

December 13, 2013

The Honorable Thomas R. Carper  
Chairman, Subcommittee on Clean Air  
and Nuclear Safety  
Committee on Environment and Public Works  
United States Senate  
Washington, DC 20510

Dear Mr. Chairman:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am pleased to submit the NRC's semiannual report on the status of our licensing and other regulatory activities. The enclosed report covers activities conducted by the NRC during the period from April through September 2013.

The fiscal year (FY) 2013 full-year continuing resolution appropriation was enacted on March 26, 2013, holding NRC funding to the FY 2012 level. As required in this appropriation, the NRC funded an unbudgeted \$15 million Integrated University Program. Further, a five percent sequestration went into effect March 1, 2013, and a subsequent 0.2 percent rescission was allocated to the NRC's budget as part of a larger Federal budget rescission necessary to meet the requirements of the sequestration. The combined effects of these actions resulted in an \$83 million reduction to the programs budgeted in the NRC's FY 2013 request. Among the impacts of these overall funding activities were elimination of grants to universities (separate from those required above) and the Minority Serving Institutions program, delays to new reactor licensing reviews, reductions in several long-term research activities, delays in infrastructure upgrades and staff training, and delays to fuel cycle and uranium recovery environmental reviews. However, the NRC has been able to continue its safety and security mission for existing licensees, including oversight of new reactor and fuel cycle facility construction activities and oversight of reactor decommissioning activities. On June 7, 2013, the NRC requested Congressional approval to reprogram \$38 million of prior year funds to address sequestration deferrals and support an integrated prioritization of unfunded work in FY 2013, including Fukushima-related safety improvements. This request was subsequently approved on July 18, 2013. No employees were furloughed as a result of the sequestration.

On August 13, 2013, the U.S. Court of Appeals for the District of Columbia Circuit granted a writ of mandamus against the NRC and directed the agency to "promptly continue with the legally mandated licensing process" for the U.S. Department of Energy high-level waste repository (Yucca Mountain). As a result of this action, on August 30, 2013, the Commission issued an order directing participants in the adjudicatory proceeding to offer views to the Commission by September 30, 2013, on how to restart the Yucca Mountain licensing process. On November 18, 2013, the Commission directed the staff to complete the Safety Evaluation Report and asked the U.S. Department of Energy to complete a supplement to its Environmental Impact Statement on Yucca Mountain.

The agency continues to make progress in addressing the issues raised in the June 8, 2012, ruling by the U.S. Court of Appeals for the District of Columbia Circuit that struck down the agency's 2010 update to the waste confidence decision and temporary storage rule. Specifically, the NRC staff completed preparation of the draft generic environmental impact statement (GEIS) to support the proposed waste confidence rulemaking. The NRC submitted the draft GEIS to the U.S. Environmental Protection Agency on September 6, 2013, and it issued the draft GEIS for public comment. The 75-day public comment period on the draft GEIS began on September 13, 2013, and was scheduled to end on November 27, 2013. It has been extended to December 20, 2013, as a result of the Government shutdown. The NRC is also holding 12 nationwide public meetings to receive comments on the draft GEIS and proposed rule. The last of these public meetings is scheduled for December 9, 2013.

The NRC response to the lessons learned from the Fukushima accident in Japan continues. The NRC's most significant efforts to implement lessons learned from Fukushima have focused on the high priority Tier 1 activities, but work on the Tier 2 and Tier 3 activities also is progressing in line with the agency's established schedules. In fact, many Tier 2 actions have now been integrated into activities related to Tier 1 actions. The agency continues to balance the importance of implementing lessons learned from Fukushima with the need to ensure that its efforts do not displace ongoing work of greater safety benefit, work that is necessary to maintain safety, or other higher-priority work.

In June 2013, the NRC issued an order that modified and superseded one of the Fukushima lessons learned-related orders previously issued on March 12, 2012. The new order requires that the hardened vents for boiling-water reactors with Mark I and Mark II containments be capable of working under conditions of a severe accident (i.e., core damage). The affected licensees will submit by June 2014 an update to their integrated plans for the containment-related order.

The NRC is currently reviewing licensees' integrated plans to achieve compliance with the post-Fukushima orders and anticipates issuing interim staff safety evaluations in late 2013 for the spent fuel pool instrumentation order and from late 2013 through early 2014 for the mitigation strategies order. The NRC is also currently reviewing the licensees' final reports on the seismic and flooding hazards walkdowns performed at each nuclear power plant. The NRC staff conducted audits of selected plants to gain a better understanding of licensee methods and procedures used to conduct the seismic and flooding walkdowns, their consistency with the walkdown guidance, and to assist in the review of the walkdown reports. Also, the staff is reviewing the flooding reevaluations for the first set of plants required to provide reports.

Various rulemaking activities related to the requirements of the orders are also proceeding as scheduled. The staff recently published the final regulatory basis for a station blackout mitigation strategies rule, which would incorporate into NRC regulations the requirements of the mitigation strategies order. The NRC issued a draft regulatory basis for public comment to support an emergency onsite response capabilities rulemaking. The staff is currently considering both external and internal feedback and modifying the document. The staff is also in the early stages of developing a regulatory basis for a rulemaking that considers accident management and filtering strategies for limiting the release of radiological material in the event of a severe accident at boiling-water reactors with Mark I and II containments.

The agency is continuing to address the recommendation from the Fukushima-related lessons learned to establish a logical, systematic, and coherent framework for adequate protection that appropriately balances defense-in-depth and risk considerations to encompass beyond-design-basis events. The staff has released three white papers for public comment and intends to provide options in a paper for the Commission's consideration in December 2013.

For all of the activities stemming from the Fukushima lessons learned, the NRC continues to place a high level of importance on public and stakeholder interaction. In FY 2013, the NRC held more than 75 public meetings related to Fukushima lessons learned, and these open collaborations have improved the quality and thoroughness of the NRC's actions.

During the period of April through September 2013, 10 license renewal applications covering 18 reactor units were under active review. The staff is reviewing nine new reactor combined license applications for 14 proposed new reactor units.

Fort Calhoun Station near Omaha, Nebraska, remains under the oversight described in Inspection Manual Chapter 0350, "Oversight of Reactor Facilities in a Shutdown Condition due to Significant Performance and/or Operational Concerns." The NRC met with officials from the Omaha Public Power District (OPPD) on August 27, 2013, to hear the licensee's strategic plans to ensure long-term performance improvement at the facility following restart. On September 19, 2013, the NRC issued a letter providing the current status regarding the items contained in the Restart Checklist dated February 26, 2013, and the Restart Checklist Basis Document dated March 7, 2013. On October 29, 2013, OPPD commenced a non-nuclear heatup of the Fort Calhoun facility to perform system tests. On December 2, 2013, OPPD submitted a letter outlining its readiness to restart. An NRC decision to authorize restart of the plant will not be made until the checklist items are completed to the NRC staff's satisfaction.

The staff continued inspection and oversight of the four reactors that permanently shutdown over the past year. With these four reactors permanently shutdown, there are now 100 operating reactors in the United States. The NRC staff has refocused efforts at these shutdown reactors to implement an inspection and oversight program that is appropriate for each licensee's proposed decommissioning activities, in accordance with the NRC decommissioning inspection program described in Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program."

During the previous reporting period, Florida Power Corporation provided written certification to the NRC of permanent cessation of power operations and permanent removal of fuel from the reactor vessel at Crystal River, Unit 3, near Crystal River, Florida. Submittal of both certifications means that a licensee is no longer authorized to operate a reactor. In August 2013, the licensee informed the NRC of its plans to submit its post-shutdown decommissioning activities report (PSDAR) in December 2013. Also during the previous reporting period, Dominion Energy certified that permanent cessation of power operations for the Kewaunee Power Station near Green Bay, Wisconsin, was scheduled to occur on May 7, 2013. Dominion Energy completed and certified the permanent defueling of the reactor vessel on May 14, 2013. In the PSDAR submitted by Dominion, the licensee indicated the site will be placed in long-term storage (SAFSTOR).

On June 7, 2013, Southern California Edison (SCE) announced plans to permanently retire Units 2 and 3 at San Onofre Nuclear Generating Station (SONGS). On June 12, 2013, the licensee submitted to the NRC a certification of permanent cessation of power operations of SONGS Units 2 and 3. In August, SCE certified that it had permanently removed the fuel from both Units 2 and 3, which means those facilities are no longer authorized to operate. On September 26, 2013, the NRC held a public meeting in California to discuss the decommissioning process. In addition, the agency plans to perform a lessons learned review of the staff's oversight of the SONGS steam generator replacement project and associated restart activities. While the scope and timing of this review are still under development, it is expected to begin before the end of this year.

On August 27, 2013, Entergy Nuclear Operations announced that Vermont Yankee Nuclear Power Station is expected to cease power production at the end of its current fuel cycle and will begin being decommissioned in the fourth quarter of 2014. In a September 23, 2013 letter, Entergy provided certification of its intent to permanently cease operations at Vermont Yankee. A supplement to the certification will be provided when a date certain for ceasing operations is identified.

On September 6, 2013, the NRC issued mid-cycle assessment letters to the Nation's commercial nuclear power plants regarding their performance through the first half of 2013. The mid-cycle assessment period concluded on June 30, 2013, with 92 of 102 plants in the two highest performance categories. Eight reactors were in the third performance category with a degraded level of performance, and one reactor was in the fourth performance category with a safety finding of high significance; all of these reactors will receive substantially increased oversight from the NRC. Fort Calhoun Station, which is in extended shutdown, did not receive a mid-cycle assessment letter because it is also receiving enhanced oversight. In addition, the Crystal River 3 and Kewaunee nuclear plants entered decommissioning during the first half of this year, so they did not receive mid-cycle assessments.

On July 9, 2013, the NRC made available to the public an unclassified version of its annual report to Congress detailing the previous year's security inspection program. The report is required under the Energy Policy Act of 2005. During 2012, the NRC conducted 173 baseline security inspections at commercial nuclear power plants and 23 force-on-force inspections, which use a well-trained mock adversary force to test a facility's security posture. These inspections identified 153 findings, of which 146 were of very low security significance and seven were greater than very low security significance. Whenever a finding is identified during a security inspection, the NRC ensures the issue is corrected immediately or that compensatory measures are put in place. Details of security findings are considered sensitive and not released to the public.

In other matters, during the reporting period, the NRC submitted five events to the International Atomic Energy Agency for inclusion in the International Nuclear and Radiological Event Scale (INES). The INES is a worldwide tool for member Nations to communicate to the public, in a consistent way, the safety and significance of nuclear and radiological events. All events were ranked as level 2, the second lowest level on the INES scale.

From June 3-7, 2013, an international team of nuclear safety experts conducted a followup safety review at Seabrook Station in New Hampshire. The focus was on the responses to the recommendations developed following a June 2011 comprehensive review of operational safety practices at the facility. This voluntary peer review, coordinated by the International Atomic Energy Agency, is known as an Operational Safety Review Team (OSART) visit. While the NRC does not conduct the assessment, it does closely follow the review and the outcomes, both for their safety significance and process improvements. No new safety-significant issues were identified during the 2011 review. The Seabrook OSART was the seventh such review of a U.S. nuclear power plant since the program's launch in 1982.

On June 11-12, 2013, the NRC held its 8th annual Fuel Cycle Information Exchange (FCIX). The FCIX continues to grow in popularity, with several hundred attendees representing government, industry, and other fuel cycle industry stakeholders from the United States and other countries each year. This event provides an opportunity for NRC staff, industry representatives, licensees, and other stakeholders to openly discuss regulatory issues of mutual interest, as they relate to key sectors of the nuclear fuel cycle: licensing, certification, and inspection of nuclear fuel facilities for uranium conversion and enrichment; nuclear fuel fabrication; and deconversion of depleted uranium tails.

In July 2013, after a thorough evaluation and inspection of plant modifications at the Honeywell uranium conversion plant in Metropolis, Illinois, the NRC determined that the company could resume all NRC-licensed activities. The plant had been shut down since May 2012 as the company made facility and equipment upgrades to meet the requirements of a confirmatory order issued by the NRC in October 2012. That order came after inspections earlier in 2012 identified concerns related to the likelihood of a release of uranium hexafluoride following an earthquake or tornado. The Honeywell plant converts milled uranium into uranium hexafluoride, which is then processed at other facilities to make fuel for commercial power reactors.

On March 26, 2013, SHINE Medical Technologies submitted part one of a two-part construction permit application for a medical radioisotope production facility, which primarily consisted of an environmental report. On May 31, 2013, SHINE Medical Technologies submitted the second and final part of its application. This is the first application submitted to the NRC for a facility intending to produce molybdenum-99 (Mo-99) utilizing low-enriched uranium technology. Letters of intent for facilities to produce Mo-99 have also been received from Coqui Radiopharmaceuticals, Northwest Medical Isotopes, Eden Radioisotopes, and Flibe Energy.

On August 8, 2013, the Commission placed the State of Georgia on probation for deficiencies in its Agreement State program—the first time the NRC has taken such action. Georgia is one of 37 States that have entered into agreements with the NRC, giving them authority to license and regulate certain nuclear materials users within their borders. The civilian nuclear reactors are outside the scope of NRC's Agreement State program, therefore, the probation is not related to and does not affect oversight of nuclear reactors in Georgia,

which has always remained under NRC authority and does not affect the state's responsibilities related to emergency preparedness at reactor sites. The managers of Georgia's program are addressing the performance concerns. The program submitted an improvement plan that has been reviewed and approved by NRC staff. The NRC will remain closely involved with the State program managers as they implement improvements.

In August, NRC published a revised plan for research activities, Revision 2 of NUREG-1925, "Research Activities FY 2012-FY 2014." This NUREG presents current research conducted across a wide variety of disciplines, ranging from fuel behavior under accident conditions to seismology to health physics. The NRC's Office of Nuclear Regulatory Research supports the regulatory mission of the NRC by providing technical advice, tools, and information to identify and resolve safety issues, make regulatory decisions, and issue regulations and guidance. This includes conducting confirmatory experiments and analyses; developing technical bases that support the NRC's safety decisions; and preparing the agency for the future by evaluating the safety aspects of new technologies and designs for nuclear reactors, materials, waste, and security.

Also in August, the agency announced the award of more than \$14 million in FY 2013 grants to academic institutions through the Nuclear Education Program. These 48 grants were awarded to 36 higher education institutions, including minority-serving institutions, located in 24 states. The grants will help develop a future workforce capable of designing, constructing, operating, and regulating the next generation of nuclear facilities. With the award of the FY 2013 grants, the NRC Nuclear Education Program has provided nearly \$107 million since the program began in 2007.

In September 2013, approximately \$760,000 was awarded to institutions with existing contracts to support the Minority Serving Institutions Program. The Minority Serving Institutions Program carries out activities associated with compliance with the Atomic Energy Act to help support the Federal Government's Science, Technology, Engineering, and Mathematics workforce development and diversity inclusion initiatives. The grants program provides Federal financial assistance to Historically Black Colleges and Universities, Hispanic Serving Institutions, Tribal Colleges and Universities and Asian-American and Pacific Islanders Institutions.

On September 4, 2013, the agency issued its annual report on abnormal occurrences for FY 2012, citing 21 events involving radioactive materials and one event at a commercial nuclear power plant. An accident or event is considered an abnormal occurrence if it involves a major reduction in the degree of protection of public health and safety. The one abnormal occurrence at an NRC-licensed nuclear power reactor occurred at Fort Calhoun Station in Nebraska. However, the public was never in danger and there was no release of radioactivity. Of the 21 abnormal occurrences involving radioactive materials, one involved exposure of an embryo or fetus, a second involved an exposure to a radiographer, and the remaining 19 events were associated with the use of radioactive material during diagnostic or therapeutic medical procedures. The report details investigations of each incident by the NRC, Agreement States, and licensees, as well as measures taken to ensure such incidents do not recur.

Over the past 6 months, the agency has sought public comment on ongoing or proposed regulatory activities and has issued new final regulations through the use of *Federal Register* notices. In addition to the rulemaking activities previously noted, these notices included a proposal to streamline and clarify the agency's process for addressing petitions for rulemaking; final rules on transport of spent nuclear fuel, using and distributing uranium and thorium, annual fees for FY 2013, and reactor license renewal environmental reviews; and requests for public comment on the issue of foreign ownership of nuclear power plants and on the agency's draft spent fuel pool study.

From April through September 2013, the agency conducted approximately 600 public meetings—in the Washington, DC area and around the country—addressing a full range of NRC issues. The meetings included Commission, Advisory Committee, Licensing Board, and staff-sponsored events. Also during this time, the NRC received 172 Freedom of Information Act (FOIA) requests and closed 216 FOIA requests. Of particular note, the agency has continued to process FOIA requests regarding the Fukushima Dai-ichi accident in Japan, several of which requested any and all documents relating to the accident. Since March 11, 2011, the NRC has received 48 such FOIA requests and released 166,043 pages of records to the public, including more than 48,826 pages released during the period covered by this report.

On July 16, 2013, Mark A. Satorius was appointed as the new Executive Director for Operations, effective August 25, 2013. He succeeds R. William Borchardt, who has retired. The person in this position serves as the chief operating officer of the NRC, and directs the operational and administrative functions for the day-to-day operations of the agency.

Please contact me for any additional information you may need.

Sincerely,

/RA/

Allison M. Macfarlane

Enclosure:  
As stated

cc: Senator Jeff Sessions

Identical letter sent to:

The Honorable Thomas R. Carper  
Chairman, Subcommittee on Clean Air  
and Nuclear Safety  
Committee on Environment and Public Works  
United States Senate  
Washington, DC 20510  
cc: Senator Jeff Sessions

The Honorable Barbara Boxer  
Chairman, Committee on Environment  
and Public Works  
United States Senate  
Washington, DC 20510  
cc: Senator David Vitter

The Honorable Fred Upton  
Chairman, Committee on Energy and Commerce  
United States House of Representatives  
Washington, DC 20515  
cc: Representative Henry A. Waxman

The Honorable Ed Whitfield  
Chairman, Subcommittee on Energy and Power  
Committee on Energy and Commerce  
United States House of Representatives  
Washington, DC 20515  
cc: Representative Bobby L. Rush

The Honorable John Shimkus  
Chairman, Subcommittee on Environment  
and the Economy  
Committee on Energy and Commerce  
United States House of Representatives  
Washington, DC 20515  
cc: Representative Paul Tonko

The Honorable Mike Simpson  
Chairman, Subcommittee on Energy  
and Water Development  
Committee on Appropriations  
United States House of Representatives  
Washington, DC 20515  
cc: Representative Marcy Kaptur

The Honorable Dianne Feinstein  
Chairman, Subcommittee on Energy  
and Water Development  
Committee on Appropriations  
United States Senate  
Washington, DC 20510  
cc: Senator Lamar Alexander