

## NRC LIAISON REPORT

### **Forsmark Lessons learned Workshop**

The July 2006 Forsmark-1 event identified a number of design deficiencies related to electrical power supply to systems and components important to safety in nuclear power plants. While plant-specific design features at Forsmark-1 contributed to the severity of the sequence of events which occurred at Forsmark, a number of the design issues are of a generic nature as they relate to commonly used approaches, assumptions, and design standards for voltage protection of safety related equipment.

The objective of this workshop is to present and discuss the lessons learned from the DIDEISYS task group in order to obtain peer review feedback, and to share the number of findings and recommendations that should be considered by the regulatory authorities, industry, and electrical standard organizations in the member countries.

Participants should fill in the attached registration form or the electronic registration form at [www.nea.fr/html/calendar.html](http://www.nea.fr/html/calendar.html) and send it by **1st May 2009** to the NEA Secretariat: OECD-NEA Mr. Alejandro Huerta Nuclear Safety Division Le Seine St-Germain 12 bd des Iles F-92130 Issy-les-Moulineaux France E-mail: [alejandro.huerta@oecd.org](mailto:alejandro.huerta@oecd.org)

**Exelon Picks Hitachi To Build Texas ABWR** Exelon Corp. announced Thursday that it has selected General Electric's Advanced Boiling Water Reactor for its planned nuclear plant in Texas, but in a major surprise said it has inked a deal to pursue the project with a U.S. subsidiary of Japan's Hitachi Ltd. rather than GE-Hitachi, the U.S.-based vendor of the reactor. Although it was designed by GE, the Advanced Boiling Water Reactor (ABWR) can also be built by Hitachi and Toshiba under licensing agreements with GE. On Thursday, Exelon spokesman Craig Nesbit said the Chicago-based utility has signed a "services agreement and term sheet" with Hitachi Power Systems America Ltd., for construction of two ABWRs at its planned new plant in Victoria County Texas—where Exelon previously had planned to team with GE-Hitachi.

**NRC Votes To Relicense Oyster Creek Station.** Coverage of the Commissioners 3-1 vote on Oyster Creek attracted the attention of mostly regional and wire news outlets. Most of the sources noted the plant's age and the corrosion problems plaguing its drywell liner. Under the headline, "Nuclear Reactor's Life Is Prolonged In New Jersey," the New York Times (4/2, A23, Wald, 1.12M) reports the NRC's vote will "allow the Oyster Creek nuclear reactor in South Jersey to operate for another 20 years," even as it rejected "claims made by opponents about risk," from the rust that "had corroded its steel liner," which "would contain radioactive steam in an emergency and supports hundreds of tons of water in a pool above the reactor during routine refueling." The Times adds that "after extensive repeated examinations by" plant operator Amergen Energy, NRC engineers "concluded that the rust was not progressing and that enough metal remained for safe operation." The Times suggests that by "authorizing its staff to extend the Oyster Creek license, [NRC Commissioners] sent a signal that opponents of renewals at other plants - including Indian Point 2 and 3 in Buchanan, N.Y., and Vermont Yankee in Vernon, Vt. - may find it hard to prevail."

**NRC will close out reviews of Entergy COL applications** The NRC staff plans to wind down over the next several weeks its review of Entergy's applications for combined construction permit-operating licenses, or COLs, at the Grand Gulf and River Bend sites. David Matthews, director of NRC's division of new reactors, said it might take six to eight weeks to bring the work on the environmental review at the Grand Gulf site to an "orderly close." Entergy asked January 9 that the reviews of its two COL applications be suspended because it had been unable to reach an agreement with GE Hitachi on the terms of an engineering, procurement and construction contract for an ESBWR unit at each of the existing reactor sites in Mississippi and Louisiana.

**Georgia Power Seeks To Recover Costs For Plant Vogtle New Reactor Construction.** The Atlanta Business Chronicle (1/15, 1:11 pm, Williams) reports, "Georgia Power Co. could start billing customers for a planned nuclear plant expansion as soon as construction begins under legislation a Senate leader will introduce," to amend the current state law, which "would only allow the utility to begin recovering its investment in the \$14.4 billion Plant Vogtle project when the expanded facility goes into service." Company officials want to move up the "recovery of the costs" because they say it "would save ratepayers \$300 million because the company could begin paying off interest on the construction loans sooner." The Business Chronicle adds, "Georgia Power also is seeking approval for the early cost recovery from the Georgia Public Service Commission."

**The Nuclear Regulatory Commission has suspended the principal portions of its reviews of the River Bend and Grand Gulf Combined License applications.** Entergy, which submitted applications for both sites last year, informed the agency recently that the company is considering alternate reactor technologies for both sites and asked the agency to halt its work on the applications.

**Texas Approves First U.S. Nuke Waste Disposal Site In 20 Years Texas:** Regulators last week approved the nation's first new low-level radioactive waste disposal facility in 20 years, granting a license for Waste Control Specialists LLC to build a huge landfill complex in Andrews County near the New Mexico line to take waste from nuclear plants, medical facilities and other commercial generators in Texas and Vermont and contaminated soil and other

**Chairman Klein Plans To Fulfill Remainder Of His Term.** In a short piece, Bloomberg News (1/15, Seeley) reports, "Dale Klein, chairman of the US Nuclear Regulatory Commission, said he intends to serve out the remaining two years of his term, even if he is replaced as head of the agency. 'I don't intend to be leaving soon, I intend to be working, either as chairman or commissioner,' he told reporters today at a press conference in Washington. 'We have a lot of work yet to do.'" Bloomberg adds, "Klein, a Republican, was appointed to the commission in 2006 by President George W. Bush," and his "five-year term ends in 2011. President-elect Barack Obama, a Democrat, has the authority to choose the chairman of the agency." Bloomberg notes the NRC, with a "budget of \$926 million and more than 3,500 employees," received in

2007 "the first new applications to build a US nuclear power plant since the Three Mile Island accident in 1978."

**NRC Hosts Environmental Scoping Hearings On DTE's Proposal For Fermi 3 Reactor.** [WTVG-TV Toledo, OH](#) (1/14) reported on its website that "the NRC is soliciting public comment on environmental issues," pertaining to DTE Energy's bid "to build a third nuclear power plant in Monroe." WTVG-TV added, "It's called the environmental scoping process and it's essentially the first step in a very long process. DTE Energy wants to build a Fermi 3 nuclear power plant. The company wants to construct the plant on the same property as the Fermi 1 and 2 plants. ... Four months ago, DTE submitted an application for a combined license to the" NRC and "the commission is holding two meetings to gather public comment.

**Dominion To Consider Other Reactor Designs For New Unit At North Anna Station.** The [Fredericksburg \(VA\) Free Lance-Star](#) (1/13) reports on Dominion's decision to explore other options for its proposed new nuclear unit at North Anna Power Station, because it "has been unable to reach an agreement with GE Hitachi on" engineering, procurement and construction in order to proceed.

**Progress Energy Taps Westinghouse, Shaw Group For Work On Levy County New Reactors.** The [AP](#) (1/6) reports on Progress Energy Florida's announcement that it "struck a deal with Westinghouse Electric Co. and Shaw Group Inc.'s Power Group for the development of two nuclear units for a proposed nuclear power plant in Levy County, Fla."

**Progress Proceeding On New Florida Reactors Without Loan Guarantee**  
Progress Energy announced Monday it has signed a contract with Westinghouse Electric Co. LLC and The Shaw Group Inc. to build two of Westinghouse's next-generation reactors at a greenfield site in Florida—a project that will proceed without the backing of federal loan guarantees offered by the government for new nuclear construction.

**NRC Expands Rules On Reactor Safeguards Against Plane Attacks:** In a regulatory change that would slow NRG Energy's new reactors project at the South Texas Project nuclear plant, the Nuclear Regulatory Commission earlier this month issued a draft rule that would require already- approved reactor designs to be evaluated for possible changes to protect against airplane attacks, a switch from the commission's previous plan. The NRC's initial version of the rule, issued in April 2007, would have applied the new airplane-protection requirements only to new reactor designs that are currently seeking NRC design certification. But a majority of those commenting on the initial rule protested that exclusion, and NRC staff agreed the criticism was valid. "The underlying objectives of the aircraft impact rule would not be fully achieved if a subset of future nuclear power plant applicants—namely, those applicants [for licenses to build new plants] who reference one of the four existing design certifications--are not required to comply with the aircraft impact rule," NRC staff said in an October 15 memo that was made public last week.

**Areva, Northrop To Restore U.S. Reactor Production Capacity:** In a major step forward for the rebirth of the North American nuclear power market, Areva and Northrop

Grumman Corp. announced Thursday they will build a new \$336 million facility in Newport News, Va., to manufacture large components—such as steam generators and reactor vessels—for Areva-designed nuclear plants that the French company hopes to deploy in Canada and the United States.

The plant would be the only facility in the United States capable of manufacturing such huge reactor components, complementing a limited number of plants in Asia and a large facility in France, also owned by Areva. The announcement is huge news for the nuclear industry, whose officials for years have pointed to limited forging and manufacturing capacity worldwide as a possible bottleneck to construction of new nuclear power plants now being considered or undertaken for the first time in decades by utilities on several continents.

**S&P To Nuclear Plant Developers: Bring Liquidity:** At a time when access to capital is difficult at best, companies seeking to build new U.S. nuclear plants will need substantial liquidity—enough to cover an unplanned shutdown of up to 18 months—to get the investment grade rating many will need to obtain loans to construct the new plants, Standard & Poor's said Tuesday. In a new analysis, the credit rating agency said nuclear plant developers need to have sufficient cash or credit to cover all plant operation and maintenance, debt service and possibly replacement power costs in case of an extended outage, which many experts say may occur with the first plants using new, untested reactor designs.

**Florida PSC OKs Bill Hikes To Support New Nukes:** Approving key financial protections for two utilities' plans to build thousands of megawatts of new nuclear projects in Florida, state regulators voted unanimously Tuesday to allow Florida Power & Light Co. and Progress Energy Florida to begin billing ratepayers next year for construction costs of new nuclear plants and expansion of existing units. The vote allows Florida Power & Light (FPL), the regulated utility of FPL Group, to recover \$220.5 million next year from ratepayers for the costs of boosting power output at its Turkey Point and St. Lucie reactors and for early construction costs of building two new reactors at Turkey Point, located near Homestead, Fla. Similarly, Progress Energy Florida (PEF) won approval to recover \$418.3 million in 2009 for the cost of a power uprate at its Crystal River nuclear plant and for the start of construction of two proposed new reactors at a new site in Florida's Levy County.

**BWR Owners Group announces plan to assess, remedy strainer issues:** The BWR Owners Group has developed a program to assess the probability of, and develop remedies for, potential clogging of strainers after a loss-of-coolant accident, or LOCA, BWROG officials told NRC staff at a meeting last week. In response to an NRC generic letter, GL 2004-1, US PWR operators are completing a four-year fleetwide effort to upgrade their containment sumps to reduce the risk of debris clogging. The concern is that long-term core cooling could be jeopardized after a LOCA if clogging impedes recirculation of cooling water by the sump. BWRs do not have sumps, but their suction strainers perform a similar function. Last year the staff asked the BWROG to review several issues related to BWR strainer clogging that were raised by industry and agency research to address the PWR sump issue (INRC, 9 June, 1). At a September 10 meeting at NRC headquarters, BWROG Chairman Doug Coleman said the owners group has approved a three-year program to address strainer issues. The group has allocated 2008 funding for the program and is "very close" to approving funding for 2009, Coleman said. The BWROG wants to build on lessons the industry and NRC learned upgrading PWR sumps to "do this once and expeditiously," he said.

**TVA asks NRC to reinstate Bellefonte-1 and -2 construction permits:** The Tennessee Valley Authority is revisiting whether to complete Bellefonte-1 and -2 and has asked NRC to reinstate the construction permits for the partially completed reactors near Scottsboro, Alabama. TVA said the reactors' economic viability may have changed since NRC approved the federal agency's request to cancel the Bellefonte construction permits in 2006. In an August 27 press statement, the Tennessee Valley Authority said reinstating the permits was part of its effort to evaluate the feasibility of completing the reactors to meet future power needs. Each Bellefonte unit was to have been a 1,263-MW Babcock & Wilcox PWR. The units had been in deferred status since the late 1980s.

**Generic Letters: None after 2008-01 on Gas Accumulation issued in Jan 2008**

**Information Notices Issued in 2008-09**

<a href="#">in2009-03</a>	03/11/2009	Solid State Production System Card Failure Results in Spurious Safety Injection and Reactor Trip. The spurious SI caused main feedwater system isolation, a turbine trip, and a reactor trip, along with emergency core cooling system water flow into the reactor coolant system (RCS). Because of the nature of the failure, the licensee could not reset from the control room the actuation signal for some "B" train SI equipment, which resulted in overfilling the pressurizer and multiple actuations of a pressurizer power-operated relief valve (PORV) to limit RCS pressure. RCS inventory from the PORV discharged to the pressurizer relief tank (PRT), rupturing one of the PRT rupture disks, which allowed RCS water to reach the containment basement.
<a href="#">in2009-02</a>	02/23/2009	Biodiesel In Fuel Oil Could Adversely Impact Diesel Engine Performance

Document Number	Date	Description
<a href="#">IN2008-21</a>	11/24/2008	Impact Of Non-Safety Electrical Support System Vulnerabilities On Safety Systems
<a href="#">IN2008-20</a>	12/08/2008	Failures of Motor Operated Valve Actuator Motors with Magnesium Alloy Rotors
<a href="#">IN2008-19</a>	12/16/2008	Tamper-Indicating Device Issues
<a href="#">IN2008-18</a>	12/01/2008	Loss of a Safety-Related Motor Control Center Caused by a Bus Fault
<a href="#">IN2008-17</a>	10/22/2008	Construction Experience With Concrete Placement
<a href="#">IN2008-16</a>	9/02/2008	Summary of Fitness-For-Duty Program Performance Reports for Calendar Year 2007
<a href="#">IN2008-15</a>	8/12/2008	Emergency Response Data System Test Schedule Revised
<a href="#">IN2008-14</a>	7/29/2008	Criticality Safety-related Events Resulting from Fissile Material Operations under Procedures Not Reviewed by Criticality Safety Staff

<a href="#">IN2008-13</a>	7/30/2008	Main Feedwater System Issues and Related 2007 Reactor Trip Data
<a href="#">IN2008-12</a>	7/7/2008	Braidwood Unit 1 Reactor Trip Due to Off-Site Power Fluctuation
<a href="#">IN2008-11</a>	6/18/2008	Service Water System Degradation at Brunswick Steam Electric Plant Unit 1

## Regulatory Issue Summary

<a href="#">RIS 09-03</a>	02/12/2009	Process For Scheduling Acceptance Reviews Of New Reactor Licensing Applications After April 2009 and Process For Determining Budget Needs For Fiscal Year 2011
<a href="#">RIS 09-02</a>	01/29/2009	Use of Containment Atmosphere Gaseous Radioactivity Monitors for Reactor Coolant System Leakage Detection Equipment at Nuclear Power Reactors

Document Number	Date	Title
<a href="#">RIS 08-30</a>	12/16/08	Fatigue Analysis Of Nuclear Power Plant Components
<a href="#">RIS 08-28</a>	12/01/08	Endorsement Of Nuclear Energy Institute Guidance For Reactor Vessel Head Heavy Load Lifts
<a href="#">RIS 08-27</a>	12/08/08	Staff Position on Extension of the Containment Type A Test Interval Beyond 15 Years Under Option B of Appendix J of 10 CFR Part 50
<a href="#">RIS 08-26</a>	10/29/08	Clarified Requirements of Title 10 of the Code of Federal Regulations (10 CFR) Section 50.54(Y) when Implementing 10 CFR Section 50.54(X) to Depart from a License Condition or Technical Specification
<a href="#">RIS 08-25</a>	10/22/08	Regulatory Approach for Primary Water Stress Corrosion Cracking of Dissimilar Metal Butt Welds in Pressurized Water Reactor Primary Coolant System Piping
<a href="#">RIS 08-24</a>	10/03/08	Security Responsibilities of Service Providers and Client Licensees
<a href="#">RIS 08-23</a>	10/03/08	The Global Threat Reduction Initiative (GTRI) Domestic Threat Reduction Program & Federally Funded Voluntary Security Enhancements For High-Risk Radiological Material
<a href="#">RIS 08-22</a>	10/06/08	Notification Of Licensees Regarding Aircraft Threats
<a href="#">RIS 08-21</a>	09/02/08	Issuance of LIC-109, "Acceptance Review Procedures"
<a href="#">RIS 08-20</a>	08/20/08	Redesignation of Safeguards Advisory for Operating Power Reactors

## Regulatory Guides Out For Comment

Task Number	Title	Publish Date
-------------	-------	--------------

DG-1132	Qualification of Safety-Related Cables and Field Splices for Nuclear Power Plants ( <a href="#">ML071440445</a> )	06/2007
DG-1138	(Proposed Appendix C to Regulatory Guide 1.200) NRC Staff Regulatory Position on ANS External Hazards PRA Standard ( <a href="#">ML042430314</a> )	09/2004
DG-1149	Qualification of Safety-Related Motor Control Centers for Nuclear Power Plants ( <a href="#">ML072760149</a> )	07/2008
DG-1175	Seismic Qualification of Electric and Active Mechanical Equipment and Functional Qualification of Active Mechanical Equipment for Nuclear Power Plants ( <a href="#">ML072620346</a> ) Being revised based on Public meeting in Dec 2008	05/2008
DG-1183	Sizing of Large Lead-Acid Storage Batteries ( <a href="#">ML080650493</a> )	07/2008
DG-1186	Measuring, Evaluating, and Reporting Radioactive Materials in Liquid and Gaseous Effluents and Solid Wastes ( <a href="#">ML080660617</a> )	10/2008
DG-1195	Availability of Electric Power Sources ( <a href="#">ML080570075</a> )	05/2008
DG-1198	Physical Models for Design and Operation of Hydraulic Structures and Systems for Nuclear Power Plants ( <a href="#">ML081080301</a> )	07/2008
DG-1200	An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities ( <a href="#">ML081200566</a> )	06/2008
DG-1205	Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems ( <a href="#">ML082140114</a> )	

<http://www.nrc.gov/reading-rm/doc-collections/reg-guides/power-reactors/draft-index.html>

### Regulatory Guides Issued

	--	03/2007
<b>1.210</b>	Qualification of Safety-Related Battery Chargers and Inverters for Nuclear Power Plants ( <a href="#">ML080640184</a> )	06/2008
1.212	Sizing of Large Lead-Acid Storage Batteries ( <a href="#">ML082740047</a> )	11

### Status of Updating Software Related Regulatory Guides

1. Reg. Guide 1.169, "Configuration Management Plans for Digital Computer Software Used in Safety Systems in Nuclear Plants"
  - Work initiated in December
  - Background research complete
  - Briefing package presenting findings and regulatory position issues to be available end of January
  - Initial draft available February
  
2. Reg. Guide 1.170, "Software Test Documentation for Digital Computer Software Used in Safety Systems of Nuclear Power Plants"
  - Work initiated in December
  - Background research complete
  - Briefing package provided to NRC TM on comparison of the differences between 829-1998

- Key Issue Discussed with NRC TM: Base updated RG on which version of IEEE 829, the soon to be completed 2008 version or on the 1998 version?  
Resolution: Since the 2008 version is nearly complete (second balloting), proceed to develop the preliminary draft of this updated RG based upon the 2008 version and wait until 829-2008 has been approved before preparing the final draft of this RG.
3. Reg. Guide 1.171, “Software Testing for Digital Computer Software Used in Safety Systems of Nuclear Power Plants”
    - Work initiated in December
    - Background research complete
    - Briefing package presenting findings and regulatory position issues to be available in early February for discussion with NRC TM
    - Key Issue Discussed with NRC TM: Proceed with preparation and discussion of Briefing Package and evaluate whether to proceed on updating this RG based upon any impacts from IEEE-829-2008, from new regulations, and/or IEEE-603 since IEEE 1008-1987 has not been updated.

[Mike Waterman]

The above RG drafts have been completed and are in the process of being reviewed by NRC staff prior to submitting to the public.

4. Reg. Guide 1.172, “Software Requirements Specifications for Digital Computer Software Used in Safety Systems of Nuclear Power Plants”
  - Work to be initiated in February on updating this RG
  - Initial draft available in March
5. Reg. Guide 1.173, “Developing Software Life Cycle Processes for Digital Computer Software Used in Safety Systems of Nuclear Power Plants”
  - Work to be initiated in March on updating this RG
  - Initial draft should be available in April.

[Mike Waterman]

The initial drafts of the above two RGs have been prepared and are being reviewed by the contractor before being submitted to the NRC for review.

### Interim Staff Guidance Status

1. TWG #1 – Cyber Security
  - Issued December 31, 2007, ML072980159
2. TWG #2 – Diversity and Defense-in-Depth
  - Issued September 26, 2007, ML072540118

[Mike Waterman]

Research supporting the D3 ISG on adequate diversity is nearing completion. An associated white paper on operating experience (OE) has been submitted to the NRC for review. Comments regarding the OE white paper [Mike Waterman] have been forwarded to the industry.

3. TWG #3 – Review of New Reactor Digital Instrumentation and Control Probabilistic Risk Assessments



- Issued November 29, 2007, ML073270006
- 4. TWG #4 – Highly Integrated Control Rooms – Communications Issues
  - Issued September 28, 2007, ML072540138
- 5. TWG #5 – Highly Integrated Control Rooms – Human Factors Issues
  - Issued September 28, 2007, ML072540140
- 6. TWG #6 – Digital I&C Licensing Process
  - Issued October 15, 2007, ML072980287

[Mike Waterman]

Work is proceeding on refining the guidance in the licensing process ISG. The staff [**Mike Waterman**] is addressing issues regarding content of licensee and applicant submittals and licensing processes that should be endorsed.

- 7. TWG #7 – Fuel Cycle Facilities
  - Ongoing work to develop ISG

This work is ongoing.

**New Reactor Licensing Activities: COL Applications Received**

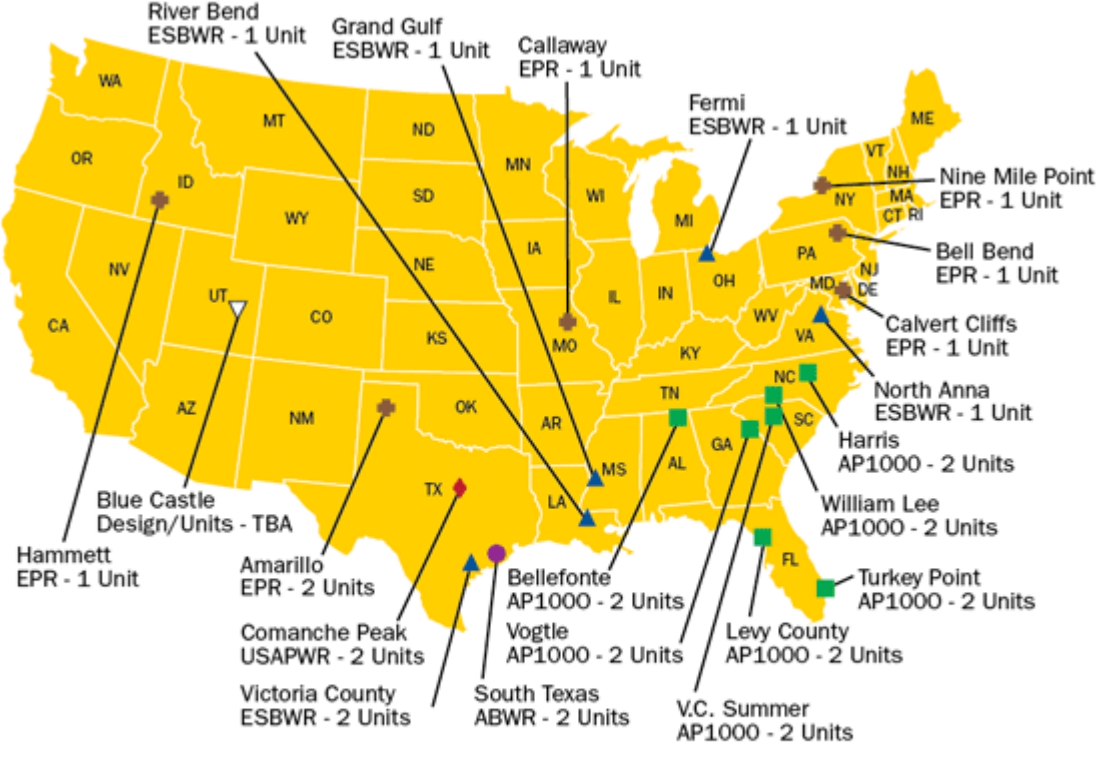
**Consolidated Schedule For Docketed Combined License And Design Certification Applications**

Plant Name And Application Type	Referenced Design	Application Tendered and Docketing Dates (Month/Year)		Safety Review Phase Completion Dates (Month/Year)		Environmental Review Phase Completion Dates (Month/Year)									NRC Licensing Decision (Includes Hearings for COLAs and Rulemakings for Design Certification Applications)
		Tendered	Docketed	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4		
<b>ABWR Design Center</b>															
STP (RCOL)	ABWR	Sep 2007	Nov 2007	TBD	TBD	TBD	TBD	TBD	TBD	Dec 2007	TBD	TBD	TBD	TBD	TBD
<b>AP1000 Design Center</b>															
AP1000 (DC Amend)	NA	May 2007	Jan 2008	Sep 2008	Apr 2009	Jul 2009	Oct 2009	Jan 2010	Mar 2010	NA	NA	NA	NA	NA	TBD
Bellefonte (RCOL)	AP1000	Oct 2007	Jan 2008	Jan 2009	Sep 2009	Feb 2010	Sep 2010	Jan 2011	Mar 2011	Aug 2008	Mar 2009	Aug 2009	Jan 2010	TBD	
Lee (SCOL)	AP1000	Dec 2007	Feb 2008	Feb 2009	Oct 2009	Jan 2010	Sep 2010	Dec 2010	Feb 2011	Sep 2008	Mar 2009	Aug 2009	Mar 2010	TBD	
Shearon Harris (SCOL)	AP1000	Feb 2008	Apr 2008	Nov 2008	Jul 2009	Jan 2010	Oct 2010	Feb 2011	Apr 2011	Nov 2008	Jun 2009	Nov 2009	May 2010	TBD	
Vogtle (SCOL)	AP1000	Mar 2008	May 2008	Jan 2009	Jul 2009	Nov 2009	Jul 2010	Nov 2010	Dec 2010	NA	Apr 2009	Aug 2009	Jan 2010	TBD	
V.C.Summer (SCOL)	AP1000	Mar 2008	Jul 2008	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
<b>EPR Design Center</b>															
EPR (DC)	NA	Dec 2007	Feb 2008	Jan 2009	Nov 2009	Mar 2010	Nov 2010	Mar 2011	May 2011	NA	NA	NA	NA	TBD	
Calvert Cliffs (RCOL)	EPR	Mar 2008	Jun 2008	Jun 2009	Feb 2010	May 2010	Feb 2011	Jun 2011	Aug 2011	Oct 2008	Feb 2009	Nov 2009	Mar 2010	TBD	
<b>ESBWR Design Center</b>															
ESBWR (DC)	NA	Aug 2005	Dec 2005	TBD	TBD	TBD	TBD	TBD	TBD	TBD	NA	NA	NA	NA	TBD

North Anna (RCOL)	ESBWR	Nov 2007	Jan 2008	Aug 2008	Apr 2009	Jul 2009	Mar 2010	Jul 2010	Aug 2010	Sep 2008	Dec 2008	Jun 2009	Dec 2009	TBD
-------------------	-------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	-----

Proposed New Reactor(s)	Design	Applicant
<a href="#">Bell Bend Nuclear Power Plant</a>	<a href="#">U.S. EPR</a>	PPL Bell Bend, LLC
<a href="#">Bellefonte Nuclear Station, Units 3 and 4</a>	<a href="#">AP1000</a>	Tennessee Valley Authority (TVA)
<a href="#">Callaway Plant, Unit 2</a>	<a href="#">U.S. EPR</a>	AmerenUE
<a href="#">Calvert Cliffs, Unit 3</a>	<a href="#">U.S. EPR</a>	Calvert Cliffs 3 Nuclear Project, LLC. and UniStar Nuclear Operating Services, LLC.
<a href="#">Comanche Peak, Units 3 and 4</a>	<a href="#">US-APWR</a>	Luminant Generation Company, LLC (Luminant)
<a href="#">Fermi, Unit 3</a>	<a href="#">ESBWR</a>	Detroit Edison Company
<a href="#">Grand Gulf, Unit 3</a>	<a href="#">ESBWR</a>	Entergy Operations, Inc. (EOI)
<a href="#">Levy County, Units 1 and 2</a>	<a href="#">AP1000</a>	Progress Energy Florida, Inc. (PEF)
<a href="#">Nine Mile Point, Unit 3</a>	<a href="#">U.S. EPR</a>	Nine Mile Point 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC (UniStar)
<a href="#">North Anna, Unit 3</a>	<a href="#">ESBWR</a>	Dominion Virginia Power (Dominion)
<a href="#">River Bend Station, Unit 3</a>	<a href="#">ESBWR</a>	Entergy Operations, Inc. (EOI)
<a href="#">Shearon Harris, Units 2 and 3</a>	<a href="#">AP1000</a>	Progress Energy Carolinas, Inc. (PEC)
<a href="#">South Texas Project, Units 3 and 4</a>	<a href="#">ABWR</a>	South Texas Project Nuclear Operating Company (STPNOC)
<a href="#">Victoria County Station, Units 1 and 2</a>	<a href="#">ESBWR</a>	Exelon Nuclear Texas Holdings, LLC (Exelon)
<a href="#">Virgil C. Summer, Units 2 and 3</a>	<a href="#">AP1000</a>	South Carolina Electric & Gas (SCE&G)
<a href="#">Vogtle, Units 3 and 4</a>	<a href="#">AP1000</a>	Southern Nuclear Operating Company (SNC)
<a href="#">William States Lee III, Units 1 and 2</a>	<a href="#">AP1000</a>	Duke Energy

# Location of Location of Projected New Nuclear Power Reactors



You may click on a design name to view the NRC's Web site for the specific design.

● ABWR   
 ■ AP1000   
 ⊕ EPR   
 ▲ ESBWR   
 ◆ USAPWR   
 ▽ Design/Units - TBA

## ***Issued Design Certifications***

The NRC staff has issued the following design certifications:

<b>Design</b>	<b>Applicant</b>
<a href="#">Advanced Boiling Water Reactor (ABWR)</a>	General Electric (GE) Nuclear Energy
System 80+	Westinghouse Electric Company
Advanced Passive 600 (AP600)	Westinghouse Electric Company
<a href="#">Advanced Passive 1000 (AP1000)</a>	Westinghouse Electric Company

## ***Design Certification Applications Currently Under Review***

The staff is currently reviewing the following design certification applications:

<b>Design</b>	<b>Applicant</b>
<a href="#">AP1000 Amendment</a>	Westinghouse Electric Company
<a href="#">Economic Simplified Boiling-Water Reactor (ESBWR)</a>	GE-Hitachi Nuclear Energy
<a href="#">U.S. Evolutionary Power Reactor (U.S. EPR)</a>	AREVA Nuclear Power
<a href="#">U.S. Advanced Pressurized-Water Reactor (US-APWR)</a>	Mitsubishi Heavy Industries, Ltd.

**Expected New Nuclear Power Plant Applications  
Updated November 4, 2008**

<b>Company*</b>	<b>Date of Application</b>	<b>Design</b>	<b>Date Accepted</b>	<b>Site Under Consideration</b>	<b>State</b>	<b>Existing Operating Plant</b>
<b>Calendar Year (CY) 2007 Applications</b>						
NRG Energy (52-012/013)***	09/20/2007	ABWR	11/29/2007	South Texas Project (2 units)	TX	Y
NuStart Energy (52-014/015)***	10/30/2007	AP1000	01/18/2008	Bellefonte (2 units)	AL	N
UNISTAR (52-016)***	07/13/2007 (Envir.) 03/13/2008 (Safety)	EPR	01/25/2008	Calvert Cliffs (1 unit)	MD	Y
Dominion (52-017)***	11/27/2007	ESBWR	01/28/2008	North Anna (1 unit)	VA	Y
Duke (52-018/019)***	12/13/2007	AP1000	02/25/2008	William Lee Nuclear Station (2 units)	SC	N
<b>2007 TOTAL NUMBER OF APPLICATIONS = 5 TOTAL NUMBER OF UNITS = 8</b>						
<b>Calendar Year (CY) 2008 Applications</b>						
Progress Energy (52-022/023)***	02/19/2008	AP1000	04/17/2008	Harris (2 units)	NC	Y
NuStart Energy (52-024)***	02/27/2008	ESBWR	04/17/2008	Grand Gulf (1 units)	MS	Y
Southern Nuclear Operating Co. (52-025/026)***	03/31/2008	AP1000	05/30/2008	Vogtle (2 units)	GA	Y
South Carolina Electric & Gas (52-027/028)***	03/31/2008	AP1000	07/31/2008	Summer (2 units)	SC	Y
Progress Energy (52-029/030)***	07/30/2008	AP1000	10/06/2008	Levy County (2 units)	FL	N
Exelon (52-031/032)***	09/03/2008	ESWBR	10/29/2008	Victoria County (2 units)	TX	N
AmerenUE (750)**	07/24/2008	EPR		Callaway (1 unit)	MO	Y
Detroit Edison (757)**	09/18/2008	ESBWR		Fermi (1 unit)	MI	Y
Luminant Power (754)**	09/19/2008	USAPWR		Comanche Peak (2 units)	TX	Y
Entergy (745)**	09/25/2008	ESBWR		River Bend (1 unit)	LA	Y
UNISTAR (759)**	09/30/2008	EPR		Nine Mile Point (1 unit)	NY	Y
PPL Generation (762)	10/10/2008	EPR		Bell Bend (1 unit)	PA	Y
<b>2008 TOTAL NUMBER OF APPLICATIONS = 12 TOTAL NUMBER OF UNITS = 18</b>						
<b>Calendar Year (CY) 2009 Applications</b>						
Florida Power and Light (763)		AP1000		Turkey Point (2 units)	FL	Y
Amarillo Power (752)		EPR		Vicinity of Amarillo (2 units)	TX	UNK
Alternate Energy Holdings (765)		EPR		Hammett (1 unit)	ID	N
<b>2009 TOTAL NUMBER OF APPLICATIONS = 3 TOTAL NUMBER OF UNITS = 5</b>						
<b>Calendar Year (CY) 2010 Applications</b>						
Blue Castle Project		TBD		Utah	UT	N
Unannounced		TBD		TBD	TBD	UNK

Unannounced		TBD		TBD	TBD	UNK
<b>2010 TOTAL NUMBER OF APPLICATIONS = 3</b> <b>TOTAL NUMBER OF UNITS = 4</b>						
<b>2007 – 2010 Total Number of Applications = 23</b> <b>Total Number of Units = 34</b>						