

**WITS 200100018 - Quarterly CA Note on Status of New Reactor Licensing Activities
October 1 - December 31, 2008**

New Reactor Licensing Reviews

Design Certifications:

To date, three (3) Design Certifications (DCs) and one (1) DC amendment are under review. The staff is currently conducting reviews of the Economic Simplified Boiling Water Reactor (ESBWR) DC; the US Evolutionary Power Reactor (EPR) and the US-Advanced Pressurized Water Reactor (APWR) DCs as well as the Advance Passive (AP)1000 DC Amendment. All acceptance reviews have been completed and review schedules issued except for the ESBWR DC.

The staff is currently establishing the schedule for review milestones for the ESBWR based on design changes incorporated in the Design Control Document (DCD) Revision 5, submitted June 1, 2008, the schedule for review of associated topical reports, and the schedule for General Electric Hitachi Nuclear Energy's (GEH) responses to outstanding requests for additional information (RAIs). In addition, the staff is aware of additional design changes under consideration by GEH which will need to be evaluated for schedule impacts when they are submitted for staff review.

Revision 17 to the AP1000 DCD was submitted the week of September 22, 2008. In Rev. 17, Westinghouse proposed changes that were expected (Control Room Dose) and changes that were not expected (Chapter 8 Electrical – DC Power System Voltage & Design). The staff is re-evaluating the schedule for its review of the amendment to the AP1000 DC due to delayed RAI responses, new submittals, and over-allocation issues.

The status of the DCs that are currently under review is provided in the table below.

Applicant	Design Type	Application Date	Acceptance Date	Status
GEH	ESBWR	Various	Various	Safety review underway.
Westinghouse	AP1000 DC Amendment	5/26/07	01/18/08	Safety review underway.
AREVA	EPR	12/11/07	02/26/08	Review schedule published. Safety review underway.
Mitsubishi	US APWR	12/31/07	2/29/08	Review schedule published. Safety review underway.

Early Site Permits:

The NRC is currently reviewing an Early Site Permit (ESP)/Limited Work Authorization (LWA) application submitted by the Southern Nuclear Operating Company for the Vogtle site in Georgia. The staff issued the Vogtle ESP Final Environmental Impact Statement (FEIS) in August 2008. The staff also issued the Vogtle ESP and LWA Advanced Safety Evaluation

Report (ASER) on November 12, 2008 and met with the Advisory Committee on Reactor Safeguards (ACRS) on December 3-4, 2008. Following completion of the review by the ACRS, the staff expects to issue the Vogtle ESP Final Safety Evaluation Report (FSER) on February 5, 2009.

Combined License Applications:

As of December 31, 2008, the staff has received seventeen (17) Combined License (COL) applications (COLAs) for review. The current status of the COLAs that are currently under review is provided in the table below.

Applicant	Design Type	Application Date	Acceptance Date	Status
UniStar Nuclear (Calvert Cliffs)	EPR (Reference Plant)	7/13/07 3/17/08 8/14/08	2/11/08 (Part 1) 6/3/08 (Part 2)	Parts 2 and 3 of COL application submitted on March 17 and August 14, 2008, respectively. Review schedule published.
NRG Energy (South Texas Project (STP))	ABWR (Reference Plant)	9/20/07	11/29/07	Schedule TBD. Applicant had requested that the staff stop its review on portions of application pending resolution of vendor support issues. Revision 2 of the STP application was received on September 24, 2008. The NRC is reviewing Revision 2 to ensure it contains the information necessary to resume a full review and publish a schedule.
TVA (Bellefonte)	AP1000 (Reference Plant)	10/30/07	1/18/08	Review schedule published. Safety and environmental reviews underway.
Dominion (North Anna)	ESBWR (Reference Plant)	11/27/07	2/11/08	Review schedule published. Safety and environmental reviews underway.
Duke (Lee)	AP1000	12/13/07	2/25/08	Review schedule published. Safety and environmental reviews underway.
Progress Energy (Shearon Harris)	AP1000	2/19/08	4/17/08	Review schedule published. Safety and environmental reviews underway.
Entergy (Grand Gulf)	ESBWR	2/27/08	4/17/08	Review schedule published. Safety and environmental reviews underway.

Applicant	Design Type	Application Date	Acceptance Date	Status
Southern Nuclear Operating Co. (Vogtle)	AP1000	3/31/08	5/30/08	Review schedule published. Safety and environmental reviews underway.
South Carolina Electric & Gas (VC Summer)	AP1000	3/31/08	7/31/08	Review schedule published. Safety and environmental reviews underway.
AmerenUE (Callaway)	US EPR	7/28/2008	12/04/08	Review schedule to be published.
Progress Energy (Levy County)	AP1000	7/30/08	10/01/08	Review schedule deferred until after receipt and evaluation of the additional geotechnical information. All other portions of the review commenced October 6, 2008.
Exelon (Victoria County)	TBA	9/03/08	10/28/08	Review schedule deferred. Exelon notified the NRC that it expects to change technology. Staff determined that principal portion of review will be suspended and development of schedule will be deferred. Continuation of FEMA's review of offsite emergency preparedness is the only exception to the suspension. The existing application will remain docketed.
Detroit Edison Energy (Fermi)	ESBWR	9/18/08	10/25/08	Review schedule to be published.
Luminant Power (Comanche Peak)	US-APWR	9/19/08	11/21/08	Review schedule deferred until after receipt and evaluation of responses to staff's questions on accidental releases of radiological liquid effluent. Recent proposed changes to US-APWR DCD will also be evaluated prior to issuance of schedule.
Entergy (River Bend)	ESBWR	9/25/08	11/25/08	Review schedule to be published.

Applicant	Design Type	Application Date	Acceptance Date	Status
Unistar Nuclear (Nine Mile Point)	EPR	9/30/08	12/4/08	Review schedule to be published.
PPL Generation (Bell Bend)	EPR	10/10/2008	12/15/08	Review schedule to be published.
FPL (Turkey Point)	AP1000	Expected 6/30/09		
Alternate Energy Holdings (Hammett)	EPR	Expected 4 th Quarter 2009		
Amarillo Power	EPR	Expected 4 th Quarter 2009		

Details regarding review status as well as project risks and schedule changes associated with each of the new reactor licensing reviews discussed above are available at [NRO Project Status Reports 2009](#). In addition, review schedules and other pertinent information regarding these reviews are available on the public webpage at <http://www.nrc.gov/reactors/new-reactor-licensing.html>. The staff has also posted detailed review schedules for COLAs and DCs onto the NRC's public website.

Other Licensing Activities:

The staff conducted a Public Outreach Meeting in support of the River Bend COLA on November 18, 2008.

The staff conducted a Department of Homeland Security (DHS) site visit at VC Summer in October 2008. The staff provided a DHS Consultation report for the North Anna site in November 2008.

Regulatory Infrastructure Activities

Aircraft Impact Assessment (AIA) Rulemaking:

The staff has developed regulations and is continuing to assess and pursue rulemakings to support the licensing of new reactors and address major policy issues such as the need to address possible aircraft impacts during the design of new reactors. The staff issued a proposed rule for comment which was published in the *Federal Register* on October 3, 2007. In this rule, the NRC is proposing that applicants for new nuclear power reactor designs to assess the effects of the impact of a large, commercial aircraft on the nuclear power plant. Based on the insights gained from this assessment, the applicant would be required to describe and evaluate design features, functional capabilities, and strategies to avoid or mitigate the effects of the aircraft impact. The staff has evaluated public comments and discussed the rulemaking with the ACRS at a meeting on July 9, 2008. A favorable letter was received from

the ACRS on July 18, 2008 (ML081930284). The rulemaking package was presented to the steering committee on August 13, 2008, and the steering committee's comments were incorporated into the package. The draft Final Rule (SECY-08-0152) was provided to the Commission on October 15, 2008.

The staff is continuing to interact with industry regarding its development of guidance for performing assessments of aircraft impacts with hopes of being able to reference the industry guidance in a future regulatory guide. Interactions with industry regarding specific reactor designs and their assessments will follow activities related to the guidance and rulemaking. The staff is currently reviewing an August 14, 2008, version of a Nuclear Energy Institute (NEI) guidance document, NEI 07-13, "Methodology for Performing Aircraft Impact Assessments for New Plant Design." It is expected that applicants will submit revisions to their applications in early 2009 to address the AIA rulemaking, and other requirements within the security rulemaking.

Standard Review Plan:

Since the March 2007 revision of the standard review plan (SRP), the staff has issued updates to sections on the maintenance rule and Probabilistic Risk Assessment (PRA). Plans are being developed to better integrate the maintenance of the SRP into the roles and responsibilities of technical branches by utilizing tools such as Wizard and other knowledge management activities. The following office instructions were issued in September 2008, "Maintaining and Updating the Standard Review Plan" (NRO-REG-300) and "Development and Issuance of Interim Staff Guidance for the Office of New Reactors" (NRO-REG-301). Also, the staff initiated changes to designs or programs (backfit) and these changes are in concurrence process.

Part 73 Security Rulemaking:

The Part 73 security rulemaking is primarily the vehicle to codify the requirements imposed on operating reactors by Orders issued after September 11, 2001. The Part 73 rulemaking (SECY-08-0099) was approved by the Commission on December 17, 2008.

The Office of New Reactors (NRO) staff began discussions with NEI and Design Center Working Groups (meeting held on July 2 and July 22) on the development of guidance for mitigating strategies for loss of large areas due to explosions or fires (Item B.5.b in ICM Orders for operating plants; and section 50.54(hh) in proposed security rulemaking).

The security rulemaking includes a new provision for cyber security. A draft of the associated guidance document was issued for public comment. A meeting on the associated draft regulatory guide was held on July 18, 2008.

DC Rulemaking:

A potential scheduling issue that has been introduced by the concurrent reviews of DC applications and related combined COLAs relates to the need to complete the DC rulemaking prior to the completion of hearings and issuance of a COL that relies on that DC. The typical rulemaking process includes publication of a proposed rulemaking for public comment, resolution of public comments, and then the issuance of the final rule. Including the development of the rulemaking packages, public comment periods, reviews by the Commission, the Office of the *Federal Register*, and the Office of Management and Budget (OMB), the

rulemaking process typically takes approximately two years from the start of the effort to the time the final rule is published. Given the current schedules for completing some of the DCs and related COLAs, the rulemaking process could be a significant critical path item for the issuance of the first COL in several design centers. The staff evaluated the DC rulemaking process as part of the NRC's lean six sigma program in order to identify possible ways to shorten the rulemaking process and coordinate activities (design reviews, rulemaking, licensing) to minimize the contribution of the rulemaking to the COL schedules. In addition to several internal process improvements, the staff is proposing policy changes in a Commission paper scheduled to be issued in January 2009. If the various identified improvements are implemented, the staff believes that the DC rulemakings could be completed in about one year and could be timed to minimize possible delays in the COL licensing process. In a related activity, the staff is also preparing a request to the Commission to establish the NRO as a lead rulemaking office similar to the Office of Nuclear Reactor Regulation and the Office of Federal and State Materials and Environmental Management Programs. This Commission paper is also scheduled to be issued in January 2009.

Advanced Reactors:

A meeting with NuScale regarding its small light water reactor design was held on November 20, 2008. NuScale has stated that they intend to submit technical reports for staff review as part of its pre-application activities. A follow-up meeting is being planned for early 2009.

A meeting with Department of Energy/Idaho National Laboratory was held on December 11, 2008, to discuss the next generation nuclear plant (NGNP) licensing strategy. The meeting focused on the selection of licensing activities and design basis accidents.

A more complete status of guidance development and rulemaking, as well as activities associated with Advanced Reactors is available under the section entitled, "Regulatory Infrastructure," at [Hot Topics](#).

Contracting Activities:

For the first quarter of FY09, NRO committed a total of approximately \$5.8 M and obligated a total of \$2.9 M.

Construction Inspection Activities

The staff initiated a revision to Inspection Manual Chapter 2504, "Construction Inspection Program - Non-ITAAC Inspections," and completed several inspection procedures to support inspections of construction activities. The staff is progressing on the remaining four (4) Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) inspection procedures and is on track to complete during the current fiscal year.

Six (6) ITAAC inspection strategy documents were also completed and approved. The staff prepared a draft regulatory guidance document to endorse the industry guidance document, NEI 08-01, for Part 52 applicants and licensees on requirements for the ITAAC closure process. The draft regulatory guide will be provided to the Commission for review following the public comment period (response to SRM M081022, dated December 5, 2008). In addition, the staff

began drafting an Office Instruction on the construction experience (ConE) program and two Information Notices on construction experience associated with flood protection and electrical cables and junction boxes. The staff also finalized a draft construction inspection program information brochure 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," (SECY-08-0155), dated October 17, 2008 (ML082330415), 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 provided the Commission with a periodic briefing on the status of the new reactor construction inspection program (CIP). Other stakeholder interactions included two public meetings in the Washington, DC area to work through implementation details associated with ITAAC closure, licensee assessment, enforcement, and 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 Nuclear Energy Agency 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.

International Activities

From October 8-10, 2008, the staff participated in a workshop co-sponsored by the International Atomic Energy Agency addressing the use of Field Programmable Gate Array (FPGA) technology in nuclear power plant safety systems. This technology is expected to be deployed for new reactor designs. The staff chaired a session of the FPGA workshop regarding licensing requirements.

From October 20-31, 2008, the staff and contractors held a workshop in Beijing, China, with the Chinese regulator, National Nuclear Safety Administration (NNSA), on topical issues related to the NRC safety review of the AP1000 DC. The NRC provided this workshop as part of the memorandum of understanding (MOU) between the governments. The NRC expects this to be followed by additional technical exchanges under the Multi-National Design Evaluation Program (MDEP) and bilateral activities.

In October 2008, the three MDEP Issue-Specific Working Groups held meetings in Paris and Dijon, France. These included the Digital Instrumentation and Controls, Vendor International Cooperation, and the Codes and Standards Working Groups. Additionally, in November 2008, the MDEP Technical Steering Committee (TSC) met in Paris, while the EPR Design Specific Working Group met in Helsinki, Finland. The EPR Working Group meeting also included meetings by the probabilistic risk assessment/severe accident, digital I&C, and the containment subgroups. The meeting summaries are available on the NRO website.

Under the auspices of the Committee on Nuclear Regulatory Activities, a Working Group on Regulating New Reactors was organized with membership by the regulators of approximately 15 countries, which will initially be led by NRO management. The program plan for the working group is in the development stages. In general, the working group will concentrate on issues associated with new construction. The current Chairperson of the working group is from the NRC and has the lead to coordinate the international efforts. The first two meetings were held in May and October 2008. The major areas of cooperation discussed at these meetings were the construction experience database, nuclear plant site selection and preparation, and proposals for interaction with MDEP and other organizations involved with issues related to new nuclear construction.