiator would have resulted in a single reactor accident.</p>						
3. Number of operating reactors whose integrated performance entered the Manual Chapter 0350 process, the multiple/repetitive degraded cornerstone column, or unacceptable performance column of the Reactor Oversight Program (ROP) Matrix, with no performance exceeding abnormal occurrence criterion I.D.³						
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	≤4	≤4	≤3	≤3	≤3	≤3
Actual:	1	0	0	0	2	1

3 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 is 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. The target value is set based on the expected addition of several indicators and a change in the long-term trending methodology (which will no longer be influenced by the earlier data and will be more sensitive to changes in current performance).

4. Number of significant adverse trends in industry safety performance with no trend exceeding the Abnormal Occurrence Criterion I.D.4⁴

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	≤1	≤1	≤1	≤1	≤1	≤1
Actual:	0	0	0	0	0	0

4 Considering all indicators qualified for use in reporting.

5. Number of events with radiation exposures to the public and occupational workers that exceed Abnormal Occurrence Criterion I.A.3

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Reactor Target:	0	0	0	0	0	0
Actual:	0	0	0	0	0	0
Material Target:	≤3	≤2	≤2	≤2	≤2	≤2
Actual:	0	0	0	0	0	0
Waste Target:	0	0	0	0	0	0
Actual:	0	0	0	0	0	0

6. Number of radiological releases to the environment that exceed applicable regulatory limits⁵

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Reactor Target: ⁶	≤3	0	0	0	0	0
Actual:	0	0	0	0	0	0
Material Target:	≤2	≤2	≤2	≤2	≤2	≤2
Actual:	0	0	0	0	0	0
Waste Target:	0	0	0	0	0	0
Actual:	0	0	0	0	0	0

ANALYSIS OF FY 2012 PERFORMANCE MEASURE RESULTS

1. Reactor Oversight Process

The NRC reactor inspection program monitors nuclear power plant performance in three areas: (1) reactor safety, (2) radiation safety, and (3) security. Analysis of plant performance is based on many performance indicators and inspection findings. Each finding is then sorted into one of four categories in order of increasing significance: green, white, yellow, or red.

2. Reactor Significant Precursors

This statistical measure of risk determines the likelihood of an event adversely impacting safety. A significant precursor is an event that has a probability of 1 in 1,000 (or greater) of leading to substantial damage to the reactor fuel. As of July 18, 2012, no significant precursors have been identified for FY 2012. However, the staff is currently analyzing the loss of offsite power and subsequent station blackout event that occurred at Byron, Unit 2. The ASP analysis is currently ongoing and the event has the potential to have a conditional core damage probability (CCDP) greater than the significant precursor threshold (i.e., $CCDP \geq 1 \times 10^{-3}$).

No significant precursors have been identified for FY 2011. However, the preliminary ASP analysis of the earthquake and subsequent loss of offsite power at North Anna in August 2011 is undergoing the required 60 calendar-day licensee review. Preliminary CCDPs for Unit 1 (3×10^{-4}) and Unit 2 (6×10^{-5}) are below the significant precursor threshold and are not expected to increase above the threshold.

3. Reactor Performance

The conditions in this measure indicate whether the NRC finds significant performance issues in a plant during an inspection or based on performance indicators under the reactor oversight process. If any of the conditions in this measure are met, the NRC will take action to ensure that plant safety is improved.

4. Reactor Safety Trends

This measure tracks trends for several key indicators of industry safety performance. These indicators provide insights into major areas of reactor performance, including reactor safety, radiation safety, and emergency preparedness. Statistical analysis techniques are applied to each indicator to calculate long-term trends. These trends represent industry averages rather than individual plant performance.

5. Nuclear Material Radiation Exposures

This measure tracks the number of radiation exposures to the public and occupational workers that exceed Abnormal Occurrence (AO) Criterion I.A.3, which is defined as those events that produce unintended permanent functional damage to an organ or a physiological system, as determined by a physician. This measure tracks both nuclear reactors and other nuclear material users, such as hospitals and industrial users. There were no events identified that met the AO Criterion 1.A.3 during FY 2012

6. Nuclear Material Releases to the Environment

This measure indicates the effectiveness of the NRC's nuclear material environmental regulatory programs. Exceeding the applicable regulatory limits is defined as a release of radioactive material that causes a total effective radiation dose equivalent to individual members of the public greater than 0.1 roentgen equivalent man (rem) in a year, exclusive of dose contributions from background radiation. No nuclear material releases to the environment that exceeded regulatory limits occurred in FY 2012.

NUCLEAR REACTOR SAFETY AND NUCLEAR MATERIALS AND WASTE SAFETY PROGRAMS

The NRC engages in a comprehensive regulatory program that oversees the activities of its licensees. The core of its regulatory program is its licensing and oversight activities.

The next sections describe the safety programs the NRC undertook during FY 2012 that resulted in achievement of its Safety goal, strategic outcomes, and performance measure targets for operating reactors, new reactors, fuel facilities, nuclear material users, spent fuel storage and transportation, decommissioning and low-level waste, research activities, emergency preparedness and incident response, and international activities.

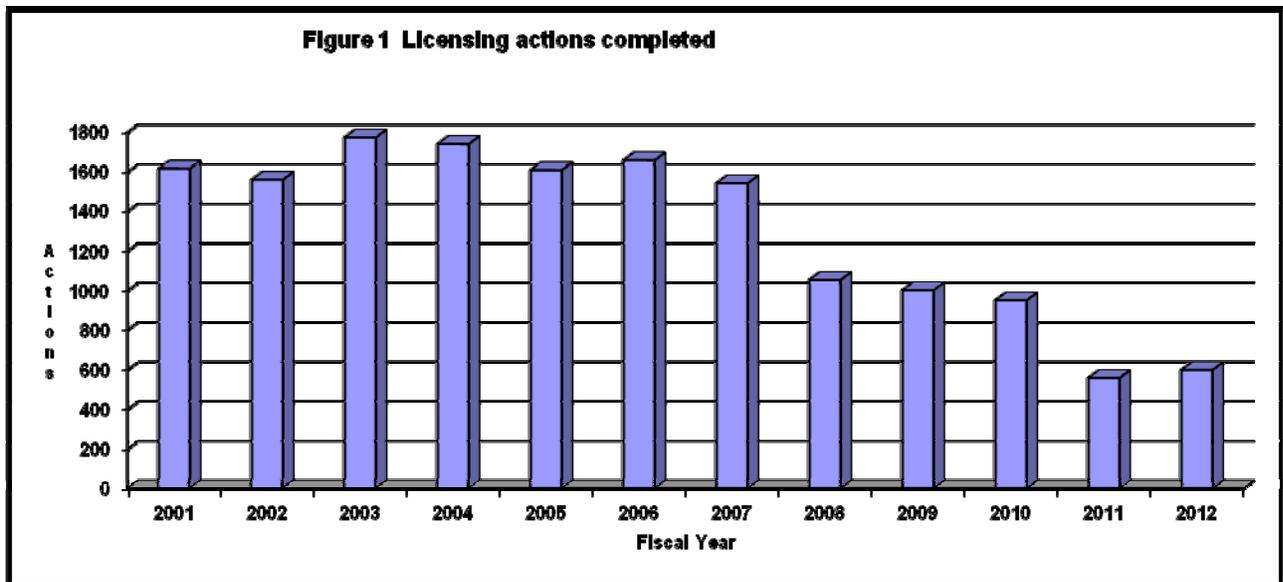
OPERATING REACTORS

Operating Reactors Licensing

Licensing Activity

The agency's nuclear reactor licensing activity ensures that civilian nuclear power reactors and test and research reactors are operated in a manner that adequately protects public health and safety and the environment while safeguarding radioactive material used in nuclear reactors.

The NRC completed 598 reactor licensing actions (value is for end of Q3 FY12, this will be updated for final PAR). The number of completed licensing action submittals has declined since 2007 because of a significant decrease in the number of licensing actions submitted to the agency. The main reason for the decrease in licensing action submittals by licensees is a result of security enhancements in response to the terrorist attacks of September 11, 2001. These enhancements required an increase in licensing action submittals by licensees. The number of licensing actions has declined as a result of the completion of the enhancements. The agency does not expect licensing action submittals to return to the FYs 2001-2007 levels.



The NRC completed 95.1 percent (end of Q3 FY12) of the licensing actions in the agency’s inventory within one year of receipt and 100 (end of Q3 FY12) percent within two years. The NRC recently began an extensive inspection and licensing effort associated with the reactivation of the Tennessee Valley Authority Watts Bar Unit 2 Nuclear Power Plant. The agency issued a construction permit for this unit in 1973; however, construction was suspended in 1985. Watts Bar Unit 1 received a full power operating license in early 1996, and is presently the last power reactor to be licensed in the U.S. the Tennessee Valley Authority (TVA) suspended construction of Watts bar unit 2 in 1985. In August 2007, TVA informed NRC of its plan to resume construction of Watts bar unit 2. In FY 2011, the NRC continued its review of the operating license application, which TVA updated in March 2009, and assigned dedicated resident inspectors to monitor TVA’s construction activities. The NRC is continuing its reviews of safety, environmental, physical security, and emergency preparedness. The current schedule calls for the NRC to complete its review efforts in 2014.

Power Uprates

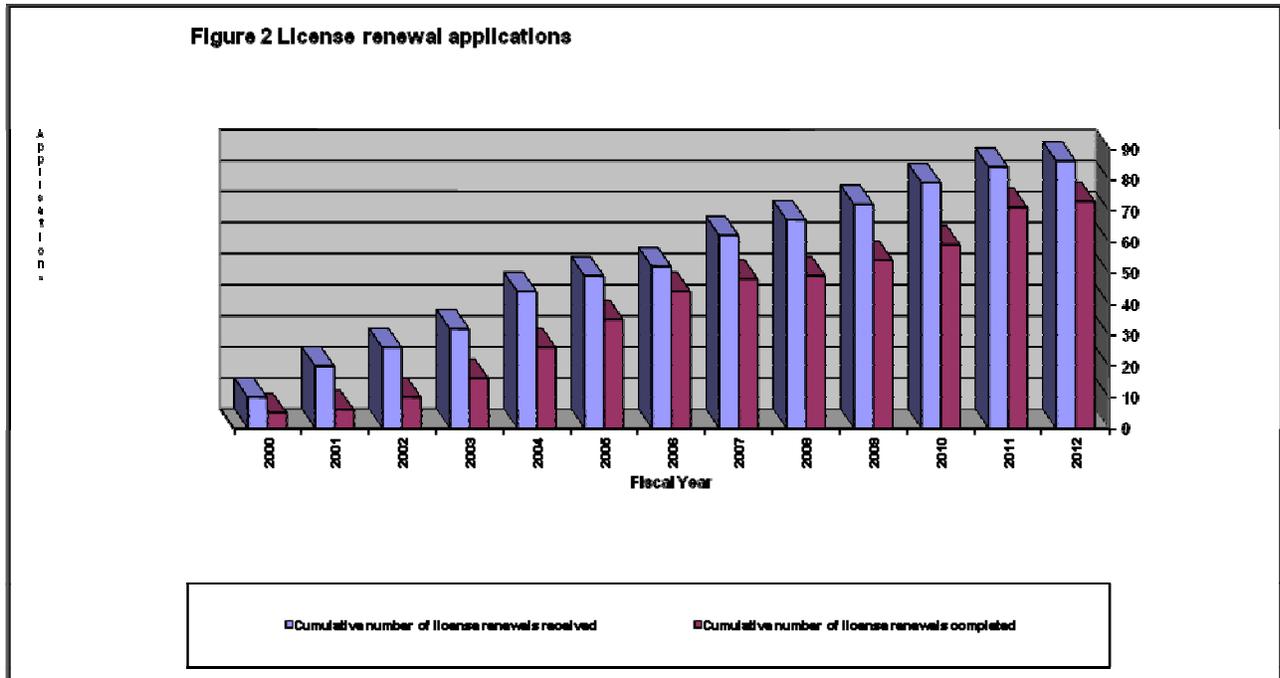
The NRC also evaluates nuclear reactor power uprate applications, which allow licensees to safely increase the power output of their plants. The NRC review focuses on the potential impacts of the proposed power uprate on overall plant safety and confirms that plant operation at the increased power level is safe. The NRC approved 5 power uprates so far in Fiscal Year (FY) 2012. NRC has approved 144 power uprates to date, representing 19,640 MWt or 6,570 MWe (the equivalent of about 6.5 large nuclear power plants). Currently, 16 plant-specific power uprate applications are under review, which would add an additional 3,421 MWt or 1,141 MWe to the nation’s electrical grid.

License Renewal

The NRC grants reactor operating licenses for 40 years, which can be renewed for additional 20-year periods. The review process for renewal applications is designed to assess whether a reactor can continue to be operated safely during the extended period. To renew a license, the utility must demonstrate that aging will not adversely affect passive, long-lived structures or components important to safety during the renewal period. Additionally, the agency assesses

the potential impacts of the extended period of operation on the environment. Inspectors travel to the nuclear power facility to verify the information in the NRC renewal application and confirm that aging management programs have been or are ready to be implemented. Following the safety review, the NRC prepares and makes available to the public a safety evaluation report.

The NRC has received applications to renew the licenses for 86 units at 51 sites since the license renewal program began in 2000 (see figure 8). It has renewed licenses for 73 units at 42 sites during that time. The NRC is currently reviewing applications to renew the licenses for 13 units at 9 sites. The agency expects that all licensees of currently licensed units will eventually apply to renew their licenses.



Operating Reactors Oversight

Nuclear Reactor Inspection

The NRC provides continuous oversight of nuclear reactors through the Reactor Oversight Process (ROP) to verify that nuclear plants are operated safely and in accordance with the agency's rules and regulations. The NRC performs a rigorous program of inspections at each plant and may perform supplemental inspections and take additional actions to ensure that the plants address significant safety issues. The NRC has at least two full-time resident inspectors at each nuclear power plant site to ensure that facilities are meeting NRC regulations. Inspectors from NRC regional offices and headquarters are also utilized in our inspection program. The NRC has full authority to take action to protect public health and safety, up to and including shutting the plant down. The NRC also conducts public meetings with licensees to discuss the results of the agency's assessments of their safety performance.

The NRC evaluates both inspection findings and performance indicators to assess the performance of each operating nuclear power plant. In FY 2011, and thus far in FY 2012, more

than 99 percent of plant performance indicators were rated green, which is the highest safety rating. In addition, the industry trend indicators for nuclear plants as a whole showed no adverse trends. The results of NRC inspection findings for each plant are documented in inspection reports and are available on the NRC Website.

(http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/listofrpts_body.html)

All of the nation's nuclear power plants operated safely. However, one plant remained in the multiple/repetitive degraded cornerstone column of the action matrix: Browns Ferry Unit 1. Fort Calhoun Station is currently under a special oversight process outside the normal performance assessment program.

Browns Ferry Unit 1 remains in the multiple/repetitive degraded cornerstone column of the action matrix since transitioning in the 1st quarter of FY 2011 because of one red finding involving the failure to establish adequate testing programs to ensure that motor-operated valves remain capable of performing their safety functions. Because their testing program was inadequate, the licensee failed to detect a valve failure that rendered loop II of the low pressure coolant injection system incapable of fulfilling its safety function. Additional inspections at Browns Ferry are ongoing.

The NRC enhanced its regulatory oversight of Fort Calhoun Station in the 1st quarter of FY 2012 to address several performance issues that were identified during an extended shutdown of the plant. Fort Calhoun Station initially shut down for a scheduled refueling outage in April 2011, but that outage was subsequently extended to address longstanding technical issues, as well as issues associated with the Missouri River flooding that affected the plant from June through September 2011. Because the identified performance issues will require additional attention, oversight of Fort Calhoun will be accordance with the guidance in Inspection Manual Chapter 0350, "Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns," rather than the normal assessment program.

The NRC assesses the ROP on a annual basis. The CY 2011 assessment confirmed that the agency's ROP met its goal of conducting an objective, risk-informed, and predictable regulatory process that focuses NRC and licensee resources on aspects of plant performance that have the greatest impact on safe plant operations. (<http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2012/2012-0055scy.pdf>) More information on reactor inspection is available on the NRC Website. (<http://www.nrc.gov/reactors/operating/oversight.html>.)

Nuclear Power Plant Review

After the accident at Fukushima Dai-chi, the Commission directed NRC staff to conduct a systematic and methodical review of NRC processes and regulations to determine whether the agency should make additional improvements to its regulatory system, and to provide recommendations to the Commission for its policy direction. The NRC's Near-Term Task Force developed recommendations related to lessons learned from the Fukushima Dai-ichi event and published its report on July 12, 2011. Following the issuance of this report, the NRC staff prioritized the report's recommendations and provided this prioritization for Commission approval in two Commission papers dated September 9 and October 3, 2011. The Commission approved the NRC staff's prioritization by Staff Requirement Memorandums dated October 18 and December 15, 2011.

For several of the recommendations deemed necessary for the staff to address without unnecessary delay: flooding and seismic walkdowns and reevaluations, mitigating strategies for beyond design basis events, reliable hardened vents for Mark I and II containments, enhanced spent fuel pool instrumentation, and emergency preparedness regulatory actions, the NRC staff initiated work to take regulatory action within one year of the Fukushima Dai-ichi event. On March 12, 2012, the NRC transmitted three orders and a request for information to all reactor licensees to address the aforementioned issues. In May 2012, the staff issued implementation guidance related to the seismic and flooding walkdowns and emergency preparedness issues addressed in the NRC's request for information. In August 2012, the staff issued implementation guidance to enable U.S. nuclear power plants to achieve compliance with each of the orders related to the implementation of mitigating strategies for beyond design basis events, installation of reliable hardened vents for Mark I and II containments, and addition of enhanced spent fuel pool instrumentation. The staff developed this guidance through engagement of stakeholders in a series of public meetings on each of the orders and request for information.

Additionally, the staff published Advance Notices of Proposed Rulemaking on March 20 and April 18, 2012, to solicit comments regarding modification of the NRC's station blackout regulation and the development of a new regulation concerning the integration of emergency operating procedures. On July 13, 2012, the staff provided the Commission with their plans for implementing longer-term activities associated with lesson learned from the Fukushima Dai-ichi event. The plans are intended to provide a roadmap for what actions or study the NRC should complete to be able to make an informed decision to either pursue further regulatory action, or to conclude that the current regulatory approach is sufficient, for each item.

Operating Reactors Rulemaking

The agency also published, in the *Federal Register*, a final rule with correcting amendments involving American Society of Mechanical Engineers (ASME) Codes and New and Revised ASME Code Cases.

Further, the agency published, in the *Federal Register*, a final rule to amend its regulations to require non-power reactor (NPR) licensees to obtain fingerprint-based criminal history records checks before granting any individual unescorted access to their facilities. This action complies with the requirements of Section 652 of the Energy Policy Act of 2005 (EPAAct), which amended Section 149 of the Atomic Energy Act of 1954, as amended (AEA), to require fingerprinting and a Federal Bureau of Investigation (FBI) identification and criminal history records checks of individuals permitted unescorted access to a utilization facility.

The NRC also undertook two regulatory actions, in the form of Advance Notice of Proposed Rulemaking (ANPR), stemming from the NRC's lessons-learned efforts associated with the March 2011 Fukushima Dai-ichi Nuclear Power Plant accident in Japan. The first ANPR began the process of considering amendments to NRC regulations addressing a condition known as station blackout (SBO). SBO involves the loss of all onsite and offsite alternating current power at a nuclear power plant. The ANPR sought public comment on specific questions and issues regarding with respect to possible revisions to the NRC's requirements for addressing SBO conditions and to develop new SBO requirements and the supporting regulatory basis. The second ANPR began the process of potentially amending its regulations to strengthen and integrate onsite emergency response capabilities. Specifically, the agency sought public comment on questions and issues regarding possible revision of the NRC's requirements for

onsite emergency response capabilities, and development of both new requirements and the supporting regulatory basis.

Operating Reactors Research

Fire Safety

The NRC has continued conducting collaborative research to develop state-of-the-art methods, data, and tools in support of regulatory activities related to fire protection and fire risk analyses. This collaborative research has included participation from the Electric Power Research Institute (EPRI), the National Institute of Standards and Technology (NIST), Sandia and Brookhaven National Laboratories, and the University of Maryland. The NRC and EPRI continue to provide training on NUREG/CR 6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities." This research has been the basis for NRC's advancement of risk-informed, performance-based fire protection requirements for facilities regulated by the agency. In FY 2012, key fire research included: hot shorting testing on DC circuits and select fire testing of grouped electrical cables to better understand their Heat Release Rate (HRR) and flame spread characteristics; performance of metal and polymeric O-ring seals used in spent fuel shipping casks in beyond-design bases temperature exercises; and the effects of smoke on electrical equipment.

Reactor Safety Code Development

The NRC uses computer codes to perform probabilistic risk assessments and evaluate thermal-hydraulic conditions, severe accidents, fuel behavior, and reactor kinetics during various operating and postulated accident conditions. Results from such analyses support decision-making for risk-informed activities, the review of licensees' codes and performance of audit calculations, and the resolution of other technical issues. Code development is directed toward improving the realism and reliability of code results and making the codes easier to use.

Radiation Protection Research

The ongoing radiation protection research program seeks to serve as an agency wide resource for technical and regulatory health physics information, including development of implementation tools for state-of-the-art techniques in radiation protection and for recommendations on health physics policy. This research supports the agency in the areas of radiation protection, dose assessment, and assessment of human health effects for reactor and nuclear materials licensing, emergency preparedness, and nuclear security activities.

Materials Degradation

The NRC continues to research materials degradation issues for currently licensed reactors and waste and decommissioning facilities. The purpose of this research is to identify susceptible materials and assess component-specific degradation mechanisms in existing reactors and waste and decommissioning facilities to ensure continued safe operation. The agency is also performing research on reactor internals to determine the effects of neutron fluence and thermal effects on the physical properties of reactor internal materials. The long-term performance of concrete and soil materials that are used to contain or restrict the movement of radioactive contaminants has been the research focus for decommissioning facilities. Cooperative work with the DOE and National Institute of Standards and Technology has been particularly effective

in improving the understanding of degradation mechanisms in concrete, and work with the U.S. Geological Survey has proved invaluable in addressing degradation in covers on waste disposal sites. The agency is also conducting research into potential technical issues, such as alkali-silicate reaction in concrete that may challenge safe operation of existing commercial nuclear power plants in potential subsequent license renewal periods.

Digital Instrumentation and Control

The NRC's research supports the licensing of new digital instrumentation and control systems intended for use in retrofits to operating reactors and for use in new and next-generation reactors. The agency is actively engaged in ongoing research involving identifying digital system failure modes and assessing digital system safety. New research projects will support development of regulatory review tools for diagnostic and prognostic applications, for review of automated software development tools, and for the potential application of the evidence-argument-claim structure (variously known as an assurance case or safety case) to systematize the safety evaluation of a complex digital instrumentation and control system.

Probabilistic Risk Assessment

The NRC continues to research the development of advanced models, methods, and tools for probabilistic risk assessment (PRA) activities that support risk-informed regulatory decision-making. Specific examples include the application of dynamic simulation methods, improved calculational approaches for PRA software, and characterization of key sources of uncertainty in PRAs. The agency continues to maintain and update the Standardized Plant Analysis Risk (SPAR) models and the Systems Analysis Program for Hands-On Integrated Reliability Evaluations (SAPHIRE) computer code in support of the agency's risk-informed programs such as the accident sequence precursor program, incident investigation program, and the significance determination process. The agency is also investigating methods to incorporate new digital instrumentation and control systems (hardware and software) into nuclear power plant risk assessments. In FY 2012, the NRC initiated a four-year project to develop a new site PRA study that will estimate the consequences of severe accidents for all modes of operation, all significant hazard categories, multi-unit considerations, and radiological sources beyond the reactor cores (e.g., spent fuel pool and dry cask storage).

Natural Hazards Research

The NRC is researching seismic hazard issues to support the siting of new reactors and the evaluation of the seismic safety of existing nuclear facilities. In cooperation with academic institutions, other federal and state agencies, and industry, the NRC is conducting a program to develop ground motion propagation and earthquake source zone models.

The NRC is also conducting a study of potential tsunami sources and the resulting potential hazards to NRC-regulated facilities in collaboration with the U.S. Geological Survey and the National Oceanographic and Atmospheric Administration. The agency is using the results of this research to inform licensing decisions and update risk assessments.

The agency is also conducting research on flooding events, including estimating the severity of natural events such as coastal storm surge from hurricanes, local inland flooding from extreme precipitation events or combinations of precipitation, dam break, and/or seasonal snow melt. The NRC is working with the U.S. Army Corps of Engineers and the Department of Interior's Bureau of Reclamation to update databases and guidance documents that are more than 30

years old to support the use of the latest analytical techniques. The Corps of Engineers is focused on the estimation of storm surge for the Gulf of Mexico and South Florida, which benefited from initiatives in their own agency's programs. The NRC, with support from the Corps of Engineers, is also involved in updating guidance on the design and evaluation of flood protection features for nuclear power plants. The agency is also updating information for selected areas of the country covered by the National Weather Service's Hydrometeorological Report 51 (HMR 51) for maximum precipitation events in the eastern U.S. where most new plants are planned, with support from the Bureau of Reclamation.

State-of-the-Art Reactor Consequence Analysis

Through the State-of-the-Art Reactor Consequence Analyses (SOARCA) project, NRC has developed an updated body of knowledge on the realistic outcomes of selected important severe reactor accidents for two pilot plants, Peach Bottom and Surry. The project combined up-to-date information about the plants' layouts and operations with local population data and emergency preparedness plans. This information was analyzed using state-of-the-art computer codes that incorporate decades of research into severe reactor accidents. NRC sought public comments on the SOARCA draft report in early 2012 and held three meetings to discuss the project with members of the public. NRC plans to finalize and issue the SOARCA Report (NUREG-1935) and supporting NUREG/CR and NUREG/BR by the end of 2012.

Human Reliability Analysis Research

The NRC continues to develop state-of-the-art human reliability analysis (HRA) methods and models. For methods analysis, the NRC has performed method benchmarking in both international and domestic studies. In addition, to develop a data basis for the HRA methods, the agency initiated a cooperative data collection activity and developed a data collection methodology/database. The NRC is currently piloting this data collection methodology at an NRC-licensed facility and soliciting collaboration with U.S. and international partners. Incorporating the lessons learned from the benchmarking and data collection activities and a fire HRA completed in 2012, the agency is developing a new HRA method for agency use.

Generic Issues Program

The NRC's Generic Issues Program enables the public and NRC staff to raise issues with significant generic safety or security implications to ensure that those potential safety and security issues are considered through an effective, collaborative, and open process, and that pertinent information is disseminated. The NRC's Generic Issues Program complies with Section 210, "Unresolved Safety Issues (USIs)," of the Energy Reorganization Act of 1974, as amended through Public Law 95-209, which required the NRC to "develop a plan providing for specification and analysis of unresolved safety issues relating to nuclear reactors." The NRC staff has processed 29 generic issues since a 2007 revision of the process for handling generic issues. The improved process has resulted in more effective and timely implementation of regulatory actions toward resolution.

Operating Reactors International Activities

As committed to at the April 2011 Review Meeting of Contracting Parties to the Convention on Nuclear Safety (CNS), including the extraordinary meeting to discuss the effects of the March 2011 earthquake and tsunami in Japan on the Fukushima nuclear power plant, the NRC is preparing for the August 2012 Extraordinary Meeting of CNS Contracting Parties on lessons learned from Fukushima.

New arrangements of cooperation and assistance were signed with the regulatory bodies in India, Russia, Thailand, and Turkey, and the nuclear research organization in Germany. Existing arrangements were renewed with the regulatory bodies of Armenia, Bulgaria, Canada, Hungary, Mexico and Switzerland.

The agency continues an active program for bilateral cooperation and assistance. For example, in the area of cooperation, the agency continued bilateral technical exchanges with China on the regulatory aspects for the first-of-a-kind design, construction, and future initial operation of AP-1000 nuclear power plants in China.

The staff continues to benefit from frequent dialogue with its counterparts in a multinational context, including exchanges of information, best practices, and global lessons learned. The NRC also benefits from the participation in the IAEA standards development process, which enables the staff to influence international guidance and consider improvements in the domestic regulatory regime.

Representatives from a variety of NRC offices participate in IAEA safety standards committees, the IAEA Commission on Safety Standards (CSS), the Nuclear Energy Agency (NEA) Steering Committee, NEA technical committees and associated working groups, and numerous ongoing NEA research activities and International Atomic Energy Agency (IAEA) safety, security and safeguards activities. The staff works closely to promote a complementary relationship between the activities of each organization and discourage duplication.

The staff continues to be successful in influencing the content of IAEA safety and security documents as well as the IAEA's approach to document development. Consistent with NRC's regulations and operating practices, the staff has supported a strong safety/security interface at the IAEA, including a comprehensive process for document development with a rigorous and effective review by senior international technical experts. NRC staff participates in approximately 100 IAEA meetings each year on a variety of technical topics.

NRC continued expansion of engagement on establishing a basic regulatory infrastructure needed for oversight of nuclear power program with additional countries of Africa, Europe, the Middle East, and Southeast Asia. The NRC also strongly supports the IAEA's peer review services, having hosted both an Integrated Regulatory Review Service (IRRS) mission and numerous Operational Safety Review Team (OSART) missions in the United States and providing senior experts to participate in missions in other countries. The most recent U.S. OSART was held at the Seabrook Station in New Hampshire in June 2011 with a follow-up mission planned for FY-2013, and the NRC has recently submitted a letter to IAEA formally requesting an IRRS follow-up mission in the U.S. in 2014.

Following the Fukushima accident, the NRC has collaborated closely with other U.S. Government agencies in support of the IAEA's Action Plan for Nuclear Safety. The staff has

participated in each of the topical International Experts Meetings (IEM) that IAEA has organized under the Plan. The NRC has also supported other U.S. Government agencies in making commitments in support of the IAEA at a ministerial level.

The NRC continues to benefit from its work at the NEA and holds leadership positions in a number of NEA committees and working groups. The NEA's membership is comprised of countries with mature nuclear programs and regulatory organizations, which facilitates beneficial dialogue on detailed technical topics. The NEA's research activities enable multiple countries to benefit from research conducted in a single location, which promotes cooperation and efficient use of limited resources. Some of the most significant work is done with the Halden Reactor Project, a program of research covering a broad range of areas including fuels, materials, digital systems, human factors, and human reliability. The Halden facility is a diverse center of excellence, unique in the nuclear arena.

Operating Reactors Event Response

The NRC's emergency preparedness and incident response activities ensure that adequate measures can and will be taken to mitigate plant events, to minimize possible radiation doses to members of the public, and to ensure that the agency can respond effectively to events at licensee sites.

The NRC has focused its emergency preparedness activities regarding the Fukushima Dai-ichi response on the NRC's Near Term Task Force (NTTF) Recommendation 9.3, which addresses communications and staffing. The NTTF was created by the Commission to evaluate lessons learned from the Fukushima accident. The staff engaged stakeholders in a series of public meetings to inform the development of the request for information letters regarding NTTF Recommendation 9.3. The NRC issued these letters to all licensees to better understand the existing capabilities and plans for staffing and emergency communications and to determine if any regulatory actions would be warranted. The specifics of the letters focused on licensees assessing their current communications systems and equipment used during an emergency event and determining whether enhancements are necessary to ensure facilities are prepared to handle a prolonged, multiunit station blackout (SBO), and to assess their current staffing levels to determine the staff needed to fill all necessary positions for responding to a multiunit event during a beyond-design-basis natural event. The staff will evaluate the responses to the letters and recommend the need for further regulatory action.

The NRC was actively involved in several exercises. The agency participated in the national level exercise series (NLE 12), the annual continuity of operations exercise (Eagle Horizon 12) for Federal executive branch departments and agencies, and in several exercises with licensed facilities and affected States as a part of NRC's ongoing response readiness program.

On August 30, 2011, the Commission approved the final rule providing for enhancements to emergency preparedness at nuclear power plants. The final rule was published in the *Federal Register* on November 23, 2011, and became effective on December 23, 2011. In conjunction with the Federal Emergency Management Agency (FEMA), five forums were held around the country from November 2011 through February 2012 to provide licensees, state, local, and tribal emergency planning personnel with information on implementation of the emergency preparedness rule changes and associated NRC and FEMA emergency preparedness guidance changes.

In April 2012, NRC and FEMA commenced a multi-year initiative to revise NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," one of the key guidance documents for developing and evaluating onsite and offsite emergency plans for nuclear power plants, and state and local governments. Extensive stakeholder involvement will be provided throughout the revision process, starting with two public meetings in **[August and September 2012 – confirm at Final Data Call]** to obtain stakeholder input on emergency planning guidance topics and issues that should be addressed in the revised document.

Consistent with its policy to provide States with potassium iodide as requested, the NRC worked with states to replenish potassium iodide supplies to be used as a supplement to public protective actions within the 10-mile emergency planning zones around nuclear power plants.

The NRC completed its modernization of the Emergency Response Data System, which transmits real-time information from nuclear power plants to the NRC and state operations centers during declared emergencies. The modernization of this system enhances cyber security and reliability and includes improvements to the user interface.

NEW REACTORS

The NRC reviews applications for new reactor facilities submitted by prospective licensees and issues standard design certifications, early site permits, limited work authorizations, construction permits, operating licenses, and combined licenses, when appropriate. At present, the NRC anticipates that these activities will involve new light water reactor facilities in a variety of projected locations throughout the United States.

New Reactors Licensing

New Reactor Design Certification

The NRC issued two design certification (DC) amendments and continued reviewing three DC applications. By issuing a DC, the NRC approves a nuclear power plant design independent of an application to construct or operate a plant. A DC is valid for 15 years from the date of issuance, but can be renewed for an additional 10 to 15 years.

The agency issued DC amendments for the Westinghouse Advanced Passive (AP) 1000 and for the Advanced Boiling-Water Reactor (ABWR) DC amendment. The purpose of the AP1000 DC amendment was to replace some combined license (COL) information items and design acceptance criteria (DAC) with specific design information, address the requirements in 10 CFR 50.150 (the Commission's aircraft impact rule), incorporate design improvements, and increase standardization of the design. The purpose of the ABWR amendment was to address the requirements in 10 CFR 50.150, the Commission's aircraft impact rule. The NRC continued reviewing DCs for the General Electric Economic Simplified Boiling-Water Reactor Design (ESBWR), the AREVA Evolutionary Power Reactor, and Mitsubishi's U.S. Advanced Pressurized-Water Reactor. The NRC began reviewing two design certification renewals for the ABWR.

Early Site Permits

The NRC approves the site for a nuclear facility by issuing an Early Site Permit (ESP). ESPs are valid for 10 to 20 years and can be renewed for an additional 10 to 20 years. The NRC review of an ESP application addresses site safety issues, environmental protection issues, and plans for coping with emergencies, independent of the review of a specific nuclear plant design.

The NRC continued its safety and environmental reviews of two ESP applications that were submitted in FY 2010. Specifically the two early site permits that are in review are the Victoria County Station ESP application submitted by Exelon Nuclear Texas Holdings, LLC, for a site located in Victoria County, TX, and by PSEG power, LLC, for a site adjacent to the Salem and Hope Creek Generating Stations now in operation in Lower Alloways Creek, Salem County, NJ. The NRC initiated pre-licensing activities for the Blue Castle ESP application expected in FY 2013.

Combined Operating License

A COL authorizes construction and operation of a nuclear power plant. The application for a COL must contain essentially the same information required in an application for an operating license, including financial and antitrust information and an assessment of the need for power. The application must also describe the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) that are necessary to ensure that the plant has been properly constructed and will operate safely.

The NRC has two objectives for the review of COL applications. The first objective is to ensure that the proposed new reactor designs and planned operations will be in accordance with NRC regulations for safety, security, and the environment. The second objective is that the reviews will be completed on the schedules negotiated with applicants. In FY 2012, the NRC issued the first-ever COLs for Vogtle and V.C. Summer along with a limited work authorization for Vogtle. To date, the agency has docketed 16 other COL applications that have been filed by the nuclear power industry for sites across the country. Ten of the sixteen applications are being actively reviewed. In response to applicant requests, the agency has suspended the reviews of the other six applications: Grand Gulf, Victoria County Station, Callaway, Nine Mile Point, River Bend, and Bellefonte Units 3 & 4. One of these applicants submitted an ESP application for a site located in Victoria County, TX, as noted above, and requested that the Victoria County Station COL be withdrawn after the acceptance of the ESP application. The agency did not receive any new COL applications in FY 2012. In FY 2012, the NRC completed the environmental review of the Levy County COL application through the issuance of the final environmental impact statement.

The NRC continued to enhance the regulatory framework for COLs to clarify requirements for licensees. The NRC issued the following two Interim Staff Guidance (ISG) documents for COLs: (1) ISG 22: "Impact of Construction (under a Combined License) of New Nuclear Power Plant Units on Operating Units at Multi-Unit Sites," (issued final); and (2) ISG-25: "Changes During Construction Under Title 10 of the Code of Federal Regulations Part 52," (issued for use and comment). The NRC also issued the following five Standard Review Plan (SRP) Section Updates: (1) SRP 8.1, "Electric Power – Introduction," (issued final); (2) Branch Technical Position (BTP) 8-8, " Onsite Emergency Diesel Generator and Offsite Power Sources Allowed Outage Time Extensions," (issued final); (3) SRP 19.1, "Determining the Technical Adequacy of Probable Risk Assessment Results for Risk-Informed Activities"; (4) BTP 7-19, "Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems,"(issued final); and (5) SRP 19.5, "Adequacy of Design Features and

Functional Capabilities Identified and Described for Withstanding Aircraft Impacts,” (issue draft for comment).

New Reactors Oversight

NRC has in place the structure and procedures required to conduct new reactor construction oversight for plants licensed under 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” and has begun executing construction inspection activities for Vogtle Units 3 & 4 and V. C. Summer Units 2 & 3. The process for oversight of new reactor construction has been documented in Inspection Manual Chapters (IMCs) and inspection procedures. The staff has issued all necessary inspection procedures, drafted inspection plans and generic inspection schedules, and developed information technology systems to capture inspection results and track ITAAC closure. The NRC continues to make significant progress in the development and improvement of programs and procedures to support the inspection of activities occurring later in construction. These include procedures such as those required for inspection of licensee operational readiness. These remaining procedures are in development and will be completed in time to support the inspection requirements for those applicants with the earliest construction schedules.

The NRC staff continues to refine its approach to ITAAC closure and maintenance of closed ITAAC submittals. The staff held several public workshops to solicit input and exchange views related to ITAAC completion, closure documentation, and ITAAC maintenance. Supported by the discussions in these workshops, the NRC staff has developed and issued Regulatory Guide 1.215, “Guidance for ITAAC Closure Under 10 CFR Part 52.” This regulatory guide endorses the industry guidance for ITAAC closure as documented in NEI 08-01, “Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52.”

NRC Region II in Atlanta Georgia has established and staffed resident inspector’s offices at both Vogtle and V. C. Summer construction sites. Each office now has a construction senior resident inspector and two construction resident inspectors. In addition, the region sends construction inspectors from the NRC Atlanta office to inspect construction activities at the sites. Both Vogtle and V. C. Summer are fully engaged in construction activity. This year, Vogtle Units 3 & 4 and V. C. Summer Unit 2 construction activities were primarily focused on the construction of the nuclear island and the fabrication of primary containment and structural modules. NRC commenced inspections of licensee activities related to ITAAC including inspection of the licensees’ quality assurance programs, welding, security, and civil engineering activities.

Starting in January 2011, the staff transitioned to an annual performance review cycle. The NRC completed the first annual end-of cycle review that covered construction activities from January through December of 2011. The results of the construction assessment program were also discussed at the 2012 Agency Action Review Meeting. Plant performance for Vogtle Units 3 & 4 for both review periods were within established parameters based on all inspection findings being categorized at Severity Level IV or minor violations. The construction assessment process was initiated for Summer Units 2 & 3 in March 2012 with the issuance of the COL.

The NRC maintains a regular schedule of vendor inspections and an active program of international cooperation to support increased fabrication activities domestically and internationally in response to new reactor construction plans. The agency conducts these

inspections to ensure the effective implementation of quality assurance program requirements imposed on vendors by NRC applicants and licensees. This fiscal year, inspection activities were mostly focused on type-testing and equipment qualification testing facilities to inspect AP1000 technology development and construction activities of which the NRC completed 26 inspections.

Additionally, international cooperative efforts have included technical discussions with foreign regulatory counterparts, sharing vendor experience and other information with other countries, NRC inspector rotations to facilities under construction in other countries, and participation in the Multinational Design Evaluation Program (MDEP) and CNRA Working Group on the Regulation of New Reactors. Exchanges such as these have provided key insights into each country's methods of oversight and have enabled the agency to build a foundation of trust and a rapport for communicating and sharing key information and findings.

New Reactors Rulemaking

The Commission affirmed the Westinghouse AP1000 DC amendment final rule on December 22, 2011, and it became effective on December 30, 2011. In addition, the Advanced Boiling Water Reactor (ABWR) Aircraft Impact Assessment DC amendment became effective on January 17, 2012.

The NRC also developed a rulemaking to amend the regulations related to the verification of nuclear power plant construction activities through ITAAC under a COL. The new provisions in the amended rule require a licensee to report new information materially altering the basis for determining that inspections, tests, or analyses were performed as required or that acceptance criteria were met, and to notify the NRC of completion of all ITAAC activities. The final rule and revision 1 of RG 1.215 (Draft Regulatory Guide 1250), "Guidance for ITAAC Closure under 10 CFR Part 52," was published [**date to be provided – Final Data Call**].

New Reactors Research

The NRC continued to see growing commercial interest in the development and deployment of small modular reactors (SMRs). The NRC continued its efforts to prepare for the future reviews of SMR design and licensing applications. These preparation efforts include pre-application activities with vendors, development of the regulatory framework to support reviews of these new designs, and extensive outreach to external stakeholders.

The NRC held 20 pre-application meetings with SMR vendors to discuss technical topics associated with these designs. The NRC also conducted reviews of both technical and topical reports submitted by SMR vendors. The NRC expects that these activities will continue as vendors move closer to finalizing and submitting SMR applications for review.

The NRC made significant progress towards developing the regulatory framework to support SMR reviews. During this fiscal year, the NRC issued papers outlining approaches to resolve policy issues facing SMRs: (1) SECY-11-0184, "Security Regulatory Framework for Certifying, Approving, and Licensing Small Modular Nuclear Reactors," dated December 29, 2011;

(2) SECY-11-0181, "Decommissioning Funding Assurance for Small Modular Nuclear Reactors," dated December 22, 2011; (3) SECY-11-0178, "Insurance and Liability Regulatory Requirements for Small Modular Reactor Facilities," dated December 22, 2011; (4) SECY-11-

0156, "Feasibility of Including Risk Information in Categorizing Structures, Systems, and Components as Safety-Related or Nonsafety Related," dated November 2, 2011; and (5) SECY-11-0152, "Development of an Emergency Planning and Preparedness Framework for Small Modular Reactors," dated October 28, 2011. The NRC will continue its efforts to support timely resolution of these issues. The NRC has also made significant progress in the development of review guidance for the Babcock and Wilcox (B&W) mPower design. This review guidance is design specific, incorporates lessons learned from large light water reactor reviews, and incorporates risk insights to ensure effective and efficient reviews.

Consistent with the Department of Energy's (DOE's) decision not to proceed with phase 2 design activities for the Next Generation Nuclear Plant (NGNP), the NRC is no longer preparing for the future review of a high temperature gas-cooled reactor under this program. Instead, the NRC has been coordinating with DOE on the resolution of some of the technical and policy issues identified under the NGNP project for generic applicability to other non-light water reactor technologies.

New Reactors International Activities

The NRC continues to support the development and implementation of programs to leverage the knowledge and resources within the international regulatory community in the licensing of new reactor designs. The agency continued its leadership role in the Multinational Design Evaluation Program (MDEP), through which regulatory authorities in 11 countries share expertise and resources in reviewing new reactor designs. The program consists of three issue-specific and three design-specific working groups. The NEA serves as technical secretariat for MDEP. The Digital Instrumentation and Controls Working Group, led by the United States, drafted common positions in digital instrumentation and controls system design. The Vendor Inspection Cooperation Working Group conducted several parallel inspections that involved more than one regulator and the Codes and Standards Working Group is completing a project to compare the pressure boundary codes of five member countries. The design-specific working groups, based on the Westinghouse AP1000 and the AREVA evolutionary power reactor designs, also established sub-working groups. Two additional design specific working groups are in the process of being formed for the Veda-Vodyanoi Energetichesky Reaktor and APR-1400 designs. The Policy Group, which is the governing body of the program, modified the MDEP terms of reference to establish a process for additional countries to join. The revised terms of reference provides for two new types of membership, associate members and an MDEP candidate.

FUEL FACILITIES

Fuel Facilities Licensing

The NRC licenses and inspects all commercial nuclear fuel facilities that process and fabricate uranium concentrates into the reactor fuel that powers the nation's nuclear reactors. Licensing activities include detailed health, safety, safeguards, and environmental licensing reviews of licensee programs, procedures, operations, and facilities to ensure safe and secure operations.

The agency completed the review for the AREVA Enrichment Services license application for the Eagle Rock Enrichment Facility. The agency found the record sufficient and the staff review adequate to support 10 CFR 30, 40 and 70 findings for license approval. The mandatory

hearing for the Final Environmental Impact Statement (FEIS) was held in July 2011 in Idaho Falls, and the license was issued to AREVA in October 2011.

The agency completed the review for the General Electric-Hitachi license application for the Wilmington laser enrichment facility, and issued the Safety Evaluation Report (SER) and FEIS in February 2012. The NRC staff concluded that the license application provides an adequate basis for safety and safeguards and that the operations from the proposed activities will not pose an undue risk to worker or public health and safety. The staff conducted a public meeting on May 10th in Wilmington to discuss its findings in the FEIS and SER. The mandatory hearing was held in July 2012 in Rockville, MD. The Atomic Safety and Licensing Board (ASLB) is scheduled to make its determination by **[August 2012 – verify at Final Data Call]**. If a positive determination is made, staff expects to issue the license in **[September 2012– verify at Final Data Call]**.

In December 2010, the agency issued the final Safety Evaluation Report for the license application by Shaw AREVA MOX Services, LLC, to possess and use radioactive material at the mixed-oxide fuel fabrication facility at the DOE's Savannah River Site near Aiken, SC. The SER was reviewed and approved. The licensing hearing was held on March 7-9, 2012. The ASLB made a ruling on June 29, 2012. In that ruling the ASLB determined that additional information is needed from the applicant before the disposition of the contentions can be made.

A byproduct of uranium enrichment is depleted (i.e., reduced in the uranium 235 isotope) uranium hexafluoride. In May 2012, the agency issued the Safety Evaluation Report for the license application by International Isotopes Fluorine Products (IIFP) to construct and operate a facility to convert depleted uranium hexafluoride into an oxide form for ultimate disposal and to recover the fluorine for other commercial applications. The SER for IIFP was completed in May 2012 as NUREG-2116. The FEIS is on schedule to be completed as NUREG-2113 by the end of **[August 2012 – verify at Final Data Call]**. If approved, the license can be issued in **[September 2012– verify at Final Data Call]**. Operations are scheduled to begin in the fall of 2013.

Fuel Facilities Oversight

The NRC's fuel cycle oversight process consists of both planned and reactive inspections with enforcement and periodic assessments based on the findings of these inspections. The agency has full authority to take action to protect public health and safety, up to and including, shutting down the facility.

During an inspection of the Honeywell Metropolis Works facility, the inspectors identified concerns about the adequacy of the licensee's emergency response plan, required by 10 CFR Part 40.31. Specifically, the inspectors identified that the uranium hexafluoride (UF₆) and hydrogen fluoride (HF) source terms used in the licensee's emergency response plan were potentially non-conservative. In response to the inspection, the licensee has conducted an initial analysis and concluded that changes to the emergency plan or facility modifications may be needed and has agreed to remain shut down until this concern has been adequately addressed.

Investigation and Enforcement

The NRC will not permit licensees to conduct licensed activities if they cannot achieve and maintain adequate levels of safety and security. The agency assesses compliance, undertakes enforcement actions, and investigates potential willful violations. For fuel facilities, the agency has conducted eight open investigations of potential willful wrong-doing and four escalated enforcement actions.

Fuel Facilities Rulemaking

In response to sustained industry interest in reprocessing spent nuclear fuel, the NRC continued to work on developing a technical basis for rulemaking to establish the regulatory framework for licensing a reprocessing facility. In FY 2009, the agency completed a review to identify and prioritize gaps in the existing regulations. During FY 2012, the agency continued to define the technical basis needed to support the development of proposed regulations to resolve the identified gaps and establish an effective and efficient regulatory framework.

The NRC continues to conduct rulemakings to secure special nuclear material. In FY 2009, the agency began an initiative to revise and consolidate the regulations for material control and accounting of special nuclear material. During FY 2010, staff started developing the draft rule text. This work continued in FY 2012, and the draft text is expected to be released for public comment in early FY 2013.

A proposed rule and draft guidance to require an Integrated Safety Analysis (ISA) for certain Part 40 facilities was published in the Federal Register on May 17, 2011. The public comment period ended in September 2011 and the staff considered public comments for the proposed Draft Final Rule. The Draft Final Rule is currently with the Commission for consideration.

NUCLEAR MATERIALS USERS

The NRC licenses and inspects the commercial use of nuclear material for industrial, medical, and academic purposes. Commercial uses of nuclear materials include medical diagnosis and therapy, medical and biological research, academic training and research, industrial gauging and nondestructive testing, production of radiopharmaceuticals, and fabrication of commercial products (such as smoke detectors) and other radioactive sealed sources and devices. The agency currently regulates about 3,000 specific licensees for the use of radioactive materials. Under NRC's Agreement State program, 37 States assumed regulatory responsibility over approximately 19,200 licenses for the industrial, medical, and other users of nuclear materials in their States. The agency reviews the Agreement State programs as well as certain NRC licensing and inspection programs through the integrated materials performance evaluation program.

Detailed health and safety reviews of license applications, as well as inspections of licensee procedures, operations, and facilities, provide reasonable assurance of safe operations and the production of safe products. The NRC routinely inspects nuclear material licensees to ensure that they are using nuclear materials safely, maintaining accountability of those materials, and protecting public health and safety. The agency also analyzes operational experience from NRC and Agreement State licensees and regularly evaluates the safety significance of events reported by licensees and Agreement States.

Nuclear Materials Users Licensing and Oversight

The NRC completed 2,104 materials licensing actions and 1,010 routine health and safety inspections. The agency maintained its high standards with timely reviews of nuclear material license renewals and sealed-source and device designs. The agency completed 96 percent of new application and license amendment reviews within 90 days of receipt and 97 percent of license renewal and sealed-source and device design reviews within 180 days of receipt.

Nuclear Materials Users Rulemaking

The NRC amended its regulations that govern the licensing and distribution of byproduct materials aimed at making regulations clearer, more risk-informed, and up-to-date. An agency working group continued development of a proposed rule on 10 CFR Part 35. The rule will address: modifying preceptor attestation requirements; extending grandfathering to certified individuals that were named in part 35 prior to October 25, 2005; naming associate or assistant radiation safety officers on an NRC medical-use license; and a likely change in the definition of a medical event including revised reporting and notifications of medical events for permanent implant brachytherapy. The proposed rule is expected to be published in FY 2013 for public comment.

In addition, the agency also conducted outreach with stakeholders and licensees on issues related to issuing guidance on how to classify waste for disposal and potential draft rule language for a proposed change to 10 CFR part 61 for site evaluation prior to receiving either long-lived or blended wastes.

The NRC staff provided a final rule to the Commission on general license provisions for source material.

The NRC continued public outreach on possible changes to the radiation protection regulations in 10 CFR Part 20 that would increase alignment with international radiation protection recommendations. The staff provided the Commission with staff recommendations on the direction to pursue for a series of technical issues. The staff recommended that the Commission approve the staff continuing to expend resources to develop a detailed regulatory basis for proposed rulemaking.

Nuclear Materials Users International Activities

The NRC issued final rules updating 10 CFR Part 110, "Export and Import of Nuclear Equipment and Material," to reflect the nuclear non-proliferation policy of the Executive Branch regarding U.S. Government obligations to the IAEA and to remove Oman from the list of restricted destinations.

The NRC completed reviews for, and issued as appropriate, 175 import/export licensing actions, [TBD] reviews of executive branch proposed subsequent arrangements, and [TBD] reviews of Executive Branch Proposed Part 810 approvals. NRC participated in [TBD] U.S. interagency bilateral physical protection visits to support export licensing. The NRC's import/export licensing reviews ensure that nuclear equipment and material are transferred to authorized parties consistent with applicable U.S. law and international obligations.

The NRC continued the program of assistance to the countries of Latin America and the former Soviet Union for regulatory controls over radioactive materials, including the establishment or

enhancement of national source registries, and review of national legislation. NRC also began expansion of sources-related assistance to countries of the Middle East. In January 2012 the NRC funded a second 9-month-long post-graduate program for radiation protection officers in Panama.

The NRC conducted workshops on the Physical Protection of Radioactive Sources in the Dominican Republic and in Tunisia for the Arab Atomic Energy Agency (regional workshop for 11 Arab countries). A workshop in Uruguay is planned in the fall of 2012.

The NRC is engaged both domestically and internationally in efforts to enhance nuclear safety and security through the regulatory oversight of radioactive sources. The staff has participated in numerous meetings of technical and legal experts on the IAEA's Code of Conduct for the Safety and Security of Radioactive Sources, both to ensure that its implementing guidance is clear and accurate and to encourage Member States which have not yet made a political commitment to implement the Code to do so. The agency also worked with other U.S. Government agencies, such as the Department of State, Department of Energy, Department of Commerce, the National Security Council Staff, and the IAEA to develop international security guidance documents for radioactive sources.

SPENT FUEL STORAGE AND TRANSPORTATION

The NRC ensures that spent nuclear fuel is safely stored and transported. The agency conducts licensing and certification reviews to ensure that spent fuel storage facility and cask designs and domestic and international shipments of spent fuel and other risk-significant radioactive materials are safe and secure and comply with agency regulations.

Shipments of radioactive materials are safely and securely transported each year within the United States. Several federal agencies share responsibility for regulating the safety and security of those shipments. The NRC closely coordinates its transportation-related activities with those of the U.S. Department of Transportation and, as appropriate, DOE. The agency inspects vendors, fabricators, and licensees using transport packages, spent fuel storage casks, and interim storage of spent fuel both at and away from reactor sites to help ensure the safety and security of spent fuel storage and transportation.

Spent Fuel Storage and Transportation Licensing and Oversight

The NRC completed 42 transport package designs and 17 storage cask and facility license reviews. The review of transportation and interim storage licensing requests ensures that shipments are made in NRC-approved packages that meet rigorous performance requirements and verifies that spent fuel is safely stored, thereby enabling continued reactor and decommissioning operations. The agency also conducted 13 inspections of activities related to radioactive material package certificate holders, spent fuel storage cask certificate holders, and inspections at independent spent fuel storage facilities to ensure that casks are being designed, fabricated, and used according to approved safety requirements.

Spent Fuel Storage and Transportation Rulemaking

The agency developed a plan for integrating spent nuclear fuel regulatory activities to more effectively address the regulatory and licensing aspects of extended storage and transportation

(i.e., greater than 120 years), reprocessing, and disposal of spent nuclear fuel and high-level waste. The purpose of the plan is to ensure that the regulation of the back end of the fuel cycle accomplishes safety, security, and environmental protection in an efficient and effective manner and that decisions made about one component or area of this system adequately consider other components or areas (i.e. treating spent fuel and high-level waste regulation as a system of interrelated activities). By coordinating the approach for regulation of spent nuclear fuel or high-level waste storage, potential reprocessing, transportation, and disposal, the agency can improve the efficiency and effectiveness of NRC regulatory processes and provide stability and predictability for stakeholders in a dynamic environment.

The Commission approved a final rule amending the security requirements for irradiated fuel in transit in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 73. This rule establishes generically applicable security requirements similar to the requirements currently imposed by NRC Order EA-02-109, "Issuance of Order for Interim Safeguards and Security Compensatory Measures for the Transportation of Spent Nuclear Fuel Greater than 100 Grams." This rule also establishes acceptable performance standards and objectives for the protection of spent nuclear fuel shipments from theft, diversion, or radiological sabotage. Additionally, this rule addresses, in part, a 1999 petition for rulemaking from the State of Nevada (PRM-73-10) that requested the NRC strengthen its regulations governing the security of spent nuclear fuel shipments against malevolent acts.

The NRC amended its regulations governing packaging and transportation of radioactive material and physical protection of plants and materials. The amendments require licensees to provide advance notification to participating Federally recognized Tribal governments regarding shipments of irradiated reactor fuel and certain nuclear wastes for any shipments that passes within or across their reservations. The rule extends to Tribal officials, his or her designee, and Tribal law enforcement personnel relief from fingerprinting requirements required for access to Safeguards Information (SGI). The participating Tribal government is required to protect the shipment information as SGI.

The NRC also began a comprehensive review of the spent fuel storage and transportation regulatory programs to evaluate their adequacy for ensuring safe and secure storage of spent fuel for extended periods beyond 120 years, including research to enhance the regulatory framework in support of extended periods.

Spent Fuel Storage and Transportation Research

The NRC provided resources to continue research on technical issues associated with very long-term dry spent fuel storage, such as concrete degradation, weld corrosion, impacts of high-burn up and mixed oxide fuels, climate change impacts on cask performance, transportability of fuel after long term storage and the need for an improved hazards assessment, including the potential impact of long-term storage on eventual disposal.

NRC staff continues research efforts to address the safe long term storage of spent nuclear fuel. The technical bases for extended storage and transportation are being strengthened to ensure environmental effects and material property changes do not affect the safety of licensed dry cask storage systems.

Spent Fuel Storage and Transportation International Activities

In May 2012, the NRC was on the U.S. Government delegation to the Review Meeting of Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management. In May 2012, the NRC also supported the U.S. Government delegation to the Preparatory Committee for the Nuclear Non-Proliferation Treaty.

DECOMMISSIONING AND LOW-LEVEL WASTE

Decommissioning removes radioactive contamination from buildings, equipment, ground water, and soil, achieving levels that permit the release of the property while protecting the public. The NRC terminates the licenses for decommissioned facilities after the licensees demonstrate that the residual onsite radioactivity is within regulatory limits and sufficiently low to protect the health and safety of the public and the environment. Completion of decommissioning, environmental, and performance assessment activities ensures that residual radioactivity does not pose an unacceptable risk to the public.

Decommissioning Oversight

The NRC has completed decommissioning at 20 materials sites and nine power or research reactors for a total of 29 sites since 2006. The agency oversaw decommissioning activities at approximately 85 power and early demonstration reactors, research and test reactors, uranium recovery sites, complex materials sites, and fuel cycle facilities. Additionally, the NRC published a final rule amending its regulations to improve decommissioning planning and thereby reducing the likelihood that a current operating facility will become a legacy site. The agency continued its activities at military sites with Radium-226 and Army sites with depleted uranium contamination from military munitions. The agency continued its emphasis on the oversight decommissioned of legacy uranium recovery sites and began several initiatives to improve the program, including updating guidance and enhancing communication with DOE, States, Native American Tribes, and stakeholders.

Uranium Recovery Licensing and Oversight

The NRC conducts regulatory oversight at eight operational uranium recovery sites and reviews and approves, if regulations are met, the applications for new, restarting, or expanding uranium recovery facilities. The agency had seven applications for new, restarts, or expanding uranium recovery facilities, and two license renewal applications in-house. The agency worked on seven of those applications, as two of the applications were withdrawn. These reviews included both safety and environmental reviews.

Uranium Recovery International Activities

The NRC held the third in a series of uranium recovery workshops for international counterparts through its international assistance program activities in Tanzania. Regulatory bodies from 16 African countries were represented. The focus of the workshop was to assist countries which are initiating or restarting uranium recovery regulatory programs. The overall goal of the workshop was to provide information on regulatory development, licensing, regulatory oversight, and prevention of legacy sites when uranium production ceases.

NRC also participated in a uranium safety and security workshop in Namibia that was organized and supported by the Departments of State and Energy, the IAEA, and the European Commission. Staff participated and delivered a presentation at the workshop on U.S. regulatory practices for uranium recovery and decommissioning. Commissioner Svinicki was invited to be the keynote speaker on the first day of the workshop.

Low-Level Waste Licensing and Oversight

The NRC conducts regulatory activities to help ensure the safe management and disposal of low-level radioactive waste generated by radioactive material users, nuclear power plants, and other NRC licensees. The agency performed monitoring visits and issued reports for the DOE's Savannah River Site Saltstone facility and the Idaho National Laboratory. In addition, the agency also conducted outreach with stakeholders and licensees on issues related to issuing guidance on how to classify waste for disposal and potential draft rule language for a proposed change to 10 CFR Part 61 for site evaluation prior to receiving either long-lived or blended wastes.

Research Activities

The NRC's safety research program evaluates and resolves safety issues for nuclear power plants and other facilities and materials that the agency regulates. The agency conducts its research program to evaluate existing and potential safety issues; supply independent expertise, information, and technical judgments to support timely and realistic regulatory decisions; reduce uncertainties in risk assessments; and develop technical regulations and standards. When possible, the agency engages in cooperative research with other government agencies, the nuclear industry, universities, and international partners.

The NRC research program addressed key areas that support the agency's safety mission. Some of the more important issues addressed include: verification and validation of fire safety models; evaluation of material degradation of reactor system and pressure boundary components, especially as it relates to license renewal periods; material degradation research on decommissioning facilities focused on long-term performance of concrete and soil materials used as barriers; evaluation of digital systems to analyze failure modes; research on hazards from natural events, including seismic hazard issues, flooding, and tsunami events; advanced reactor research; development of advanced tools for probabilistic risk assessment activities that support risk-informed regulatory decision-making; severe reactor accident consequence analyses, and maintaining the NRC's Generic Issues Program.

International Activities

The NRC's international responsibilities include participation in activities that support U.S. Government compliance with international treaties and agreements; export and import licensing of nuclear facilities, equipment, and materials; programs of bilateral nuclear cooperation and assistance; and multinational nuclear safety organizations such as the International Atomic Energy Agency (IAEA) and the organization for economic co-operation and development's nuclear energy agency (NEA). The agency is also the U.S. representative to the IAEA's radiation, waste, transportation and nuclear safety standards committees and NEA's technical standing committees.

STRATEGIC GOAL 2: SECURITY

Ensure Adequate Protection in the Secure Use and Management of Radioactive Materials

STRATEGIC OUTCOME

The NRC has the following strategic outcome associated with its goal to ensure the secure use and management of radioactive materials:

- Prevent any instances where licensed radioactive materials are used domestically in a manner hostile to the security of the United States.
- Prevent unauthorized public disclosures of classified or safeguards information through quality measures.

The strategic outcome specifies the condition that must be met for the agency to achieve its Security goal. In FY 2012, the NRC achieved its Security goal strategic outcomes.

PERFORMANCE MEASURES

The NRC also uses annual performance measures to assess whether the agency met its Security goal. Performance measures are aligned at a lower risk level than the strategic outcomes. As a result, not fully achieving a performance measure may not represent an adverse security impact on the public or environment. Missing a performance measure signals that security levels may have deteriorated at the agency strategic planning level. If the NRC misses a performance measure, the agency will take corrective actions to bring the measure back into the target range. Table 2 shows the agency's annual performance measures.

Table 2 FY 2012 Security Goal Performance Measures

1. Number of Unrecovered losses or thefts of risk-significant⁷ radioactive sources						
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	0	0	0	0	0	0

Actual:	0	0	0	0	1 ⁸	0
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7 "Risk-significant" is defined as any unrecovered lost or abandoned sources that exceed the values listed in "Appendix P to 10 CFR Part 110—High Risk Radioactive Material, Category 2." Excluded from reporting under this criterion are those events involving sources that are lost or abandoned under the following conditions: (1) sources abandoned in accordance with the requirements of 10 CFR 39.77(c); (2) recovered sources with sufficient indication that doses in excess of the reporting thresholds specified in AO criterion I.A.1 and I.A.2 did not occur during the time the source was missing; (3) unrecoverable sources lost under such conditions that doses in excess of the reporting thresholds specified in AO criterion I.A.1 and I.A.2 were not known to have occurred; (4) other sources that are lost or abandoned and declared unrecoverable; (5) for which the Agency has made a determination that the risk-significance of the source is low based upon the location (e.g. water depth) or physical characteristics (e.g. half life, housing) of the source and its surroundings; (6) where all reasonable efforts have been made to recover the source; and (7) it has been determined that the source is not recoverable and will not be considered a realistic safety or security risk under this measure.

8. There were no losses and one theft of radioactive nuclear material that the NRC considered to be risk significant during FY 2012. The agency has coordinated and review the increased controls applied to these sources and determine if additional controls need to be implemented for these sources during FY 2012.

2. Number of substantiated⁹ cases of theft or diversion of licensed, risk-significant radioactive sources or formula quantities¹⁰ of special nuclear material; or attacks that result in radiological sabotage¹¹

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	0	0	0	0	0	0
Actual:	0	0	0	0	0	0

9 "Substantiated" means a situation where 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 cannot be refuted following an investigation; and requires further action on the part of the Agency or other proper authorities.

10 A formula quantity of special nuclear material is defined in 10 CFR 70.4.

11 "Radiological sabotage" is defined in 10 CFR 73.2.

3. Number of substantiated⁹ losses of formula quantities of special nuclear material or substantiated⁹ inventory discrepancies of a formula quantity of special nuclear material that are judged to be caused by theft, diversion, or by substantial breakdown of the accountability system.

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	0	0	0	0	0	0
Actual:	0	0	0	0	0	0

9 "Substantiated" means a situation where 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 cannot be refuted following an investigation; and requires further action on the part of the Agency or other proper authorities.

4. Number of substantial breakdowns¹² of physical security or material control (i.e., access control containment or accountability systems) that significantly weakened the protection against theft, diversion, or sabotage.

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	≤1	≤1	≤1	≤1	≤1	≤1
Actual:	0	0	0	0	0	0

12 A “substantial breakdown” is defined as a red finding in the security cornerstone of the reactor oversight process, or any plant or facility determined to either have overall unacceptable performance, or be in a shutdown condition (inimical to the effective functioning of the nation’s critical infrastructure) as a result of significant performance problems and/or operational events.

5. Number of significant unauthorized disclosures of classified and/or safeguards information.¹³

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Target:	0	0	0	0	0	0
Actual:	0	0	0	0	0	0

13 “Significant unauthorized disclosure” is defined as a disclosure that harms national security or public health and safety.

Analysis of FY 2012 Performance Measure Results

1. Unrecovered Losses or Thefts

This measure tracks any loss or theft of radioactive nuclear sources that the NRC has determined to be of significant risk. The measure tracks the agency’s performance in ensuring the proper accounting for radioactive sources of significant risk that could be used for malicious purposes. An improvement over FY2011 indicates that there were no losses or thefts of radioactive nuclear material that the NRC determined to be risk-significant during FY 2012.

2. Thefts or Diversion

This measure tracks whether NRC-licensed facilities maintain adequate protective capabilities to prevent theft or diversion of nuclear material or sabotage that could result in substantial harm to the public health and safety.

3. Loss or Inventory Discrepancy

This measure tracks whether special nuclear material is accounted for and that losses of this material do not occur that could lead to the creation of an improvised nuclear device or other type of nuclear device. The measure also tracks whether the systems in place at NRC-licensed facilities maintain accurate inventories of the special nuclear material that the facilities process, use, or store.

4. Substantial Breakdowns of Physical Security

This measure tracks any breakdowns in access control, containment, or accountability systems that significantly weakened the protection against theft, diversion, or sabotage for nuclear materials the agency has determined to be of significant risk.

5. Significant Unauthorized Disclosures

This measure includes significant unauthorized disclosures of classified or Safeguards information that causes damage to national security or public safety. This measure tracks whether information that can harm national security (classified information) or cause damage to the public health and safety (Safeguards information) has been stored and used in such a way

as to prevent its disclosure to the public, terrorist organizations, other nations, or personnel without a need to know.

NUCLEAR SECURITY PROGRAMS

The NRC must remain vigilant to protect the security of nuclear facilities and materials. The agency achieves its Security goal with licensing and oversight programs similar to those employed in achieving its Safety goal. The aim is to allow licensees to realize the benefits of nuclear materials through their secure use while placing only necessary regulatory requirements on them. The following sections describe the NRC's FY 2012 security activities that enabled the agency to achieve its security goal, security strategic outcome, and security performance measures.

NEW AND OPERATING REACTOR SECURITY

The NRC conducts a robust security inspection program within the security cornerstone of the agency's Reactor Oversight Process. The security cornerstone focuses on five key attributes of licensee performance: access authorization, access control, physical protection systems, material control and accounting, and response to contingency events. Through the results obtained from all oversight activities, including baseline security inspections and performance indicators, the agency determines whether licensees are in compliance with NRC requirements and can provide high assurance of adequate protection against the design-basis threat for radiological sabotage. There were no substantial breakdowns of physical security at any commercial nuclear power plant.

The NRC regularly carries out force-on-force inspections at commercial operating nuclear power plants and category I fuel facilities as part of its comprehensive security program. The agency uses these inspections to evaluate the effectiveness of security programs to prevent radiological sabotage and theft or diversion of category I material. The agency conducts force-on-force inspections at least once every three years at each commercial nuclear power plant and category I fuel facility. Force-on-force inspections assess the ability of nuclear facilities to defend against the applicable design-basis threat, which characterizes the adversary against which licensees must design appropriate defenses, such as physical protection systems and response strategies. A force-on-force inspection includes tabletop drills and simulated combat between a mock commando-type adversary force and the site security force. During the attack, the adversary force attempts to reach and simulate damaging key safety systems and components at a nuclear power plant or simulate stealing material at a category I fuel facility. The agency completed 24 force-on-force inspections and one force-on-force reinspection at a nuclear power plants and one force-on-force inspection at a Category I fuel facility.

The NRC continued to assess and address enhancements of current practices for granting unescorted access at nuclear power plants. The agency's activities included: facilitation of industry interactions with federal agencies regarding suspicious activity reporting to be incorporated in Nuclear Energy Institute, (NEI) 03-04, "Guideline for Plant Access Training," installation of terminals at its headquarters for direct access to the industry's information sharing database, and formalization of office procedures for screening information contained in the personnel access database system.

The NRC continued the enhancement of fitness-for-duty policy (FFD) and technical support of FFD-related rulemaking, licensing, and oversight of drug and alcohol requirements for all commercial power reactor and category 1 fuel cycle licensees, and other groups (such as new reactor construction entities and contractor/vendors). A proposed rulemaking to lower drug cutoff levels and to test for designer-type drugs was coordinated with external stakeholders and will be presented for internal reviews and approval. Further, the staff completed a study on behavior observation programs implemented by organizations not affiliated with the commercial nuclear industry to analyze other factors and practices for potential inclusion in guidance.

SPENT FUEL, FUEL CYCLE FACILITY, AND TRANSPORTATION SECURITY

The NRC completed its core security inspection program at NRC-licensed materials and waste facilities and fuel cycle facilities. It also completed six site visits to review licensee implementation of the independent Spent Fuel Storage Installations Security Orders. NRC personnel participated in Quadripartite Working Group and Department of Energy (DOE) meetings on the protection of sensitive information associated with the Louisiana Energy Services and Areva enrichment facilities.

The NRC continued its efforts to mitigate the potential risk of terrorist threats through enhanced security and controls for the use, storage, and transportation of risk significant byproduct material and spent nuclear fuel.

The NRC continued security rulemaking activities to enhance its security requirements for licensees. The agency published a proposed rule that would add a new Part 37, "Physical Protection of Byproduct Material," to Title 10 CFR, "Energy," and made conforming changes to other parts of 10 CFR. The rule will put in place generally applicable requirements for licensees that possess IAEA category 1 and category 2 radioactive materials. The proposed rule addresses physical protection at the facilities during transit, as well as access to materials. The agency developed a draft technical basis for 10 CFR Part 73, rulemaking that focuses on fuel cycle facility security and considers material attractiveness and domestic and international stakeholder views. A proposed draft rulemaking is scheduled to be published for comment in FY 2014. The agency also engaged in reviewing stakeholder comments from a draft technical basis for Independent Spent Fuel Storage Installation (ISFSI) Security Rulemaking. The NRC anticipates that these technical bases will support the commencement of rulemaking activities in these areas during FY 2014.

NUCLEAR MATERIAL USERS SECURITY

In collaboration with the department of Homeland Security (DHS), DOE, and other Federal, state, and local agencies, the NRC continued to assess the potential use of risk-significant sources in radiological dispersal devices and to coordinate efforts to enhance radioactive source protection and security. The NRC also worked with Agreement States to implement requirements for licensees that enhance the security and control of risk-significant radioactive material, including development of an inspection program to verify the implementation of these measures.

The NRC staff participated in activities related to the Government Coordinating Council, which enables interagency and cross-jurisdictional coordination on critical infrastructure and key

resources, including transportation and material security. The staff also participated in trilateral meetings with DHS and the DOE National Nuclear Security Administration to enable coordination among the participants on issues related to radioactive material security.

Control of Radioactive Sources

The NRC also implemented the national source tracking rule, which requires licensees to report information on the possession of IAEA Category 1 and 2 radioactive sources (i.e., nationally tracked sources). The rule requires NRC and Agreement State licensees to report transactions involving the manufacture, transfer, receipt, disassembly, and disposal of nationally tracked sources. In FY 2012, licensees completed the second annual inventory reconciliation of their nationally tracked sources.

The National Source Tracking System, and the future Web-based Licensing System and License Verification System are key components of a comprehensive program for the security and control of radioactive material. The NRC is integrating all three systems into a common system environment and architecture to form an integrated source management system that will include information on all U.S. licensees and over 70,000 risk-significant radioactive sources possessed by approximately 1,400 licensees. The integrated system will provide licensees, regulators, and federal agencies with an additional round-the-clock means of determining the legitimacy of individuals possessing or seeking to obtain radioactive material to ensure that the materials are obtained only in authorized amounts by legitimate users.

International Security

Two years ago, the President of the United States convened the first-ever heads of state-level international Nuclear Security Summit. The objective of this Summit was to focus on how to better safeguard weapons-grade plutonium and uranium to prevent nuclear terrorism. The second Nuclear Security Summit was held in Seoul, Republic of Korea on March 26 and 27, 2012. In support of U.S. Government commitments for the Seoul Summit and its policy of strengthening security over nuclear materials worldwide, the NRC will host an “International Regulators Conference on Nuclear Security” scheduled for December 4-6, 2012. This conference will discuss a range of activities relevant to enhancing regulatory approaches to security at civilian facilities and will share best practices among senior-level representatives from other Federal agencies, licensees, international counterparts, and NRC managers and staff.

The agency issued 175 licenses for the export or import of category 1 and category 2 radioactive materials as defined by the code. The NRC continued its significant participation in implementing portions of the IAEA Code of Conduct on the Safety and Security of Radioactive Sources, as well as its participation in IAEA committees that are the nuclear security series fundamentals, recommendations and guidance documents.

One of the most notable accomplishments was publication of INFCIRC/225, Revision 5, “Nuclear Security Recommendations on Physical Protection of Nuclear Materials and Nuclear Facilities.” After nearly five years of discussions with international partners, the agency’s involvement in these committees enhances security and public safety and contributes to

international and domestic regulatory consistency. The agency also participated, as part of a U.S. interagency team, in a number of visits to other countries in an effort to ensure that U.S.-

origin nuclear material is receiving adequate physical protection in accordance with bilateral agreements. The NRC is finalizing a rulemaking change to its regulations pertaining to the export and import of nuclear materials and equipment. The rule change is necessary to reflect the nuclear, non-proliferation policy of the executive branch including U.S. Government obligations to the IAEA and its publication of INFCIRC/225/Revision 5.

DECOMMISSIONING AND LOW-LEVEL WASTE SECURITY

The NRC continued its efforts to monitor and inspect classified information security programs for uranium enrichment vendors and mixed-oxide facilities, including readiness reviews at multiple fuel cycle facilities. These reviews included evaluation of physical and information system security at these sites, licensee contractors performing classified work, and foreign ownership, control, or influence considerations in support of the facility clearance.

INTEGRATED AND COORDINATED SECURITY ACTIVITIES

The NRC has working relationships with the Federal Bureau of Investigation (FBI), Department of Homeland Security (DHS), Nuclear Energy Institute (NEI), power reactor licensees, and Federal, State and local law enforcement agencies to create integrated approaches to security within the nuclear sector. Together with its partners in the FBI, DHS, NEI, and industry, the NRC is working to develop a sustainable approach to integrated response activities that provides opportunities for law enforcement to plan and validate an effective tactical response to power reactors during a hostile-action based event. Integrated response activities are currently planned for two power reactor sites starting in FY2012 and continuing through FY2013.

The NRC participated in many other nuclear sector activities under the National Infrastructure Protection Plan framework, and DHS's partnership model under the Government Coordinating Council and Critical Infrastructure Partnership Advisory Council. The NRC also contributed to national-level policy documents, and initiatives such as the National Critical Infrastructure Prioritization Program, National Risk Estimate and a draft Presidential Policy Directive.

CYBER SECURITY

In March 2009, the NRC issued Title 10 of the Code of Federal Regulations (10 CFR) 73.54, "Protection of Digital Computer and Communication Systems and Networks." The cyber security rule applies to all power reactors and Combined License (COL) applicants. Licensees and COL applicants are required to provide high assurance that nuclear power plant safety, security, and emergency preparedness functions are adequately protected from cyber attacks up to and including the design-basis threat. The experience gained in developing this rule and its associated framework provides an approach for developing similar cyber security requirements for other categories of licensees. The NRC has developed a roadmap that reflects a graded approach to developing cyber security requirements commensurate with the inherent nuclear safety and security risks associated with each type of licensee and facility. Additionally, this roadmap aligns with the current NRC strategic plan, which states that the NRC

will manage the risk to information and systems to ensure the integrity of cyber security at regulated facilities.

All operating reactor licensees submitted cyber security plans (CSP) to the NRC for review and approval by the required November 2009 date. The reviews for operating reactors are complete. New reactor applicants submit their cyber security plans on a timeline that is consistent with their overall licensing application schedule. To date, at least one CSP for each design center has been received and reviewed by staff.

In October 2010, the commission determined, as a matter of policy, that the NRC's cyber security rule, 10 CFR 73.54, should be interpreted to include structures, systems, and components in the balance of plant that have a nexus to radiological health and safety at NRC-licensed nuclear power plants. In late 2010 leading into 2011, the agency developed a Standard Review Plan (SRP) used to add consistency to the evaluation of licensee-submitted cyber-security plans and implementation schedules. Using the SRP, the staff has approved cyber-security plans for all commercial nuclear reactor licensees and has established cyber security program implementation milestones which licensees must meet. The NRC staff has drafted guidance to licensees explaining how program implementation will be inspected in the form of a temporary instruction (TI) and is also developing a process to determine the significance of any inspection findings. The NRC plans to issue the TI in November 2012, the Significance Determination Process (SDP) in December 2012, and will conduct workshops with licensees prior to inspecting program implementation. In early calendar year 2013, the NRC plans to begin inspecting cyber security program implementation at commercial nuclear power plants consistent with situations that require licensees to meet program implementation milestones.

COSTING TO GOALS

The NRC is working to improve its cost management capabilities to better align its costs with desired outcomes. This year's performance and accountability report presents the full cost of achieving the safety and security goals for the agency's programs, nuclear reactor Safety and Security and nuclear materials Safety and Security. The cost of achieving the agency's safety goal was [TBD] million and the cost of achieving the agency's security goal was [TBD] million.

ORGANIZATIONAL EXCELLENCE OBJECTIVES

The NRC has three organizational excellence objectives: openness, effectiveness, and operational excellence. These objectives are critical components to carrying out the agency's regulatory mandate to serve the American people.

OPENNESS

The openness objective explicitly recognizes that the public must be informed about, and have a reasonable opportunity to participate in, the NRC's regulatory processes. The NRC is firmly Committed to transparency, participation, and collaboration as key principles governing the agency's relationship with the public and other stakeholders. The agency has demonstrated its

commitment to these openness principles through its long-standing efforts to keep stakeholders informed and involved in the NRC's regulatory process.

The agency completed implementation of all initiatives presented in the Agency's open Government plan published in FY 2010 and available on the NRC Website at <http://www.NRC.gov/public-involve/open.html>. In April 2012 the agency published an addendum to its open Government plan outlining how its commitment to openness will be continued in 2012 and 2013. This addendum is available on the NRC Website at <http://pbadupws.nrc.gov/docs/ML1207/ML12073A302.pdf>. In developing the plan addendum, the agency hosted a Webinar to solicit stakeholder input about activities to include in our forward planning.

The NRC continued to expand its use of social media as a vehicle to communicate with stakeholders. In cooperation with the American Nuclear Society and Physicians for Social Responsibility the agency hosted two Webinar sessions for bloggers to interact with the agency's Chairman.

At the annual Regulatory Information Conference (RIC) (March 13–15, 2012), attended by more than 3,000 participants from 34 countries, the agency's Open Government initiatives were highlighted. A presentation, entitled "[Public Affairs – Sharing information through Social Media](#)," illustrated how our Open Government program continues to enhance the agency's commitment to transparency and integrates public participation and collaboration into our regulatory activities. As part of our Mobile NRC initiative we used Quick Response (QR) codes on event materials to provide mobile device users with enhanced access to RIC materials.

Our statistics on the use of our Social Media initiatives (blog, Twitter, YouTube, Flickr, LinkedIn) demonstrate a high level of interest by stakeholders. For example, through July 2012, we posted 217 blog entries, approved 1,193 comments, and attracted 225,000 visits. We counted 2194 Twitter followers, and have sent 521 "tweets." We've also posted 49 video/audio clips to YouTube, have 164 regular subscribers, and counted 15,634 visits. In addition, we count 2,366 LinkedIn followers of 60 NRC staff.

And, the focus we presented in the April 9, 2012 Addendum to our original Open Government Plan, on the use of Mobile technology aligns well with the President's initiative on Building a 21st Century Platform to Better Serve the American Public, issued May 23, 2012.

In addition to the progress we have made through the use of social media, we have continued to improve our FOIA processes and stakeholder satisfaction with our public website. The NRC was one of five agencies recognized by the U.S. Department of Justice for exemplary efforts in implementing the Attorney General's FOIA Guidelines. Also, since we redesigned our public website in April 2011, our survey scores for overall site satisfaction, content, look-and-feel, information access, search effectiveness, and online transparency have continued to improve, as reported using the American Customer Satisfaction Index (ACSI). In fact, our scores consistently exceed those of other regulatory agencies and the Federal Government as a whole. As a result of these improvements, the NRC's public website was recognized as "a gold mine of information" in the 2012 Bulletin of the Atomic Scientists.

Nuclear Reactor Safety

Operating Reactors

As an agency, we use multiple vehicles to ensure that the public is informed and is able to participate in the regulatory process. These include public meetings, workshops, and online resources.

The NRC held several public meetings concerning significant topics to ensure openness, transparency, and participation in the regulatory process. These topics include Fukushima lessons learned implementation, steam generator tube degradation at San Onofre Nuclear Generating Station, implementation of National Fire Protection Association Standard 805 (NFPA-805), Medical Isotope Production, and PWR sump performance (GSI-191).

The NRC also leveraged public input in the areas of reactor oversight and safety culture. The agency continued to hold monthly public meetings to discuss the Reactor Oversight Process. Participants discussed suggestions for improvement, questions, and program implementation issues. In addition, the NRC also held several workshops to define common language for safety culture at nuclear power plants.

The agency has continued to leverage web based vehicles to inform the public. The NRC website provides stakeholders an outstanding resource to learn about nuclear power plant licensing and oversight. Here, stakeholders can acquire information regarding the agency's licensing and oversight processes. In addition, they can view the schedules and progress the agency is making toward high profile licensing action such as power uprates and license renewals. (<http://www.nrc.gov/reactors/operating/licensing.html>) Furthermore, stakeholders can go to the public website to learn more about existing regulations and to view inspection reports relating to the Reactor Oversight Program. (<http://www.nrc.gov/reactors/operating/oversight.html>)

New Reactors

The NRC maintains project status and schedules for new reactor licensing activities monthly, making them available on the NRC Website <http://www.NRC.gov/reactors/new-reactors.html>. The NRC Website receives approximately 50,000 hits per month for information on new reactor licensing activities.

The NRC held numerous public meetings on new reactor activities in FY 2012. These meetings engaged stakeholders in the regulatory process and provided information on public participation in the environmental review process. The agency actively solicited comments on the scope of environmental impact statements, and provided information on lessons learned about locating sites and environmental reviews.

The NRC staff also conducted numerous public meetings to provide a forum for stakeholders to participate in and comment on staff proposals for ITAAC closure, ITAAC maintenance, and other construction inspection program issues. The agency also hosted the 3rd NRC Workshop on Vendor Oversight for New Reactor Construction. This workshop was widely attended and included discussions on issues such as 10 CFR Part 21 Rulemaking; counterfeit, fraudulent or suspect items; safety conscious work environment as it applies to nuclear vendors; commercial

grade dedication; and, supplier oversight. The workshop was attended by about 550 persons, representing companies and organizations from 15 countries.

The NRC continued its efforts to remain transparent and engage its stakeholders in its advanced reactor activities. In addition to hosting public meetings with vendors, the NRC also conducted public workshops on SMR policy and technical issues. The NRC issued several draft guidance documents for public comment.

Nuclear Materials and Waste Safety

The NRC continued its active participation in many meetings to inform the public of its activities. Agency representatives attended meetings for the Institute of Nuclear Materials Management Spent fuel Seminar, regional meetings of the council of State Governments, the U.S. Transport Council, and the NEI Dry Cask Storage Forum on radioactive material transportation and spent fuel storage matters.

In its continuing efforts to reach out to stakeholders, the NRC conducted its seventh annual fuel cycle information exchange conference in June 2012. The fuel cycle information exchange addresses a broad range of issues in the licensing and oversight of new and operating fuel facilities and potential developments for future reactors and fuel cycles. It provides a forum for presentations and panel discussions involving regulators, industry, and public stakeholders, both domestic and international.

Materials

(Update to be provided by FSME in next update)

Decommissioning and Low-Level Waste

The agency held 26 technical meetings with decommissioning licensees; uranium recovery facility applicants and licensees; and low-level waste stakeholders that were open to the public. The agency also engaged in outreach and consultation with Native American Tribes as part of efforts to fulfill the agency's Section 106 responsibilities under the National Historic Preservation Act (NHPA). During FY 2011, the agency consulted with State Historic Preservation Officers, Tribal Historic Preservation Officers, appropriate Tribes, and other consulting organizations to identify historic properties including those that are of religious and cultural significance to the Tribes to assess and resolve any adverse effects to those sites as part of the agency's review of uranium recovery license applications.

EFFECTIVENESS

The drive to improve performance in government, coupled with increasing demands on the NRC's resources, requires the NRC to become more effective, efficient, and timely in its regulatory activities. The agency's effectiveness initiatives sharpen the agency's focus on safety and security and ensure that its available resources are optimally directed toward accomplishing the agency's mission. The agency began implementation of the changes identified by performed a comprehensive review of NRC overhead functions (e.g., administrative services, human capital, financial management including contract management, information management, and information technology) to identify effective, efficient, and cost conscious business solutions and eliminate duplicative processes and functions.

Nuclear Reactor Safety

Operating Reactors

In October 2011, the Commission issued Staff Requirements Memorandum (SRM), SECY-11-0032, "Consideration of the Cumulative Effects of Regulation (CER) in the Rulemaking Process." This SRM enhances the existing rulemaking framework to take in consideration the impacts of other regulatory actions. In response, the staff is in the process of implementing enhancements that include increased interaction with external stakeholders throughout the rulemaking process, issuance of draft and final supporting guidance with the proposed and final rulemakings, and requesting stakeholder feedback as it relates to CER when warranted. Earlier and more frequent interactions between the NRC and external stakeholders shall reinforce existing agency efforts to make regulatory decisions based on a more comprehensive perspective.

New Reactors

The NRC reorganized the Office of New Reactors to more efficiently fulfill its mission while addressing future challenges of changing workload, increased focus on streamlining corporate functions, and reduced resources. The new organization aligns business functions to gain efficiency and agility, affords increased focus on the resolution of key technical and policy issues for advanced reactors without reducing focus on the licensing of large light water reactors, and allows the oversight group to concentrate solely on construction and inspection activities.

Nuclear Materials and Waste Safety

The agency developed a plan for integrating spent nuclear fuel regulatory activities to more effectively address the regulatory and licensing aspects of extended storage and transportation

(i.e., greater than 120 years), reprocessing, and disposal of spent nuclear fuel and high-level waste. The purpose of the plan is to ensure that the regulation of the back end of the fuel cycle accomplishes safety, security, and environmental protection in an efficient and effective manner and that decisions made about one component or area of this system adequately consider other components or areas (i.e. treating spent fuel and high-level waste regulation as a system of interrelated activities). By coordinating the approach for regulation of spent nuclear fuel or high-level waste storage, potential reprocessing, transportation, and disposal, the agency can improve the efficiency and effectiveness of NRC regulatory processes and provide stability and predictability for stakeholders in a dynamic environment.

The NRC proceeded with the revisions to the Consolidated Guidance Series (NUREG-1556) to address incorporation of security issues and update licensing practices which will enhance the materials licensing review process.

As part of the NRC's license review process, the agency performs an acceptance review to determine if the license application contains adequate information. To aid the environmental review of uranium recovery in-situ leach applications, the agency continues to tier-off from the Generic Environmental Impact Statement. Following the licensing of the first three new uranium recovery facilities, the agency held lessons-learned meetings with stakeholders and tribal representatives regarding the safety and environmental license review process. The purpose of those meetings was to identify improvements to make the review process more effective in the future for the agency, applicants, stakeholders, and tribes.

OPERATIONAL EXCELLENCE

This objective focuses on the activities related to financial management, management of human capital, infrastructure management, and information technology and information management.

Financial Management

The NRC continued its excellence in financial reporting. *For the eighth consecutive year, an independent auditor has rendered an unqualified opinion on the NRC financial statements. The auditor also rendered an unqualified opinion on the agency's internal control concluding that the NRC had no reportable conditions or significant deficiencies (TBD late Sept/early Oct).* In addition, the NRC received its eleventh consecutive Certificate of Excellence in Accountability Reporting from the Association of Government Accountants (AGA), as well as AGA's Best-In-Class Award for providing the most comprehensive and candid presentation of forward-looking information in its FY 2011 Performance and Accountability Report.

The NRC continued to make progress in implementing a 21st century Strategic acquisition program, an integrated financial and acquisition planning, execution and reporting methodology based upon business process improvements through the implementation of leading practices and system modernization. The approach is based upon enterprise spending management and strategic sourcing principles that have a proven track record of success in industry and federal agencies. In FY 2012, the agency's second spending analysis was completed, and five additional Portfolio Councils were established. In FY 2012, the first of a series of Enterprise wide Contracts (EWC) in the area of Education and Training were awarded. The agency also conducted a thorough planning assessment to determine the most cost-effective approach to implement an acquisition system that will be integrated with the agency's core financial system. In June of 2012, the agency selected a share service provider to implement the Strategic Acquisition System.

Management of Human Capital

For several years NRC experienced tremendous growth resulting from an increased interest in nuclear power. As NRC moves toward the future, staff levels have stabilized and it is unlikely that there will be any growth over the next several years. In response, NRC is adjusting its human capital strategies to ensure an approach that focuses on the mission of protecting public health and safety while remaining mindful of staff needs

NRC's human capital approach supports increasing mandates within a no-growth budget environment. NRC's strategy is to transform workforce centers by reducing inefficiencies and overhead and by centralizing and streamlining processes. We are viewing work in a context of budgeted priorities and strategically focusing on not only replacing employees who depart, but also fine-tuning available skills sets to meet future mission needs while still emphasizing Government-wide programs such as hiring of the disabled, employment of veterans, enhancing diversity management, and supporting the agency's Comprehensive Diversity Management Plan. Steps include individual offices developing detailed plans for efficiencies and consolidation, developing a detailed approach and framework for the staff transition aspects of the plan including transitioning affected employees to newly defined positions, and a communication plan including employee meetings, FAQ's and career counseling. Additionally, NRC conducted a limited buyout early in FY 2012.

Over the past 18 months, NRC has used a variety of methods and measures to regulate hiring. These methods refined the hiring process and helped control full-time equivalent (FTE) utilization. During the first three quarters of FY 2012, these hiring controls resulted in the attainment of FTE targets which has allowed the NRC to expand entry level hiring for engineers and scientists. NRC has worked to institutionalize a workforce planning process using a mission critical occupation framework that will ensure the agency has the appropriate number of staff with the right skills, competencies and experience to ensure successful job performance and realization of organizational objectives. NRC continues to model a recruitment program that attracts a diverse group of candidates and continues to recruit externally as appropriate. With limited opportunities for external hiring, NRC is focusing on ensuring that the current workforce is engaged and motivated amidst agency restructuring efforts and within an environment of limited budgets and increased scrutiny of Federal employees. NRC is doing this by maximizing internal movement and ensuring staff have access to the training they will need to enter new areas of business within the agency.

Another way the agency is ensuring that critical skills and competencies are available in the future is by adapting our training and development programs to meet the changing needs of the agency staff and changes in technology. NRC continues to focus on a competency-based approach to training, ensuring a line-of-sight alignment between employees' learning experiences and the agency's mission. Training and development programs are designed to shorten the time to competency. As the staff matures, NRC's learning and development programs continue to evolve to support the needs of the next generation of regulatory experts. For instance, the NRC has continued the successful development of new reactor simulators and technical training courses to coincide with the building of a new generation of nuclear reactors. NRC has also completed and expanded the pilot use of paperless technical subject matter classroom training using tablet-based and has implemented the use of selected training courses through new enterprise-wide contracts. By using these approaches, NRC ensures effectiveness of training with the added benefits of a reduction in costs and schedule convenience for the learner.

NRC recognizes the need to capture and maintain the knowledge and skills of senior staff and management as they become eligible for retirement. NRC maintains a knowledge management program to support effective approaches to knowledge collection, transfer, and use. This program includes strategic hiring and training to fill knowledge gaps, establishing an IT infrastructure to facilitate knowledge transfer, and fostering a culture of knowledge transfer and retention.

NRC continues to be one of the best places to work in the Federal Government according to Federal Human Capital Survey results. NRC excels in areas such as matching employees' skills to the agency's mission, strategic management, effective leadership, performance-based advancements, training and development, support for diversity, and work-life balance. NRC realizes that the success of the agency depends on the talent and commitment of our employees and we strive to create a workplace rich in work-life balance where employees are engaged in meaningful and challenging work.

Infrastructure Management

Substantial progress was made on the construction of a new NRC Headquarters building that will house approximately 1,350 NRC employees and contractors. On June 29, 2012, the developer, LCOR, received notice of substantial completion and certificate of Use and

Occupancy from Montgomery County for the 3WFN Base Building. This is a significant milestone and the first step in receiving approval for full building occupancy. In the coming months the developer will receive Use and Occupancy certification for groups of floors in a phased building turn over to the NRC. Construction is scheduled to be completed by the end of 2012.

NRC White Flint Complex Building/Facility Improvements and Efficiencies

In support of executive order 13514, Federal leadership in environmental, energy, and economic performance, the NRC installed additional upgrades to the energy management system in TWFN, variable frequency drives on the chillers in OWFN, replaced two cooling towers in TWFN and new LED lighting in the elevator lobbies of TWFN. All of these projects resulted in a reduction of electrical consumption. The cooling tower replacement also resulted in a reduction in water consumption. In addition, for the third consecutive year, the NRC was recognized for outstanding achievement in recycling by Montgomery County, MD.

Information Technology and Information Management

The NRC continued to identify opportunities to improve program performance and information availability through the use of information technology (IT) solutions. Progress continued in several major focus areas to achieve operational excellence through more effective information management (IM), effective IT infrastructure, and continuous customer service improvements.

Effective strategic IT business solutions ensures a rationalized and secure portfolio that helps achieve the agency's mission and strategic outcomes. Accomplishments in this area included: 1) designing and implementing a new IT/IM Governance structure to improve how the agency as a whole plans, implements, monitors, and delivers its IT/IM activities. The new structure reflects NRC's increased governance maturity and aligns IT/IM efforts across the agency to avoid system duplication and better use of resources; 2) publishing the FY2012 IT/IM Roadmap to help communicate agency IT/IM priorities and to serve as a planning tool for IT/IM investment decisions; and 3) identifying nine functional IT/IM areas for consolidation to the corporate Office of Information Services (OIS) as part of the agency's "Transforming Assets into Business Solutions (TABS)" streamlining efforts. This effort further streamlines business support services and reduces duplication across the agency.

Effective information management ensures needed information is available to the staff and the public to support predictable regulatory programs and policies. It also allows the NRC to meet its openness objective related to informing and involving stakeholders in the regulatory process by providing timely access to authoritative agency information. Accomplishments in this area included: 1) improving the efficiency of the agency's Freedom of Information Act (FOIA) program through the use of e-mail de-duplication software; 2) modernizing the NRC's public

document publishing technologies to ensure timely and accurate dissemination of information to the agency's public web site; 3) deploying Internet Protocol Version 6 to the agency's public web site ensuring world-wide compatibility; 4) consolidating the agency's web publishing services to ensure effective and timely delivery of information to staff and stakeholders; 5) completing the migration of the agency's legacy forms management system to a new Portable Document Format (PDF)-based system; 6) continuing personal interactions with stakeholders through the Public Document Room where stakeholders can work directly with a person to retrieve information; and 7) providing key information dissemination by issuing timely public

meeting notices, FOIA responses, and documents made publicly available through the Agency-wide Documents Access and Management System.

Effective IT infrastructure ensures that the NRC has a reliable and responsive technology foundation to support business needs and agency operations. Accomplishments in this area included: 1) expanding tools and services for the 'Work from Anywhere' strategy to support staff mobility, such as providing Wi-Fi capability for both mobile desktops and domestic loaner laptops; 2) planning near term implementation of the Bring Your Own Device (BYOD) service offering which supports staff mobility by providing agency staff with secure, remote access to agency email, calendar, and contact data on personally owned mobile devices (e.g. tablets and smart phones); 3) reducing IT system and operational cyber security risks to make the NRC IT environment more secure; 4) integrating new digital certificates that decrease user burden by requiring less frequent renewal and improve security for remote network access; 5) deploying Personal Identity Verification card readers to increase secured access to the NRC network; 6) completing the key elements of the Trusted Internet Connection (TIC) transition, providing additional data security and increased monitoring of data coming into and leaving the agency; 7) receiving formal approval to operate for several major infrastructure systems, including the Data Center Services system which provides cost and support efficiencies by serving as an overarching system to consolidate many NRC applications into a single boundary; and 8) virtualizing over 100 physical servers, reducing agency equipment costs and decreasing the agency's energy footprint.

Efficiency in delivering IT/IM services is also a key component of the agency's operational excellence goal. The award of enterprise-wide contracts for IT support services and maintenance and operations and the implementation of a central environment for application testing greatly enhanced the procurement of IT/IM services and will result in cost efficiencies and cost savings. OIS base lined all IT/IM services and identified service levels for business partner awareness. OIS has designed an approach and is developing cost models for key IT/IM services to ensure cost effective service delivery. Efficiencies were also achieved through decommissioning and retiring inactive systems. This fiscal year over 346 inactive systems were decommissioned, retired, and removed from the agency's working system inventory. This number represents approximately 93% of all existing inactive systems.

PROGRAM EVALUATIONS

The NRC conducted several program evaluations of its regulatory operations. The evaluations were conducted for both the nuclear reactor and the nuclear materials programs.

OPERATOR LICENSING PROGRAM

Before the NRC licenses an individual to operate or supervise the controls of a commercial nuclear power reactor, the applicant must complete extensive training and pass rigorous examinations. Once licensed, operators and senior operators must comply with a number of requirements to maintain and renew their licenses. An agency review team evaluated the operator licensing programs of two regions for their overall effectiveness and adherence to the guidance contained in NUREG-1021, revision 9, Operator Licensing Examination Standards for Power Reactors, issued in July 2004, and other policy documents. The operator licensing programs are broken down into seven functional areas that are rated as either "satisfactory," or

“needs improvement.” The review team found the operator licensing programs in the two regions to be in accordance with the examination standards and assessed all areas as satisfactory. The review team also commended the regions’ efforts to improve the quality of their examination packages.

REACTOR OVERSIGHT PROGRAM

The NRC completed a self-assessment of the reactor oversight process in April 2012. The report, “Reactor Oversight Process Self-Assessment for Calendar Year 2011” ([SECY-12-0055](#)), is available on the NRC Website. The results of the calendar year 2011 self-assessment indicated that the reactor oversight process met its program goals and achieved its intended outcomes. The reactor oversight process was found to be objective, risk-informed, understandable, and predictable, and it met the agency goals of ensuring safety, openness, and effectiveness. The agency maintained its focus on stakeholder involvement and continued to improve the reactor oversight process. The agency implemented improvements to address issues that were raised internally, recommended by independent reviews, and obtained from internal and external stakeholder feedback.

The NRC inspection and assessment program independently verified that nuclear power plants were operated safely and securely. The assessment program was revised to incorporate lessons learned from implementation of the safety culture enhancements and continued to ensure that the staff and licensees acted as necessary to address identified performance issues. The agency continues to improve the performance indicator program to ensure that the performance indicators are meaningful inputs to the reactor oversight process, and it actively solicits input from internal and external stakeholders to further improve the reactor oversight process based on stakeholder feedback and lessons learned.

INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM REVIEWS OF SELECTED NRC REGIONAL OFFICES

The NRC evaluates its own regional materials programs and Agreement State radiation control programs using performance indicators to ensure that public health and safety is adequately protected. The NRC, with the assistance of the Agreement States, completed nine integrated materials performance evaluation program reviews to determine the adequacy and compatibility of the programs in the evaluated Agreement States. One regional evaluation was conducted.

DATA SOURCES, DATA QUALITY, AND DATA SECURITY

The NRC’s data collection and analysis methods are driven largely by the regulatory mandate that Congress entrusted to the agency. Specifically, the NRC’s mission is to regulate the nation’s civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, protect the environment, and promote the common defense and security. In undertaking this mission, the agency oversees nuclear power plants, nonpower reactors, nuclear fuel facilities, interim spent fuel storage, radioactive material

transportation, disposal of nuclear waste, and the industrial and medical uses of nuclear materials.

As part of the agency's regulatory requirement under 10 CFR 20.2206, several NRC-regulated industries are required to submit occupational radiation exposure reports to the Radiation Exposure Information and Reporting System (REIRS) database. NRC staff analyze these reports to ensure that NRC licensees comply with the annual occupational dose limit of 50 mSv (5 rem). NRC staff use the data in the following ways: (1) as one metric in the agency's reactor oversight program to evaluate the effectiveness of licensee programs used to maintain occupational radiation doses as low as reasonably achievable and for inspection planning; (2) to assist in the evaluation of the radiological risk associated with certain categories of NRC-licensed activities and for comparative analysis of radiation protection performance; (3) to provide occupational radiation exposure history reports to individuals exposed to radiation or radioactive material at NRC-licensed facilities; and (4) to provide facts for responding to Congressional and administration inquiries and to questions from the public regarding occupational radiation exposures at NRC-licensed facilities. The NRC publishes NUREG-0173, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities," annually. NUREG-0173 Volume 32 for calendar year 2010, was issued in May 2012. It is available on the agency's Website <http://pbadupws.NRC.gov/docs/ml1108/ml110820543.pdf>.

Section 208 of the Energy Reorganization Act of 1974, as amended, requires the NRC to inform Congress of incidents or events that the commission determines to be significant from the standpoint of public health and safety. The agency developed the abnormal occurrence criteria to comply with the legislative intent of the energy reorganization act to determine which events should be considered significant. Based on these criteria, the agency prepares an annual, "Report to Congress on Abnormal Occurrences," (NUREG-0090). One important characteristic of this report is that the data presented normally originate from external sources, such as Agreement States and NRC licensees. NUREG-0090 Volume 34 for FY 2011, issued in May 2012, is available on the agency's Website <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0090/v34/>.

The NRC finds these data sources credible because (1) agency regulations require Agreement States, licensees, and other external sources to report the necessary information, (2) the NRC maintains an aggressive inspection program that, among other activities, includes auditing licensee programs and evaluating Agreement State programs to ensure that they are reporting the necessary information as required by the agency's regulations, and (3) the NRC has established procedures for inspecting and evaluating licensees. The agency employs multiple database systems to support this process, including the licensee event report Search System, the Accident Sequence Precursor database, the nuclear materials events database, and the

REIRS. In addition, non-sensitive reports submitted by Agreement States and NRC licensees are available to the public through ADAMS, accessible through the agency's Website <http://www.NRC.gov/reading-rm/adams.html>.

The NRC verifies the reliability and technical accuracy of event information reported to the agency. The agency periodically inspects licensees and reviews Agreement State programs. In addition, NRC Headquarters, the regional offices, and Agreement States hold periodic conference calls to discuss event information. Events identified as meeting the Abnormal Occurrence Criteria are validated and verified before being reported to Congress.

Additionally, the NRC is an active participant in data.gov, a Federal Website designed to increase public access to high-value, machine-readable datasets generated by the executive branch. The NRC published its first dataset in October 2009, and in response to the open Government directive published three additional datasets in January 2010. The NRC will continue to encourage public feedback on its high-value information, and consistent with agency policy and guidance provided by data.gov, will continue to add new datasets to its high-value dataset publication plan.

INFORMATION SECURITY

The NRC's information security program (1) protects NRC and licensee information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction, (2) protects electronic control functions from unauthorized access or manipulation, and (3) ensures that adequate controls for protecting security-related information are used in the conduct of NRC business. The NRC information security program includes measures to accomplish the following:

- (1) Ensure that information security requirements, standards, and guidance are clear, concise, appropriate, and able to mitigate the potential adverse effects if sensitive information is compromised;
- (2) Ensure that security controls for information owned by or under the control of the NRC are consistent with established information security controls, operating as intended, and having the desired impact, and that similar controls for licensees regulated by the NRC are in compliance with NRC information security regulations;
- (3) Ensure that suspected or actual information security violations are evaluated and appropriate sanctions are considered;
- (4) Ensure that the NRC has made sufficient preparations for information security-related emergencies and incidents; and
- (5) Ensure that internal information security program components complement each other and are periodically evaluated and improved.

PERFORMANCE DATA COMPLETENESS AND RELIABILITY

In order to manage for results, it is essential that the NRC assess the completeness and reliability of its performance data. Comparisons of actual performance with the projected levels are possible only if the data used to measure performance are complete and reliable. Consequently, the Reports Consolidation Act of 2000 requires the NRC chairman to assess the completeness and reliability of the performance data used in this report. The process for ensuring that the data are complete and reliable requires offices to complete a template for submission to the chief financial officer for every performance measure certifying the data submitted have been approved by the applicable office director. The report "Verification and Validation of NRC's Performance Measures and Metrics" contains the processes the agency uses to collect, validate, and verify performance data. This report can be found in Appendix III of the NRC's FY 2012 Congressional Budget Justification located on the NRC Website <http://www.NRC.gov/reading-rm/doccollections/nuregs/staff/sr1100/v26/sr1100v26.pdf>.

DATA COMPLETENESS

The NRC considers data to be complete if the agency reports actual performance data for every performance goal and indicator in the annual plan. Actual performance data include all data that are available when the agency sends its report to the President and Congress. The agency has reported actual data for every strategic and performance goal measure. In addition, all of the data is reported for each measure. As a result, the data presented in this report meet the requirements for data completeness.

DATA RELIABILITY

The NRC considers data to be reliable when agency managers and decision-makers use the data in carrying out their responsibilities. The data presented in this report meet this requirement for data reliability because NRC managers and senior leaders regularly use the reported data in the course of their duties.