May 15, 2009

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

Dear Mr. Chairman:

On behalf of the Commission, I am pleased to submit the U.S. Nuclear Regulatory Commission's (NRC's) report on the status of its licensing and other regulatory activities. The enclosed report covers the period October 2008 through March 2009. In addition to the reactor information included in the enclosed report, I am also providing information in this cover letter to keep you fully and currently informed of NRC's regulatory activities related to materials, fuel cycle facilities, electronic information exchange, and high-level waste.

On October 15, 2008, as a result of errors in the prostate cancer treatment program at the Veterans Affairs (VA) Medical Center in Philadelphia, Pennsylvania, and suspected errors at other VA facilities, the NRC issued a confirmatory action letter to the Department of Veterans Affairs National Health Physics Program. The letter documents the commitments made by the Department of Veterans Affairs to identify and address the problems that have led to medical errors at VA hospitals and to prevent their recurrence. The NRC will verify through inspections that the items in the confirmatory action letter have been successfully completed.

On November 21, 2008, the NRC published a direct final rule to add the NAC International Inc. MAGNASTOR cask system to the "List of Approved Spent Fuel Storage Casks." The MAGNASTOR System is a vertical, canister-based, dry cask storage system designed for interim storage of up to 37 pressurized water reactor spent fuel assemblies or 87 boiling water reactor spent fuel assemblies. The rule became effective on February 4, 2009.

On December 22, 2008, the NRC staff issued renewed Certificates of Compliance for the United States Enrichment Corporation to operate the Paducah Gaseous Diffusion Plant, located near Paducah, Kentucky, and the Portsmouth Gaseous Diffusion Plant, located near Piketon, Ohio, for an additional five-year period ending on December 31, 2013. In support of the renewal applications, the staff also prepared and issued Compliance Evaluation Reports documenting the findings associated with the re-certification of the plants.

On January 31, 2009, NRC licensees and Agreement State licensees were required to begin reporting information on source transactions to the National Source Tracking System (NSTS), which was deployed in late December 2008. The NSTS was mandated by Congress in the Energy Policy Act of 2005. The NSTS strengthens efforts by the NRC and State and Federal agencies to monitor the location, use, and disposal of certain radiation sources that, if not properly controlled, may pose a safety and security risk to the public and the environment. The system will also improve the ability of regulators to detect and act upon inventory discrepancies, respond to emergencies, and verify legitimate import, export, ownership, and use of sources.

On February 3, 2009, the NRC conducted a public workshop to discuss expanding the safety culture policy by applying it to all regulated facilities and users of nuclear materials. The goal is to ensure that licensees are establishing and maintaining a strong safety and security culture – a work environment where management and employees are dedicated to putting safety and security first. Key elements of a successful safety culture include maintaining a safety conscious work environment in which personnel feel free to raise concerns without fear of retaliation, an atmosphere that encourages employees to demonstrate ownership for safety and security in their day-to-day work activities, and sufficient resources needed to assure safety and security. The NRC is also assessing its internal safety culture to see how well the NRC's policies and working environment support our safety and security mission.

On February 25, 2009, the NRC made available NUREG-1814, Revision 2, "Status of Decommissioning Program - 2008 Annual Report," to the public via the NRC public website. The report provides a comprehensive overview of the NRC's decommissioning program. The report is a stand-alone reference document that describes the decommissioning process and summarizes the status of all decommissioning activities, including the decommissioning of complex decommissioning sites, commercial reactors, research and test reactors, uranium mill tailings facilities, and fuel cycle facilities.

In March 2009, the NRC Electronic Information Exchange (EIE) project was named a finalist in the 2009 Excellence.Gov Awards, sponsored by the Industry Advisory Council. This year's award recognized the innovative application of information technology to increase transparency between the Government and its stakeholders. The NRC EIE includes online modules supporting the submission of fitness-for-duty reporting requirements, as well as general hearing and adjudicatory filings. On January 9, 2009, 145 separate submissions were received for the Vogtle Early Site Permit adjudicatory proceeding. On February 24, 2009, NRC received 27 submissions related to the High-Level Waste Proceeding contention. EIE handled both loads with no difficulty and all submissions were successfully auto-added to NRC's document and records management system.

On March 12, 2009, NRC accepted General Electric-Hitachi Global Laser Enrichment's (GEH) Environmental Report for review as part of the overall license application for a laser-based uranium enrichment facility. This report, prepared by the applicant, characterizes environmental impacts related to the proposed Wilmington, North Carolina facility. GEH plans to submit the rest of its application by the end of June. On April 9, 2009, NRC published in the *Federal Register* a notice of its intent to prepare an Environmental Impact Statement for the proposed facility.

On March 13, 2009, the NRC published final regulations governing the disposal of high-level radioactive wastes in a proposed geologic repository at Yucca Mountain, Nevada. The final rule implements the U.S. Environmental Protection Agency's (EPA's) revised standards for doses that could occur after 10,000 years, but within the period of geologic stability. The final rule also specifies a range of values for the deep percolation rate to be used to represent climate change after 10,000 years, as called for by EPA, and specifies that calculations of radiation doses for workers use the same weighting factors that EPA is using for calculating individual doses to members of the public. This final rule became effective on April 13, 2009.

On March 18, 2009, Governor Kaine of Virginia signed the formal Agreement, as authorized by Section 274b of the Atomic Energy Act of 1954, as amended, which provides for the Commission to discontinue its regulatory authority and for the Commonwealth of Virginia to assume regulatory authority over certain radioactive materials in Virginia. The Agreement became effective March 31, 2009.

On March 12, 2009, the NRC accepted for formal review an application by AREVA Enrichment Services, LLC for a license to construct and operate a centrifuge uranium enrichment plant in Bonneville County, Idaho, and has made the application available on the agency's web site for public review. AREVA submitted the application December 30, 2008. The NRC staff completed an initial acceptance review and determined that the application is sufficiently complete for the agency to begin its formal environmental and safety reviews. The agency anticipates the formal review and adjudicatory hearing will take approximately 30 months. In the coming weeks, a notice of opportunity to request a hearing before the NRC's Atomic Safety and Licensing Board, and a separate notice of intent to prepare an environmental impact statement, will be published in the *Federal Register*.

In support of NRC's training and knowledge transfer objectives, on March 25, 2009, the NRC's Office of Nuclear Regulatory Research sponsored an all-day educational seminar on the 30th anniversary of the Three Mile Island (TMI) accident. Because many current NRC employees are new to the NRC or may be too young to remember what happened at TMI in 1979, the seminar was an important opportunity to introduce lessons learned from the TMI event, and to emphasize that the nuclear safety regulator and the regulated community need to maintain a questioning attitude and to avoid complacency. The seminar allowed NRC employees to hear from individuals who were personally involved in the TMI event on March 28, 1979 - including one of the TMI reactor operators who was in the control room on the day of the accident, as well as individuals from the White House, Pennsylvania State government, and NRC. The seminar was well attended by headquarters and regional personnel both in person and via teleconference connections. The video record of the seminar has also been made accessible to all employees through the NRC web portal for continuing reference.

Please contact me for any additional information you may need.

Sincerely,

/RA/

Gregory B. Jaczko

Enclosure:
Semiannual Status Report on the Licensing
Activities and Regulatory Duties of the
U.S. NRC, October 2008 - March 2009

cc: Senator David Vitter

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, D.C. 20510
cc: Senator David Vitter

The Honorable Barbara Boxer
Chairman, Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510
cc: Senator James M. Inhofe

The Honorable Edward J. Markey
Chairman, Subcommittee on Energy
and Environment
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515
cc: Representative Fred Upton

The Honorable Henry A. Waxman
Chairman, Committee on Energy
and Commerce
United States House of Representatives
Washington, D.C. 20515
cc: Representative Joe Barton

The Honorable Peter J. Visclosky
Chairman, Subcommittee on Energy
and Water Development
Committee on Appropriations
United States House of Representatives
Washington, D.C. 20515
cc: Representative Rodney Frelinghuysen

The Honorable Byron Dorgan
Chairman, Subcommittee on Energy
and Water Development
Committee on Appropriations
United States Senate
Washington, D.C. 20510
cc: Senator Robert F. Bennett

Protecting People and the Environment

SEMIANNUAL STATUS REPORT ON THE LICENSING ACTIVITIES AND REGULATORY DUTIES OF THE UNITED STATES NUCLEAR REGULATORY COMMISSION

October 2008 - March 2009

Note: The period of performance covered by this report includes activities occurring between the first day of October 2008 and last day of March 2009. The transmittal letter to Congress accompanying this report may provide more recent information in order to keep Congress fully and currently informed of NRC's licensing and regulatory activities.

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I Implementing Risk-Informed and Performance-Based Regulations

The NRC added 10 CFR 50.48(c) to the regulations to allow existing nuclear power plant licensees to adopt voluntarily a risk-informed and performance-based fire protection licensing basis, also known as the National Fire Protection Association (NFPA) Standard 805. As of March 2009, there are 51 reactor units committed to transitioning to the new licensing basis. Two nuclear power stations, Shearon Harris and Oconee, volunteered to pilot their transition. The staff is also working with stakeholders to update the regulatory guidance during this pilot transition period.

II Reactor Oversight Process

The NRC continues to implement the Reactor Oversight Process (ROP) at all nuclear power plants. The NRC also continues to meet with interested stakeholders on a periodic basis to collect feedback on the effectiveness of the process and to consider feedback for future ROP refinements. Recent activities include the following:

From October 18 to 25, 2008, the NRC staff participated in the 36th Committee on Nuclear Regulatory Activities (CNRA) Working Group Meeting on Inspection Practices in Veracruz, Mexico. Recent trends and issues on the inspection process were discussed.

The NRC staff hosted ROP Working Group public meetings on October 22 and December 10, 2008; and January 14, February 11, and March 19, 2009. The ROP Working Group is made up of representatives from industry, the Nuclear Energy Institute (NEI), and the NRC staff, who meet with the goal of continuously improving the ROP and reactor safety. The meetings are open to the public and provide a forum for external feedback on staff initiatives. Discussions by meeting attendees included:

- potential changes to inspection guidance.
- integration of traditional enforcement into the operating reactor assessment program.
- integration of 10 CFR Part 26 Subpart I into the ROP.
- proposed changes to NEI 99-02, “Regulatory Assessment Performance Indicator Guidance.”
- proposed changes to the assessment of safety culture.
- performance indicator topics (e.g., Mitigating Systems Performance Index (MSPI)).
- performance assessment and reactor inspection topics.
- open and new Frequently Asked Questions for the ROP.

From November 1 to 8, 2008, NRC staff participated in a technical meeting hosted by the Nuclear Energy Agency (NEA) and the CNRA in Paris, France. The purpose of the meeting was to exchange information on nuclear power plant events and the Incident Reporting Systems activities at the International Atomic Energy Agency (IAEA). The United States delivered a presentation on the role of operational experience in the development of Generic Letter 2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems.”

On November 25, 2008, NRC staff briefed the Department of Energy (DOE) Defense Nuclear Facilities Safety Board (DNFSB) on the ROP safety culture initiative at a non-public meeting.

On December 31, 2008, FocalPoint Consulting Group completed an independent evaluation of the reactor oversight process and incident response programs. The NRC staff hired FocalPoint

Consulting Group to perform an independent evaluation of the reactor oversight and incident response programs in 2008 with the objective of developing recommendations to strengthen program performance. The contractor's report concluded that these programs were effective in supporting the NRC's mission in the reactor oversight and incident response areas and provided a number of findings and recommendations for the NRC staff's consideration.

On January 14, 2009, NRC staff held a public meeting to discuss a staff proposal to integrate traditional enforcement outcomes (violations involving willfulness, impeding the regulatory process, or actual consequences) into the ROP. Stakeholder input from a previous public meeting was also considered when developing the proposal.

On January 15, 2009, NRC staff held a public meeting to discuss proposed changes to Regulatory Guide (RG) 1.21, "Measuring, Evaluating and Reporting Radioactive Material in Liquid and Gaseous Effluents and Solid Waste," and RG 4.1, "Radiological Environmental Monitoring for Nuclear Power Plants."

From January 21 to 23, 2009, NRC staff participated in the Corrective Action Program Owners Group (CAPOG) non-public meeting that occurred in Asheville, North Carolina. CAPOG members include representatives from U.S. and international nuclear power plant licensees and a number of contractors and vendors. Topics of discussion included draft changes to the NRC problem identification and resolution inspection procedure and recent NRC activities associated with licensee safety culture.

On February 3, 2009, NRC staff held a public workshop to hear views from a range of licensees, certificate holders, and other stakeholders for staff consideration in the development of the Commission's policy statement on safety and security culture.

On March 3, 2009, NRC managers held a non-public internal meeting to discuss individual reactor performance as part of the ROP. Inspection findings, performance indicators, the resulting plant assessments, and potential agency actions were discussed as part of this meeting. These will be documented as end-of-cycle letters provided to licensees and the public.

III Status of Issues Tracked in the Reactor Generic Issues (GI) Program

There are currently 6 open generic issues being tracked in the Generic Issues Management Control System. Progress on each generic issue is described below.

GI-163, "Multiple Steam Generator Tube Leakage"

The staff has prepared a proposed resolution package, consisting of a draft memorandum to the NRC Executive Director of Operations (EDO) with a technical report, documenting the staff's proposed closeout of this issue. The staff concludes that the technical specification requirements relating to steam generator tube integrity provide reasonable assurance that all tubes will exhibit acceptable structural margins against burst or rupture under normal operating conditions and design basis accidents, including main steam line break. Leakage from one or multiple tubes under design basis accidents will be limited to very small amounts, and is within the limits of the applicable regulations for offsite and control room dose. Thus, the staff concludes that the GI principal assertion is not substantiated, that no changes to existing regulations or guidance are needed, and that this issue should be closed. On March 9, 2009,

the staff submitted the package to the Advisory Committee on Reactor Safeguards (ACRS) for its endorsement. The lead office for this GI is the Office of Nuclear Reactor Regulation (NRR).

GI-186, "Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants"

In July 2008, the Nuclear Energy Institute (NEI) submitted final industry-developed guidelines (NEI 08-05) for:

1. performing consequence analyses for postulated reactor vessel head drops,
2. establishing single-failure-proof equivalence for handling systems when used for reactor vessel head lifts,
3. updating the description of heavy load handling programs in the safety analysis report, and
4. managing the risk associated with maintenance involving movement of heavy loads.

The staff issued its safety evaluation of NEI 08-05 on September 5, 2008. Through the safety evaluation, the NRC staff endorsed the methods in NEI 08-05 for the specified applications, with certain exceptions and clarifications. The staff also issued supplementary inspection guidance addressing implementation of the industry initiative on control of heavy loads, which was posted for inspector use and public review on September 18, 2008. The NRC will continue to monitor heavy load handling as part of the baseline reactor inspection program. The staff plans to close the generic issue in the summer of 2009. The lead office for this GI is NRR.

GI-189, "Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion During a Severe Accident"

To provide backup power to hydrogen igniters, Mark III licensees proposed modifications primarily with portable equipment, while the Ice Condenser licensees proposed plant specific modifications with some proposing portable and others permanent equipment. The staff reviewed industry proposals and concluded that proposed modifications will resolve GI-189 and provide benefit for some security scenarios. On June 15, 2007, the staff issued letters to affected licensees accepting their commitments. Licensee implementation and NRC verification inspections performed pursuant to NRC Temporary Instruction (TI) 2515/174, "Hydrogen Igniter Backup Power Verification," have been completed at 8 of 9 affected sites. Implementation and verification activities at the final affected site are expected to be complete and the generic issue is expected to be closed by early 2010. The lead office for this GI is NRR.

GI-191, "Assessment of Debris Accumulation on Pressurized Water Reactor (PWR) Sump Performance"

This generic issue concerns the possibility that, following a loss of coolant accident in a PWR, debris accumulating on the emergency core cooling system sump screen may result in clogging and restrict water flow to the pumps. As a result of this generic issue and the related generic letter, all PWR licensees committed to increase the size of their containment sump strainers (except for three plants where the modifications had already been completed). Strainer modifications are now complete at all PWRs, significantly reducing the risk of strainer clogging. An associated issue, which needs to be resolved to close GI-191, regards the potential for debris to bypass the sump strainers and enter the reactor core. In 2008, the NRC staff determined that additional industry-sponsored testing was necessary to support resolution of this issue. The testing, which is nearly complete, will result in submittal of a topical report to the NRC in mid-2009. The NRC expects to issue a safety evaluation that will provide guidance to

licensees regarding use of the industry-developed test results and topical report. During 2009, the NRC will review licensee responses to NRC requests for additional information with a goal of resolving plant-specific testing and evaluation issues (with the exception of in-vessel downstream effects). Review and resolution of the remaining technical issues (in-vessel downstream and chemical effects) should support industry-wide resolution of this issue by mid-2010. The lead office for this generic issue is NRR.

GI-193, "BWR ECCS Suction Concerns"

The task action plan to resolve this issue involves an evaluation of suppression pool designs, the dynamics of air entrainment in the suppression pool, and the impact on emergency core cooling systems (ECCS) pump performance. The Boiling Water Reactor Owners Group (BWROG) has agreed to provide additional input, which will provide insights into the geometric configuration of the ECCS suction strainers in relation to the downcomers. This input, along with loss of coolant accident (LOCA)/ECCS pump initiation timelines, is expected later in 2009. An experimental testing program was proposed in 2009 to help assess the phenomenology involved with bubble injection and transport into the containment wetwell and ECCS suction strainers. An existing experimental facility may be modified to simulate the behavior of the voids in a BWR suppression pool. The results of the experimental program, in conjunction with the input from the BWROG, are expected to shed light on the behavior of the BWR Mark I design with regard to the transport of bubbles resulting from LOCA blowdown. This, in turn, should enable the staff to develop a strategy for resolution of the generic issue. The lead office for this GI is the Office of Nuclear Regulatory Research (RES).

GI-199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants"

The NRC staff is collecting and analyzing seismic hazard information from the U.S. Geological Survey (USGS) and other sources and seismic risk information from Individual Plant Examination of External Events analyses. The Electric Power Research Institute (EPRI) reported that it had calculated mean seismic hazard results for all nuclear power plant sites in the central and eastern United States. With these results, EPRI is performing an independent evaluation of the implications of changes in seismic hazard estimates. The staff plans to review this information and, if it is acceptable, use this information in the Safety/Risk Assessment of this issue. The staff expects to complete the Safety/Risk Assessment stage in late 2009. The lead office for this GI is RES.

IV Licensing Actions and Other Licensing Tasks

Operating power reactor licensing actions are defined as orders, license amendments, exemptions from regulations, relief from inspection or surveillance requirements, topical reports submitted on a plant-specific basis, notices of enforcement discretion, or other actions requiring NRC review and approval before they can be implemented by licensees. The fiscal year (FY) 2009 NRC Performance Budget plan incorporates two output measures related to licensing actions: number of licensing actions completed per year, and age of the licensing action inventory. The output measure associated with licensing action age was changed in FY 2008 to reflect monthly versus yearly age measurements to make the timeliness measurement more challenging.

Other licensing tasks for operating power reactors are defined as licensee responses to NRC requests for information through Generic Letters or Bulletins, NRC responses to 10 CFR 2.206

petitions, NRC review of generic topical reports, responses by NRR to regional office requests for assistance, NRC review of licensee 10 CFR 50.59 analyses and final safety analysis report updates, or other licensee requests not requiring NRC review and approval before they can be implemented by licensees. The FY 2009 NRC Performance Budget plan incorporates two output measures related to other licensing tasks: the number of other licensing tasks completed per year and the age of the other licensing task inventory.

The actual FY 2007 and FY 2008 results, the FY 2009 goals, and the actual year-to-date FY 2009 results for the two NRC Performance Plan output measures for operating power reactor licensing actions and other licensing tasks are shown in the following table.

PERFORMANCE PLAN				
Output Measure	**FY 2007 Actual**	**FY 2008 Actual**	**FY 2009 Goals**	**FY 2009 Actual**
Licensing actions completed/year	1542	1054	≥ 1150***	504
Age of licensing action inventory	97.6[1]% ≤ 1 year and 100% ≤ 2 years	94.6%*≤ 1 year and 100% ≤ 2 years	93%** ≤ 1 year and 100% ≤ 2 years	93.8% 100%
Other licensing tasks completed/year	1045	678	600	285
Age of other licensing tasks inventory	Not measured	96.6%*≤ 1 year and 100% ≤ 2 years	90% ≤ 1 year and 100% ≤ 2 years	97.4% 100%

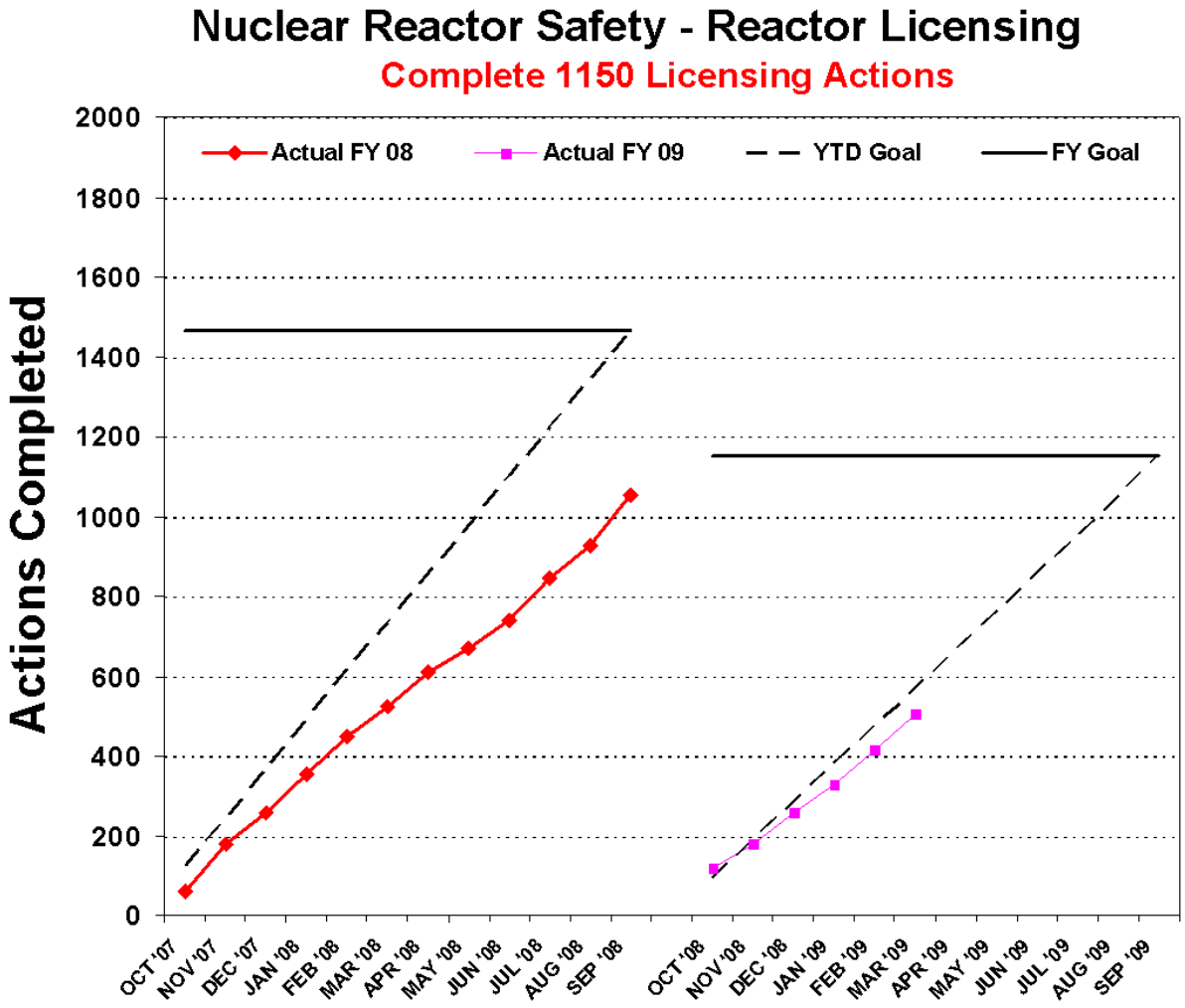
* = 9 of 12 months above target measure

** = NRC changed the metric to 9 out of 12 months for the overall year metric

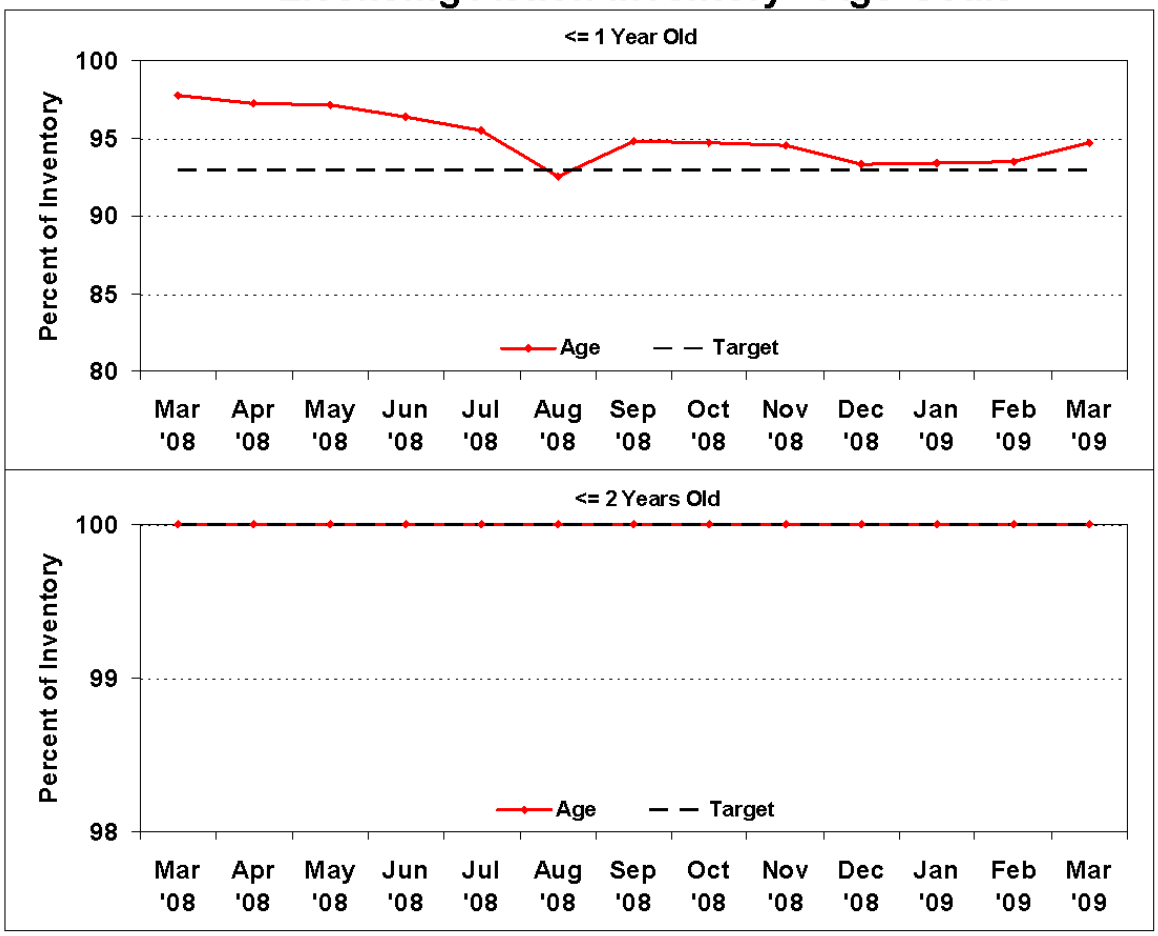
*** = Over the last few years, the number of licensing actions submitted has declined and therefore reduced the overall inventory of pending actions. The number of complex licensing actions that require more time to resolve has increased.

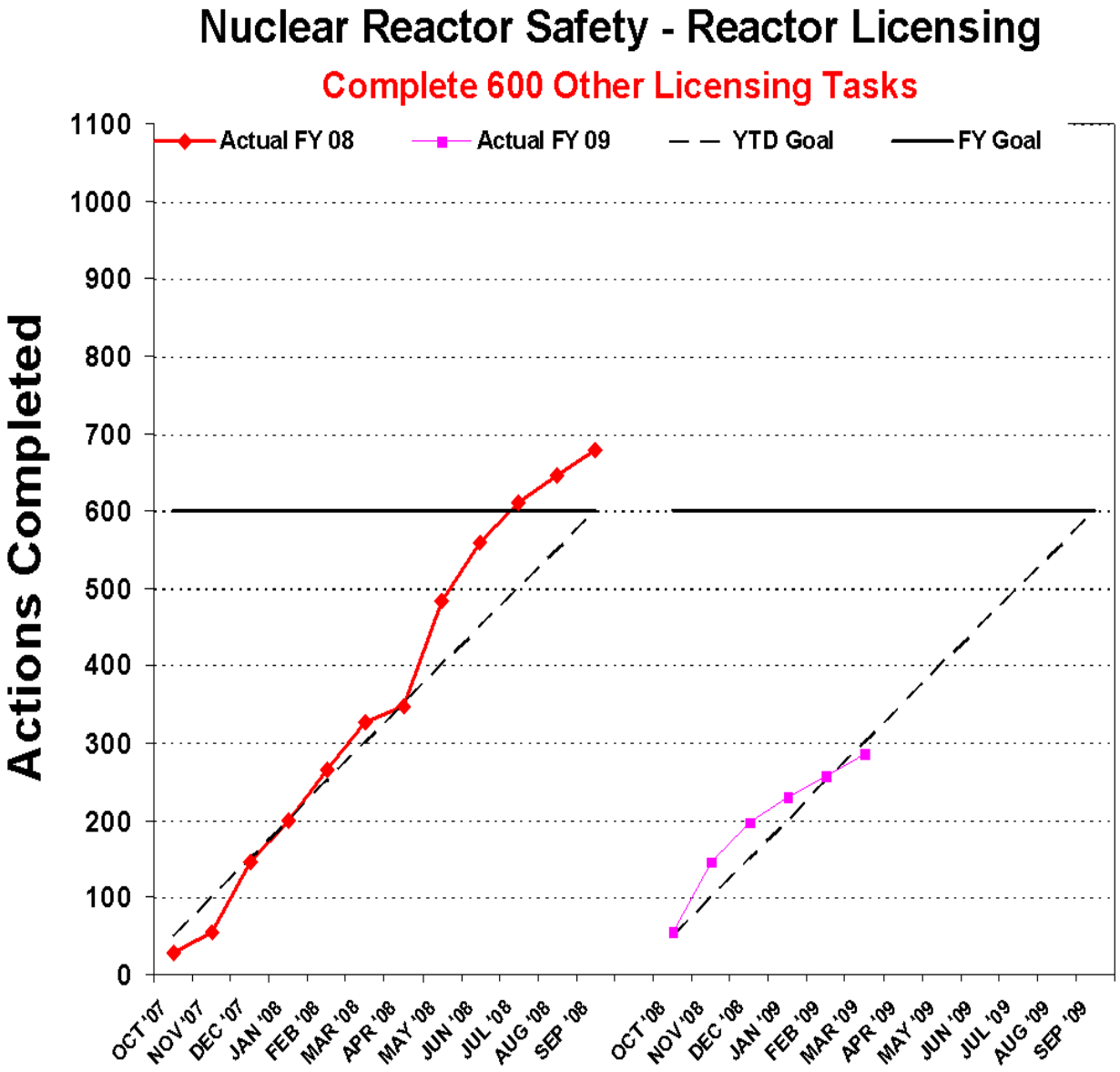
[1] Correction to previous report.

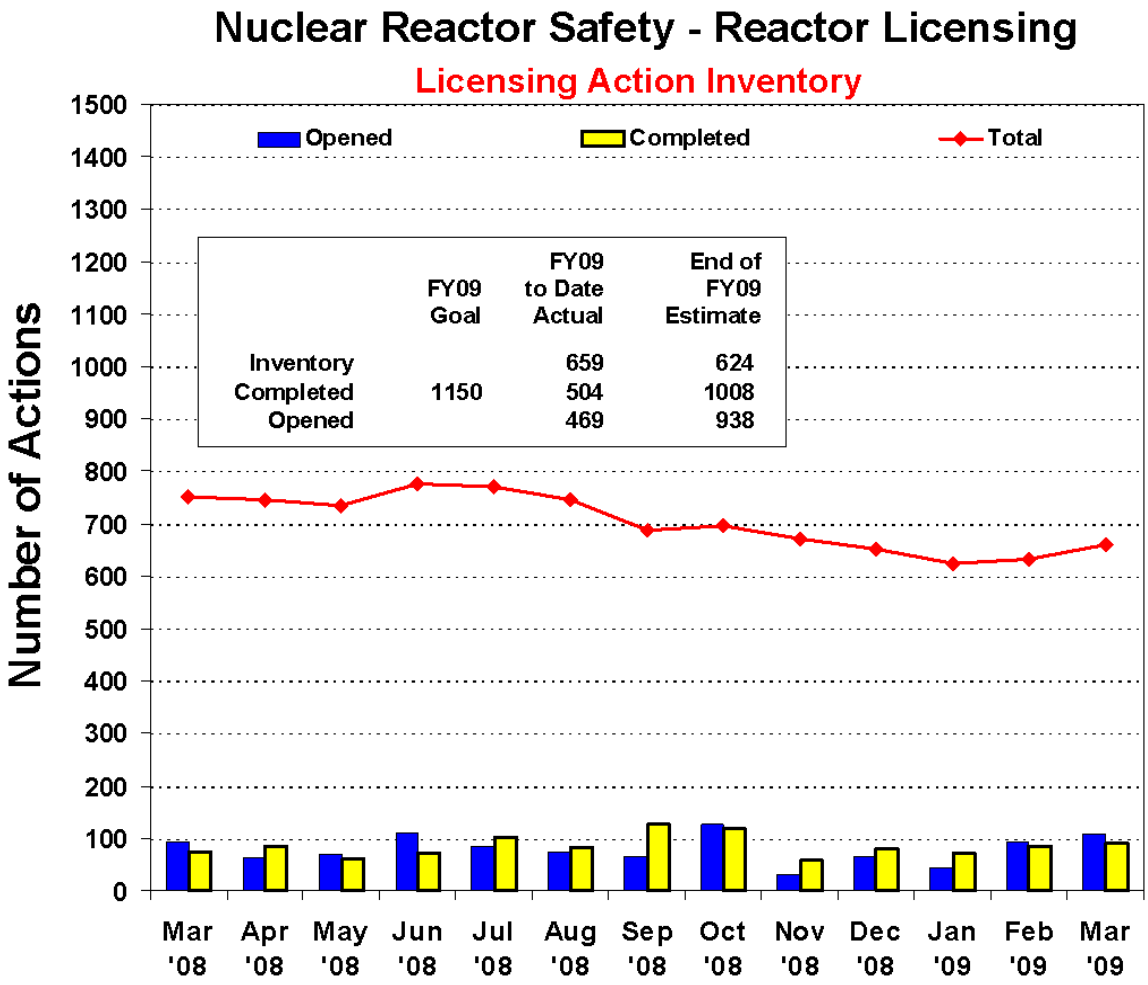
The following charts show FY 2009 trends for the two operating power reactor licensing actions and other licensing task output measure goals:

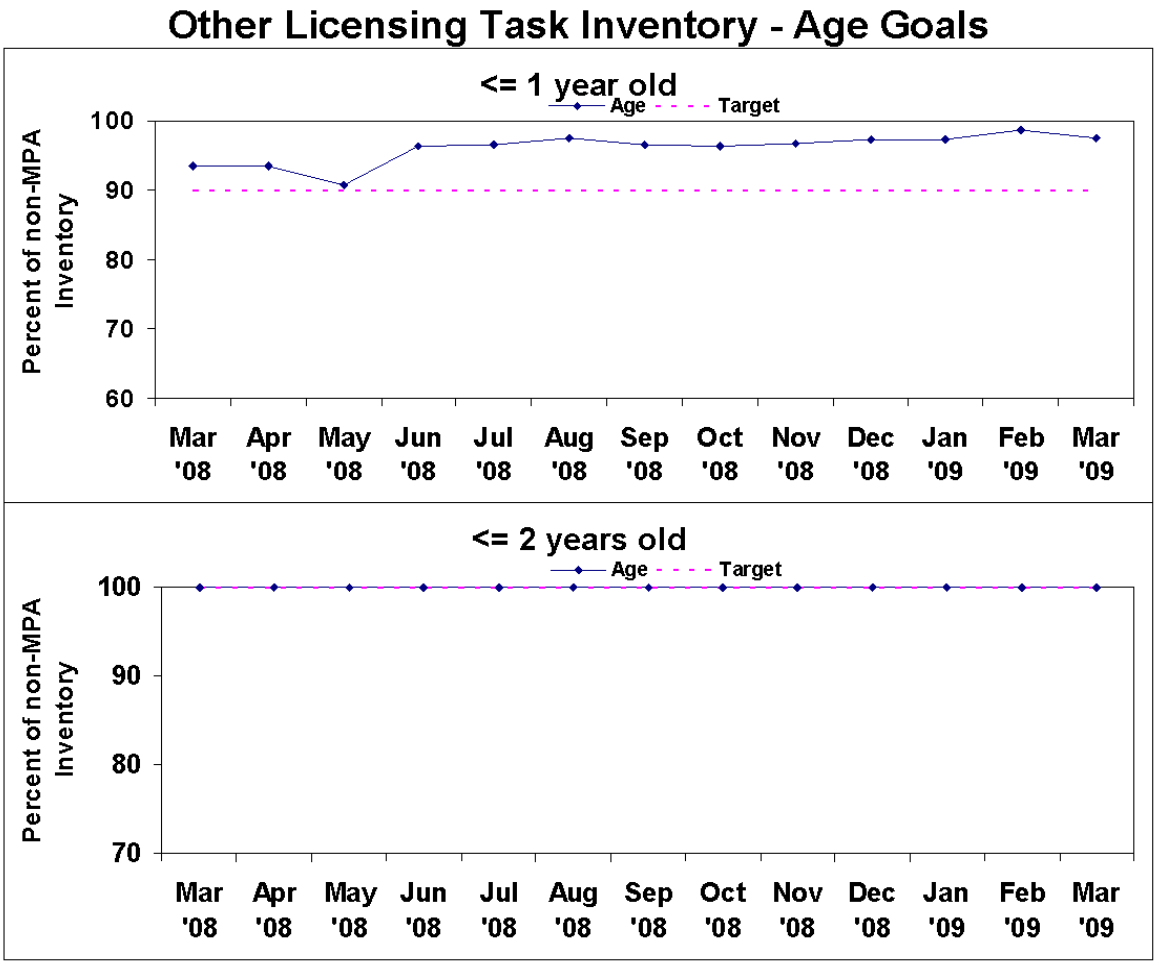


Licensing Action Inventory - Age Goals




Nuclear Reactor Safety - Reactor Licensing
Complete 600 Other Licensing Tasks
Actual FY 08
Actual FY 09
YTD Goal
FY Goal
Actions Completed
1100
1000
900
800
700
600
500
400
300
200
100
0
OCT '07
NOV '07
DEC '07
JAN '08
FEB '08
MAR '08
APR '08
MAY '08
JUN '08
JUL '08
AUG '08
SEP '08
OCT '08
NOV '08
DEC '08
JAN '09
FEB '09
MAR '09
APR '09
MAY '09
JUN '09
JUL '09
AUG '09
SEP '09


Nuclear Reactor Safety - Reactor Licensing
Licensing Action Inventory
Opened
Completed
Total
Number of Actions
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
FY09 Goal
FY09 to Date Actual
End of FY09 Estimate
Inventory 659 624
Completed 1150 504 1008
Opened 469 938
Mar '08
Apr '08
May '08
Jun '08
Jul '08
Aug '08
Sep '08
Oct '08
Nov '08
Dec '08
Jan '09
Feb '09
Mar '09


Other Licensing Task Inventory - Age Goals
<= 1 year old
Age
Target
Percent of non-MPA Inventory
100
90
80
70
60
Mar '08
Apr '08
May '08
Jun '08
Jul '08
Aug '08
Sep '08
Oct '08
Nov '08
Dec '08
Jan '09
Feb '09
Mar '09
<= 2 years old
Age
Target
Percent of non-MPA Inventory
100
90
80
70
Mar '08
Apr '08
May '08
Jun '08
Jul '08
Aug '08
Sep '08
Oct '08
Nov '08
Dec '08
Jan '09
Feb '09
Mar '09

V Status of License Renewal Activities

The NRC has completed the review of license renewal applications for 52 of the 104 units licensed to operate (this includes issuance of the renewed Oyster Creek license, which occurred on April 8, 2009, shortly after the period of this report). The NRC currently has license renewal applications for 20 units at 13 sites under review. The following is the status of applications under review during the period of this report.

Oyster Creek Nuclear Generating Station

Oyster Creek's original 40-year license period ended on April 9, 2009. On July 22, 2005, the NRC received an application for renewal of the operating license for the Oyster Creek Nuclear Generating Station (Oyster Creek). The timely renewal regulation of 10 CFR 2.109(b) stipulates that if a licensee of a nuclear power plant files a sufficient application for renewal of an operating license at least 5 years before the expiration of the existing license, the existing license will not expire until the application has been finally determined. The license renewal application for Oyster Creek was filed less than 5 years before the expiration of the existing license; however, Exelon was granted an exemption to 10 CFR 2.109(b) on December 22, 2004.

The final supplemental environmental impact statement was issued on January 19, 2007, and the final Safety Evaluation Report (SER) was issued on March 30, 2007. On September 19, 2008, the staff issued Supplement 1 to the final safety evaluation.

In December 2007, the Atomic Safety and Licensing Board (ASLB) issued an initial decision in favor of Exelon concerning contentions filed by citizens groups on the adequacy of the aging management program for the drywell shell. To support the application, the applicant committed to performing a three-dimensional (3-D) finite element analysis of the drywell shell. In an "additional statement" to the decision, one ASLB member stated that the applicant should perform a series of sensitivity analyses to determine the drywell shell thickness as part of the 3-D finite element analysis.

The interveners appealed the ASLB decision to the Commission. During those proceedings, the applicant contended that the proposed 3-D finite element analysis already satisfied the recommendations in the additional statement. To resolve this issue, the Commission directed the parties to brief whether the proposed 3-D finite element analysis of the drywell shell "matches or bounds the sensitivity analysis" described in the additional statement. The Commission then referred this issue back to the ASLB. On October 18, 2008, the ASLB issued a memorandum to the Commissioners indicating that the drywell shell 3-D finite element analysis would likely match or bound the requested sensitivity analysis, and added several recommendations concerning the analysis.

NRC Region I inspectors performed phase I of the license renewal commitment implementation inspection (71003) during the fall 2008 refueling outage. Commission Notifications dated November 6 and 17, 2008, documented minor drywell defects found during planned inspections of the drywell shell coating and moisture seal in the sand bed area. These defects were evaluated and repaired under the drywell aging management program. The staff concluded that Exelon provided adequate basis for containment operability until the 2012 scheduled inspections. Drywell shell ultrasonic testing measurements taken during the 2008 outage confirmed the drywell shell thicknesses obtained in the 2006 refueling outage; no further

degradation was noted. The staff did not identify safety significant conditions affecting current operations.

On January 22, 2009, Exelon submitted a drywell shell 3-D finite element analysis summary report to the NRC to satisfy a license renewal commitment. The staff is reviewing the analysis and will report on the results of its review in a forthcoming inspection report.

In a March 6, 2009 letter, Exelon stated that it had implemented the license renewal commitments specified in the staff's SER. The staff performed phase II of the license renewal commitment implementation inspection (71003) during March 2009. The staff found the licensee met most conditions and is fixing those it did not.

Shortly after the end of the period, on April 1, 2009, the Commission issued a Memorandum and Order affirming the ASLB's decision which found in favor of Exelon. The Order directed the NRC staff to enhance its review and verification of Exelon's 3-D finite element analysis summary report, but stated that the review is not a precondition for issuing the renewed license. The staff issued the renewed license on April 8, 2009.

Pilgrim Nuclear Power Station

On January 25, 2006, Entergy Nuclear Operations (Entergy) submitted a License Renewal Application to the NRC for the Pilgrim Nuclear Power Station to extend Pilgrim's operating license for an additional 20 years beyond the current license period. The final SER was issued on June 28, 2007, and the final supplemental environmental impact statement (SEIS) was issued on July 27, 2007. The ACRS Full Committee meeting on the SER was held on September 6, 2007, and the ACRS letter was issued on September 26, 2007.

The ASLB admitted two contentions from intervenor Pilgrim Watch, relating to leak detection of radioactively contaminated water from underground piping and tanks, and to Pilgrim's Severe Accident Mitigation Alternatives (SAMA) analysis for off-site radiological and economic consequences. The SAMA contention was resolved by summary disposition, leaving only the buried piping and tanks contention for hearing before the Board. That hearing was held on April 10, 2008, in Plymouth, Massachusetts, with a limited appearance session for members of the public the night before. On October 30, 2008, the ASLB found in favor of Entergy.

On November 12, 2008, both Pilgrim Watch and the Commonwealth of Massachusetts filed petitions related to previous decisions handed down by the ASLB. Those petitions are before the Commission for review. On March 23, 2009, the Commission issued an order extending, until further notice, the date by which it may rule on the petitions for review.

Vermont Yankee Nuclear Power Station

In January 2006, the NRC received an application from Entergy for renewal of the operating license for the Vermont Yankee Nuclear Power Station. The staff completed the environmental review of the application and is conducting the safety review of the application. The draft SEIS was issued in December 2006. The final SEIS was issued in August 2007. The SER with Confirmatory Items was issued in March 2007. The final SER was issued in February 2008.

The SER contains a proposed license condition that requires the licensee to perform and submit to the NRC for review and approval, an American Society for Mechanical Engineers (ASME) Code fatigue analyses for the reactor recirculation outlet nozzle and the core spray nozzle at

least two years prior to the period of extended operation. These analyses should be documented in the FSAR as the analysis-of-record for these two nozzles. On November 24, 2008, the ASLB issued a Partial Initial Decision on three admitted contentions from the New England Coalition, Inc. The contentions were related to metal fatigue, flow accelerated corrosion, and steam dryer degradation. The ASLB required that the licensee submit the analyses related to metal fatigue prior to a final ruling on this contention.

The applicant submitted the metal fatigue analyses to the NRC on January 15, 2009. On February 18 – 20, 2009, the staff performed an audit of fatigue analyses. The staff continues to review the metal fatigue analyses.

Susquehanna Steam Electric Station, Units 1 and 2

On September 13, 2006, the NRC received an application from PPL Susquehanna, LLC for renewal of the operating licenses for Susquehanna Units 1 and 2 for an additional 20 years beyond the current 40-year term. The NRC staff is conducting the environmental and safety review of the application.

The licensee submitted the license renewal application concurrent with a request for extended power uprate (EPU). Because of the potential impact of the EPU amendment on the plant's licensing basis, the licensee agreed that the license renewal schedule would be established after approval of the EPU. The EPU was approved in January 2008, and PPL submitted a letter to the NRC in February 2008 outlining the impact of the EPU on the license renewal application.

The final SEIS was issued on March 11, 2009. On March 13, 2009, the SER with open items was issued. The staff presented the results of the safety review, including the Regional inspection, to the ACRS subcommittee on April 1, 2009.

Indian Point Nuclear Generating Unit Nos. 2 and 3

On April 30, 2007, the NRC received an application from Entergy for renewal of the operating licenses for Indian Point Units 2 and 3 for an additional 20 years beyond the current 40-year term. The staff is conducting the environmental and safety review of the application.

On December 22, 2008, the NRC staff issued preliminary findings of the environmental review in a draft SEIS and held public meetings February 12, 2009, in Cortland Manor, New York, to receive comments on the draft SEIS. Individuals, groups, and agencies also submitted written comments through the end of the draft SEIS comment period on March 18, 2009.

On January 15, 2009, the SER with open items was issued. The staff presented the results of the safety review, including the Regional inspection, to the ACRS subcommittee on March 4, 2009.

The ASLB has yet to rule on the admissibility of new contentions filed in response to the draft SEIS. To date, 15 contentions (consolidated to 13) have been admitted by the ASLB.

Vogtle Electric Generating, Units 1 and 2

On June 27, 2007, the staff received an application from the Southern Nuclear Operating Company for renewal of the operating license for the Vogtle Electric Generating Units 1 and 2 for an additional 20 years beyond the current 40-year term. The staff is conducting the environmental and safety review of the application.

The final SEIS was issued in December 2008. On March 13, 2009, the final SER was issued. The staff presented the final results of the safety review to the ACRS Full Committee on April 2, 2009.

Beaver Valley Power Station, Units 1 and 2

On August 28, 2007, the staff received an application from FirstEnergy Nuclear Operating Company for renewal of the operating licenses for the Beaver Valley Power Station, Units 1 and 2. The staff is conducting the environmental and safety review of the application.

The draft SEIS was issued on September 19, 2008. On October 30, 2008, a public meeting was held to discuss the draft environmental impact statement. On January 9, 2009, the SER with open items was issued. The staff presented the results of the safety review, including the Regional inspection, to the ACRS subcommittee on February 4, 2009.

Three Mile Island Nuclear Station, Unit 1

On January 8, 2008, the staff received an application from AmerGen Energy Company, LLC, for renewal of the operating license for the Three Mile Island Nuclear Station, Unit 1 for an additional 20 year beyond the current 40-year term. The staff is conducting the environmental and safety review of the application.

The draft SEIS was issued on December 2, 2008. On February 24, 2009, a public meeting was held to discuss the draft environmental impact statement. On March 4, 2009, the comment period for the draft environmental impact statement ended. On March 13, 2009, the SER with open items was issued. The staff presented the results of the safety review, including the Regional inspection, to the ACRS subcommittee on April 1, 2009.

Prairie Island Nuclear Generating Plant, Units 1 and 2

On April 15, 2008, the NRC received an application from Northern States Power Company (formerly Nuclear Management Company) for renewal of the operating licenses for Prairie Island Nuclear Generating Plant, Units 1 and 2 for an additional 20 years beyond the current 40-year term. The staff is conducting the environmental and safety review of the application.

The agency signed a Memorandum of Understanding with the Prairie Island Indian Community to participate as a cooperating agency in the staff's review of the environmental impacts of license renewal. The Prairie Island Indian Community has filed requests for a hearing, and a Licensing Board was established to review the contentions. The ASLB admitted seven contentions.

Kewaunee Power Station

On August 14, 2008, Dominion Energy Kewaunee submitted an application for renewal of the operating license for the Kewaunee Power Station for an additional 20 years beyond the current 40-year term. The staff performed an acceptance review and found the application acceptable for docketing and review. The staff is conducting the environmental and safety review of the application.

Duane Arnold Energy Center

On October 1, 2008, FPL Energy Duane Arnold submitted an application for renewal of the operating license for Duane Arnold Energy Center for an additional 20 years beyond the current 40-year term. By letter dated December 11, 2008, the NRC staff requested that FPL Energy Duane Arnold supplement the Duane Arnold license renewal application. The staff received the supplement by letter dated January 23, 2009. The NRC completed its acceptance review and found the application and supplement acceptable for docketing and review. The staff is conducting the environmental and safety review of the application.

Cooper Nuclear Station

On September 30, 2008, the Nebraska Public Power District submitted an application for renewal of the operating license for the Cooper Nuclear Station for an additional 20 years beyond the current 40-year term. The staff performed an acceptance review and found the application acceptable for docketing and review. The staff is conducting the environmental and safety review of the application. The staff conducted an environmental site audit in March 2009.

Palo Verde Nuclear Generating Station

On December 15, 2008, Arizona Public Service Company (APS) submitted an application for renewal of the operating licenses for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3 for an additional 20 years beyond the current 40-year terms. By letter dated February 13, 2009, the NRC staff requested that APS supplement the PVNGS license renewal application. The staff expects a licensee response in mid-April 2009, and will continue its review of the application and make a determination as to whether the application is acceptable for docketing and review. If the application is found acceptable for docketing and review, the staff will begin the environmental and safety review.

Crystal River Unit 3 Nuclear Generating Plant

On December 16, 2008, the Florida Power Corporation submitted an application for renewal of the operating license for Crystal River Unit 3 Nuclear Generating Plant for an additional 20 years beyond the current 40-year term. The staff performed an acceptance review and found the application acceptable for docketing and review. The staff is conducting the environmental and safety review of the application.

VI Summary of Reactor Enforcement Actions

Enforcement Actions by Region

The reactor enforcement statistics below are arranged by Region, half year, most recent half-year, fiscal year-to-date, and two previous fiscal years for comparison purposes. The statistics are also depicted in separate tables for the non-escalated and escalated reactor enforcement data as well as separate tables for the escalated enforcement data associated with traditional enforcement and the reactor oversight process. The assessment of the significance of a violation generally reflects the severity level assigned to the violation (i.e., traditional enforcement). However, for most violations committed by power reactor licensees, the significance of a violation is assessed using the significance determination process under the ROP, which uses risk insights, where appropriate, to assist the NRC in determining the safety or security significance of inspection findings identified within the ROP.

These tables are followed by brief descriptions of the escalated reactor enforcement actions (EA) associated with traditional enforcement and the reactor oversight process (as well as any other significant actions) taken during the applicable calendar half year.

NON-ESCALATED REACTOR ENFORCEMENT ACTIONS						
		Region I	Region II	Region III	Region IV	TOTAL
Cited Severity Level IV or GREEN	1st Half FY 09	3	3	0	2	8
	2nd Half FY 09					
	FY 09 YTD Total	3	3	0	2	8
	FY 08 Total	0	0	1	3	4
	FY 07 Total	3	0	0	5	8
Non-Cited Severity Level IV or GREEN	1st Half FY 09	83	45	96	111	335
	2nd Half FY 09					
	FY 09 YTD Total	83	45	96	111	335
	FY 08 Total	235	218	294	316	1063
	FY 07 Total	181	147	302	302	932
TOTAL Cited and Non-Cited Severity Level IV or GREEN	1st Half FY 09	86	48	96	113	343
	2nd Half FY 09					
	FY 09 YTD Total	86	48	96	113	343
	FY 08 Total	235	218	295	319	1067
	FY 07 Total	184	147	302	307	940

NOTE: The non-escalated enforcement data above reflects the cited and non-cited violations either categorized at Severity Level IV or associated with GREEN findings during the referenced time periods. The numbers of cited violations are based on enforcement action tracking system data that may be subject to minor changes following verification. The monthly totals generally lag by 30 days due to inspection report and enforcement development. GREEN findings that do not have associated violations are not included in this data.

ESCALATED REACTOR ENFORCEMENT ACTIONS ASSOCIATED WITH TRADITIONAL ENFORCEMENT						
		Region I	Region II	Region III	Region IV	TOTAL
Severity Level I	1st Half FY 09	0	0	0	0	0
	2nd Half FY 09					
	FY 09 YTD Total	0	0	0	0	0
	FY 08 Total	0	0	0	0	0
	FY 07 Total	0	0	0	0	0
Severity Level II	1st Half FY 09	0	0	0	0	0
	2nd Half FY 09					
	FY 09 YTD Total	0	0	0	0	0
	FY 08 Total	0	1	0	0	1
	FY 07 Total	0	1	0	0	1
Severity Level III	1st Half FY 09	1	0	0	0	1
	2nd Half FY 09					
	FY 09 YTD Total	1	0	0	0	1
	FY 08 Total	2	1	1	0	4
	FY 07 Total	2	2	2	0	6
TOTAL Violations Cited at Severity Level I, II, or III	1st Half FY 09	1	0	0	0	1
	2nd Half FY 09					
	FY 09 YTD Total	1	0	0	0	1
	FY 08 Total	2	2	1	0	5
	FY 07 Total	2	3	2	0	7

NOTE: The escalated enforcement data above reflects the Severity Level I, II, or III violations or problems cited during the referenced time periods.

ESCALATED REACTOR ENFORCEMENT ACTIONS ASSOCIATED WITH THE REACTOR OVERSIGHT PROCESS						
		Region I	Region II	Region III	Region IV	TOTAL
Violations Related to RED Findings	1st Half FY 09	0	0	0	0	0
	2nd Half FY 09					
	FY 09 YTD Total	0	0	0	0	0
	FY 08 Total	0	0	0	0	0
	FY 07 Total	0	0	0	0	0
Violations Related to YELLOW Findings	1st Half FY 09	0	0	0	0	0
	2nd Half FY 09					
	FY 09 YTD Total	0	0	0	0	0
	FY 08 Total	0	1	0	0	1
	FY 07 Total	0	0	1	0	1
Violations Related to WHITE Findings	1st Half FY 09	0	2	3	1	6
	2nd Half FY 09					
	FY 09 YTD Total	0	2	3	1	6
	FY 08 Total	0	1	1	4	6
	FY 07 Total	4	5	2	4	15
TOTAL Related to RED, YELLOW, or WHITE Findings	1st Half FY 09	0	2	3	1	6
	2nd Half FY 09					
	FY 09 YTD Total	0	2	3	1	6
	FY 08 Total	0	2	1	4	7
	FY 07 Total	4	5	3	4	16

NOTE: The escalated enforcement data above reflects the violations or problems cited during the referenced time periods which were associated with either RED, YELLOW, or WHITE findings. RED, YELLOW, or WHITE findings that do not have associated violations are not included in this data.

Escalated Enforcement Actions as Well as Any Other Significant Actions Taken

(NOTE: This list also includes security-related actions as well as Confirmatory Actions that are not included in the tables of Part VI, "Summary of Reactor Enforcement Actions.")

Entergy Nuclear Operations (**Palisades Nuclear Plant**) - EA-08-195* - On October 3, 2008, a Greater Than Green finding (i.e., a finding having more than very low security significance), was issued to the licensee. The details of the issue involve official use only – security-related information.

Florida Power & Light Company (**St. Lucie Nuclear Plant**) – EA-08-172; EA-08-242 - On October 20, 2008, a Confirmatory Order (effective immediately) was issued to Florida Power & Light Company to confirm commitments made as a result of an Alternative Dispute Resolution (ADR) settlement agreement, regarding a violation of site security procedures caused by the deliberate actions of one of the security operations supervisors at the licensee's St. Lucie Nuclear Plant. The security operations supervisor willfully permitted two containers into the protected area without conducting the required search of their contents.

Duke Power Company, LLC (**McGuire Nuclear Station**) - EA-08-220 - On October 27, 2008, a Notice of Violation was issued for a violation associated with a White Significance Determination Finding involving a violation of 10 CFR Part 50, Appendix B, Criterion XVI. The violation involved the failure to take adequate corrective action related to the service water strainer backwash system. Specifically, a plant modification implemented to address a macro-fouling concern associated with the service water strainers (1) utilized non-safety-related instrument air to support backwash operations, and (2) did not account for the impact on timely operator response following a safety injection signal or loss of instrument air. As a result, there was a lack of reasonable assurance that the service water system would have been capable of performing its safety-related function during a time of high fouling potential. The finding does not represent a current safety concern because temporary modifications and appropriate procedural changes have been made to address periods of potential macro-fouling.

Dominion Energy Kewaunee, Inc. (**Kewaunee Power Station**) - EA-08-223 - On October 29, 2008, a Notice of Violation was issued for a violation associated with a White Significance Determination finding. Specifically, the licensee failed to identify that Kewaunee's emergency plan emergency action levels specifying instrument threshold values were beyond the limits of the effluent radiation monitors' capabilities to accurately measure and indicate. As a result, action directed by the State and local emergency response plans, which rely on information provided by the licensee, could have potentially delayed minimum initial offsite response measures.

Entergy Operations, Inc. (**Grand Gulf Nuclear Station**) – EA-08-248* - On November 3, 2008, a Greater Than Green finding (i.e., a finding having more than very low security significance), was issued to the licensee. The details of the issue involve official use only – security-related information.

*Actions are security-related. Details of the violation are not publicly available. Therefore, these metrics are not included in the tables of Part VI, "Summary of Reactor Enforcement Actions."

Entergy Operations, Inc. (**Arkansas Nuclear One**) - EA-08-249* - On December 1, 2008, a Greater Than Green finding (i.e., a finding having more than very low security significance), was issued to the licensee. The details of the issue involve official use only – security-related information.

Southern California Edison Company (**San Onofre Nuclear Generating Station**) - EA-08-296 - On December 19, 2008, a Notice of Violation was issued for a violation associated with a White Significance Determination Finding involving a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Specifically, maintenance and work control personnel failed to develop appropriate instructions or procedures, and failed to include quantitative or qualitative steps to ensure the maintenance activities on safety-related batteries were satisfactorily completed. This failure resulted in a safety-related battery being inoperable between March 2004 and March 25, 2008.

Tennessee Valley Authority (**Sequoyah Nuclear Plant**) - EA-08-211 - On January 5, 2009, a Confirmatory Order (effective immediately) was issued to Tennessee Valley Authority to confirm commitments made as a result of an Alternative Dispute Resolution (ADR) settlement agreement, regarding a violation of site security procedures caused by the deliberate actions of one contract security supervisor at the Sequoyah Nuclear Plant, who falsified an inventory form to conceal the supervisor's failure to verify inventory as required by licensee procedures.

Exelon Generation Company, LLC (**Peach Bottom Atomic Power Station**) - EA-08-298 - On January 6, 2009, a Notice of Violation and Proposed Imposition of Civil Penalty in the amount of $65,000 was issued for a Severity Level III problem involving inattentive security officers at Exelon's Peach Bottom Atomic Power Station. An investigation conducted by the NRC Office of Investigations determined that multiple security officers at Peach Bottom were deliberately inattentive on multiple occasions. In addition, multiple security officers deliberately failed to report observations of inattentiveness to their supervisor. These security officers put Exelon in violation of 10 CFR 73.55, which requires armed responders to maintain continuous communication with each alarm station and be available to respond immediately to threats, and Peach Bottom License Condition 2.C(3), which requires, in part, reporting of aberrant behavior.

Exelon Generation Company, LLC (**Clinton Power Station**) - EA-08-284* - On January 20, 2009, a Greater Than Green finding (i.e., a finding having more than very low security significance), was issued to the licensee. The details of the issue involve official use only – security-related information.

Northern States Power Company (**Prairie Island Nuclear Generating Station**) - EA-08-272 - On January 27, 2009, a Notice of Violation was issued to Northern States Power Company for a violation of Technical Specifications associated with a White Significance Determination finding at Prairie Island Nuclear Generating Plant. Specifically, the licensee failed to adequately control the position of a normally open pressure switch block valve for the Unit 1 turbine-driven auxiliary feedwater pump. The valve was inadvertently left closed, causing the turbine-driven auxiliary feedwater pump to fail to operate as required following a July 31, 2008, Unit 1 reactor trip. The pump was subsequently determined to have been inoperable for 138 days, a time period that significantly exceeded that allowed by the Technical Specifications.

Entergy Nuclear Operations, Inc. (**Palisades Nuclear Plant**) - EA-08-322 - On January 30, 2009, a Notice of Violation was issued for a violation associated with a White Significance Determination finding involving a violation of 10 CFR 20.1501 which requires the performance of surveys (evaluations) necessary for the licensee to comply with the regulations in Part 20. The

violation involved the failure to evaluate radiological hazards and assess dose to workers that handled tools used for reconstituting failed fuel during work on the refueling floor in October 2007, as required by 10 CFR 20.1501 to demonstrate compliance with the dose limits of 20.1201.

Duke Power Company, LLC (**Oconee Nuclear Station**) - EA-08-324 - On February 19, 2009, Duke Power Company, LLC was issued a White Significance Determination Finding, which involved the performance of a maintenance procedure that was inadequate. Specifically, the maintenance procedure failed to identify and electrically isolate all main generator automatic voltage regulator trip outputs to the main generator lockout relay. This deficiency caused a main generator lockout which resulted in a loss of power event to the site which ultimately led to a loss of reactor coolant inventory while the reactor was shutdown.

VII Power Reactor Security and Emergency Preparedness Regulations

The NRC staff is continuing its security inspection and oversight activities, as well as developing and implementing rules that incorporate applicable security and emergency preparedness (EP) enhancements into the regulations.

The "Power Reactor Security Requirements," final rule was approved by the Commission on December 17, 2008, and subsequently was published in the *Federal Registe*r on March 27, 2009 (FRN Vol. 74, No. 58 13926 – 13993), with a May 26, 2009, effective date. The rule amends existing security regulations and adds new security requirements pertaining to nuclear power reactors, including cyber security requirements. Licensees must be in compliance with the new rule no later than March 31, 2010. Associated regulatory guides that support this rule are in development, and have been distributed to appropriate stakeholders for comment. The NRC will conduct additional public meetings to clarify rule requirements and solicit comments on implementation guidance documents and publish the final guidance in the remainder of calendar year 2009.

On March 31, 2009, licensees and entities were required to implement the drug and alcohol requirements of 10 CFR Part 26 Fitness-for-Duty rule, except for Subpart I, Managing Fatigue, which must be implemented by October 1, 2009. The rule was amended on March 31, 2008, to enhance existing requirements for nuclear power plant licensees and other entities, including facilities possessing Category IA material, and was published in the *Federal Register* (FRN Vol. 73, No. 62 16966 – 17235). The NRC staff is actively engaged with the public and the industry through public meetings to develop regulatory guides implementing rule requirements. The NRC continues to coordinate with external stakeholders on future rulemaking to further evaluate the Part 26 rule.

Work is ongoing to establish personnel access authorization and physical security requirements for nuclear power plant construction. Over the last 2 years, the NRC staff has held numerous meetings with the industry's New Plants Security Task Force to discuss the need for (and the scope of) security measures at new power reactor construction sites. In light of this collaborative effort with the industry, the NRC staff is currently developing the technical bases to pursue access authorization and physical security rulemaking for power reactor construction sites. The NRC staff intends to solicit input from stakeholders through public meetings and *Federal Register* notices during the rulemaking process.

The NRC staff is continuing force-on-force inspections at each nuclear facility on a normal 3-year cycle using the adversary characteristics that were developed as a result of the current threat environment. The purpose of the force-on-force inspections is to assess and improve, as necessary, performance of defensive strategies at licensed facilities. During the first and second quarters of FY 2009, the NRC completed force-on-force inspections at eleven sites. The current force-on-force cycle ends in December 2010. The NRC remains committed to working with the industry to improve the realism and effectiveness of the force-on-force inspection program and continues to pursue methods to improve simulations.

The NRC staff continues to make progress on implementing a comprehensive revision to EP regulations and associated guidance. Since April 2008, a joint NRC/ Federal Emergency Management Agency (FEMA) EP working group has conducted over 25 meetings to inform and update stakeholders of the ongoing emergency preparedness rulemaking effort. Additionally, the NRC is currently working with the nuclear industry on a voluntary initiative to conduct hostile-action based (HAB) emergency plan drills in order to determine how best to address such events and incorporate lessons learned into the future rulemaking. Recently, FEMA has been engaged in these HAB drills in order to inform future revisions to guidance and assessment activities related to off-site response organizations. The proposed EP rule and supporting guidance are expected to be published in the *Federal Register* in the spring of 2009.

In late 2008, the NRC partnered with the Federal Bureau of Investigation, the Department of Homeland Security (DHS), and private industry to conduct the first Integrated Pilot Comprehensive Exercise (IPCE), which represented the most current initiative designed to advance both the concept and application of integrated response to commercial power reactor sites. The initiative provided Federal, state, and local law enforcement agencies and the site with the opportunity to address important issues such as command and control; interoperable communications; staging areas; response protocols and site security; and law enforcement integration. As a result, Federal partners and nuclear industry representatives have agreed in principle to conduct a second IPCE.

VIII Power Uprates

There are three types of power uprates. A measurement uncertainty recapture (MUR) power uprate is a power uprate of less than 2 percent and is based on the use of more accurate feedwater flow measurement techniques. Stretch power uprates (SPU) are power uprates that are typically on the order of less than 7 percent and are within the current design capacity of the plant. SPUs require only minor plant modification. Extended power uprates (EPU) are power uprates beyond the current design capacity of the plant and, thus, require major plant modification.

Licensees have applied for and implemented power uprates since the 1970s as a way to increase the power output of their plants. To date, the NRC staff has conducted power uprate reviews and has completed 124 such reviews. Approximately 16,919 megawatts-thermal (MWt) or 5,640 megawatts-electric (MWe) in electric generating capacity (an equivalent of about 5.6 nuclear power plant units) have been gained through implementation of power uprates at existing plants. The NRC currently has six plant-specific power uprate applications under review. The six applications include two MUR power uprates and four EPUs.

In October 2008, the NRC staff conducted a survey of all nuclear power plant licensees to obtain information on whether they planned to submit power uprate applications over the next 5

years. Based on updates to this survey, licensees plan to request power uprates for 42 nuclear power plants over the next 5 years. If approved, these power uprates will result in an increase of about 8,683 MWt or approximately 2,894 MWe in generating capacity.

IX New Reactor Licensing

The NRC expects to license the next generation of nuclear power plants using 10 CFR Part 52 of its regulations. Part 52 governs the issuance of standard design certifications (DC), early site permits (ESP), and combined licenses (COL) for nuclear power plants. As of March 31, 2009, the staff has received 17 COL applications (COLA) for a total of 26 new nuclear units. Based on industry information, the staff expects to receive seven additional COLA for 11 additional nuclear units, one Limited Work Authorization (LWA) application, and two additional ESP applications by the end of 2011.

Over the past few years, NRC has taken steps to increase the effectiveness, efficiency and predictability of licensing a new reactor while maintaining NRC's focus on safety and security. The revision of 10 CFR Part 52 (titled, "Licenses, Certifications, and Approvals for Nuclear Power Plants") is one of the key accomplishments that contribute to this improvement. At this time, the staff is making good progress on the applications it currently has under review. However, because some applicants are revising both the proposed designs and information submittal dates, schedule delays and resource impacts have occurred. The result is that the early COL applications are unlikely to achieve the full benefits of the Part 52 process. The NRC is working with stakeholders to overcome these challenges and is confident that the agency will be prepared to make timely regulatory decisions.

NRC estimates that about one-third of the COL applicants intend to begin construction as soon as their applications are approved. The others still desire the COL but for longer-term use. The NRC is responding with resource planning that responds to the evolving plans of new reactor applicants. The agency is sequencing its work to focus on those applications with strong near-term construction intentions and the necessary supporting activities.

Early Site Permit (ESP) Reviews

To date, the NRC has issued three ESPs to System Energy Resources, Inc., for the Grand Gulf site in Mississippi; to Exelon Generation Company, LLC, for the Clinton site in Illinois; and to Dominion Nuclear North Anna, LLC, for the North Anna site in Virginia.

The NRC is currently reviewing an application submitted by Southern Nuclear Operating Company for the Vogtle site in Georgia. The staff received the Vogtle ESP/LWA application in August 2006 and completed its acceptance review in September 2006. The staff issued its SER with open items for the Vogtle ESP application on August 30, 2007. The staff issued its draft Environmental Impact Statement (DEIS) for the Vogtle ESP on September 14, 2007, and the Final EIS (FEIS) in August 2008. The staff also issued the Vogtle ESP and LWA Advanced Safety Evaluation Report on November 12, 2008, and met with the ACRS during December 3 - 4, 2008. Following the review by the ACRS, the staff issued the Vogtle ESP Final Safety Evaluation Report (FSER) on February 5, 2009. In March 2009, the ASLB conducted hearings on the Vogtle ESP/LWA application.

The NRC received a letter from Transition Power Development LLC (Transition Power), informing the NRC of Transition Power's intention to submit an ESP and/or a COLA for two

nuclear units by April 2010. The two units will be part of the Blue Castle Generation Project, to be located in East Central Utah. In addition, the NRC received a letter from PSEG Power LLC (PSEG) informing the NRC of PSEG's intention to submit an application for an ESP during the second quarter of 2010 for a site yet to be designated.

Design Certifications (DCs)

The staff has issued DCs for four reactor designs that can be referenced in an application for a nuclear power plant: General Electric (GE) Nuclear Energy's Advanced Boiling Water Reactor (ABWR) design, Westinghouse Electric Company, LLC's (Westinghouse's) System 80+ design, Westinghouse's AP 600 design, and Westinghouse's Advanced Passive 1000 (AP1000) design.

The staff is currently performing reviews of the following four DCs: GE Hitachi Nuclear Energy's (GEH) Economic Simplified Boiling Water Reactor (ESBWR), Westinghouse's AP1000 DC Amendment, AREVA Nuclear Power's (AREVA's) US Evolutionary Power Reactor (US EPR), and Mitsubishi Heavy Industries, Ltd.'s (MHI's) US-Advanced Pressurized Water Reactor (US-APWR) designs.

The ESBWR DC application was submitted on August 24, 2005. On June 1, 2007, subsequently updated on October 31, 2007, GEH submitted its schedule for submitting major deliverables to support the ESBWR DC. The staff provided its review schedule for the ESBWR DC to GEH on November 27, 2007. GEH submitted Revision 5 to the ESBWR DCD on June 1, 2008. The staff's updated review schedule for the ESBWR DC was provided to GEH on February 18, 2009. Staff issuance of the FSER is scheduled for August 16, 2010; however, the schedule is contingent on GEH's ability to address open items in a timely manner and with high-quality information.

By letter dated May 26, 2007, Westinghouse submitted an application to amend the AP1000 DC Rule and also submitted Revision 16 to the AP1000 DCD. The staff published its review schedule for the AP1000 Amended DC on February 15, 2008. Revision 17 to the AP1000 DCD was submitted the week of September 22, 2008. The staff's updated review schedule for the AP1000 DC was provided to Westinghouse on April 3, 2009. Staff issuance of the FSER is scheduled for December 28, 2010; the schedule depends upon Westinghouse's ability to address open items in a timely manner with complete information.

The US EPR DC was submitted on December 11, 2007. The staff completed its acceptance review on February 25, 2008, and is currently conducting its safety review. The staff issued a request for additional information (RAI) early in the review asking the applicant to provide justification for the proposed US EPR containment design. Phase 1 of the DC for the US EPR DC was completed on January 28, 2009. The schedule was revised on February 19, 2009. The FSER is scheduled for completion in June 2011.

The US-APWR DC was submitted on December 31, 2007. The staff completed its acceptance review of MHI's US-APWR DC on February 29, 2008, and published its review schedule for the DC application. The staff estimates that the FSER will be completed by September 2011.

COLA Activities

As of March 31, 2009, the staff has received seventeen COL applications (COLA) for review. These applications are listed below with a brief status of the staff's review activities:

- Calvert Cliffs COLA: Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC. (UniStar) submitted a partial COLA for a US EPR to be located at Unistar's Calvert Cliffs site near Lusby in Calvert County, Maryland on July 13, 2007.
  - The schedule was revised on December 19, 2008, to change all environmental review due dates to "to be determined" pending complete and sufficient responses from UniStar.
  - The safety review schedule was revised on February 19, 2009, because of changes in the US EPR design certification schedule.
  - The FSER is scheduled for completion in November 2011.
  - On February 20, 2009, a Pre-Hearing conference was conducted by the ASLB in Rockville, Maryland.
  - On March 24, 2009, the ASLB issued an Order to admit three contentions in the COLA adjudication.
  - Due to the intake structure location change, numerous open items from RAIs, and ongoing negotiations between UniStar and the State of Maryland on environmental impact mitigation issues, the DEIS may be delayed.

- South Texas COLA: South Texas Project Nuclear Operating Company (STPNOC) submitted a COLA for two ABWR units to be located at STPNOC's South Texas Project site near Bay City in Matagorda County, Texas on September 20, 2007.
  - Revision 2 of the STPNOC's application was received on September 24, 2008.
  - The staff completed its review of Revision 2 of the STPNOC application and published a review schedule for the STP COLA review on February 11, 2009.
  - A full scope review of the STP COLA is now underway.
  - The FEIS is scheduled for completion in March 2011.
  - The FSER is scheduled for completion in September 2011.

- Bellefonte COLA: Tennessee Valley Authority (TVA) submitted a COLA for two AP1000 units to be located at TVA's Bellefonte site near Scottsboro in Jackson County, Alabama on October 30, 2007.
  - The safety and environmental reviews are currently underway.
  - Hydrology review is delayed due to data pending from the applicant.
  - The FEIS is scheduled for completion in January 2010.
  - The FSER is scheduled for completion in March 2011.

- North Anna COLA: Dominion Virginia Power (Dominion) submitted a COLA for an ESBWR to be located at Dominion's North Anna site near Richmond in Louisa County, Virginia on November 27, 2007.
  - The safety and environmental reviews are currently underway.
  - The FEIS is scheduled for completion in December 2009.
  - The FSER is scheduled for completion in February 2011.
  - On December 19, 2008, the NRC published the draft Supplemental Environmental Impact Statement (SEIS) for the COL for North Anna Unit 3.
  - On February 3, 2009, the NRC held a public meeting at which the staff discussed the results of the North Anna Unit 3 draft SEIS in Mineral, VA.

- William States Lee III COLA: Duke Energy submitted a COLA for two AP1000 units to be located at Duke's Lee site near Charlotte in Cherokee County, South Carolina on December 13, 2007.

- The safety and environmental reviews are currently underway.
- The Environmental Impact Statement (EIS) summary report issued on September 11, 2008. The FEIS completion date has not yet been determined.
- On September 3, 2008, a Pre-Hearing conference was conducted by the ASLB in Gaffney, South Carolina.
- The FSER is scheduled for completion in February 2011.

- Shearon Harris COLA: Progress Energy Carolinas, Inc. (PEC) submitted a COLA for two AP1000 units to be located at PEC's Harris site near New Hill in Wake County, North Carolina on February 19, 2008.
  - The safety and environmental reviews are currently underway.
  - The FEIS is scheduled for completion in May 2010.
  - The FSER is scheduled for completion in April 2011.

- Grand Gulf COLA: Entergy Operations, Inc. (EOI) submitted a COLA for an ESBWR to be located at EOI's Grand Gulf site near Port Gibson in Claiborne County, Mississippi on February 27, 2008.
  - By letter dated January 9, 2009, EOI requested the NRC to suspend, until further notice, the staff's review of the docketed COLAs for the River Bend Station Unit 3 and the Grand Gulf Nuclear Station Unit 3. Entergy plans to reconsider the GEH ESBWR reactor technology, which was the basis for the COLA. The staff will work with EOI and other Federal agencies, to suspend the COLA review in a timely and orderly manner in an effort to preserve work that has already been done.
  - This review remains suspended except for Emergency Preparedness Reviews, which the Federal Emergency Management Agency (FEMA) performs and are independent of any future selected reactor technology.

- Vogtle COLA: Southern Nuclear Operating Company (SNC) submitted a COLA for two AP1000 units to be located at SNC's Vogtle site near Augusta in Burke County, Georgia on March 31, 2008.
  - The staff is currently conducting the safety and environmental reviews.
  - The FEIS was scheduled for completion in April 2009. However, the environmental review schedule is being changed to "to be determined (TBD)" to reflect uncertainties in issuance of the Vogtle ESP associated with the conduct of the adjudicatory hearings.
  - The FSER is scheduled for completion in December 2010.

- Virgil C. (V.C.) Summer COLA: South Carolina Electric & Gas (SCE&G) submitted a COLA for two AP1000 units to be located at SCE&G's V.C. Summer Nuclear Station site in Fairfield County, South Carolina on March 27, 2008.
  - The safety and environmental reviews are underway.
  - The FEIS and FSER are scheduled for completion in February 2011.
  - Public scoping meetings to support the EIS were held on January 27 and 28, 2009, and an environmental site audit was completed on March 9, 2009.

- Callaway COLA: AmerenUE submitted a COLA for a US EPR to be located at AmerenUE's Callaway site in Callaway County, Missouri on July 28, 2008.
  - The NRC completed its acceptance review on December 4, 2008.
  - The review schedules for the FEIS and FSER are currently under development.

- Public scoping meetings to support the EIS were held on February 18, 2009, and an environmental site audit was completed on March 23, 2009.

- Levy County COLA: Progress Energy Florida, Inc. (PEF) submitted a COLA for two AP1000 units to be located at PEF's site in Levy County, Florida on July 30, 2008.
  - The NRC completed its acceptance review on October 6, 2008.
  - Public scoping meetings to support the EIS were held on December 4, 2008, and an environmental site audit was completed on December 1, 2008.
  - The staff issued a review schedule on February 18, 2009.
  - The safety and environmental reviews are underway.
  - The review schedule for the LWA is on hold, pending additional information from the applicant.
  - The FEIS is scheduled for completion in September 2010.
  - The FSER is scheduled for completion in May 2011.

- Victoria County COLA: Exelon Nuclear Texas Holdings, LLC (Exelon) submitted a COLA for two ESBWR units to be located at Exelon's Victoria County Station site in Victoria County, Texas on September 3, 2008.
  - The NRC completed its acceptance review on October 30, 2008.
  - By letter dated November 24, 2008, Exelon Nuclear Texas Holdings, LLC advised the staff that it expected to designate an alternate reactor technology.
  - The staff suspended most of the COLA review and its development of a review schedule.
  - FEMA's review of offsite emergency preparedness continues because it is independent of any future reactor technology selection.
  - The existing application remains docketed.
  - By a letter dated March 13, 2009, Exelon notified the staff that it has selected the ABWR reactor technology and indicated that a revised application will be submitted in the third quarter of CY 2009.

- Fermi COLA: Detroit Edison Company submitted a COLA for an ESBWR to be located at the Detroit Edison Company's Fermi site near Newport City in Monroe County, Michigan on September 19, 2008.
  - The NRC completed its acceptance review on November 25, 2008.
  - The staff is developing the safety and environmental review schedules.
  - Public scoping meetings to support the EIS were held January 14, 2009, and an environmental site audit was completed on February 6, 2009.

- Comanche Peak COLA: Luminant Generation Company LLC (Luminant) submitted a COLA for two US-APWR units to be located at Luminant's Comanche Peak site near Glen Rose in Somervell County, Texas on September 19, 2008.
  - The NRC completed its acceptance review on December 2, 2008.
  - Public scoping meetings to support the EIS were held on January 6, 2009, and an environmental site audit was completed on February 23, 2009.
  - The staff received acceptable RAI responses and the proposed changes to the DC Design and issued its review schedule for the Comanche Peak COLA on March 16, 2009.
  - The staff issued a review schedule on March 16, 2009.

- The FEIS is scheduled for completion in January 2011.
- The FSER is scheduled for completion in December 2011.

- River Bend COLA: Entergy Operations, Inc. (EOI) submitted a COLA for an ESBWR to be located at EOI's River Bend Station site near St. Francisville, Louisiana on September 25, 2008.
  - On November 18, 2008, the NRC conducted a public outreach meeting to inform the public of the new reactor planned for the applicant's site; inform the public about the COL process under the new 10 CFR Part 52 regulations; and inform the public of when and how they can participate in the licensing process.
  - The NRC completed its acceptance review on December 4, 2008.
  - By letter dated January 9, 2009, EOI requested the NRC to suspend, until further notice, the staff's review of the docketed COLAs for the River Bend Station Unit 3 and the Grand Gulf Nuclear Station Unit 3. Entergy plans to reconsider the GEH ESBWR reactor technology, which was the basis for the COLA. The staff will work with EOI, and other Federal agencies, to suspend the COLA review in a timely and orderly manner in an effort to preserve work that has already been done.
  - A review schedule has not yet been developed.
  - This review remains suspended except for Emergency Preparedness Reviews, which the Federal Emergency Management Agency (FEMA) performs and are independent of any future selected reactor technology.

- Nine Mile Point COLA: Nine Mile Point Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC (UniStar) submitted a COLA for a US EPR (Unit 3) to be located at UniStar Nuclear Energy's Nine Mile Point site in Oswego, New York on September 30, 2008.
  - The NRC completed its acceptance review on December 12, 2008.
  - On February 9, 2009, UniStar submitted a letter requesting that the staff stagger the review of the Nine Mile Point Unit 3 (NMP3) COLA, relative to the current schedule of the Calvert Cliffs Unit 3 Reference COLA. UniStar requested that some review activities, such as those associated with DHS Audit, Emergency Preparedness (FEMA), the Environmental Scoping Summary Report, and the Physical Security Plan, continue during the first half of 2009.
  - UniStar requested that the remaining portions of the review be sequenced so that the staff technical reviews commence in September 2009.
  - The staff plans to develop the SER and EIS schedules in the fall of 2009.

- Bell Bend COLA: PPL Bell Bend, LLC submitted a COLA for a US EPR to be located at a new site adjacent to PPL's Susquehanna Steam Electric Station, Luzerne County, Pennsylvania on October 10, 2008.
  - On August 19, 2008, the NRC conducted a public outreach meeting to inform the public of the new reactor planned for the applicant's site; inform the public about the COL process under the new 10 CFR Part 52 regulations; and inform the public of when and how they can participate in the licensing process.
  - The NRC completed its acceptance review on December 19, 2008.
  - The staff is developing a review schedule.
  - Public scoping meetings to support the EIS were held on January 29, 2009.

COL Applications Expected to be Submitted:

No new notifications have been received since the last report. Current expected submissions include seven COLA, one LWA and two ESP.

Regulatory Infrastructure

The staff continues to perform activities to enhance the efficiency and effectiveness of the review processes for new reactor applications. These activities include updating key guidance documents for NRC activities and application preparation, developing strategies and work products for optimizing the review of applications received, developing a construction inspection program for new construction activities, and continuing activities in the pre-application and DC review processes. The staff has successfully implemented processes and performed acceptance reviews on DC and COLA. The staff has also established schedules for the review of the applications.

Examples of recent infrastructure activities include:

- The staff submitted the draft Final Rule on Aircraft Impact Assessment (AIA) to the Commission on October 15, 2008. On February 17, 2009, the Commission approved publication of the final rule on Aircraft Impact Assessment (AIA) with changes.

- On December 17, 2008, the Commission approved the draft Final Rule for Part 73 security with changes. The final rule on Power Reactor Security Requirements was published in the *Federal Register* on March 27, 2009. The final rule will be effective on May 26, 2009.

- The staff continued discussions with NEI and the Design Center Working Groups (DCWG) on the development of guidance for mitigating strategies for loss of large areas due to explosions or fires. The staff had a follow-up meeting with NEI and the DCWG on February 10, 2009.

- Between February 26 and March 5, 2009, NRC staff held public meetings with the ACRS on the new regulatory guide (RG) RG-5.71, "Cyber Security Programs for Nuclear Facilities." RG-5.71 was developed in response to the new cyber security rule in 10 CFR 73.54. A meeting was held with stakeholders on March 5, 2009, to discuss the draft NEI-08-09, “Cyber Security Plan Template,” which, when acceptable, will be endorsed in RG-5.71.

- On January 30, 2009, the staff issued the DC Rulemaking paper that details the staff’s streamlining effort for this rulemaking. The staff is currently implementing the identified improvements. If the various identified improvements continue to be implemented, the staff believes that the DC rulemaking could be completed in about one year and could be timed to minimize possible delays in the COL licensing process.

Cooperation between the NRC and the U.S. Army Corps of Engineers

NRC and the U.S. Army Corps of Engineers (Corps) are actively engaged in the review of new reactor applications under an updated Memorandum of Understanding (MOU) on Environmental Reviews Related to the Issuance of Authorizations to Construct and Operate Nuclear Power Plants that was signed on September 12, 2008.

In most cases, new reactor applicants will need permits from the Corps under the Federal Water Pollution Control Act (Clean Water Act) and the Rivers and Harbors Act. The NRC and the Corps believe cooperation provides the most effective and efficient use of Federal resources for environmental review of new reactor plant applications when an NRC license and a Corps permit will both be needed. Therefore, the goal is for the Environmental Impact Statement (EIS) to provide the environmental basis for NRC's license decision and the Corps' permit decision.

The Corps is a cooperating agency in developing the EIS for most of the new reactor applications, and representatives of both agencies are interacting collaboratively to implement the provisions of the MOU.

Construction Inspection Program Developments

The staff continues to make significant progress in the development of programs and procedures to support construction inspection. Several milestones were achieved regarding the development of the construction inspection program:

- The staff prepared and issued for public comment a draft regulatory guidance document to endorse the industry guidance document, NEI 08-01, for Part 52 applicants and licensees on requirements for the inspection, test, analysis, and acceptance criterion/criteria (ITAAC) closure process. The draft regulatory guide will be provided to the Commission for review following the public comment period. In addition, the staff completed and issued an Office Instruction on the construction experience (ConE) program and began drafting two Information Notices on construction experience associated with flood protection and electrical cables and junction boxes. The staff also finalized a construction inspection program information brochure (and the first-of-a-kind in Spanish) that will be used to provide basic program and contact information to stakeholders at public outreach meetings.

- The staff wrote a Commission paper entitled, "Update on the Development of the Construction Inspection Program for New Reactor Construction under 10 CFR Part 52," dated October 17, 2008, on the status of the NRC programs in the areas of assessment, safety culture, and enforcement for the oversight of new reactors. Additionally, the staff coordinated with the Office of Enforcement to publish a revised Enforcement Policy for public comment that included appropriate changes to support enforcement actions for new reactors licensed under 10 CFR Part 52.

- On October 22, 2008, the staff updated the Commission on the status of the new reactor construction inspection program (CIP). Stakeholder interactions included seven public meetings in the Washington, D.C. area to work through implementation details associated with ITAAC closure, licensee assessment, enforcement, other CIP topics, and a presentation on the ConE program at the

2nd meeting of the Working Group on Regulation of New Reactors held at the NEA in Paris.

- Under the enhanced vendor inspection program, the staff conducted an inspection that included successfully piloting Inspection Procedure 37802, "Engineering Design Verification Inspections." In addition, in early December 2008, NRO held a highly successful Workshop on Vendor Oversight for New Reactor Construction. The workshop brought together almost 600 attendees to discuss issues that the staff had identified during vendor inspections. The staff also conducted two additional vendor inspections (at a domestic valve manufacturer and at a foreign large component forger/manufacturer).

Advanced Reactors

The NRC has established an Advanced Reactor Program (ARP) to plan for future applications involving small and medium-sized reactors. The ARP is currently working with the U.S. Department of Energy to coordinate various research and pre-application activities related to the Next Generation Nuclear Plant (NGNP) program. The NGNP program is currently the primary focus of the ARP as the NRC develops the necessary infrastructure to license gas-cooled reactors using approaches described in the joint NRC/DOE NGNP licensing strategy. As resources allow, the ARP is also interacting with various designers of small and medium-sized reactors using gas-cooled, light water, and sodium-cooled technologies.

The staff continued to focus its pre-application review efforts on advanced reactor designs in a more integrated manner. The attention of the staff regarding future reactor designs is focused on the NGNP program but will also serve to enhance the effectiveness and efficiency of other advanced reactor activities by:

- providing the information necessary to develop resource estimates for reviewing the designs for advanced reactors;

- allowing the technical review staff sufficient time to become familiar with advanced reactor design concepts;

- providing feedback on key design, technology, safety research, and licensing issues;

- identifying interrelated or cross-cutting regulatory safety issues and beginning to identify reasonable resolution paths for these issues; and

- identifying technical skills necessary to review these designs and, as appropriate, hire staff and identify potential contractors who possess the requisite knowledge, skills, and abilities.

The NRC conducted a technical meeting on November 20, 2008, with NuScale Power regarding its small light water reactor design. In addition, the staff met with the DOE/Idaho National Laboratory on December 11, 2008, to discuss NGNP licensing strategy. The meeting focused on the selection of licensing activities and design basis accidents. In addition, the NRC staff served as point-of-contact for discussions on other advanced reactor designs, including Toshiba

Super Safe, Small & Simple reactor, Westinghouse International Reactor Innovative & Secure Hyperion power module, and the Pebble Bed Modular Reactor. The NRC staff met with various international organizations regarding technical and licensing issues associated with small and medium-sized reactors.

New Reactor Licensing Activities as of March 31, 2009

Organization/Design*	Sites under Consideration **	Planned Applications	Application Submittal Date	Historical Reference of the Applicant's incoming information to the NRC
AP1000 (52-006) Certified Design (AP1000 Design Certification Amendment Submitted 05/26/07)				
Duke (52-018/019)	William S. Lee III Nuclear Station (2) (Cherokee)	COL	12/13/2007	Letters 3/4/05, 10/25/05, 3/16/06 7/17/06 (RIS), 5/31/07 (RIS), and 9/5/2007
NuStart Energy (TVA) (520-014/015)	Bellefonte (2)	R-COL	10/30/2007	Letters 12/7/2004, 11/17/2005, 7/17/06 (RIS), and 5/31/07 (RIS)
Progress Energy (52-022/023)	Harris (2)	COL	02/19/2008	Letters 8/24/05 and 2/1/06; 11/1/05 Mtg Letter 7/12/06 (RIS), 5/31/07 (RIS)
Progress Energy (756)	Levy County, FL (2)	COL	07/30/2008	Letters 8/24/05 2/1/06; 11/1/05 Mtg Letter 7/12/06 (RIS), 5/31/07 (RIS), 3/5/08
South Carolina Electric and Gas (743)	Summer (2)	COL	03/27/2008	Letters 12/5/05, 2/10/06, 3/27/08, 7/13/06 (RIS), and 5/30/07 (RIS)
Southern Nuclear Operating Co. (755)	Vogtle (2)	COL LWA	03/31/2008 Expected 06/09	Letters 7/26/05, 8/17/05, 10/18/05 (Mtg. Summary);7/17/06 (RIS), and 5/30/07 (RIS) Ltr. 03/13/09 (RIS response)
Florida Power and Light (763)	Turkey Point (2)	COL	Expected 06/09	Letters 4/3/06, 7/2/07 (RIS),10/26/07 (RIS), 07/22/08 (RIS), 11/21/08, and 3/09 (RIS)
ESBWR (52-010) Design Certification Application submitted 8/24/05				
Dominion (52-017)	North Anna	R-COL	11/27/2007	Letters 11/22/05, 7/17/06 (RIS), 5/31/07 (RIS), 08/09/07
Entergy (745)	River Bend	COL	9/25/2008	Letters 12/5/05, 7/17/06 (RIS), and 5/31/07(RIS), 8/8/07 and 3/27/08
NuStart Energy (Entergy) (52-024)	Grand Gulf	COL	02/27/2008	Letters 12/7/2007, 11/17/2005, 7/17/06 (RIS), 5/31/07 (RIS), 08/08/07 and 8/9/07
Exelon (761)	Victoria County, TX (2)	COL	09/03/2008 Expected third quarter of 2009 Rev.1 – change in technology from ESBWR to ABWR	Letters 09/29/06, 5/31/07 (RIS), 12/20/07, 6/2/08 and 11/24/08 Letter 03/13/09 (RIS Response)

New Reactor Licensing Activities as of March 31, 2009

Organization/Design*	Sites under Consideration **	Planned Applications	Application Submittal Date	Historical Reference of the Applicant's incoming information to the NRC
Detroit Edison Energy (757)	Fermi	COL	09/18/2008	Letters 2/15/07, 5/31/07 (RIS), 11/12/07, 5/16/2008, and 6/9/2008
US EPR (52-020) Design Certification Application submitted 12/2007				
Alternate Energy Holdings (765)	Hammett, ID	COL	Expected 12/2009	Letters 12/14/06, 5/14/07 (RIS), 7/23/07, and 8/14/08 and 8/26/08
Amarillo Power (752)	TBD (2)	COL	4th Qtr 2009	Letters 3/13/06, 7/27/06, 3/15/07, 5/31/07 (RIS), 5/01/08 and 11/14/08
AmerenUE (750)	Callaway	COL	07/24/08	Letters 7/12/06, 12/15/06, 4/5/07, 6/1/07, 5/31/07 (RIS) and 5/1/08
PPL Generation (762)	Bell Bend	COL	10/10//2008	Letters 5/24/07, 6/13/07, 9/4/2007, 5/01/08, and 6/30/08
Calvert Cliffs 3 Nuclear Project, LLC and Unistar Nuclear Operating Services, LLC (52-016)	Calvert Cliffs Nine Mile Point	R-COL COL	7/13/2007 (Env.) and 3/17/2008 (Safety) 9/30/2008	Press Release; 11/2/05 Meeting; Letters 11/4/05, 6/8/06, 6/21/06, 7/13/06 (RIS), 5/31/07 (RIS), and 5/1/08 Letter 9/30/08
US ABWR (52-001) Certified Design Application Submitted 12/31/2007				
NRG Energy (52-012/013)	South Texas Project (2)	R-COL	9/20/07	Letters 6/19/06 and 5/29/07 (RIS)
US-APWR (52-021) Design Certification				
Luminant Generation (754)	Comanche Peak (2)	COL	9/19/2008	Letter 6/27/06, 9/7/06, 1/18/07, 3/9/07, 4/9/07, 5/30/07 (RIS) and 2/4/08

New Reactor Licensing Activities as of March 31, 2009

Unannounced Technology				
Duke	Davie County, NC Oconee County, SC	ESP ESP	TBD TBD	Letter 3/16/06
Unannounced Applicant	TBD	ESP	10/2011 – 9/2012	Letters 4/5/07 and 7/22/08
Mid American (764)	Boise, ID	COL	Cancelled	Letters 8/28/07, 12/5/07, and 1/28/08
PSEG Power LLC	TBD	ESP	2nd Qtr 2010	Letter 1/31/08 and 12/2/08
Unannounced Applicant	TBD	COL	2010-2011	2.390 Letter 4/15/08
Transition Power Blue Castle Project	Utah	ESP/COL	4/2010	Letter 1/30/08
Southern Nuclear Operations Company (SNC)	TBD	COL LWA	Late 2011 May 2009	Letter 03/13/09 (RIS response) Letter 03/13/09 (RIS response)
Proprietary	Proprietary	COL	Late FY2010	Proprietary Letter 3/10/09 (RIS Response)

* Numbers in parentheses are Docket Number or Project Number
** Numbers in parentheses are the announced number of units to be built at the site
R-COL: Reference COL