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SUBJECT: Forwards summary of each outlier recommendation identified
A-46 rept & resolutions of recommendation, in response to GL
87-02, Suppl 1, "Verification of Seismic Adequacy of
Mechanical & Electrical Equipment in ORs, USI A-46."

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**Carolina Power & Light Company**

Robinson Nuclear Plant
3581 West Entrance Road
Hartsville SC 29550

RNP File No: 13510HA
Serial: RNP-RA/98-0148

AUG 10 1998

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

INFORMATION IN SUPPORT OF CLOSURE TO GENERIC
LETTER 87-02, SUPPLEMENT 1 "VERIFICATION OF SEISMIC
ADEQUACY OF MECHANICAL AND ELECTRICAL EQUIPMENT
IN OPERATING REACTORS, UNRESOLVED SAFETY ISSUE (USI) A-46"

Sir or Madam:

By letters dated June 30, 1995, and November 30, 1995, Carolina Power & Light (CP&L) Company provided information in response to Generic Letter (GL) 87-02, "Verification Of Seismic Adequacy Of Mechanical And Electrical Equipment In Operating Reactors, Unresolved Safety Issue (USI) A-46," Supplement 1, for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2.

The USI A-46 evaluation for HBRSEP, Unit No. 2 was performed in accordance with the "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Power Plant Equipment," Revision 2, developed by the Seismic Qualification Utility Group (SQUG) and the conditions of the NRC approval. Outliers, as defined by the GIP, were identified in the "USI A-46 Seismic Evaluation Report" (i.e., USI A-46 Report), submitted by CP&L letter dated June 30, 1995. Outliers identified in the A-46 Report have been resolved and are discussed in Attachment II.

Attachment I provides an affidavit as required by 10 CFR 50.54(f).

Attachment II provides a discussion of each outlier recommendation identified in the A-46 Report and the resolution of the recommendation.

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United States Nuclear Regulatory Commission

Serial: RNP-RA/98-148

Page 2 of 2

If you have any questions concerning this matter, please contact me or Mr. Harold Chernoff.

Very truly yours,



T. M. Wilkerson

Manager - Regulatory Affairs

ALG/alg

Attachments

I. Affidavit

II. Information In Support Of Closure To Generic Letter 87-02, Supplement 1

c: Mr. L. A. Reyes, USNRC, Region II
Mr. R. Subbaratnam, USNRC
USNRC Resident Inspector, HBRSEP

Affidavit

State of South Carolina
County of Darlington

D. E. Young, having been first duly sworn, did depose and say that the information contained in letter RNP-RA/98-0148 is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

Dale E Young

Sworn to and subscribed before me

this 10 day of August 1998

(Seal)

Dege David Clark
Notary Public

My commission expires: March 21, 2005

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
INFORMATION IN SUPPORT OF CLOSURE TO GENERIC
LETTER 87-02, SUPPLEMENT 1

Summary

By letter dated June 30, 1995, Carolina Power & Light (CP&L) Company provided the "USI A-46 Seismic Evaluation Report" (i.e., USI A-46 Report) for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. This report was provided in response to Generic Letter (GL) 87-02, "Verification Of Seismic Adequacy Of Mechanical And Electrical Equipment In Operating Reactors, Unresolved Safety Issue (USI) A-46," Supplement 1.

Outliers, as defined by the Generic Implementation Procedure (GIP), were identified in the USI A-46 Report in Table 5-1, "Containment Walkdown Work Ticket Items," Table 5-2, "Balance of Plant Walkdown Work Ticket Items," Table 5-3, "Outliers," Table 7-1, "Conduit and Cable Tray Remaining Work Items," and Section 10, "Third-Party Audit Summary." Outliers identified in the USI A-46 Report have been resolved and are discussed below and on the following tables.

Seismic interactions were identified as outliers by Seismic Capability Engineers on the walkdown checklists in accordance with GIP, Section II.4.5, "Seismic Interaction." Resolution of outliers were resolved in accordance with GIP, Section II.5.3, "Outlier Resolution." As a result of the completion of outlier resolution during Refueling Outage 18, there are no remaining unresolved adverse seismic interactions that were identified by the Seismic Capability Engineers during the USI A-46 evaluation.

During the review of the Outlier Tables the following typographical errors were noted: Table 5-1, item EDG-A Control Switchboard A, the Work Ticket should be 93 AQMW1, item MCC-9, the Building should be the Reactor Auxiliary Building (RAB) and Elev. 246, Table 7-1, item 7, the location is 7 feet north of the south wall.

Table 5-1, "Containment Walkdown Work Ticket Items"

No.	Equipment	Status	Recommendation	Resolution
1.	Valve CVC-303A	Complete	Install longer flex conduit between rigid conduit and limit switch.	Resolved as recommended.
2.	Valves CVC-310A, CVC-310B	Complete	Install longer flex conduit between rigid conduit and limit switch.	Seismic induced failure results in the valve failing to a safe configuration. No further action taken.
3.	Relays	Complete	Perform miscellaneous repairs to fasteners, screws and mounting slots on Auxiliary Relay Panels "CC," "FC," "FD," and "FF."	Resolved as recommended.
4.	Relay	Complete	Tighten screws to design values to ensure proper support of relay on Auxiliary Relay Panel "MC."	Resolved as recommended.
5.	Relay	Complete	Calculation required to determine if a portion of the relay on Auxiliary Panel Relay "BF" that is within one inch of the toe board of the raised floor represents an interaction concern.	Condition evaluated as acceptable based upon gap of one inch between the relay and the toe board of the raised floor. No further action taken.
6.	Reactor Protection System Cabinet "55"	Complete	Torque hold down bolts to the base of the cabinet.	Resolved as recommended.
7.	Relay Rack "50"	Complete	Perform cable relocation and repair grout.	Resolved as recommended.

Table 5-1, "Containment Walkdown Work Ticket Items"

No.	Equipment	Status	Recommendation	Resolution
8.	Emergency Diesel Generator (EDG) Switchboard "A"	Complete	Replace missing square nut on door fastener.	Resolved as recommended.
9.	Motor Control Center (MCC) "9"	Complete	Remove loose anchor bolt.	Resolved as recommended.
10.	MCC "9"	Complete	Tighten anchor bolts to meet GIP requirements.	Condition evaluated as acceptable. No further action taken.
11.	MCC "16," MCC "18"	Complete	Secure electrical bucket which is presently secured only at top of compartment "3M."	Resolved as recommended.

Table 5-2, "Balance of Plant Walkdown Work Ticket Items"

No.	Equipment	Status	Recommendation	Resolution
1.	Square Root Extractor Modules	Complete	Install flat plate fittings between enclosure mounting "ears" and unistrut to ensure positive bearing on square root extractor modules FY-1425A, FY-1425B, FY-1425C, FY-1426A, FY-1426B, and FY-1426C.	Resolved as recommended.
2.	Pressure Switch (PSL)-1476-1	Complete	Install missing screw.	Resolved as recommended.
3.	Level Transmitter (LT)-1454A	Complete	Reattach loose conduit clamp to secure conduit to Condensate Storage Tank anchor chair steel.	Condition evaluated as acceptable. No further action taken.
4.	Valve EV-1711	Complete	Install missing support screw on valve.	Resolved as recommended.
5.	Pressure Transmitter (PT)-117	Complete	Reinstall loose clamp on conduit running to valve CVC-256.	Conduit clamp and finger clamp with backer plate, have been reinstalled.
6.	"A" and "B" EDG platforms	Complete	Move platform steps to a location to ensure that platforms do not represent a seismic interaction concern.	Resolved as recommended.
7.	"A" EDG Control Switchboard	Complete	Rework fastener on door to ensure positive restraint of door.	Resolved as recommended.
8.	Area outside "E1/E2" Room of the Turbine Building	Complete	Remove unrestrained sheet metal cover above pressure switch to resolve the potential seismic interaction.	Resolved as recommended.
9.	MCC "9"	Complete	Remove tools that are being stored on chain link fence to resolve the potential seismic interaction.	Resolved as recommended.

Table 5-3, "Outliers"

No.	Equipment	Status	Recommendation	Resolution
1.	Fans HVH "7A" and "7B"	Complete	Install lateral bracing to increase lateral rigidity and prevent seismic interaction.	Resolved as recommended.
2.	Valve TCV-1902A	Complete	Modify current supporting configuration for conduit and tubing.	Resolved as recommended.
3.	Auxiliary Relay Racks "A" through "F" and "G" through "M"	Complete	Locate and eliminate any possible sources of vibration loads to racks.	Resolved as recommended.
4.	"A" and "B" EDG Control Panels	Complete	Change the support configuration to eliminate shock loading impact generated by bottoming of spring isolators.	Resolved as recommended.
5.	Emergency Response Facility Information System Multiplexor (MUX) Cabinets	Complete	Bolt MUX Cabinets and adjacent megawatt hour recorder to form a rigid configuration.	Resolved as recommended.
6.	West Hagan Racks	Complete	Bolt adjacent cabinets to one another.	The racks were analytically evaluated to be acceptable as found. No further action taken.
7.	Auxiliary Feedwater (AFW) System Pressure Controller PIC-1393	Complete	Modify current support configuration to eliminate excessive flexibility	Resolved as recommended.
8.	Transformer CVT7.5/INST-1	Complete	Install independent hanger for conduit adjacent to transformer.	Resolved as recommended.
9.	Relay Racks "50," "51" and "52," "53" through "57," "58" through "62," and "63" through "64"	Complete	Add additional anchorage to cabinets.	Resolved as recommended.

Table 5-3, "Outliers"

No.	Equipment	Status	Recommendation	Resolution
10.	Pressurizer Power Operated Relief Valve (PORV) PCV-456	Complete	Provide bracket hanger for Solenoid Valve (SV)-1 and SV-3 similar to SV-2 and SV-4 which are associated with Pressurizer PORV	Resolved as recommended.
11.	Steam Driven AFW Pump	Complete	Modify current conduit support configuration to eliminate excessive flexibility.	Resolved as recommended.
12.	"B" and "C" Charging Pumps	Complete	Add missing clamp to conduit in ceiling. Install one hanger adjacent to connection lines at each pump.	Resolved as recommended.
13.	Valve CC-735	Complete	Reconfigure or move support steel or reposition valve operator.	Resolved as recommended.
14.	Reactor Trip Breaker Cabinet	Complete	Investigate the purchase and installation of seismic retrofit kit and install to restrain breakers. Install additional base anchorage and enhance existing top support.	The seismic adequacy of Westinghouse DB breakers was evaluated and the breakers were determined to be qualified as-is. The cabinet anchorage was as-built and evaluated as acceptable as found.
15.	"A" and "B" EDG Air Dryers	Complete	Provide positive anchorage of air dryers to pedestal to ensure adequate seismic margin for piping into dryers.	Resolved as recommended.
16.	Control Room Reactor Turbine Generator Board, Radiation Monitoring System Console, and Nuclear Instrumentation System Cabinets	Complete	Bolt cabinets together at one or both edges to resolve the potential seismic interaction.	Resolved as recommended.

Table 5-3, "Outliers"

No.	Equipment	Status	Recommendation	Resolution
17.	MCC "5"	Complete	Provide additional supports where feasible along top interior portion of the MCC.	The top anchorage was evaluated and determined to be acceptable by Seismic Capability Engineers.
18.	MCC "6"	Complete	Install additional floor anchorage. Bolt adjacent compartments together where required to resolve the potential seismic interaction.	The MCC was confirmed that adjacent cubicles were bolted together at the top. Bottom anchorage was added.
19.	"E1" and "E2" Emergency Electrical Power Buses	Complete	Investigate the purchase and installation of seismic retrofit kit and install to restrain breakers. Positively secure the breaker trolley to the cabinet when not in use or relocate trolley away from cabinet.	The seismic adequacy of Westinghouse DB breakers was evaluated and the breakers were determined to be qualified as-is. The Trolley was secured.
20.	Flow Transmitter FT-122	Complete	Anchor and/or brace the tool cabinet.	Tool cabinet changed out with a smaller one that does not represent an interaction concern.
21.	Low Pressure Switches PSL-1476-1 and PSL-1476-2	Complete	Modify current support configuration to eliminate excessive flexibility.	Resolved as recommended.
22.	125 Volt Direct Current (DC) MCC "B"	Complete	Modify the current cable tray support configuration above the MCC to resolve the potential seismic interaction.	The cable tray and MCC were evaluated in accordance with GIP-2 criteria and determined to be acceptable by Seismic Capability Engineers

Table 7-1, "Conduit and Cable Tray Remaining Work Items"

No.	Recommendation	Resolution
1.	Reinsert loose cables into a cable tray and between the side rails of cable tray near instrument air compressors located in the Reactor Auxiliary Building (RAB) ground floor north corridor.	Complete
2.	Rethread west threaded cable tray support rod into rod coupling near the station air receiver located in the RAB ground floor north corridor.	Complete
3.	Reinstall west threaded cable tray support rod for the trapeze type hanger supporting four 24 inch wide cable trays located opposite to the "A" instrument air compressor in the RAB ground floor north corridor.	Complete
4.	Replace broken finger clamp on 2 inch diameter conduit routed between Lighting Panel 26 and a transformer located in the RAB ground floor south corridor.	Complete
5.	Restore a finger clamp on a conduit routed to Temperature Element (TE)-610 located in the RAB ground floor south corridor.	Complete
6.	Tighten finger clamp on conduit routed to Temperature Indicator Controller (TIC)-107 located in the component cooling water room.	Complete
7.	A cable tray located in the Cable Spread Room, approximately 4 feet east of the west wall and 7 feet north of the south wall has anchor bolts that are installed in the concrete beam and only 1-1/2 inches from the edge. In order to increase the seismic margin, it is recommended that a new trapeze type support be installed at least five inches off of the edge of the concrete beam.	The cable tray was analytically evaluated to be acceptable as found.
8.	Install the bottom anchor to the original design intent for a cantilever type gang conduit support located in the RAB second floor south corridor.	Complete
9.	Install hangers for a 1 inch and a 3/4 inch conduit installed along a wall located in the RAB containment penetration and pipe tunnel area.	Complete
10.	Attach 3/4 inch conduit routed from a penetration located in north section of the RAB containment penetration and pipe tunnel area to the side rails of an overhead cable tray with a beam clamp. Check the adjacent 1 inch diameter conduit and two 3/4 inch conduits for positive attachment to the tray.	Complete
11.	Install a beam clamp for a 1 inch diameter conduit located at the northwest wall of the RAB containment penetration and pipe tunnel area to anchor the conduit to the support angle.	Complete

Table 7-1, "Conduit and Cable Tray Remaining Work Items"

No.	Recommendation	Resolution
12.	Install additional supports for a conduit routed from an overhead cable tray adjacent to support SS-2210 located in the RAB containment penetration and pipe tunnel area.	Complete
13.	Install a new strut member below two 1 inch diameter conduits located in the RAB containment penetration and pipe tunnel area. Condition evaluated as acceptable.	Complete
14.	Install a new strut member for three conduits located in the RAB containment penetration and pipe tunnel area so that a 1 1/2 inch diameter conduit can be secured to the strut with a beam clamp.	Complete
15.	Place loose cables hanging outside of cable trays located in the central and south areas of the RAB containment penetration and pipe tunnel area to within side rails or otherwise restrain the cables to prevent cable pinching.	Complete
16.	Provide supports from the overhead Turbine Building steel to a 1 inch diameter conduit in the Seismic Class I Bay of the Turbine Building.	Complete

Section 10, "Third Party Audit Summary"

No.	Recommendation	Resolution
1.	Consider attaching installation shipping cables and evaluate the load path of the stacked configuration for the jacket water and lube oil heat exchangers.	Load path evaluated resulting in support cable installation.
2.	Consider installation of lateral restraints for non-safety related batteries and chargers to avoid potential seismic interaction with adjacent equipment.	Installed lateral restraints as recommended.