

December 5, 1997

LICENSEE: Southern Nuclear Operating Company

FACILITIES: Joseph M. Farley, Units 1 and 2

SUBJECT: MEETING SUMMARY - MEETING OF NOVEMBER 20, 1997 (TAC NOS. M72415 AND M72416)

REFERENCE: Meeting Notice by J. I. Zimmerman, October 31, 1997

On November 20, 1997, the NRC staff met with Southern Nuclear Operating Company (SNC) personnel to discuss matters related to the steam generator replacement projects proposed for both Farley nuclear units. Enclosure 1 is the list of meeting participants. Enclosure 2 is the licensee's meeting handout materials.

The licensee requested the meeting to present an overview of the Farley steam generator replacement project. SNC discussed the schedule, scope, and licensing and engineering plans for Units 1 and 2. The current Westinghouse Model 51 steam generators will be replaced with a Westinghouse Model 54F design. The replaced Model 51 steam generators will be stored at the Farley site until final decommissioning.

The NRC staff discussed issues related to the 10 CFR 50.59 evaluations that will be used to implement the replacement project at Farley. The staff agreed that the actual replacement can be done under 10 CFR 50.59 but that certain tech spec changes will have to be reviewed and approved by the staff to enable operation with the new steam generators.

ORIGINAL SIGNED BY:
 William Gleaves, Project Manager
 Project Directorate II-2
 Division of Nuclear Reactor Projects - I/II
 Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

- Enclosures:
1. List of participants
 2. Meeting handouts

cc w/encls 1 and 2: See next page

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DATE	12/11/97	12/2/97	12/13/97	12/11/97

DOCUMENT NAME: G:\FARLEY\FAR72415.SUM

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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A handwritten signature in black ink, appearing to read "Wm C Gleaves".

William Gleaves, Project Manager
Project Directorate II-2
Division of Nuclear Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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Joseph M. Farley Nuclear Plant

cc:

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Distribution for Meeting Summary:

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Docket File

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E-MAIL SUMMARY WITH ENCLOSURE 1

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LIST OF PARTICIPANTS

MEETING WITH SOUTHERN NUCLEAR CORPORATION

NOVEMBER 20, 1997

<u>NAME</u>	<u>AFFILIATION</u>
Herb Berkow	NRC/NRR/Project Directorate II-2
William Gleaves	NRC/NRR/Project Directorate II-2
Jacob Zimmerman	NRC/NRR/Project Directorate II-2
Thierry Ross	NRC/NRR/RGN-II
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Chu-yu Liang	NRC/NRR/SRXB
Dave Morey	SNC
John Garlington	SNC
Howard Mahan	SNC-Farley Project
Mark Ajluni	SNC-Farley Project
Doug S. McComb	SNC-Farley SGRP
Thomas A. Billman	<u>W</u> SG Project Manager, Pensacola
Chris Byrd	SCS Engineering
J. V. Smith	Bechtel Engineering
J. M. McLemore	Bechtel Project Manager
Dennis Klein	Bechtel Licensing
Mike Watson	<u>W</u> Engineering
Larry Markie	<u>W</u> SGR Project Manager, Pittsburgh



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Southern Nuclear Operating Company
Joseph M. Farley Nuclear Plant - Units 1 and 2
Steam Generator Replacement Project

Presentation to the
Nuclear Regulatory Commission

November 20, 1997



Dave Morey

Southern Nuclear Vice President

Farley Project

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Meeting Objectives



- Provide an overview of Southern Nuclear's plan to replace the steam generators (SGs) at Farley Nuclear Plant.
 - Unit 1 SG replacement: Spring 2000
 - Unit 2 SG replacement: Spring 2001
- Obtain NRC feedback

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Agenda



Project Overview J. E. Garlington

- Schedule
- Scope of SG replacement
- SG replacement organization

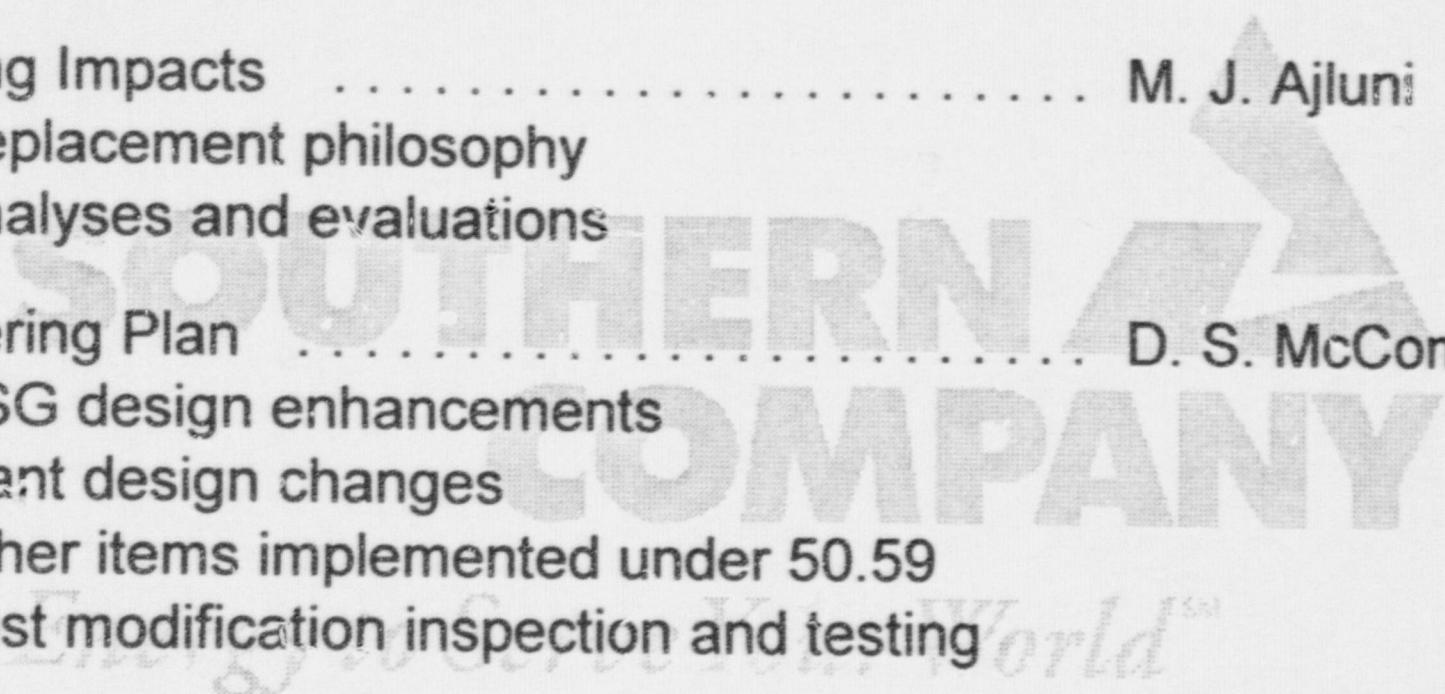
Licensing Impacts M. J. Ajluni

- Replacement philosophy
- Analyses and evaluations

Engineering Plan D. S. McComb

- RSG design enhancements
- Plant design changes
- Other items implemented under 50.59
- Post modification inspection and testing

Summary J. E. Garlington



Project Overview



John Garlington

Project Manager

Steam Generator Replacement Project

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SG Replacement Schedule



July 25, 1997	SG Replacement Project corporate approval (Project start date)
January 1, 1999	Primary Licensing Submittal for Unit 1 and Unit 2 to NRC for approval
February 1, 1999	Security Plan update to NRC
March 1, 1999	Revised ISI Program to NRC for approval
January 1, 2000	Requested NRC approval date for Primary Licensing Submittal and ISI Program
March 4, 2000	Unit 1 SG replacement outage (target 67 days)
March 3, 2001	Unit 2 SG replacement outage (target 67 days)

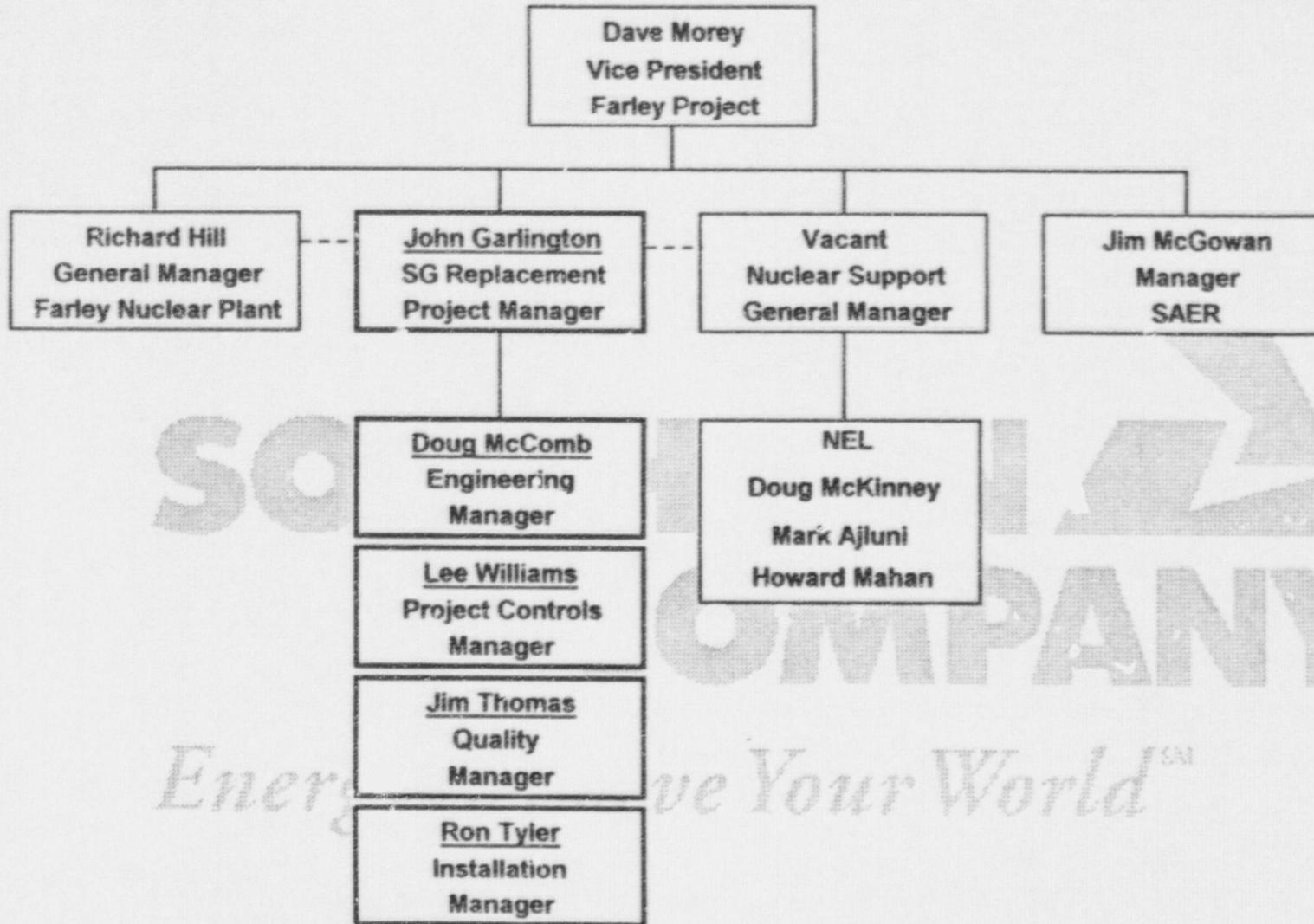
Scope of Farley SG Replacement



- Westinghouse Model 51 SGs are being replaced with the equivalent model, the Westinghouse Model 54Fs.
- Impacts to systems such as RCS, FW, AFW, MS and SGBD are minimal.
- No power uprate coincident with SG replacement.
- One piece SG, two-cut-RCS installation method with partial removal of one bioshield.
- No containment construction opening is required.
- No unreviewed safety questions are anticipated.

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SNC SG Replacement Organization



Replacement Team - Westinghouse



- Scope
 - RSGs
 - Design and procurement by Westinghouse
 - Fabrication by Equipos Nucleares, S.A. (ENSA)
 - Engineering and licensing support
- RSG Experience
 - More than 250 SGs in service in 77 nuclear plants
 - Supplied 43 RSGs to 15 units
 - Contracts to supply 15 RSGs to 4 units
- SG Replacement Engineering and Licensing Experience
 - Supported replacement for 6 plants
 - Ongoing or planned replacement support for 5 additional plants

Replacement Team - Bechtel



- Scope
 - SG removal
 - SG installation
 - Engineering and licensing support
 - SG storage facility
- Original design engineer for FNP
- Dedicated engineering support for FNP BOP and NSSS
- Bechtel SG Replacement Experience

	Domestic	Int'l	Total
Units Completed	9	4	13
Units In Progress	7	1	8
Total Units	16	5	21

Replacement Team- Southern Company Services



- Scope
 - Engineering and licensing support
 - Plant modifications
- Experience
 - A/E for Farley, Vogtle and Hatch nuclear plants
 - Original design engineer for FNP BOP
 - Dedicated engineering support for FNP BOP and NSSS

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Mark Ajluni
Licensing Manager
Farley Project

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Replacement Philosophy



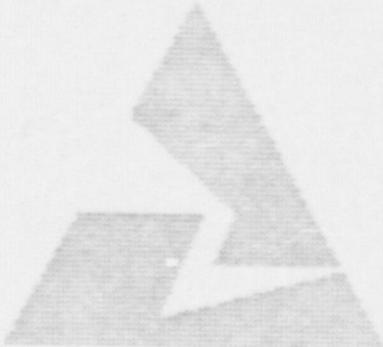
- Implement SG replacement under 50.59
- Primary licensing submittal to include:
 - Overview of SG replacement program
 - Items requiring NRC approval
 - Summary of replacement SG design and analyses
 - Summary of component/system analyses and evaluations
 - Summary of supporting accident analyses
- Supplemental licensing submittals issued as required for ISI Program and Security Plan changes

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Items Requiring NRC Approval



- Tech. Spec. changes
- ISI Program changes
- Licensing commitments as required

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Tech. Spec. Changes



- Deletion of items associated with the existing SGs
 - F* repair criteria
 - Sleeving repair criteria
 - Voltage based alternate repair criteria
- Additional changes to current Tech. Specs.
 - RPS and ESFAS SG water level setpoints
 - SG tube inspection criteria
 - RCS specific activity - DEI limits
 - RCS leakage limit for SG tube leakage of 150 gpd
 - One time extension to SG inspection activities
- Submittal will assume Improved Tech. Specs. are in place

ISI Program Changes



ISI Program changes may be needed to support SG replacement. Examples include:

- Update to ISI Program (3rd cycle interval)
- Relief from SG ISI requirements during SG replacement outages
- Weld joint configuration issues specifically related to installation geometry
- Revise Relief Request RR-07 for primary nozzle safe-end weld configuration
- Revise Relief Request RR-08 on steam nozzle inner radius examination

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Changes to Prior Commitments



- SNC will perform a review of its commitment database to determine if changes are required. This includes Generic Letters, Bulletins, SERs and other forms of NRC correspondence.
- Changes to NRC commitments will be performed in accordance with SNC's commitment change program.

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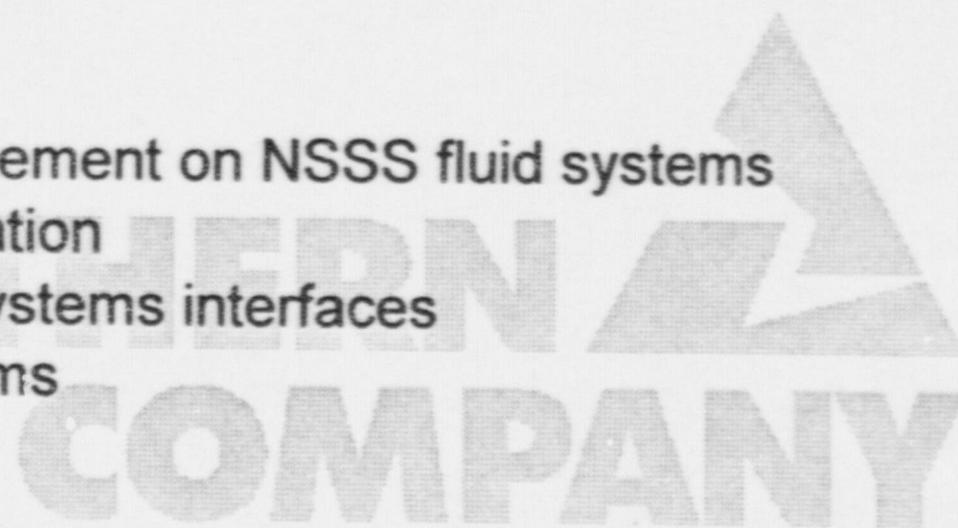


Analyses and Evaluations

System and component analyses and evaluations will document continued compliance with applicable codes and licensing criteria.

These include:

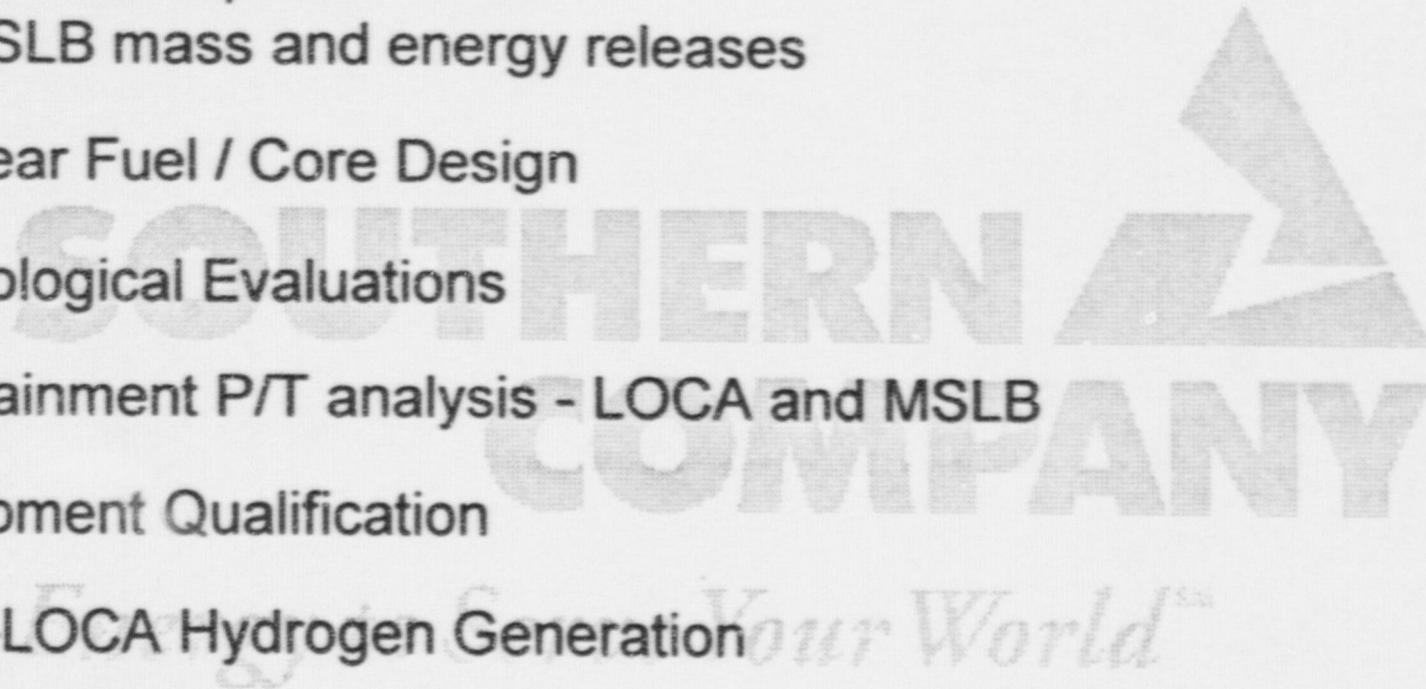
- NSSF Design Transients
- NSSF Systems
 - Impact of SG replacement on NSSF fluid systems
 - RCS mid-loop operation
 - NSSF / BOP fluid systems interfaces
 - NSSF control systems
- NSSF Components
 - Reactor internals and RCS loop piping and supports
 - SG thermal-hydraulic and structural analyses
 - LBB analysis (loop piping and pressurizer surge line)



Analyses and Evaluations (Cont'd.)



- NSSS Accident Analyses
 - LOCA analysis
 - Non-LOCA transients (FSAR Chap. 15 events and ATWS)
 - SG tube rupture transient
 - MSLB mass and energy releases
- Nuclear Fuel / Core Design
- Radiological Evaluations
- Containment P/T analysis - LOCA and MSLB
- Equipment Qualification
- Post-LOCA Hydrogen Generation
- BOP Systems



Licensing Summary



- 50.59 process for replacement
- Licensing submittal with minimum TS changes
- Builds on recently completed Power Uprate Submittal
- ISI Program changes minimized
- Commitment review

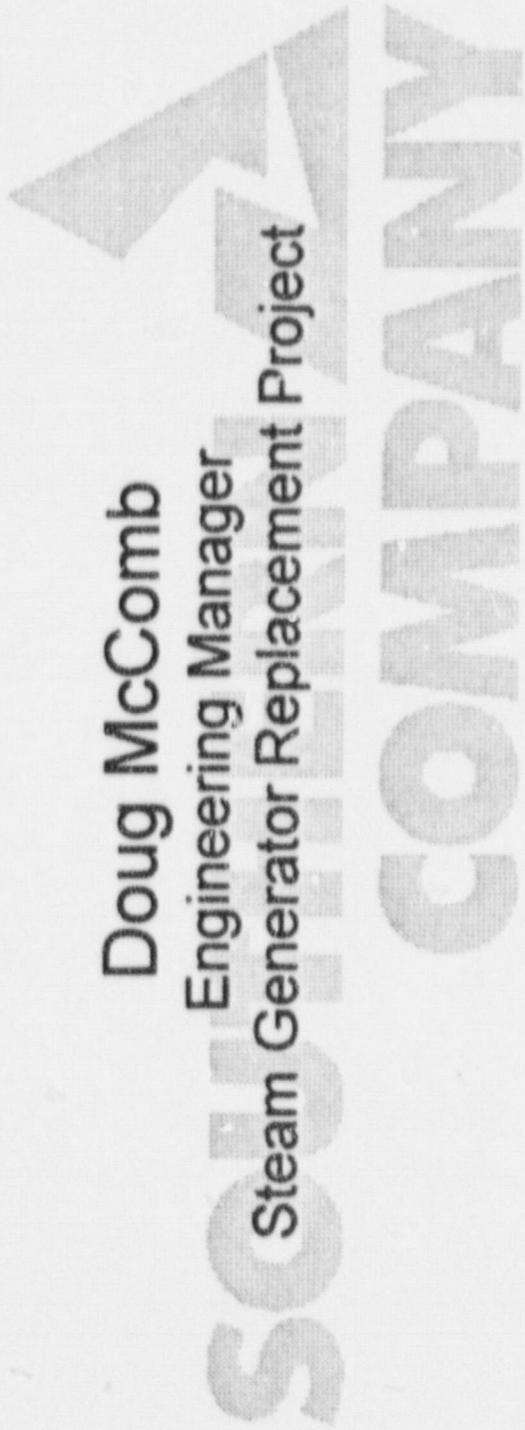
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Engineering Plan



Doug McComb
Engineering Manager
Steam Generator Replacement Project



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RSG Design Enhancements

- Thermally treated Alloy 690 tubing
- All forged vessel pressure boundary
- 405 SS Tube support plates
- Tube to tubesheet joint
- Feeding
- Electropolished channel head
- Flow distribution baffle
- Sludge collector
- Improved moisture separator

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Design Changes to Be Implemented Under 50.59



- Replacement of SGs in accordance with ASME Section XI
- Construction of old steam generator storage facility
- Steam generator platform modifications
- Steam generator snubber elimination
- Replace steam generator insulation

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Other Items to Be Implemented Under 50.59



- Temporary features associated with SG installation
- SG haul route
- Control of heavy loads
- FSAR changes required by SG replacement

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Post Modification Inspection and Testing



- Baseline ISI of field welds
- SG thermal and hydraulic performance
- RCS flow rate
- Moisture carryover
- Feedwater control system tuning
- In Service Pressure Test

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John Garlington

Project Manager

Steam Generator Replacement Project

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Project Schedule



Activities	1997				1998				1999				2000				2001			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
SG Replacement Project Approval			■	7/25/97																
Unit 1 RSG Fabrication			■												2/18/00					
Unit 2 RSG Fabrication			■															12/1/00		
Primary Licensing Submittal Activities			■																	
Primary License Submittal to NRC									■	1/1/99										
Submittal of Security Plan Revision									■	2/1/99										
Submittal of Revised ISI Program									■	3/1/99										
NRC Review									■											
NRC Approval													■	1/1/00						
Unit 1 SG Replacement Outage													■	3/4/00						
Unit 2 SG Replacement Outage																	■	3/3/01		

NRC Interface



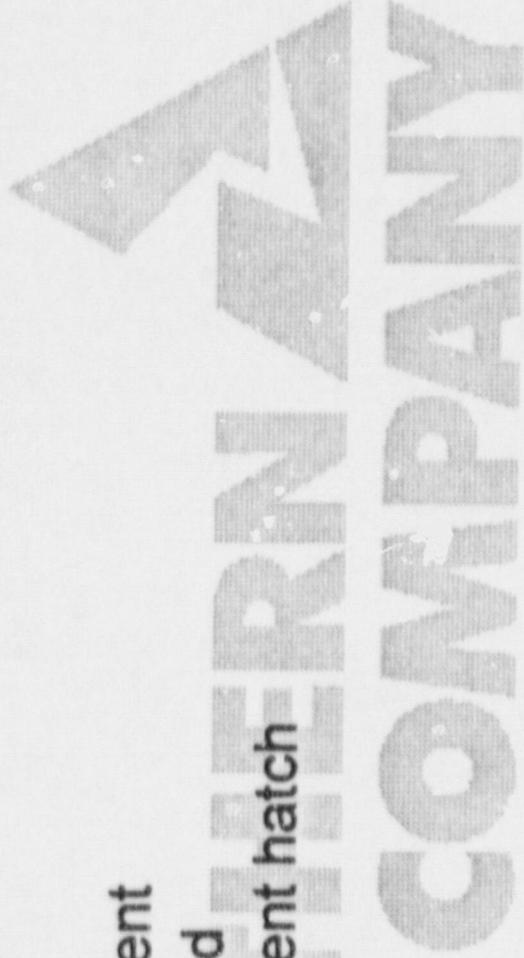
Existing interfaces will be maintained and used for SG replacement.

- SNC Nuclear Engineering and Licensing (NEL) interface with the NRC Project Manager
- FNP site interface with the NRC Resident Inspectors
- SNC SG Replacement Project supports NEL and the FNP site

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Summary

- Implement SG replacement under 50.59 using established licensing processes
- Westinghouse Model 54F equivalent to Westinghouse Model 51
- Installation approach
 - One piece replacement
 - Two-cut-RCS method
 - Through the equipment hatch



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