

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power and Light 05000261
 AUTH. NAME AUTHOR AFFILIATION
 ZIMMERMAN, S.R. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 DENTON, H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Requests that all assumptions & info sources be documented for computer mode & analyses performed as part of A-49, "Pressurized Thermal Shock," program. Results should satisfy plant-specific analysis requirement.

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 TITLE: OR Submittal: Thermal Shock to Reactor Vessel

NOTES:

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	NRR/DE/MTEB		1	1	NRR/DHFS DIR		1
	NRR/DL DIR		1	1	NRR/DL/ADSA		1
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	NRR/DSI/RSB		1	1	NRR/DST DIR		1
	NRR/DST/GIB		1	1	<u>REG FILE</u> 05		1
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Carolina Power & Light Company

SERIAL: LAP-83-31

FEB 21 1983

Mr. H. R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
PRESSURIZED THERMAL SHOCK - A-49 PROJECT

Dear Mr. Denton:

The purpose of this letter is to document the information provided to Mr. Carl E. Johnson of the Office of Nuclear Regulatory Research in support of Carolina Power & Light Company's participation in the A-49 Project. The material listed in Attachment 1 was forwarded to Mr. Johnson on February 1, 1983. Attachment 2 lists the material hand carried to Mr. Jim D. White (Oak Ridge National Laboratories) on December 8, 1982. Attachment 3 lists the material hand carried to Mr. Jim D. White on January 12, 1983. Attachment 4 lists the Piping and Instrument Diagram and logic prints mailed to Mr. Johnson, Oak Ridge National Laboratories, Idaho National Engineering Laboratories, and Los Alamos National Laboratories on January 14, 1983. The February 1, 1983 submittal to Mr. Johnson also responded to Item 1d(4) and stated that reactor coolant pump reverse rotation is not possible because of an anti-reverse rotation device located at the top of the reactor coolant pump motor.

We also would like to request that all assumptions and information sources be documented for the computer model and analyses performed as part of the A-49 program. Also, other reviews or checks of the work should be performed as necessary to assure the accuracy of the analyses and to assure that the work meets Quality Assurance requirements. We believe the Quality Assurance steps are necessary since the results of these analysis could be used as part of licensing submittals. The results of the A-49 analyses may be used to satisfy part of the plant specific analysis requirement and therefore would have to be acceptable from a Licensing standpoint.

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H. R. Denton

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We trust that the contents of this letter are responsive to your needs. If you have any questions on this submittal or Carolina Power & Light Company's Pressurized Thermal Shock Program, please do not hesitate to contact me or a member of my staff.

Yours very truly,



S. R. Zimmerman
Manager
Licensing & Permits

JJS/SRZ/kjr (6223JJS)

cc: Mr. C. E. Johnson
Mr. J. P. O'Reilly (NRC-RII)
Mr. G. Requa (NRC)
Mr. F. Schroeder (NRC)
Mr. T. Speis (NRC)
Mr. Steve Weise (NRC-HBR)
Mr. R. Woods (NRC)

ATTACHMENT 1

Items included in February 1, 1983 letter to Mr. C. E. Johnson

1. #4 feedwater heater replacement data
2. Westinghouse letter 82CP-G-004 dated March 22, 1982 (information requested Item 1a(2) and 1a(3))
3. Westinghouse letter FP-CP-115 dated October 8, 1981 (information requested Item 1a(3), 1d(1), 1d(2), and 1d(3))

ATTACHMENT 2

Items hand carried on December 8, 1982:

1. Plant System Descriptions

<u>SD No.</u>	<u>Revision No.</u>	<u>System</u>
1	9	Reactor Coolant System
2	7	Safety Injection
3	3	Residual Heat Removal
4	7	Service Water
6	4	Reactor Safeguards
7	2	Rod Control System
11	7	Reactor Protection
13	3	Component Cooling
16	25	Electrical (Including Appendix A)
17	6	Instrument and Station Air
18	0	Nitrogen System and Hydrogen System
20	7	SG Blowdown
21	3	Chem. and Vol. Control System
25	4	Main Steam
26	3	Condensate
27	5	Feedwater
28	3	Heater Vents and Drains
33	2	Turbine Controls

2. Precautions, Limitations, and Setpoints

<u>PLS No.</u>	<u>Revision No.</u>	<u>System</u>
1	20	Reactor Control and Protection
2	7	Reactor Coolant System
3	7	Chemical and Volume Control System
4	4	Auxiliary Coolant System
6	6	Nuclear Instrumentation System
7	4	Safety Injection System
9	2	Electrical System
10	1	Instrument and Station Air System
11	3	Heating, Ventilating, and Air-Conditioning Systems
12	4	Isolation Valve Seal Water System
13	5	Condensate and Feedwater System
14	4	Main, Reheat, and Dump Steam System
15	5	Auxiliary Feedwater System
16	1	Auxiliary Steam System
17	2	Primary Water and Demineralizer Water Makeup System
18	2	Service Water System

3. Plant original isometric sketches for:

- a. SG Blowdown System
- b. Chemical and Volume Control System
- c. Primary Coolant System

ATTACHMENT 2 (cont.)

- d. Feedwater System
 - e. Main Steam System
 - f. Auxiliary Feed Steam System
 - g. Safety Injection System
 - h. Residual Heat Removal System
- 4. Reactor Pressure Vessel Manual (parts)
 - 5. Pressurizer Manual (parts)
 - 6. Net Unit Heat Rates Report
 - 7. Revised sketch of instrument and station air from EDS Nuclear work
 - 8. New Condenser Data and Curves
 - 9. Moisture Separator Reheater Data
 - 10. Feedwater heater data on the original heaters 1, 2, and 5, and on the new feedwater heaters 3 and 6.
 - 11. Pump Curves for:
 - a. A&B condensate pumps
 - b. A&B heater drain pumps
 - c. A&B feedwater pumps
 - 12. Drawing 685 J700 on the reactor vessel
 - 13. Telecon listing feedwater heaters and MSR replacement information
 - 14. Flux map data from Fuel Cycle listing radial and axial power distributions

ATTACHMENT 3

Hand carried information on January 12, 1983:

1. Operating Procedures

<u>Number</u>	<u>Revision</u>	<u>Title</u>
OP-1	1	DC Supply
OP-3	6	Electrical Distribution
OP-6	18	Service Water System
OP-7	13	Diesel Generator "A" and "B"
OP-9	4	Instrument and Station Air System
OP-14	22	Auxiliary Feedwater System
OP-15	6	Circulating Water System
OP-16	13	Condensate and Feedwater
OP-16-1	3	Steam Generators and Generator Level Control
OP-17	10	Main and Reheat Steam
OP-17-1	8	Steam Generator Blowdown System
OP-19	2	Gland Seal Steam and Drain
OP-20	8	Heater Drains and Vents
OP-20-1	4	Miscellaneous Drains System
OP-21	8	Turbine, Generator, and Control
OP-23	8	Reactor Control and Protection System
OP-24	14	Nuclear Instrumentation System
OP-25	6	Reactor Coolant System Operation
OP-26	10	Rod Control and Position Indication
OP-28	18	Charging and Volume Control
OP-29	8	Reactor Coolant Pump Operation
OP-30	6	Pressurizer Pressure and Spray Control
OP-40	6	Component Cooling System
OP-42	18	Safety Injection and Containment Spray
OP-49	4	Post-Accident Containment Venting System
OP-50	0	Low Temperature Overpressure Protection System
OP-53	1	Condenser Drain System
OP-54	4	Core Cooling Monitor

2. General Procedures

<u>Number</u>	<u>Revision</u>	<u>Title</u>
GP-2	41	Cold Solid to Hot Subcritical at No Load Tave
GP-3A	21	Normal Plant SU from Hot S/D to Critical
GP-3B	12	Reactor Trip Recovery
GP-4	10	Power Operation
GP-5	9	Shutdown from Power to Hot Shutdown
GP-5A	7	Temperature & Pressure Control Using Natural Circulation
GP-6	18	Plant Cooldown from Hot SD to Cold SD

ATTACHMENT 3 (cont.)

3. Abnormal Procedures

<u>Number</u>	<u>Revision</u>	<u>Title</u>
AP-1	3	Malfunction of Reactor Control System
AP-2	3	Emergency Boration
AP-3	2	Malfunction of Reactor Makeup Control
AP-8	7	Loss of One Heater Drain Pump
AP-9	2	Loss of One Feedwater Pump
AP-10	2	Loss of One Condensate Pump
AP-11	5	Loss of One Circulating Pump
AP-12	4	Partial Loss of Condenser Vacuum
AP-14	7	Loss of Auxiliary Cooling
AP-15	4	Secondary Load Rejection
AP-16	2	Excessive Primary Plant Leakage
AP-17	4	Loss of Instrument Air
AP-18	4	Reactor Coolant Pump Abnormal Conditions
AP-19	4	Malfunction of RCS Pressure Control System
AP-20	1	Loss of Residual Heat Removal System (Shutdown Cooling)
AP-22	1	Loss of Service Water
AP-23	1	Loss of Containment Integrity
AP-24	0	Loss of Instrument Bus
AP-25	1	Spurious Safeguards Actuation

4. Emergency Instructions

<u>Number</u>	<u>Revision</u>	<u>Title</u>
EI-1	32	Incident Involving Reactor Coolant System Depressurization
EI-4	2	Loss of Reactor Coolant Flow
EI-6	9	Loss of Feedwater
EI-7	14	Station Blackout Operation
EI-14	7	Reactor Trip (Part A) Turbine and Generator Trip (Part B)
EI-15	7	Control Room Inaccessibility
EI-16	5	Post Accident Containment Venting System
EI-17	3	Emergency Diesels Failure to Start on Automatic Safety Injection Signal or Station Blackout
EI-18	2	Loss of Emergency Busses (480V) and/or Station DC Batteries

ATTACHMENT 4

List of P&IDs and logic prints mailed on January 14, 1983:

<u>Number</u>	<u>Sheets</u>	<u>Title</u>
CP-200 HBR2-7063	1	Legend
G-190196	2	Main, Extraction, and Aux. Steam System
G-190197	3	Feed and Condensate
G-190199	4	Service and Cooling Water
G-190202	3	Fire and Makeup Water System
G-190204A	4	Emergency Diesel Generator
G-190204B	2	Auxiliary Steam System
G-190234	2	Blowdown System
G-190200	3	Instrument and Service Air
G-190261	4	Penetration Pressurization System
G-190262		Isol. Valve Seal Water
G-190304	2	HVAC
CP-200-5379-376	3	Comp. Cooling System
CP-200-5379-353	1	Sample System
CP-200-5379-684	1	CVCS
CP-200-5379-685	3	CVCS
CP-200-5379-686	2	CVCS
CP-200-5379-1082	2	Safety Injection
CP-200-5379-1485	1	Aux. Coolant System
HBR-2-8254	1&2	RCS Flow Diagram
HBR-2-8258	1	RHRS
CP-330-5379-4569	1	Nuc. Inst. System
CP-330-5379-4570	1	Nuc. Inst. System
CP-330-5379-4571	1	Nuc. Inst. System
CP-406-5379-920	4	Liquid Waste Disposal
CP-406-5379-921	2	Gaseous Waste Disposal
Logic Diagrams	18	(all diagrams)