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September 5, 1979

FILE: NG-3513 (R)

SERIAL: GD-79-2179

19877 ALL: 15

Mr. James P. O'Reilly
Director of Regulatory Operations
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street N. W.
Atlanta, Georgia 30303

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
SEISMIC ANALYSIS FOR AS-BUILT SAFETY-RELATED
PIPING SYSTEMS, I.E. BULLETIN 79-14

Dear Mr. O'Reilly:

The following is the 60-day response to I.E. Bulletin 79-14 as required by your letter of July 2, 1979, modified by Revision 1, per your letter of July 18, 1979, and supplemented per your letter of August 15, 1979.

The accessible portion of one-redundant-system paths and the accessible portion of non-redundant system paths required for safe shutdown, as listed on Page 4 of the 30-day response of July 27, 1979, have been inspected and the initial engineering judgment evaluations completed. Pursuant to I.E. Bulletin 79-14, the inspections have been conducted to the extent that radiation and heat exposure will permit during reactor operation. The evaluations use the same methods and criteria as were applied in the original design and construction. Reference is made to H. B. Robinson's FSAR for design bases and criteria. In-depth analysis verification, including reanalysis by computer when required, has been and continues to be conducted on systems and portions of systems inspected and evaluated to date. Where deviations are found that potentially, as a result of the inspection and in-depth analysis verification, may affect system operability, modifications have been and will continue to be implemented to maintain conservatism of design. This modification effort is being conducted in parallel with the analysis verification effort to ensure no potential loss of operability if the results of the analysis of the as-built design prove a deficiency is, in fact, a nonconformance to design. All in-depth analysis verification and any subsequent modification work for systems for the 60-day response should be completed by September 28, 1979.

A02
KCB

A plant shutdown to conduct the balance of the inspection and evaluation effort is presently planned for September 29, 1979, through October 5, 1979. Any nonconformances identified during this period will be corrected prior to returning to power. The in-depth analysis verification effort will run continuously to completion, estimated to be November 30, 1979. If any nonconformances are identified during the analysis verification, appropriate action and reporting requirements of H. B. Robinson Unit 2 Technical Specifications will continue to be adhered to.

The Inspection Schedule for I.E. Bulletin 79-14 (Enclosure 1) identifies the total number of inspection packages defining a piping system, those packages or portions of packages inspected for the 60-day response, those packages or portions of packages remaining to be inspected for the 120-day response and the deviations identified to date per system. "Deviations" are defined as a variance of any design parameter of the as-built configuration from that of the original seismic analysis input information. These include, but are not limited to, parameters such as piping geometry, restraint configuration, restraint location, valve weight, valve location and embedments as stated in I.E. Bulletin 79-14. Upon completion of the analysis verification, any deviations that are identified as affecting system operability are designated as "nonconformances." No nonconformances have been identified to date.

A summary of the deviation reports, evaluations, and corrective action to date follows where D = deviation, E = evaluation, and C = corrective action:

1. Main Steam (2)

MS-2 D = Valve weights differ from original.
 E = Good as-built.
 C = Update plant documentation.

MS-4 D = One restraint missing, changes in two restraint locations.
 E = Preliminary review - no problem; operable.
 C = Install missing restraint, complete structural review and update plant documentation.

2. Feedwater (3)

FW-1 D = Valve weights differ from original.
 E = Reanalyzed by computer, OK.

C = Update documentation.

FW-2 D = Valve weight difference, restraint configurations
 difference, one missing restraint.
 E = Preliminary evaluation - no problem; operable, analysis
 in progress.
 C = Update documentation.

FW-6 D = Valve weight difference, restraint configuration
 difference, change in restraint location.
 E = Reanalyzed by computer, OK, complete structural review.
 C = Update documentation.

3. Safety Injection and Residual Heat Removal (3)

SI-7 D = Valve location change.
 E = Preliminary evaluation - no problem; operable,
 reanalysis by computer in progress.
 C = Update documentation.

SI-9 D = Restraint type and location change.
 E = Preliminary evaluation - no problem; operable,
 reanalysis by computer in progress.
 C = Update documentation.

SI-20 D = Restraint location change, missing restraint, piping
 configuration.
 E = Preliminary evaluation - no problem; operable,
 reanalysis by computer in progress.
 C = Update documentation.

4. Component Cooling (4)

AC-3 D = Restraint configuration difference.
 E = Good as-built.
 C = Update documentation.

AC-4 D = Two missing restraints.
 E = Preliminary evaluation - no problem; operable.
 C = Add restraint to ensure conservatism of design, update
 documentation.

AC-5 D = Two missing restraints.
 E = Preliminary evaluation - no problem; operable.
 C = Add restraint to ensure conservatism of design, update

documentation.

AC-6 D = Two missing restraints.
 E = Good as-built.
 C = Update documentation.

5. Service Water (4)

SW-1 D = Restraint configuration difference.
 E = Preliminary evaluation - no problem; operable.
 C = Add U-bolt to restraint to maintain conservatism
 of design; update documentation.

SW-2 D = Embedment variance.
 E = Reanalysis by computer in progress.
 C = Install knee brace; update documentation.

SW-10 D = Excessive length between restraints.
 E = Preliminary evaluation - no problem; operable.
 C = Add three restraints to maintain conservatism of
 design; update documentation.

SW-13 D = Needs axial restraints.
 E = Preliminary evaluation - no problem; operable.
 C = Install 2 axial restraints to ensure conservatism
 of design; update documentation.

6. Reactor Coolant (0)

7. Chemical and Volume Control (5)

CH-3 D = Valve weight difference.
 E = Good as-built.
 C = Update documentation.

CH-6 D = Piping configuration change, restraint configuration
 and location difference.
 E = Preliminary evaluation - no problems; operable,
 reanalysis by computer in progress.
 C = Update documentation.

CH-11 D = One missing restraint.
 E = Good as-built.
 C = Update documentation.

CH-12 D = Restraint configuration and location difference.

E = Good as-built.
C = Update documentation.

CH-13 D = Missing restraints.
 E = Preliminary evaluation - no problem; operable,
 analysis in progress.
 C = Update documentation.

8. Diesel Generator (1)

DG-1 D = One restraint configuration difference.
 E = Preliminary evaluation - no problem; operable.
 C = Add stiffeners to restraint to ensure conservatism
 of design; update documentation.

9. Demineralized Water (1)

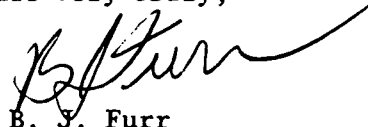
DW-3 D = One missing restraint.
 E = Preliminary evaluation - no problem; operable.
 C = Replace missing restraint, add stiffeners to two
 restraints to ensure conservatism of design.

Enclosure 2 to this response is a revised listing of the design documentation submitted in the 30-day response. Three changes have been made and are summarized below:

1. The Post Accident Containment Venting drawing has been identified and is listed accordingly.
2. The Waste Disposal System has been deleted from this inspection. Upon further review, the FSAR designates specific tanks, pumps and the Interconnective Waste Gas Piping as Seismic Class I, safety related. All other portions of the Waste Disposal System are classified as Seismic Class III. Therefore, the Liquid Waste Disposal Piping was not inspected because it is not classified as Seismic Class I and contains only piping two inches or less in diameter. The Gas Waste Disposal Piping was not inspected since it is comprised of piping two inches or less in diameter pursuant to Revision 1 of the Bulletin.
3. The Fire Water System as designed and operated is not classified as safety related. The FSAR does state that those portions of the system inside the Auxiliary Building were designed to Seismic Class I, but the system is not safety related; therefore, no inspection of the Fire Water System has been conducted.

Plant documentation will be updated to reflect the as-built condition of the plant pursuant to the requirements of I.E. Bulletin 79-14, consistent with the requirements and procedures contained in the H. B. Robinson Plant Operating Manual. Carolina Power & Light Company is confident that the variances found between the original seismic input information and the as-built systems is largely due to the probable difficulties encountered during the construction phase in maintaining documentation of as-built conditions. Interferences, field routing, catalog weights differing from manufactured weights, and field change requests are believed to be examples of these difficulties. The field modifications to safety-related systems performed during the operating history of the plant have been found during the course of this inspection to be accurately documented. In spite of these deviations, the results of review of inspections to date, including those required by I.E. Bulletin 79-02, clearly indicate the adequacy of the safety-related systems to function as required by the Safety Analysis.

Yours very truly,



B. J. Furr
Manager
Generation Department

FB/CSB:men*

Enclosures

cc: Mr. N. C. Moseley
Mr. V. Stello

INSPECTION SCHEDULE BY SYSTEM FOR
IE BULLETIN 79-14

System	Total Inspection Packages	60 Day Response Packages Inspected		120 Day Response Packages to be Inspected		Deviations Identified To Date
		Non-Redundant and *All Redundant	One Redundant Path or Partially Inaccessible	Scheduled 120 or Inaccess- ible For 60- Day Response	Portions Inaccessible or Redundant Paths	
1. Main Steam	7	4	0	3	0	2
2. Feedwater	11	5	0	6	0	3
3. Safety Injection & RHR	21	4	3	14	3	3
4. Component Cooling	10	4	2	4	2	4
5. Service Water	13	*1	8	3	7	4
6. Reactor Coolant Chemical and	10	0	1	9	1	0
7. Volume Control	12	5	3	4	3	5
8. Diesel Generator	1	1	0	0	0	1
9. Demineralized Water	3	3	0	0	0	1
10. Steam Generator Blowdown	4	0	0	4	0	-
11. Condensate Post Accident &	1	0	0	1	0	-
12. Containment Vent	2	0	0	2	0	-
Totals	95 =	28 +	17 +	50	N/A	

ENLOSURE 2

<u>System</u>	<u>Page</u>
1. Reactor Coolant System	1
2. Safety Injection System &	2-3
3. Residual Heat Removal System	2-3
4. Chemical Volume Control System	4
5. Feedwater System	5
6. Main Steam System	6
7. Steam Generator Blow Down System	7
8. Condensate System	8
9. Service & Cooling Water System	8
10. Diesel Generator System	8
11. Demineralizer Water	8
12. Component Cooling System	8
13. Post Accident Containment Vent System	8

Documentation listed herein provides the following types of information:

- Geometry of piping
- Restraint location
- Valve location
- Temperature
- Hot & cold modulus of elasticity
- X, Y, Z Coordinates
- Valve weight/identification

REACTOR COOLANT SYSTEM

<u>STRESS ISOMETRIC #</u>	<u>TITLE</u>	<u>DATE</u>
RC-1	Primary Coolant Loop 12" Pressure Surge Line	10-9-68
RC-2	Reactor Coolant Piping from Anch. EL 234.50' to Pressure Relief Tk.	10-21-68
RC-3	Reactor Coolant Piping to Pressurizer (Rev. 1)	7-14-70
RC-4	Reactor Coolant Piping from Pressurizer to Pressurizer Relief Tank	10-21-68
RC-5	Primary Coolant System Resistance Temperature Detector	4-10-69
RC-6	Reactor Coolant System 4" RC-70, 3" RC-72 & etc. fr. regenerating HX to Press. Relief Tk.	10-16-68
RC-7	Reactor Building - Drain Ring Header from Coolant Loops & Stand Pipes to Coolant Drain Tank	5-2-69
RC-8	Reactor Building - Drain Ring Header from Coolant Loops & Stand Pipes to Coolant Drain Tank	--
RC-9	Reactor Building - Drain Ring Header from Coolant Loops & Stand Pipes to Coolant Drain Tank	5-2-69
RC-10	Reactor Building - Drain Ring Header from Coolant Loops & Stand Pipes to Coolant Drain Tank	5-2-69

Ebasco Drawings

<u>Title</u>	<u>Dwg. No.</u>	<u>Rev.</u>	<u>Date</u>
Reactor Coolant System	G190270	6	12-17-68
Primary Coolant Loop	G190269	7	10-11-68
Chemical & Volume Control System Piping Plan	G190276	6	4-21-69

SAFETY INJECTION SYSTEM AND
RESIDUAL HEAT REMOVAL SYSTEM

<u>STRESS ISOMETRIC #</u>	<u>TITLE</u>	<u>DATE</u>
SI-1	Safety Injection from Anchor EL 246.5 to Stm. Gen. Loops 2 & 3 Hot Legs at EL 243.85 (Rev. 2)	1-27-71
SI-2	RHR from Anchor at EL 243'-6" to Reactor Cold Leg & Accumulator #2	9-5-68
SI-3	RHR from Anchor @ 240'-6" to Reactor Hot Let - Stm. Gen. #2	9-5-68
SI-4	SI Piping from Pumps to Anchor at Penetration #43 & Boron Injection Tk.	3-26-69
SI-5	SI Piping from Boron Tank to Penetrations 62, 63, & 64	1-27-71
SI-6	SI System from Penetration #63 to Line 10" SI-47 (2" SI-63)	7-14-70
SI-7	SI System from Penetration #62 to Line 10" SI-48 (2" SI-64)	4-7-69
SI-8	SI System from Penetration #64 to Line 10" SI-54	4-7-69
SI-9	SI Piping from Pump "B" to Anchor Penetration #45	3-21-69
SI-10	SI Piping from Pump "A" to Anchor at Penetration #44	3-21-69
SI-11	SI Sys. from Anchor at 246.50' to Anchor at 245.25	4-28-69
SI-11A	SI Sys. from Anchor at 246.50' to Anchor at 245.25	4-28-69
SI-13	SIS from Anchor @ EL 389.0' to Anchor Pts. 145.209 & 228	4-29-69
SI-13A	SIS from Anchor @ EL 389.0' to Anchor Pts. 145.209 & 228	4-29-69
SI-14	SIS 6" SI-127 Ring Header	5-16-69
SI-15	SIS 6" SI-130 Ring Header	4-30-69
SI-16	SIS 4" SI-128 Ring Header	5-16-69
SI-17	SIS 4" SI-131 Ring Header.	5-16-69
SI-18	SIS 1½" SI Ring Header	5-16-69
SI-19	SIS 1½" SI-132 Header	4-30-69

SAFETY INJECTION SYSTEM AND RESIDUAL HEAT REMOVAL SYSTEM (Continued)

STRESS
ISOMETRIC #

TITLE

DATE

SI-20	SI from Refueling Water Tank to Residual Heat Removal Pump "A" & "B"	9-5-68
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<u>Ebasco Drawing Title</u>	<u>Dwg. No.</u>	<u>Rev.</u>	<u>Date</u>
Safety Injection System SH-1 Plan	G190281	5	3-12-69
SH-2 Plan	G190282	--	--
Sections	G190283	4	3-12-69
Containment Spray	G190284	2	4-17-69
Residual Heat Removal Piping	G190267	3	5-15-68

CHEMICAL VOLUME CONTROL SYSTEM

<u>STRESS ISOMETRIC #</u>	<u>TITLE</u>	<u>DATE</u>
CH-1	CVC Piping Monitor Pumps "A" & "B" Suction from Monitor Tanks "A" & "B"	6-25-68
CH-2	CVC Piping Recirculating Pump Suction from Holdup Tanks "A", "B", "C"	6-22-68
CH-3	CVC Piping Recirculating Pump Discharge to Holdup Tanks "A", "B", & "C"	6-21-68
CH-4	CVC from Regenerative Hx to Reactor Inlet Pipe	10-18-68
CH-5	CVC from Regenerative Hx to Steam Generator Loop 1	4-18-69
CH-6	CVC from Anchors @ EL 237.50' & EL 241.25' to Non-Regenerative Hx	5-15-69
CH-7	CVC Anchor EL 242.22' to Regen. Hx	5-19-69
CH-8	Primary Coolant Loop Fm. Cool Pump Loop 2 to excess Letdown Hx.	11-4-69
CH-9	CVC Demineralizer Area	7-18-69
CH-10	Demineralizer Piping from Resin Fill Tank Disch. to Demins.	9-23-68

<u>Ebasco Drawing Title</u>	<u>Dwg. No.</u>	<u>Rev.</u>	<u>Date</u>
Chemical & Volume Control System Plan SH-1	G-190276	5	12-17-68
Plan SH-2	G-190277	-	--
Sections	G-190278	5	12-12-68
Demineralizer Piping Plan	G-190279	4	9-3-68
Isometrics - CVCS	SK-B190319	8	3-28-69

FEEDWATER SYSTEM

<u>STRESS</u> <u>ISOMETRIC #</u>	<u>TITLE</u>	<u>DATE</u>
FW-1	Feedwater Piping from Aux. F.W. Pump Disch. to Anchor Points 36, 73, 109 @ EL 244.00' Steam Driven (Rev. 1)	1-31-69
FW-2	F.W. Piping Reactor Area	-
* FW-3		
* FW-4		
FW-5	FW Piping Reactor Area	4-5-67
FW-6	Turbine Bld. FDW Piping from Anchor EL-227.50 to Anchor in Reactor Bldg.	8-20-68
FW-7	Turbine Bld. FDW Pump A & B Disch to heater 6A & 6B and to Anchor at EL 227.50 & 244.00	1-17-68

*Drawings are not located at this time.

<u>Ebasco Drawing Title</u>	<u>Dwg. #</u>	<u>Rev.</u>	<u>Date</u>
Mainsteam & Feedwater Piping SH-1	G190206	6	16-30-68
Mainsteam & Feedwater Piping SH-2	G190207	7	12-20-68

MAINSTEAM SYSTEM

<u>STRESS</u> <u>ISOMETRIC #</u>	<u>TITLE</u>	<u>DATE</u>
MS-1	Mainsteam Piping Reactor Area	3-29-67
MS-2	Mainsteam Piping in Turbine Area (Class I)	9-19-68
MS-3	Turbine Building Mainsteam to Condenser A & B, Moisture Separators 1-A, 1-B, 2-A, 2-B, Steam Seal Rec. & Turbine	-
MS-4	Aux. Feedwater Pump Steam Supply	9-11-70

<u>Ebasco Drawing Title</u>	<u>Dwg. #</u>	<u>Rev.</u>	<u>Date</u>
Mainsteam & Feedwater Piping SH-1	G190206	1	8-28-68
Mainsteam & Feedwater Piping SH-2	G190207	5	9-11-68

STEAM GENERATOR BLOW DOWN SYSTEM

<u>STRESS</u> <u>ISOMETRIC #</u>	<u>TITLE</u>	<u>DATE</u>
B-1	Reactor Building - Stm. Gen. Blowdown Steam Gen. "A" to Anchor Pt. 63 @ EL 229.167	6-26-70
B-2	Reactor Building - Stm. Gen. Blowdown from Anch. Pt. 63 @ EL 229.167 to Anch. Pt 101 @ 237.5	5-28-69
B-3	Reactor Building - Stm. Gen. Blowdown from Stm. Gen. "B" to Penetration #13 @ EL 234.5	6-27-70
B-4	Reactor Building - Stm. Gen. Blowdown Stm. Gen. "C" to Anchor Penetration 14 @ EL 237.50	6-5-69

<u>Ebasco Dwg. Title</u>	<u>Dwg. #</u>	<u>Rev.</u>	<u>Date</u>
Steam Generator Blowdown System	G190234	2	5-29-69

SYSTEM TITLE		DWG. #	DATE
Condensate	Condensate Piping	G-190213	-
Service & Cooling Water	Service & Cooling Water R/BAB	G-190225	-
	Service & Cooling Water R/BAB	G-190226	-
Diesel Generator	Emergency Diesel Generator Piping	G-190236	-
Demineralizer Water	Primary & Demineralizer Water	G-190259	-
	Demineralizer Piping	G-190279	
Component Cooling	Reactor Component Cooling System Sect. & Dets	G-190271	-
	Reactor Component Cooling System Plan	G-190272	
	Reactor Component Cooling System Sect.	G-190273	
Post Accident Containment Vent	Post Accident Containment Venting System - Flow Diagram	HBR2-6933	11-9-77