

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-354/82-08

Docket No. 50-354

License No. CPPR-120 Priority -- Category A

Licensee: Public Service Electric and Gas Company

80 Park Plaza - 17C

Newark, New Jersey 07101

Facility Name: Hope Creek Generating Station, Unit 1

Inspection at: Hancock's Bridge, New Jersey

Inspection conducted: July 6 - August 1, 1982

Inspectors: W. H. Bateman
W. H. Bateman, Senior Resident Inspector

8/6/82
date signed

date signed

date signed

Approved by: L. E. Tripp
L. E. Tripp, Chief, Projects Section 2A

8/11/82
date signed

Inspection Summary: Unit 1 Inspection of July 6-August 1, 1982 (Report No. 50-354/82-08):
Areas Inspected: Routine unannounced safety inspection by the resident inspector (57 hours) of work in progress including structural steel erection, concrete placement of panel walls and service water intake structure foundation, service water pipe trench excavation and backfill, cable tray and tray support installation, preheat and welding of pipe whip restraints, rebar and embed installation, housekeeping and fire protection, storage of materials and equipment in and adjacent to the power block, core drilling activities, pipe and hanger installation, and welding and NDE of reactor vessel internals. The inspector also made tours of the site, evaluated licensee action on previous inspection findings, and witnessed action taken by the licensee to resolve a construction deficiency report.

Results: No items of noncompliance were identified.

8208300085 820813
PDR ADOCK 05000354
Q PDR

DETAILS

1. Persons Contacted

Public Service Electric and Gas Company (PSE&G)

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

Bechtel Power Corporation (Bechtel)

A. J. Bryan, Project QC Engineer
W. Dorman, Assistant Project Field Engineer
M. Drucker, Lead Site QA Engineer
R. Hanselman, Lead Welding Engineer
M. Henry, Project Field Engineer
D. Long, Project Superintendent
R. Mackey, Resident Project Engineer
J. R. McCoy, Lead Contracts QC Engineer
G. Moulton, Project QA Engineer
D. Sakers, Assistant Project QC Engineer
J. Serafin, Assistant Project Field Engineer
D. Stover, Project Superintendent, Contract Administration

General Electric Installation and Services Engineering (GEI&SE)

R. Burke, Site Project Manager
M. Hart, Site QC Supervisor

General Electric Nuclear Energy Business Operation (GENEBO)

J. Cockroft, Site Engineer

J. Rich Steers (JRS)

T. Hughes, Site Project Superintendent
M. Russell, Site QC Supervisor

W-H Constructors (W-H)

M. Wita, Site QC Manager

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 concrete placement, structural steel erection, cable tray and tray support installation, pipe and hanger installation, storage of materials and equipment, housekeeping and fire protection, and formwork and rebar erection.

No items of noncompliance were identified.

3. Safety Related Pipe Support and Restraint Systems

The inspector reviewed installation activities of the support steel that supports and restrains the movement of the flued head piping penetrations. This support steel is located adjacent to the drywell in areas where flued head piping assemblies penetrate through containment. In particular welding, welding preheat, and NDE were reviewed for conformance to ASME III Code requirements. Additionally, the support steel was reviewed to ensure the requirements of Bechtel Specification C-133(Q), Purchase of Miscellaneous Metal for ASME Component Supports, were met for this supplementary steel.

As a result of this review, it was determined that the support steel for the flued head piping assemblies is not considered by the designer to be supplementary steel. (Supplementary steel is defined as that steel used to carry loads from the NF jurisdictional boundary to the building structure and may be considered as part of the building structure.) This appears to be an inconsistency in design requirements. The inconsistency is that two different Codes are specified for supplementary steel used to support ASME III piping:

- Supplementary steel per C-133(Q) specification meets ASME requirements for material, design, welding, and NDE (except NDE of Class 1 full penetration butt welds).
- Flued head piping assembly support steel meets AISC requirements.

The application of two different Codes to the design, material used, welding, and NDE required for steel that supports ASME III piping, is unresolved pending licensee action to rectify the inconsistency such that all ASME III pipe support steel meets identical Code and specification requirements. (354/82-08-01)

4. Licensee Action on Previous Inspection Findings

(Closed) Inspector Follow Item (354/80-14-10): Acceptability of licensee's selection of ASME III Subsection NF jurisdictional boundaries. A conference telephone call between the licensee and the NRC on July 7, 1982 resolved this question. Key points of the call follow:

- The NRC disagreed with the licensee's selection of the NF jurisdictional boundary as applied to linear type supports. The licensee's boundary was selected to be at the juncture of the component standard support and the supplementary steel used to carry loads to the building structure.
- Because the licensee's requirements for design, material type, welding, and NDE of supplementary steel incorporated ASME II and III Code requirements (except NDE of full penetration butt welds used in supplementary steel supporting NF Class 1 piping), the NRC accepted the licensee's program.
- One proviso was imposed, however, on the licensee. This proviso requires the licensee to undertake additional NDE of a full penetration butt weld used in supplementary steel supporting NF Class 1 piping upon request of the NRC resident inspector if the inspector considers, based on a visual examination of the weld, additional NDE is required to confirm the quality of the weld. The licensee agreed with this proviso.

The inspector had one further question which is discussed as an unresolved item in paragraph 3 of this report. As regards the selection of ASME III Subsection NF jurisdictional boundaries, the inspector considers the question resolved.

(Closed) Noncompliance (354/82-04-01): Failure to implement the weld metal issue procedure prior to tack welding electrical penetration W101D. The subject tack welds were removed by grinding and the penetration was then tacked into place using properly controlled weld filler metal. The inspector interviewed the foreman responsible for the noncompliance to ensure he had a thorough understanding of his responsibilities to follow procedural requirements for control of weld filler metal. Based on the corrective action taken by the licensee the inspector considers this item closed.

(Closed) Unresolved Item (354/82-05-03): Validity of qualification of W-H expansion anchor bolt (EAB) installers. The qualification records of the W-H QC inspector who signed the EAB installers' qualification forms were transferred to the site and reviewed by the NRC inspector. The qualification of this and other inspectors was the subject of a noncompliance in NRC inspection report 82-07. Based on the facts that a Bechtel field engineer, knowledgeable in EAB installation and installer qualification, signed the W-H EAB installer qualification data sheets and that all the EAB's passed the pull out test, the inspector considers the W-H EAB installers qualified and this item closed.

5. Foundations - Observation of Work and Work Activities

The inspector reviewed PSAR and other licensee commitments to NRC, specification and drawing requirements, and interviewed QC and field engineering personnel all in regards to excavation and backfill of the trench containing the service water piping. The particular documents reviewed included:

- Bechtel Drawing C-0089-0
- Bechtel Drawing C-0090-1
- Bechtel Drawing C-0091-1
- Bechtel Drawing C-0092-2
- Bechtel Drawing C-0093-2
- Bechtel Drawing C-0094-0
- Bechtel Drawing C-0156-0
- Bechtel Drawing C-0157-0

- Bechtel Sketch SK-C-170
- Bechtel Sketch SK-C-171
- Bechtel Sketch SK-C-172
- Bechtel Sketch SK-C-173
- Bechtel Sketch SK-C-174
- Bechtel Specification C-049(Q), Installation of Category I Buried Service Water Pipe and Duct Bank
- Public Service Electric and Gas letter to USNRC Director of Nuclear Reactor Regulation dated July 12, 1978, Response to Geotechnical Engineering Staff Summary of Meeting, Post-CP Positions.

The requirements of these documents are that the trench be excavated to the Kirkwood Formation and then backfilled with Category I fill to the elevation of the bottom of the service water pipe at which point bedding is placed prior to laying the piping. The inspector witnessed the excavation and confirmatory examinations of the excavation by field engineering to confirm that the Kirkwood Formation formed the base for the Category I backfill. QC personnel were questioned to ensure they were aware of the requirement to start the backfill on the Kirkwood Formation. Additionally, QC personnel were questioned to determine their knowledge of backfill lift and compaction requirements. All field engineering and QC personnel were knowledgeable in the activities for which they were responsible.

No items of noncompliance were identified.

6. Reactor Vessel Internals - Observation of Work and Work Activities

The inspector observed welding of control rod drive mechanism (CRDM) housings to reactor pressure vessel stub tubes. The welding was found to be in conformance with procedure requirements. Additionally, the use of draw bead welding to establish alignment of the CRDM housings had not been required for any CRDM's as of the end of this inspection report period.

The inspector also witnessed straight beam immersion ultrasonic testing (UT) of completed CRDM housing to stub tube welds. The UT is performed by filling up the CRDM with water to just above the completed weld thus immersing the transducer which is located inside the CRDM. The transducer is connected to a screw mechanism which in turn is rotated by hand and changes .050" in elevation for every 360° rotation of the hand-wheel. The inspector witnessed calibration of the UT equipment using the IIW ultrasonic reference block and establishment of the distance amplitude curve using a mockup with known indications. Subsequent to setup of the equipment the inspector witnessed UT of completed welds. The procedure required that all indications with an amplitude equal to or greater than 50% of the distance amplitude curve be recorded. Finger dampening was used to eliminate indications resulting from the irregular surface of the cover fillet weld. No rejectable indications were noted. The inspector questioned the personnel involved in the UT operation and found them to be knowledgeable.

No items of noncompliance were identified.

7. Safety Related Structures - Observation of Work Activities

The inspector reviewed documentation and drawings associated with the lateral trusses fabricated by PX Engineering that restrain bioshield movement by connecting the bioshield to the drywell. Review of the documentation indicated that major rework of the trusses was necessary due to misfabrication of the trusses and the bioshield by PX. The inspector reviewed NCR 1661, various FCR's, Bechtel Specification C-139, Rev. 8, drawing C-0990-0, Rev. 12, and observed modification work in progress and completed work.

No items of noncompliance were identified.

8. Safety Related Structures - Welding

The inspector reviewed welding of beam T-seat supports at various elevations inside and outside the reactor building cylinder wall. Bechtel drawings

C-0849-0, Rev. 18 and C-0807-1, Rev. 11 contain the details for this welding. Because these T-seats are welded to the cylinder wall many of them are skewed relative to the base plates to which they are welded. The amount of skewing determines the type of weld required. The inspector measured the angle of skewing and compared the type of weld (fillet, partial penetration, full penetration) in the field to that required by the drawings. In addition weld sizes were measured and weld quality was evaluated.

No items of noncompliance were identified.

9. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items or items of noncompliance. An unresolved item identified during the inspection is discussed in paragraph 4.

10. 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.