U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 50-354/83-18 Docket 50-354 License CPPR-120

Licensee: Public Service Electric and Gas Company

Facility: Hope Creek Generating Station

Inspection At: Hancock's Bridge, New Jersey

Conducted: December 4, 1983 - January 5, 1984

Inspector: W. H. Bateman 1/6/84
W. H. Bateman, Senior Resident Inspector Date

Approved: E. C. McCabe, Jr. 1/16/84
E. C. McCabe, Chief, Project Section 1C Date

Summary: December 4, 1983 - January 5, 1984 (Report No. 50-354/83-18):

Routine resident safety inspection (39 hours) of work in progress including HVAC ductwork and support installation, tracking of cut rebar, pipe and support installation, torus modification activity, and housekeeping. The inspector also made tours of the site and evaluated licensee action on previous inspection findings. One violation was identified (failure of QC to identify an improper weld preparation as described in paragraph 3.)

DETAILS

1. Persons Contacted

Public Service Electric and Gas Company (PSE&G)

A. Barnabei, Principal QA Engineer
A. E. Giardino, Manager, QA Engineering and Construction
R. Griffith, Principal Staff QA Engineer
P. Kudless, Project Construction Manager
G. Owen, Principal Construction Engineer

Bechtel Power Corporation (Bechtel)

A. Albrechtson, Lead Piping Engineer
A. J. Bryan, Project QC Engineer
W. Cole, Lead Site QA Engineer
M. Curley, Lead HVAC QC Engineer
W. Dorman, Assistant Project Field Engineer
S. Evans, Lead Electrical QC Engineer
M. Henry, Project Field Engineer
J. Johanson, Assistant Project Field Engineer - HVAC
A. Landi, Lead Pipe Support QC Engineer
D. Long, Project Superintendent
R. Mackey, Resident Project Engineer
G. Moulton, Project QA Engineer
D. Reel, Lead Contracts QC Engineer
J. Serafin, Assistant Project Field Engineer
C. Turnbow, Field Construction Manager
S. Vezendy, Assistant Project QC Engineer
N. Wypch, Lead Piping QC Engineer

General Electric Nuclear Energy Business Operations (GENEBO)

J. Cockroft, Site Engineer

2. Site Tour

Routine inspections were made to observe the status of work and construction activities in progress. The inspector noted the presence of and interviewed QC and construction personnel. Inspection personnel were observed performing required inspections and those interviewed were knowledgeable in their work activities. Work items were examined for obvious defects or noncompliance with regulatory requirements or license conditions. Areas inspected included housekeeping, storage of materials and equipment, weld rod control, and torus modification work activity. The specific activities inspected were controlled by approved procedures and performed in accordance with these procedures. No unacceptable conditions were identified.

3. Safety Related Pipe Support and Restraint Systems

The inspector observed work in progress and completed work on safety related pipe supports and restraints. The particular attributes inspected included weld quality, acceptability of attachment point to safety related steel or concrete structure, satisfactory blocking of spring hangers, completeness of hanger assembly including full thread engagement of nuts and use of proper nut locking arrangements, presence of shear lugs where required, existence of potential interference problems, correctness of location of hanger clamps on pipe to ensure field and shop welds not obstructed, and mechanical snubber protection after installation. The following hangers are a representative sample of those inspected:

-- 1-P-EG-228-H02Q

-- 1-P-EG-228-H01Q

-- 1-P-EG-229-H04Q

-- 1-P-EG-229-H03Q

-- 1-P-EG-104-H13Q

-- 1-P-FC-007-H10Q

The inspection records, design drawings, and weld history records for the above hangers were also reviewed and found to be satisfactory except for hanger 1-P-FC-007-H10Q. The design drawing for hanger 1-P-FC-007-H10Q required a partial penetration weld for a skewed T-joint, but the as-built condition was a fillet weld configuration. This hanger had been final inspected by QC in November of 1981. The failure of QC to identify the weld discrepancy is contrary to Criterion X of Appendix B of 10 CFR 50 and is a violation. (354/83-18-01) Prior to the end of this report period, NCR 2729 was initiated to identify and resolve the violation. The hanger was reworked and the NCR closed. Additionally, the licensee determined that their review of skewed T-joint weld requirements conducted to close out a NRC finding described in Inspection Report 82-15, inadvertently

overlooked 499 hangers that were either in transit from the offsite fab shop or were stored onsite. (1-P-FC-007-H10Q was one of these.) Immediate action was taken to reinspect those hangers in this group of 499 that involved the use of skewed T-joints. The results of the reinspection indicated that the weld discrepancy identified by the NRC inspector was not an isolated case. At the end of the report period an additional three had been identified by Bechtel QC:

-- 1-P-BB-013-H05Q

-- 1-P-BB-013-H10Q

-- 1-P-BB-014-H10Q

In addition to these three, another twenty-two remained indeterminate due to wrap around welds or paint. Bechtel initiated an NCR which identified those joints that were incorrect and those that were indeterminate. This NCR was undergoing engineering review at the end of the inspection report period.

4. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (354/82-13-01): Service Water pipe bell ring Certified Material Test Reports (CMTR's) not available for review. The licensee's investigation into this question determined that the pipe manufacturer changed the bell ring material after approximately 30% of the pipe was manufactured. A NCR was written to identify the purchase specification violation and dispositioned "use-as is" based on the fact that the substitute material (ASTM A-36, Grade 50 in place of ASTM A-675-79 Grade 50) was considered equal to or better than that required by the specification. The CMTR's for the substitute material were available in the documentation packages. (The NRC inspector had coincidently reviewed only those documentation packages for pipes manufactured after the material substitution. A subsequent review of documentation packages for those pipes using A-675 bell ring material found that the required CMTR's were available.) Because the material substitution was not identified by QC during their required technical documentation review, the NRC inspector requested that a sample review of other completed documentation packages be performed to determine if a problem existed with the adequacy of QC's technical review. Eighty-eight QC accepted documentation packages were arbitrarily selected and reviewed by the licensee's QA organization. This review involved comparing purchase specification requirements to those documents available in the documentation packages. The review disclosed no additional problems. Based on the results of the licensee's followup action, this item is closed.

(Closed) Noncompliance (354/83-05-01): Failure of QC to identify HVAC ductwork support installation discrepancies. In NRC Inspection Report 83-16, the inspector stated this item would remain open pending completion of the

sample reinspection. The inspector's sample reinspection involved a detailed comparison of the as-built condition to the as-built drawings for the following supports:

W-H Drawing No.	Support No.'s
SM-133	12
SM-143C	5, 6
SM-163C	1,2,3,4,9,12
SM-183C	23
SM-193	1,3,4
SM-203C	4
SM-213	4
SM-233	9, 10

This comparison indicated that the corrective action taken to address the original problem was effective. The inspector identified no discrepancies. It should be pointed out that the as-built drawings for all of the 552 supports involved in this effort were as-built from the field installed condition. Based on the effective corrective action, this item is closed.

(Closed) Unresolved Item (354/83-08-04): Bechtel drafting errors inaccurately depicted installation responsibilities at interfaces between vendor supplied equipment and field run small bore pipe. A review of all Bechtel small bore pipe isometrics disclosed that similar type drafting interface problems existed on the following drawings:

-- 1-P-BC-234, 242

-- 1-P-EA-211, 216, 221

-- 1-P-EG-230, 232, 277, 278, 283

These drafting errors were corrected to accurately depict whether equipment at the interfaces is vendor installed or must be installed by field forces. The inspector reviewed all of the affected drawings to ensure the revision work was complete. In addition, the inspector reviewed QC records for the affected drawings to ensure QC had identified their responsibilities at the revised interfaces. All drawing revisions and QC records were found to be satisfactory. This item is closed.

5. Potentially Generic Issue

The inspector reviewed a potentially generic issue involving automatic depressurization system (ADS) digital signal conditioner card fuse failures with licensee and GENEBO personnel to determine applicability to Hope Creek. The particular problem was a failure to actuate the safety relief valves in response to automatic or manual signals because of a blown fuse in the digital signal conditioner printed circuit cards used in the ADS. The review determined the particular cards involved were not applicable to Hope Creek.

6. HVAC - Review of Controlling Procedures and Work in Progress

The inspector reviewed completed and final QC inspected and accepted HVAC ductwork supports. Several questions arose from this review as listed below:

(1) Support 4 on W-H drawing SM-203C and support 2 on W-H drawing SM-163C had broken torque paint on several of the bolted connections. Torque paint is used as an indicator that torqued bolting has not been disturbed. A review of the documentation packages for these supports indicated they had not been reworked after final QC acceptance. Bechtel stated a possible explanation for this situation was failure of crafts/QC to remove torque paint from bolts that were reused after required rework prior to final QC inspections. Bechtel also stated this was an unacceptable situation and that sample reinspection would be performed to determine if a generic problem exists. The inspector will followup the results of this reinspection in a subsequent inspection. (354/83-18-02)

(2) The controlling procedures did not contain a specific requirement for QC to check the torque on 10% of those bolts involved in hanger rework. Revision 3 to SWP/P-M-104, Specific Work Plan/Procedure - HVAC Ductwork/Duct Hangers Installation, Inspection and Documentation, was issued prior to the end of this report period to incorporate this requirement.

(3) QC did not appear to have an effective system to control the inspection status of reworked ductwork supports. Revision 3 to SWP/P-M-104 was issued prior to the end of this report period to clarify Field Engineering/QC responsibilities regarding rework. This clarification enabled QC to establish a system whereby they are now aware of the inspection status of reworked supports.

In general HVAC ductwork support installation and inspection activity is proceeding acceptably. Field Engineering has responsibility for inprocess inspection as well as partial responsibility for final inspection. Revisions to the systems that control installation of ductwork and supports are still underway but appear to be of a nature designed to improve and simplify the process. Additional personnel with experience from other nuclear projects have been added to the site work force to help solve HVAC problems.

7. Control and Documentation of Cut Rebar

The inspector observed craftsmen cutting rebar to provide a hole for expansion anchor bolt (EAB) installation. The hole was located in elevation 102 floor slab and the EAB was installed as part of the anchoring system

for electrical panel 1BC204. Bechtel Special Work Plan/Procedure SWP/P-C-4, Installation of Expansion Type Concrete Anchors, Rev. 7, requires that the designated field engineer (DFE) provide approval for cutting rebar prior to making the cut and that cut rebar as-built drawings be updated on a daily basis. The inspector questioned the DFE to determine if permission had been granted to cut the rebar and if cut rebar drawings had been updated to show this cut. The DFE showed the inspector the authorization to cut the rebar and the appropriate cut rebar drawing which correctly indicated the cut bar. This review indicated the program to control rebar cutting continues to be effective.

8. Torus Modification Retest Requirements

The inspector questioned the licensee regarding the specific retest requirements for the torus upon completion of the modification work. A review of ASME Section XI indicated that the 1980 Edition Winter of 1981 Addenda requires that a pneumatic leakage test be performed in accordance with the provisions of 10 CFR 50 Appendix J. The inspector questioned the licensee as to where this requirement was incorporated into their program to ensure it would not be overlooked. The licensee stated it was not incorporated into any specific procedure at this time but that the requirement would be placed in their "tickler" system to ensure the requirement would be incorporated into the Appendix J integrated leak rate test (ILRT) when it is written. The inspector also stated the licensee should include with this "tickler," a reminder to include a requirement to inspect containment flued head penetrations during the ILRT as discussed in NRC followup item 354/81-15-02 closed out in Inspection Report 83-08. The licensee stated this requirement would also be added to the "tickler" system to be added to the ILRT procedure when it is written.

9. Exit Interview

The inspector met with licensee and contractor personnel at periodic intervals during this inspection report period. At these times, the inspector summarized the scope and findings of his inspection activities.