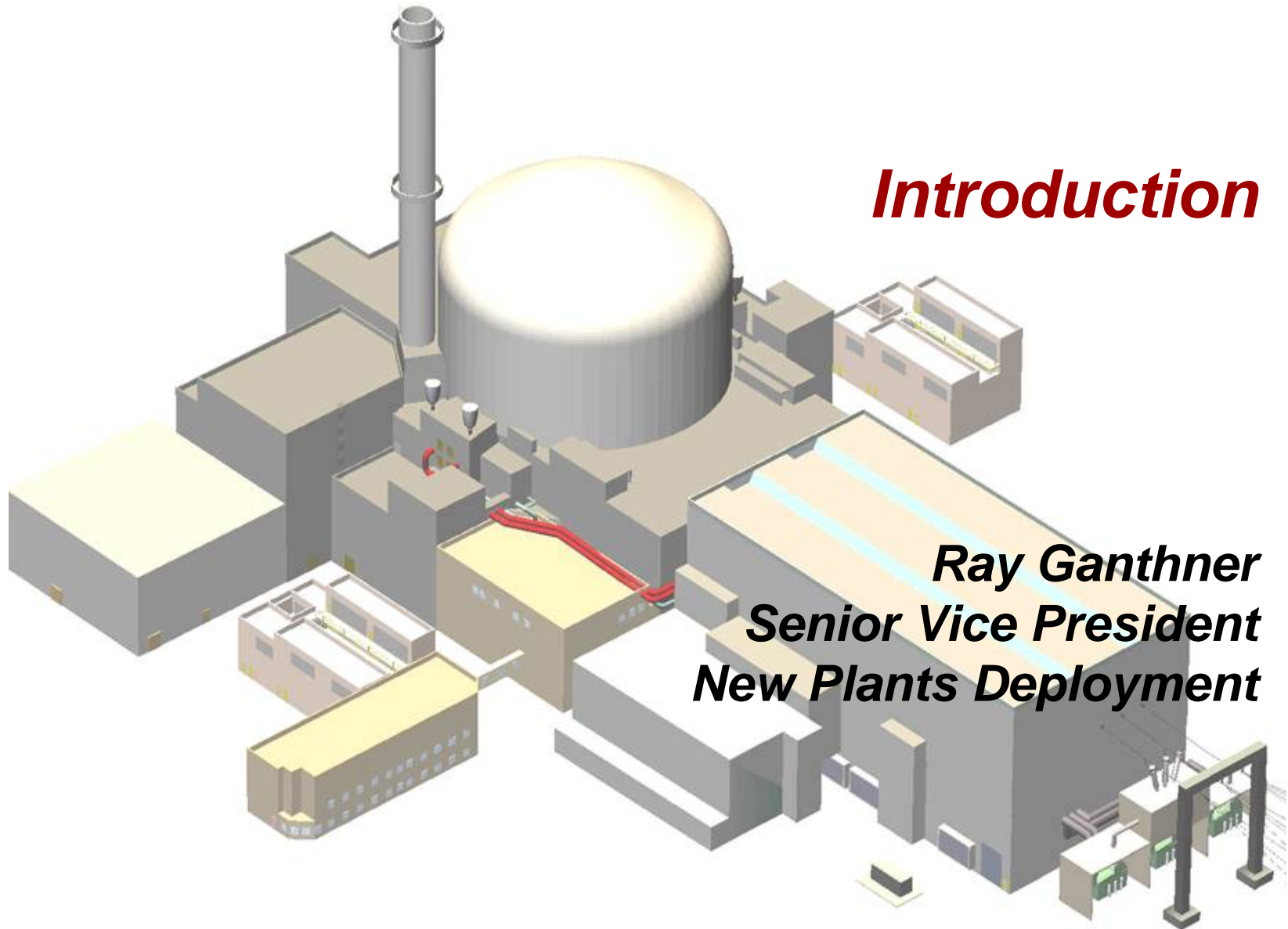


U.S. EPR Pre-Application Review Meeting: Planning for Phase 2

***Framatome ANP and the NRC
January 10, 2006***



Introduction

***Ray Ganthner
Senior Vice President
New Plants Deployment***

Meeting Objectives

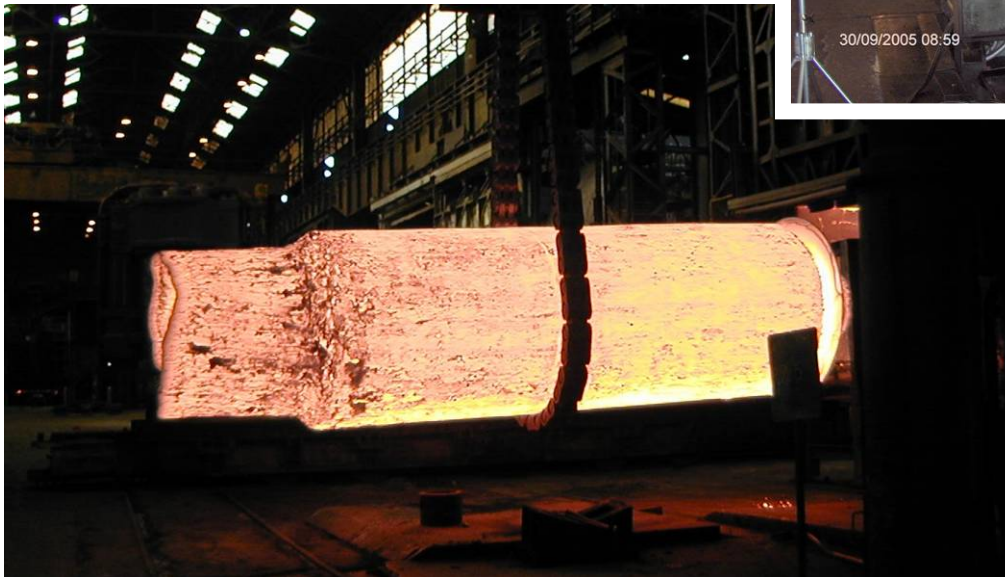
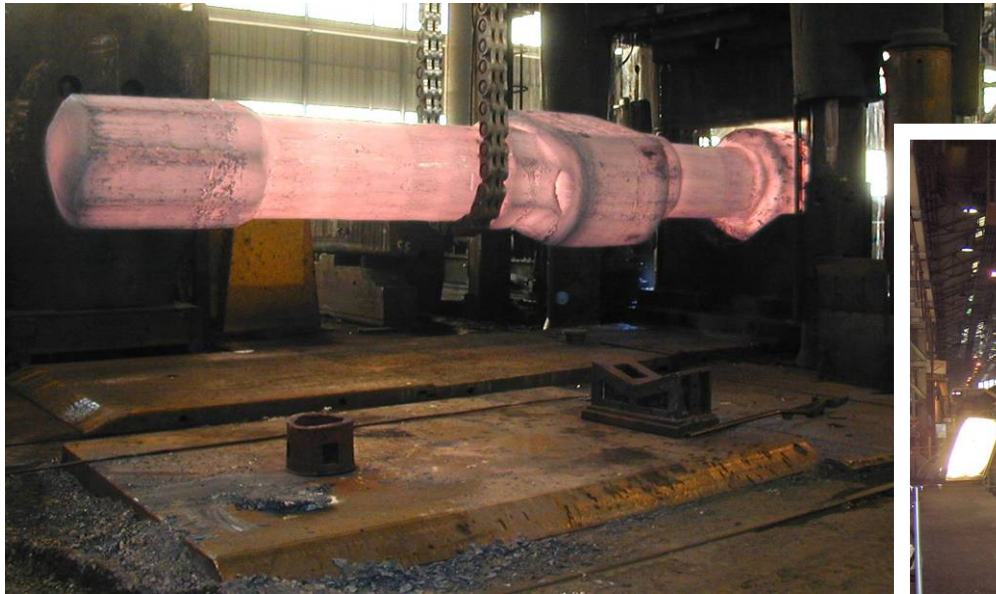
- > Provide an update on the global EPR deployment**
- > Describe proposed activities for Phase 2 of the pre-application review (2006-2007)**
- > Describe the expected products of the Phase 2 activities**
- > Discuss additional opportunities for early review and issue resolution**
- > Confirm completion of Phase 1**
- > Confirm NRC support for Phase 2 activities**



Update on the Status of the EPR

- > U.S. EPR design conversion process proceeding according to plan**
- > Continued U.S. utility support for U.S. EPR design certification**
- > Constellation Energy announces plans to submit COL application in 2008 referencing the U.S. EPR**
- > International EPR licensing activities continue (Finland and France)**
- > Other international EPR activities continue**

Olkiluoto 3: RCS Hot Leg Manufacturing



Olkiluoto 3: Auxiliary Secondary Piping Manufacturing



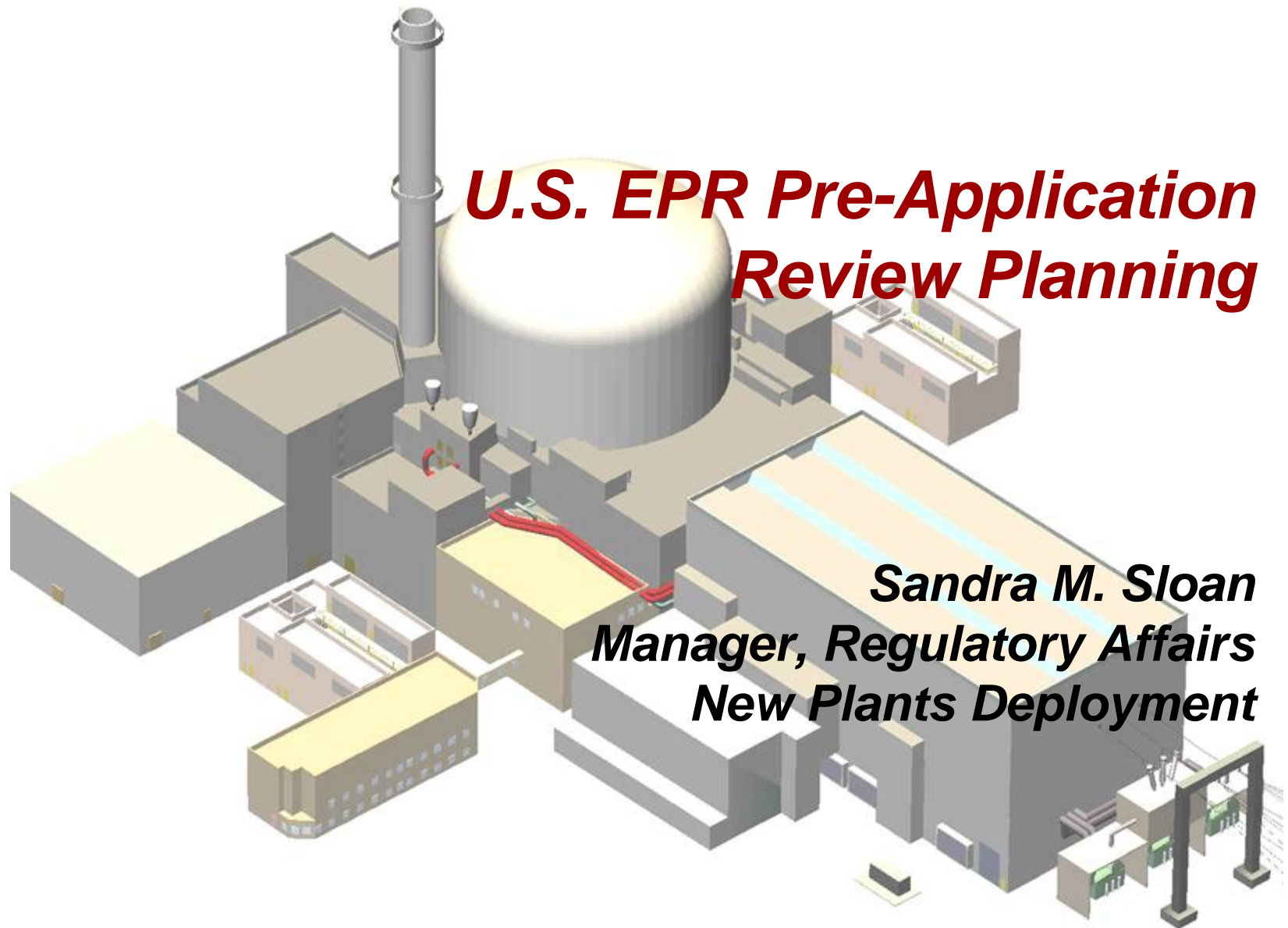
**Hot bending of pipes in Essener Hochdruck facility
(Dortmund)**

Olkiluoto 3: December 2005



Olkiluoto 3: December 2005





U.S. EPR Pre-Application Review Planning

***Sandra M. Sloan
Manager, Regulatory Affairs
New Plants Deployment***

- > **Goals of the Pre-Application Review**
- > **Summary of Phase 1**
- > **Phase 2 Proposed Activities and Expectations**
- > **Additional Opportunities for Early Review and Issue Resolution**
- > **Multinational Design Approval Program**
- > **Summary and Next Steps**

Goals for the Pre-Application Review

- > Ensure that the design certification application contains no unexpected issues for the NRC**
- > Identify the cost and schedule requirements to complete the pre-application review and the review of the design certification application**
- > Support the preparation of a high-quality DC application**

Supporting Objectives for the Pre-Application Review

- > Familiarize the NRC with the U.S. EPR design, focusing on the new and unique design features**
- > Identify key technical issues of concern to the NRC and develop plans to address those issues**
- > Identify key regulatory issues and obtain concurrence on the strategy to address those issues**
- > Submit changes to analytical methodologies required to support the design and obtain approval for them, or demonstrate the applicability of currently-approved methods**
- > Develop cost and schedule estimates for the NRC design certification review**

Summary of Phase 1

- > Initial technical exchange and planning meetings elicit useful dialogue and valuable feedback from NRC

Meeting Subject	Month
Overview of U.S. EPR Design Certification Project, U.S. EPR Design, and Pre-Application Plan	March 2005
Unique Plant Design Bases (SGTR, SBLOCA, Containment Functions, Seismic) and PRA	July 2005
Safety Analysis Methodologies and Severe Accident Mitigation and Analytical Methods	November 2005
Plan for Phase 2 Activities	January 2006

Summary of Phase 1 (contd.)

- > Submittal of U.S. EPR Design Description report on schedule in August 2005**
 - ◆ Provides foundation for future discussions and review of other pre-application submittals**
- > Need for follow-on discussion identified in a few areas**
 - ◆ Will be addressed in Phase 2**
- > No major policy issues, safety issues, or deviations from regulations identified**
- > No additional R&D needs identified**

Phase 2 Activities

- > Continued series of technical exchange meetings**
 - ◆ Address items identified as a result of discussions in Phase 1
 - ◆ Address other issues for early resolution
 - ◆ Address issues which arise during preparation of the design certification application
 - ◆ Support topical report submittals
- > Submittal of topical reports**
- > Submittal of additional material for early review and issue resolution**

Proposed Meeting Schedule for 2006

Meeting Subject	Month
Use of DAC in U.S. EPR DC Application*	February 2006
I&C (RPS Philosophy and Design Concepts)*	March 2006
Overview of U.S. EPR Compliance Evaluation	April 2006
Fire Protection and Train Separation Criteria, Electrical System Design	June 2006
Severe Accident Testing Program*	June 2006
Code Applicability Topical Report Pre-Submittal*	July 2006
Planning for Design Certification Application	August 2006
I&C (Safety System and Operational I&C Architecture)*	August 2006

** Parts of the presentation may include proprietary material.*

Proposed Meeting Schedule for 2006 (contd.)

Meeting Subject	Month
Unique Design Features, Containment Analysis*	September 2006
Code Applicability Topical Report Post-Submittal*	September 2006
Severe Accident Topical Report Pre-Submittal*	September 2006
PRA Analysis Tools	October 2006
CHF Correlation Topical Report Pre-Submittal*	November 2006
Severe Accident Topical Report Post-Submittal*	November 2006

** Parts of the presentation may include proprietary material.*

Preliminary List of Subjects for Meetings in 2007

- > Fuel Design and Analysis**
- > Critical Structural Areas for Design Detail**
- > Containment Structural Analysis**
- > Aircraft Hazard Evaluation**
- > I&C Diversity Defense-in-Depth**

Schedule for Topical Report Submittals

Topical Report Description	Submittal Date	Requested Completion Date
U.S. EPR Transient and Accident Analysis Code Applicability Report	August 2006	August 2007
U.S. EPR Severe Accident Evaluation Topical Report	October 2006	October 2007
CHF Correlation Topical Report	December 2006	December 2007

> Expected review products:

- ◆ **SER on the code applicability topical report**
- ◆ **Assessment of the severe accident technical basis (RAIs; evaluation of the design, analytical approach, and test program)**
- ◆ **SER on the CHF correlation topical report**

Additional Opportunities for Early Review and Issue Resolution

Early Review and Issue Resolution Process

- > Approach: *Submittal of material in the pre-application phase for early review, resolution, and approval*
- > Types of submittals
 - ◆ Sections of DCD chapters
 - ◆ Issue-centered topical reports
- > Timeframe: Starting in mid-2006 to end of 2007
- > Benefits
 - ◆ Provide a head start on NRC review of certain issues
 - ◆ Enhance the efficiency of the NRC review after submittal of the DC application in December 2007
 - ◆ Help optimize NRC resource utilization

This will be a win-win approach for FANP and the NRC.

Criteria for Selection of Material for Early Review and Issue Resolution

- > Topics or DCD sections that can stand independently**
- > Topics that will require the most NRC review effort (longest lead time)**
- > Topics for which the information can be finalized early**
- > Subject areas to help optimize NRC resource utilization**
- > Subject areas reviewed and accepted by Finnish or French regulators**
- > Material that will benefit COLA review**

Potential Material for Early Submittal

DCD Ch 1* Low impact	DCD Ch 2 2.1,2.2,2.3, 2.4,2.5 (5 of 9)	DCD Ch 3 3.3,3.10, App. 3C, DAC (3 of 18)	DCD Ch 4 Fuel topicals <i>CHF topical</i>	DCD Ch 5
DCD Ch 6	DCD Ch 7 I&C Topicals	DCD Ch 8	DCD Ch 9 Several subsections	DCD Ch 10 10.1,10.2,10.3, part of 10.4 (~4 of 4)
DCD Ch 11 11.1 (1 of 5)	DCD Ch 12 12.1,12.2, 12.3,12.4,12.5 (5 of 5)	DCD Ch 13 13.1,13.2, 13.3,13.4,13.5 (5 of 7)	DCD Ch 14	DCD Ch 15 Methods <i>topical</i>
DCD Ch 16	DCD Ch 17 17.1,17.2,17.3 (3 of 6)	DCD Ch 18 Human factors topical	DCD Ch 19 PRA topical <i>Severe accident topical</i>	

Italics=in current plan

Red=high impact

* Chapters of Tier 2 of the DCD

DCD Tier 2 Chapters

Chapter 1	Introduction and General Description of the Plant
Chapter 2	Site Characteristics
Chapter 3	Design of Structures, Components, Equipment and Systems
Chapter 4	Reactor
Chapter 5	Reactor Coolant System and Connected Systems
Chapter 6	Engineered Safety Features
Chapter 7	Instrumentation and Controls
Chapter 8	Electric Power
Chapter 9	Auxiliary Systems
Chapter 10	Steam and Power Conversion System

DCD Tier 2 Chapters (contd.)

Chapter 11	Radioactive Waste Management
Chapter 12	Radiation Protection
Chapter 13	Conduct of Operations
Chapter 14	Initial Test Program and ITAAC
Chapter 15	Accident Analyses
Chapter 16	Technical Specifications
Chapter 17	Quality Assurance
Chapter 18	Human Factors Engineering
Chapter 19	Insights from the PRA

Potential Schedule of Early Submittals: 2nd Quarter CY 2006

2nd Quarter CY2006	
DCD Section 9.2.1	Essential Service Water System
DCD Section 9.2.2	Component Cooling Water System
DCD Section 9.2.8	Closed Cooling Water System
DCD Section 9.2.11	Service Water System (Conventional)

Preliminary Schedule—For Discussion Purposes

Potential Schedule of Early Submittals: 3rd Quarter CY2006

3 rd Quarter CY2006	
DCD Section 3.3	Wind and Tornado Loadings
DCD Section 3.10	Seismic and Dynamic Qualification of Mechanical and Electrical Equipment
DCD Section 3.9 App. X	Piping DAC
DCD Section 9.2.4	Demineralized Water System
DCD Section 9.3.5	Nuclear Island Drain and Vent System
DCD Section 9.4.6	Containment Ventilation System
DCD Section 9.4.7	Containment Filtered Ventilation System
DCD Section 10.4.5	Circulating Water System
DCD Section 17.1	Quality Assurance During the Design and Construction Phases
DCD Section 17.2	Quality Assurance During the Operations Phase
DCD Section 17.3	Quality Assurance During Design, Procurement, Fabrication, Inspection and/or Testing of Nuclear Power Plant Items and Services
<i>Topical Report</i>	<i>U.S. EPR Transient and Accident Analysis Code Applicability Report</i>

Preliminary Schedule—For Discussion Purposes

Potential Schedule of Early Submittals: 4th Quarter CY2006

4 th Quarter CY2006	
DCD Chapter 3, App. C	Reactor Coolant Loop Analysis Methods
DCD Section 9.2.5	Potable and Sanitary Water System
DCD Section 9.4.x	Nuclear Auxiliary Building Ventilation System
Topical Report	Human Factors Program
Topical Report	Equipment Qualification Program
Topical Report	Incore and Nuclear Instrumentation Design
<i>Topical Report</i>	<i>U.S. EPR Severe Accident Evaluation Topical Report</i>
<i>Topical Report</i>	<i>CHF Correlation Topical Report</i>

Preliminary Schedule—For Discussion Purposes

Potential Schedule of Early Submittals: 1st Quarter CY2007

1 st Quarter CY2007	
DCD Section 2.1	Geography and Demography
DCD Section 2.2	Nearby Industrial, Transportation, and Military Facilities
DCD Section 2.4	Hydrologic Engineering
Topical Report	Instrument Setpoint Methodology
Topical Report	Digital Protection System Design

Preliminary Schedule—For Discussion Purposes

Potential Schedule of Early Submittals: 2nd Quarter CY2007

2 nd Quarter CY2007	
DCD Section 2.3	Meteorology
DCD Section 10.1	Summary Description
DCD Section 10.2	Turbine Generator
DCD Section 10.3	Main Steam Supply System
DCD Section 10.4.7	Condensate and Feedwater Systems
DCD Section 10.4.8	Steam Generator Blowdown System
DCD Section 11.1	Source Terms
DCD Chapter 12	Radiation Protection
DCD Section 19.X	PRA – Level 1
Topical Report	I&C Diversity Defense in Depth Analysis
Topical Report	Station Blackout Analysis
Topical Report	Class 1E UPS System Design

Preliminary Schedule—For Discussion Purposes

Potential Schedule of Early Submittals: 3rd Quarter CY2007

3rd Quarter CY2007	
DCD Section 2.5	Geology, Seismology, and Geotechnical Engineering
Topical Report	Aircraft Hazard Analysis
DCD Section X.X	Many other DCD sections

Preliminary Schedule—For Discussion Purposes

Areas for Further Discussion

- > Impact of, and process for, early review and issue resolution**
 - ◆ Form of NRC review products**
 - ◆ Control of review status after completion**
 - ◆ Process for tracking relationship to DCD (and COLA)**
- > Detailed schedule of additional pre-application submittals and NRC reviews**

Multinational Design Approval Program and the U.S. EPR

Multinational Design Approval Program and the U.S. EPR

> FANP interests

- ◆ How and when will it be implemented?
- ◆ What is the potential effect on the U.S. EPR review?

> Potential areas for international regulatory collaboration include topics previously-reviewed or under review by French and/or Finnish regulators

FANP is willing to work with the NRC to identify potential topics for Stage 1 of the MDAP.

Potential Topics for Stage 1 of MDAP

- > Severe accident mitigation design features**
- > PRA sequences, including fault and event trees**
- > PRA technical assessment, including severe accident phenomenological analysis and success criteria**
- > Engineered safety features, including containment design**
- > Fuel design**

U.S. EPR Pre-Application Review: Summary and Next Steps

Summary

- > **Phase 1 of the pre-application review is complete**
 - ◆ Phase 1 laid the groundwork for more detailed technical exchanges during Phase 2
 - ◆ Results of the dialogue are being used to develop the DC application such that it meets NRC expectations with no unexpected issues
 - ◆ FANP appreciates NRC support and feedback
- > **Phase 2 has started**
 - ◆ Opportunity to enhance NRC review of the U.S. EPR via early review and issue resolution and international regulatory cooperation
- > **Continued dialogue expected on implementation of MDAP**

Next Steps

- > Letter from FANP to NRC describing plans for Phase 2**
- > Letter from NRC confirming support for Phase 2 activities and the early review and issue resolution process**
- > Next meeting**
 - ◆ February 2006 – Use of DAC in U.S. EPR Design Certification application**
- > Continue discussion on schedule of submittals and process for early review and issue resolution**