U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-354/85-31

Docket No. 50-354

License No. CPPR-120 Priority -- Category A

Licensee: Public Service Electric & Gas Company

P.O. Box 236

Hancock's Bridge, New Jersey

Facility Name: Hope Creek Generating Station

Inspection At: Hancock's Bridge, New Jersey

Inspection Conducted: June 24-28, 1985

Inspectors: A. A. Warela, Lead Reactor Engineer — date 7/26/85

Approved by: J. J. Wiggins, Chief, Materials and Process Section, EB, DRS — date 7/26/85

Inspection Summary: Inspection Report No. 50-354/85-31 on June 24-28, 1985

Areas Inspected: Routine, unannounced inspection by one regional based inspector of licensee response to previous inspector unresolved items relating to HVAC duct work and supports, and implementation of the Seismic II/I Evaluation Program. The licensee's surveillances and audits were reviewed and, a sampling record review and walkdown inspection of II/I was performed. Additionally, the Hope Creek power block Heave/Settlement Measurement Program Report was reviewed and evaluated. The inspection involved 36 inspector-hours on site and 8 inspector hours of in-office inspection.

Results: No violations were identified.

DETAILS

1. Persons Contacted

Public Service Electric and Gas Co. (PSE&G)

* A. D. Barnabei,	Principal QAE
* F. A. Boppel,	Senior Staff QAE
* E. Dalton,	Supervising Engineer
* R. Donges,	Lead QAE
* A. E. Giardino,	Manager-QA-E&C
* R. T. Griffith,	Principal QAE
* E. C. Logan,	Site Manager
* G. D. Owen,	Principal Construction Engineer
D. Evans,	Principal QAE
L. Kamath,	Site Engineer

Bechtel Power Corporation (BPC)

* W. Cole,	Lead Site QAE
* G. Moulton,	Principal QAE
* W. Goebel,	QAE
M. Custer,	Group Leader-Seismic II/I
T. Ferenchak,	Assistant Resident P.E.
G. Goldsmith,	Resident Engineer, Mechanical
S. Copland,	Mechanical Engineer, HVAC
D. Long,	Field Construction Manager

NRC

* R. Blough,	Senior Resident Inspector
* L. Briggs,	Lead Reactor Engineer
* M. Dev,	Reactor Engineer
* A. Kortas,	Reactor Engineer

* Attendees at exit interview.

2. Licensee Action on Previous Inspection Findings

2.1 The discrepancies identified in Inspection Report 85-15 continued from Unresolved (354/84-10-01) Seismic II/I Program are related to inconsistencies contained in the documents controlling the walkdown and QC inspection of activities associated with the Seismic II/I Program. Based on discussions with cognizant licensee and engineer representatives and a review of procedures, the following are satisfactory resolutions to specific parts of this item. The parts are listed in the same order that they were identified in report 85-15.

Unresolved Item (354/84-10-01)
Part No. - Resolution and Closeout

3. The spacing of supports for non-category I ductwork are required to be controlled by QC instruction SM-1.03-1. The support spacing shown on drawings for Non-Q ductwork is the result of engineering design which is a "Q" item. This precludes the possibility of ductwork collapse during an SSE event due to excessive support loads.

4. The inconsistency between specification G-052 and design criteria D7.9 is removed in Addendum 1 to Revision 2 of the latter which deletes section 7.1.3.

5. The generic exemption from QC involvement in Seismic II/I interactions contained in Specification G-052 section 2.3.6 has been deleted in Addendum 3 to Revision 2 as a result of completed calculations.

7. The clarification of Specification G-052, paragraph 3.5.2b is provided in Revision 2 and in Addendum 2 to paragraph 2.4.2.

10. The incorporation of commitments on adequacy of non-safety conduit clamps/raceway supports is provided in Specification G-052, Addendum 2 to Revision 2 and in design criteria D7.2, Revision 5.

11. Design criteria D7.2 Revision 5 now agrees with G-052 on requirements for sampling inspection for generic acceptance by QC of certain II/I items.

12. The calculations to substantiate exemptions from seismic II/I are now complete. They substantiate the exemption identified in Specification G-052 paragraph 2.3.6.

13. Addendum 3 to Specification G-052 Revision 2 provides consistency with design criteria D7.3 paragraph 4.4.1.f regarding exemption of ladders and handrails from Seismic II/I concerns and QC inspection thereafter.

14. The inconsistency between the design criteria and the specification regarding areas inside the plant not containing safety related equipment has been resolved by Revision 2 to D7.9 which incorporates Specification G-052 Section 2.1.3. This revision and the qualification of Non-Q ductwork as identified in Part 3 resolves this item.

15. The adequacy of non-seismic raceway installations/support spacing - is resolved by engineering design of non-seismic raceway supports and QC inspection as addressed in item 3 and 14.

16. The discrepancy regarding spacing of "Q"-tray supports in D7.9 and Specification J-825 is resolved by Revision 2 Addendum 1 to D7.9 which deletes reference to J-825 and adds: Routing of instrument impulse lines are not to be considered as a II/I hazard.

17(a) The instrument drawing identification implies that QC inspection is required.

17(b) Regarding tubing support installation Addendum 1 to Revision 2 provides consistency between D7.9 and G-052 paragraph 3.34 to adequately resolve this item.

The above parts of UNR 84-10-01 together with the parts found acceptable in inspection report 85-15 closes UNR 84-10-01.

2.2 (Closed) Unresolved item (85-15-01): HVAC ductwork/QC inspection for dents and wrinkles at time of installation. Ductwork buckling of 5/8" at mid-distance was investigated by Bechtel engineering for its effect on airflow and pressure. The inspector discussed the calculations with cognizant site engineers. The effect of reduced duct area due to the 5/8" buckling was found not in excess of the allowable balancing latitude for achieving the required airflow. Additionally, specification M-735 Change Request No. M-703, dated January 17, 1984, regarding conditions for acceptance of minor dents or wrinkles on installation, states that acceptance for installation of the duct (minor dents or wrinkles) will be by field engineering. Also M-735, section 7.3.2 on ductwork construction workmanship allows waviness or bulging of rectangular duct sheet plates of up to ± ½-inch per 4 ft. section.

2.3 (Open) Unresolved items (85-15-02) and (85-15-04) - These remain open pending receipt at the site from San Francisco of calculations and subsequent NRC review.

2.4 (Closed) Unresolved item (85-15-03) Control of scaffolding erected in contact with HVAC ductwork and hangers. Bechtel field construction manager issued a directive dated May 8, 1985 to construction superin-

tendents to prevent erection of scaffolding or rigging in contact with HVAC ductwork without approval of field engineering. The instruction provides for disciplinary action up to termination for personnel violating the directive.

No violations were identified.

3. Document Review and Walkdown Inspection of Seismic II/I Program

A walkdown inspection was performed of a completed seismic II/I evaluated, safety-related structure. The purpose of this inspection was to verify II/I documentation. The intent was to see that safety related structures outlined in Regulatory Guide 1.29 will not be prevented from carrying out their functions by physical interactions with non-seismically qualified elements as a result of an SSE event. One of four cells of the Diesel Generator Building (DGB) structure was selected for detailed review and inspection of 17 items required to be evaluated for the following actions:

- Rework by construction
- Inspection by QC
- Verification by the II/I team

The inspector observed and discussed with the cognizant II/I group leader four non-seismically qualified items contained in Cell B of the DGB, which required inspection by QC. No additional items were identified as a result of the evaluation of these items to ensure that no adverse interaction could result from a seismic event. Also no additional items were identified as a result of the final II/I walkdown. The inspector's record review of the other three diesel generator cells and their item of II/I significance disclosed no discrepancies.

No violations were identified.

4. Licensee Surveillance/Audit Activities

Documentation of licensee surveillance activities pertaining to insulation work by Owens-Corning Fiberglas Corporation for the reactor pressure vessel and drywell piping was reviewed by the inspector. First line inspection of this work is the responsibility of BPC. The PSEG records provide evidence that the licensee has maintained continuous surveillance of the work from its inception in May 1984 to the present.

Documentation of licensee audit activities pertaining to the seismic II/I evaluation program were also reviewed. The annual audits initiated in February 1983 use check lists, address unresolved items and are responded to by BPC. The resolution/closeout of UNRs is contained in the documents reviewed.

No violations were identified.

5. Heave/Settlement Measurement Program - Review of Annual Report

The inspector reviewed BPC's settlement plots and plots of differential settlement (at the powerblock) measured at six month frequency up to October 18, 1984. This report identifies measurements taken after the start of dewatering in March 1983 and its termination October, 1983. A review of the plots by the NRC inspector confirmed that settlements continue to be uniform, have leveled-off and differential settlements within the power block are acceptable. The inspector discussed the above in telephone conversations on July 2 and 5 with licensee's geotechnical site engineer. The licensee committed to provide an evaluation of settlement monitoring up to the present and to provide information on continued monitoring. Additionally, the inspector requested documentation to justify: (1) termination of monitoring between power block markers and the service water pipeline and, (2) termination of monitoring of safety related yard lines. This item is unresolved pending review of the aforementioned licensee information (UNR 85-31-01).

6. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations or deviations. An Unresolved item is discussed in paragraph 5.

7. Exit Interview

An exit interview was held June 28, 1985 at the Hope Creek plant with members of licensee's staff and contractor personnel identified in paragraph 1. The inspector summarized the scope and findings of this inspection. The licensee acknowledged the inspector's comments. Additional information resulting from the inspector's evaluation was communicated to the licensee in telephone conversations of July 2 and 5 as identified in paragraph 5. No written information was given to the licensee during the course of the inspection.