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FACIL:50-261 H. B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
AUTH.NAME AUTHOR AFFILIATION
CROOK,R.D. Carolina Power & Light Co.
CHAMBERS,R.H. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-011-00:on 920605,as result of insps per NRC info notices 89-028 & 90-017,discovered that piping failures may occur during seismic event. Caused by generic design stds in use during const. Test lines modified. W/920903 ltr.

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TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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EXTERNAL:	EG&G BRYCE,J.H	2	2	L ST LOBBY WARD	1	1
	NRC PDR	1	1	NSIC MURPHY,G.A	1	1
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(10CFR50.73)

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
LICENSEE EVENT REPORT NO. 92-011-01

Gentlemen:

The enclosed supplemental Licensee Event Report (LER), is submitted in accordance with 10 CFR 50.73 and NUREG 1022, Supplements No. 1 and 2. This report describes additional piping lines that were evaluated and determined not to meet short-term operability requirements. The revised portions are indicated by a vertical line in the right margin of the report.

Very truly yours,

Ray H. Chambers

R. H. Chambers
General Manager
H. B. Robinson S. E. Plant

RDC:sgk

Enclosure

cc: Mr. S. D. Ebneter
Mr. L. W. Garner
INPO

090045

IE22 1/1

NRC FORM 366 NUCLEAR REGULATORY COMMISSION

APPROVED OMB 150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2	05000261	1

TITLE (4)

CONDITION OUTSIDE DESIGN BASIS DUE TO INADEQUATE SEISMIC RESTRAINTS

EVENT DATE (5)			LER NUMBER (6)					REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR		SEQ. NO.		REV. NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	05	92	92	-	011	-	01	09	02	92		05000

		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)							
OPERATING MODE (9)	N		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
POWER LEVEL (10)	0		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER (Specify in Abstract and Text)
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		
			20.405(a)(1)(iv)	X	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
R. D. CROOK, SR. SPECIALIST - REGULATORY COMPLIANCE	(803)383-1179

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (16)

During June, 1992, H. B. Robinson Unit No. 2 was in cold shutdown for a scheduled refueling outage. During 1990, in response to NRC Information Notices 89-28 and 90-17, which had been issued to identify discrepancies in the weights and center of gravity for Copes-Vulcan valves, Carolina Power and Light Company initiated a program that included identification, field inspection, and review of the applicable seismic analysis for the identified valves at the H. B. Robinson Plant. During Refueling Outage 13, preliminary scoping walkdowns were conducted to prepare for detailed field inspections of affected systems and components. The field inspection was implemented during Refueling Outage 14. As a result of the field inspection and subsequent seismic review, certain valves were identified that did not meet short term operability requirements and therefore seismic capability during a Design Basis Earthquake could not be assured. These valves were installed in the Safety Injection System, the Chemical and Volume Control System, and the Post-Accident Containment Venting System.

Additional supports were designed and installed as necessary prior to plant start-up.

This report is submitted pursuant to 10 CFR 50.73(a)(2)(ii)(B).

I. DESCRIPTION OF EVENT

During June, 1992, H. B. Robinson Unit No. 2[1] was in cold shutdown condition for a scheduled refueling outage. During 1990, in response to NRC Information Notices 89-28 and 90-17, which had been issued to identify discrepancies in the weights and center of gravity for Copes-Vulcan valves, Carolina Power and Light Company initiated a program that included identification, field inspection, and review of the applicable seismic analysis for the identified valves at the H. B. Robinson Plant. During Refueling Outage 13, preliminary scoping walkdowns were conducted to prepare for detailed field inspections of affected systems and components. The field inspection was implemented during Refueling Outage 14. As a result of this inspection and subsequent seismic reviews, certain valves were identified that did not meet short term operability requirements and therefore their seismic capability during a Design Basis Earthquake could not be assured. These valves were SI-856A, SI-856B, SI-850E, SI-850F, SI-851C, SI-845A, SI-845B, and SI-845C, installed in the Safety Injection System (SI), CVC-303A and CVC-303B installed in the Chemical and Volume Control System (CVCS), and V12-24A and V12-24B installed in the Post-Accident Containment Venting System (PACV).

It should be noted that the PACV valves were not manufactured by Copes-Vulcan. Based on the results of the inspection of the valves identified by the Information Notices, the scope of the inspection was expanded to certain other manufacturers' power operated valves. Additional supports were designed and installed as necessary, and the lines were considered fully operable prior to plant start-up.

II. CAUSE OF EVENT

For the two inch valves, the cause of this condition is attributed to the generic design standards in use at the time of construction. These standards required that for piping applications of less than two inches, valves with extended operators have independent supports.

Two inch piping applications analyzed by the simplified method did not require independent supports on valves with extended operators. In the case of the specific valves applicable to this LER, the simplified method was not correctly applied, resulting in inadequate support at the valves.

In compliance with IEB 79-14, safety-related piping greater than two and one half inches in diameter was analyzed for the as-built conditions. For H. B. Robinson this also included portions of two inch piping previously computer analyzed. However, the two inch piping applicable to this LER was not computer analyzed and therefore not included in the IEB 79-14 program.

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[1] H. B. Robinson Steam Electric Plant, Unit No. 2 is a Westinghouse Pressurized Water Reactor in commercial operation since March, 1971.

The cause of this condition for the three-quarter and one inch valves is related to the valve mounting bracket. For these particular valves, the mounting bracket design did not take into account the full affects of the eccentric location of the extended operator mass. The H. B. Robinson Updated FSAR, Section 3.7.3, provides discussion of the seismic analysis for this plant.

III. ANALYSIS OF EVENT

The conditions described in this LER are considered to be outside of the design basis of the Plant. Therefore, this report is submitted pursuant to 10 CFR 50.73(a)(2)(ii)(B).

An assessment of the safety consequences and implications of failures of each of the valves and piping in question follows. It should be noted that, with the exception of valves SI-845A, B and C, the assessments are made assuming that piping will fail.

SI-856A and SI-856B

On June 5, 1992, as a result of the inspections mentioned above, it was determined that due to the lack of restraints on valves SI-856A and SI-856B, piping failures might occur during a seismic event. Although the volume of water required to be delivered to the core under safety injection conditions may still be adequate, the effects of water on equipment in the Safety Injection Pump room have not been evaluated. The Safety Injection system was declared inoperable, and the NRC was notified as such via the ENS pursuant to 10 CFR 50.72(b)(2)(i). These valves are normally-open, fail-open High Head Safety Injection Pump minimum flow recirculation line isolation valves. They were installed in series in the common two inch minimum flow recirculation line from these pumps to the RWST. These valves are closed by operator action during the transition from the injection mode to the recirculation mode.

Failure of these valves to function following a seismic event would not prevent safe shutdown of the plant. Loss of structural integrity of the piping associated with these valves could provide a leakage path from the discharge side of the SI pumps. However, this leakage would be limited by the fixed orifices in the individual recirculation lines of these pumps which restrict this flow to approximately thirty five gallons per minute during pump testing.

This piping returns to the Refueling Water Storage Tank at a level above the minimum required level in this tank. Therefore, back leakage from this direction is not a concern.

SI-850E and SI-850F

These are normally-closed, fail-closed accumulator check valve test line isolation valves for Accumulator "C". They are installed in a 3/4 inch line and are manually opened to ensure accumulator check valve sealing for back leakage testing. These valves serve no safety-related function beyond maintaining a boundary between the High Head SI piping (Class 1501) and the higher pressure piping (Class 2501) of the Reactor Coolant System.

Failure of these valves to function following a seismic event would not prevent safe shutdown of the unit. Loss of structural integrity of the piping associated with these valves could induce leakage into the containment; however, such leakage would be minimized by check valves SI-875A, SI-875B, and SI-875C which are installed between the Reactor Coolant System and these 3/4 inch lines. Leakage from the accumulators would be eliminated once these components are isolated after the reduction of primary pressure during shutdown.

SI-851C

This is a normally-closed, fail-closed accumulator liquid fill line isolation valve for Accumulator "C". It is installed in a one inch line and is manually opened to establish a flow path for accumulator makeup. This valve serves no safety-related function beyond maintaining a boundary between the High Head SI piping (Class 1501) and the lower pressure accumulator piping (Class 601).

Failure of SI-851C to function following a seismic event would not prevent safe-shutdown of the Plant. Loss of structural integrity of the piping associated with this valve could induce leakage into the containment; however, leakage from the Reactor Coolant System would be minimized by valves SI-875C and SI-875F, which are in series check valves. The line from Accumulator "C" would be isolated upon reduction of primary pressure during shutdown leaving Accumulator "C" as the only source of leakage. This line is normally isolated from the High Head SI pumps by valve SI-869.

CVC-303A and CVC-303B

These are normally-open, fail-open isolation valves for the Number 1 seal leak-off for Reactor Coolant Pump "A" and Reactor Coolant Pump "B" (Loop 1 and 2, respectively). Each of these valves are installed in a two inch line that directs seal leak-off (approximately 3 gpm) to the Volume Control Tank (VCT). These valves have no safety related function.

Failure of these valves to function following a seismic event would not prevent safe-shutdown of the Plant. Loss of structural integrity of the piping associated with these valves could induce Reactor Coolant System leakage into the containment; however, leakage would be minimized since the Number 1 seal of the Reactor Coolant Pump would limit the leakage. The Number 1 seal would experience a marginally higher differential pressure due to the loss of backpressure from the VCT; however, Reactor Coolant Pump operation would continue to support an orderly shutdown. Normal charging and letdown is not impaired since the subject lines are independent of these functions.

V12-24A and V12-24B

These are normally-closed, fail-closed isolation valves for the instrument and service air portions of the Post-Accident Containment Venting system. Each of these are installed in a two-inch line and are manually opened to provide hydrogen-free air to the containment to allow venting of hydrogen bearing gasses through the exhaust lines.

This system serves as a back-up to the Hydrogen Recombiner, which is the preferred method of post-LOCA hydrogen removal. The recombiner would be operated approximately fifty-four days after an accident in lieu of the post-accident venting system.

Failure of these valves to function following a seismic event would not prevent safe-shutdown of the Plant. Since these valves function as a back-up system for long term recovery actions, non-functionality in a post-seismic scenario is of no consequence.

SI-845A, SI-845B, and SI-845C

These valves are motor operated valves used for Spray Additive Tank (SAT) operation. The SAT houses a quantity of sodium hydroxide (NaOH) solution to ensure removal of free iodine from the containment atmosphere following a loss of coolant accident. SI-845A and SI-845B open automatically on receipt of a spray signal, and SI-845C is throttled open to obtain the decided NaOH spray flow rate. These valves are installed in a two-inch line and are located in the SAT room in the Reactor Auxiliary Building.

Subsequent evaluation of piping supporting these valves determined that while the pipe support stresses exceeded the short term qualification requirements, the valves would not have failed to function as required.

IV. CORRECTIVE ACTIONS

An Adverse Condition Report[2] was initiated to identify these conditions and to determine cause and corrective actions necessary.

The lines supporting the valves in question were evaluated and modified as necessary to meet operability requirements prior plant start up.

V. ADDITIONAL INFORMATION

A. Previous Similar Events

None

B. Component Failures

None

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[2] ACR 92-237