

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

Region I

Report No. 50-354/80-01
50-355/80-01
Docket No. 50-354
50-355
License No. CPPR-120 Priority -- Category A
CPPR-121
Licensee: Public Service Electric and Gas Company
80 Park Place
Newark, New Jersey 07101

Facility Name: Hope Creek Generating Station, Units 1 & 2

Inspection at: Hancocks Bridge, New Jersey

Inspection conducted: January 14-17, 1980

Inspectors: Lewis Nallow/Br 3/11/80
W. H. Bateman, Reactor Inspector date signed
A. A. Varela
A. A. Varela, Reactor Inspector 2-26-80
date signed

Approved by: Lewis Nallow/Br date signed
R. W. McGaughey, Chief, Projects Section 3/11/80
date signed

Inspection Summary:

Unit 1 Inspection on January 14-17, 1980 (Report No. 50-354/80-01)

Areas Inspected: Routine unannounced inspection by regional based inspectors of work in progress for concrete placement of reactor building cylindrical wall from elevation 102' to 132' (approximately 220° around), hanger and small bore pipe fabrication shop, J. Rich Steers QA program, and dewatering settlement studies. The inspectors also performed a site tour and reviewed licensee action on previously identified items. The inspection involved 29 hours on site by two NRC regional based inspectors.

Results: Of the four areas inspected one item of noncompliance was identified (infraction - failure to take prompt corrective action as discussed in paragraph 3).

Unit 2 Inspection on January 14-17, 1980 (Report No. 50-355/80-01)

Areas Inspected: Routine unannounced inspection by regional based inspectors of hanger and small bore pipe fabrication ship, J. Rich Steers QA program, and dewatering settlement studies. The inspectors also performed a site tour and reviewed licensee action on previously identified items. The inspection involved 18 hours on site by two NRC regional based inspectors.

Results: Of the three areas inspected one item of noncompliance was identified (infraction - failure to take prompt corrective action as discussed in paragraph 3).

DETAILS

1. Persons Contacted

Public Service Electric and Gas Company

- *A. Barnabei, Site QA Engineer
- *A. E. Giardino, Project QA Engineer
- P. T. Liu, Site QA Engineer
- D. Skibinski, Site QA Engineer
- *A. C. Smith, Project Construction Manager

Bechtel Power Corporation (Bechtel)

- R. Baldwin, QA Engineer
- W. Cole, QA Engineer
- W. Fidorowicz, Lead Engineer
- J. B. Gatewood, Lead Site QA Engineer
- S. Good, Area Engineer
- S. Graham, Lead Civil Engineer
- B. Groch, QA Engineer
- R. L. Hanks, Project QC Engineer
- W. Hindle, Project Field Engineer
- L. Inabinette, Welding QC Engineer
- C. Kasch, Assistant QC Supervisor
- R. McCoy, Lead Maintenance Engineer
- M. Newcomer, Senior Field Welding Engineer
- G. Rafferty, Area Engineer
- P. Ratel, Welding QC Engineer
- D. Reel, QC Engineer
- L. E. Rosetta, Field Construction Manager
- D. Sakers, Lead Civil QC Engineer
- P. Steeb, QC Engineer
- D. Stover, Project Superintendent of Services
- L. F. Srizastava, Geotechnic Engineer
- S. Vezendy, Lead Welding QC Engineer
- C. Vogeler, Civil QC Engineer
- P. Walker, Civil QC Engineer
- M. White, Supervisor Contract Surveillance
- N. Wypych, Lead Piping QC Engineer

Pittsburgh - Des Moines Steel Company (PDM)

- M. Stiger, QA Manager

Liberty - Westcon

- R. Johnson, QA Manager

Peabody Testing Services

R. Davis, Acting Project Manager
H. Dody, Concrete Technician

Branch Labs

D. Dodd, NDE Inspector
M. Wish, NDE Inspector

J. Rich Steers

J. Nimorwicz

2. Plant Tour

A tour of the site was made to observe the status of work and construction activities in progress. The inspectors noted the presence of and interviewed QC and construction personnel. Work items were examined for obvious defects or noncompliances with regulatory requirements or license conditions. Areas observed included:

Unit 1: Torus repairs and installation of torus spray piping, protection of machined surfaces on containment, piping weld repair work, preparations for sandblasting inside containment, installation of Core Spray and RHR pipe and hangers, concrete placement preparations for reactor building cylindrical wall and radwaste slab; concrete batch plant maintenance, preparedness, and storage facilities; concrete test laboratory equipment calibration; and erection of steel for the service water intake structure cofferdam.

Unit 2: Torus installation and erection of steel for the service water intake structure cofferdam.

One item of noncompliance was identified. (See paragraph 3.)

3. Lack of Prompt Corrective Action

During the Unit 1 site tour of inspection 354/79-09 conducted 11/26/79, the inspector noted that the machined surfaces of the containment personnel and equipment access hatches were not protected from the weather. It was also observed that the personnel access hatch "0" - ring grooves (these grooves are machined in the containment shell) were left unprotected from physical damage in a high work activity area. The inspector directed the licensee's attention to this concern. The licensee showed the inspector three memos - two were from Bechtel QC to the Field Construction Manager identifying the above deviations as well as other deviations not observed by the inspector. The third was a licensee memo to Bechtel QA stating that heavy corrosion exists on the Unit 1 personnel access hatch and requesting that this condition be corrected and that corrective action be taken to prevent recurrence. The memos were as follows:

- Bechtel Memo from R. L. Hanks to L. E. Rosetta dated 11/26/79 entitled "Deviation from Contract Documents"
- Bechtel Memo from R. L. Hanks to L. E. Rosetta dated 11/26/79 entitled "Deviation from Contract Documents".
- PSE&G Memo from A. E. Giardino to S. B. Gatewood dated 11/19/79 entitled "Storage, Handling, and Preservation".

Based on the above memos, the inspector felt that the deviations had been identified and that they would be promptly corrected as any delay in correcting them would cause further physical degradation. There were no further questions at that time (11/26/79).

During the site tour conducted on 1/15/80, the inspector noted that the conditions identified above still existed. The licensee was questioned as to why no corrective action had been taken to correct the deviations identified 11/26/79 and answered that Bechtel and Pittsburgh - Des Moines Steel Corporation (containment fabricator and erector) were unable to resolve who should pay for the manpower and materials required. The inspector proceeded to investigate the Bechtel QA program to determine the requirements for taking prompt corrective action. The result of the investigation was that the QA program addresses only those items brought to management's attention via a Management Corrective Action Request (MCAR). Prompt corrective action of QC identified deviations not brought to management's attention via a MCAR was not addressed in the QA program.

The facts previously discussed illustrate that there are three areas of weakness in the site QA programs:

- (1) Turnover of structures, systems, and components from one organization to another may result in degradation of quality of an item because of contractual questions over who should pay to correct deficiencies. The immediate problem is between Bechtel and other subcontractors on site but it may eventually involve PSE&G and Bechtel at the time of turnover prior to preoperational and startup testing. This is considered to be a deficiency in the applicable QA programs.
- (2) There are various types of failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances not all of which require prompt resolution to prevent degradation of quality. However, the Bechtel QA program fails to establish measures to differentiate between items that can and cannot wait for corrective action as a function of potential for further degradation. The failure of the Bechtel QA program to require that prompt corrective action be taken on items which, if not promptly corrected, would suffer additional degradation in quality is considered to be a deficiency in the program.

- (3) The licensee, as evidenced by the PSE&G memo to Bechtel, identified deviations and requested resolution. Based on the elapsed time since identification of the deviations, it appears that the licensee has no mechanism to require and ensure that necessary actions are taken in an acceptable period of time. The licensee has responsibility for assurance of quality, and this is considered to be a deficiency in the licensee's quality assurance program.

The above discussed concerns, collectively taken, constitute an item of noncompliance relative to Criterion XVI of Appendix B of 10 CFR 50. (354/80-01-01; 355/80-01-01)

4. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (354/79-07-01; 355/79-07-01): Failure of Resident Field Engineer (RFE) to respond to the Project Construction Quality Control Engineer's weekly request for corrective action. The inspector reviewed the RFE's response letters and determined that the RFE was responding on a weekly basis.

(Closed) Unresolved Item (354/79-07-03): Lack of a means for condensate protection of RHR and Core Spray pumps' discharge heads and shells. The inspector reviewed GE FDDR's KTO-002 and KTO-003 and Bechtel letters BLP #39,272 and BLP #39,740: The GE letters specified the use of and the Bechtel letters directed and verified placement of VPI-260 (a form of dessicant) in the discharge heads and shells for condensate protection. Bechtel also added the requirement to the Storage Maintenance Program to check the condition of the VPI-260 every 90 days and to replace if necessary.

(Closed) Unresolved Item (354/79-09-02; 355/79-08-02): Prompt investigation and disposition of areas requiring concrete repairs. Revision 9 to Special Work Plan/Procedure SWP/P-C-1 changed the section on disposition of repairs to require that field engineering verify QC has no open inspection reports for a placement prior to certifying that the placement is complete. Additionally, where major concrete repairs are involved, the revision requires issuance of a field engineer's report prior to performance of the repairs.

5. Containment Weld Wire Documentation

On August 31, 1979 the licensee reported a potential significant deficiency in accordance with the requirements of 10 CFR 50.55(e) involving lack of post weld heat treat test data for weld wire that would be post weld heat treated. The licensee informed the inspector on this inspection that Pittsburgh-Des Moines Steel Co. (PDM) had determined that some post weld heat treated welds used weld wire that did not have the appropriate test data and that these welds were in the process of being removed and repaired. The inspector reviewed the PDM weld repair procedure for removal of the

affected welds and also examined weld removal work in progress on the unit 1 downcomer supports. There are reportedly ten butt welds on the downcomer supports that require repair. PDM's weld repair procedure was not complete as regards the procedure for rewelding the joint. The inspector questioned PDM as to how they were going to ensure that all of the unsatisfactory filler metal was removed. They stated that the boundaries were to be determined by means of geometric calculations.

No items of noncompliance were identified.

6. Safety Related Piping - Observation of Work and Work Activities

The inspector visited the Paulsboro hanger and small bore pipe fabrication facility located in Paulsboro, New Jersey. The purpose of the visit was to inspect the facility, operations, and personnel to ensure that the PSAR and regulatory requirements are capable of being met during fabrication of safety related pipe and hangers. In order to establish the particular shop requirements, the following specifications and procedures were reviewed prior to the inspection:

- Bechtel QC Instruction W-100, Rev. III, "Welding, Heat Treating, and NDE of Q-List and ASME Section III Items"
- Bechtel Specification P-202(Q), Rev. 3, "Field Fabrication and Installation of Piping for Nuclear Service"
- Bechtel Specification P-0500, Rev. 11, "Piping Class Sheet"
- Bechtel Specification P-0570, Rev. 2, "Field Welding and NDE Requirements"
- Bechtel Procedure WFMP-1, Rev. 3, "Welding Filler Material Procurement Requirements"
- Bechtel Procedure WFMC-1, Rev. 6, "Welding Standard"

The inspector was guided through the facility by the lead shop engineer, the lead QC engineer, and the senior welding engineer. During the tour the inspector questioned the various personnel on their understanding of assigned duties. The inspector also examined the training and qualification records of three welders and two QC personnel. It was felt that the shop personnel were properly qualified and understood the importance of an effective QA/QC program.

Shop operations are just beginning and the stated objective is to treat everything that enters and leaves the facility as safety related. The inspector felt that the entire operation was heavily oriented towards quality. Various portions of the shop operation were inspected and all were found to be satisfactory. They are as follows:

- Weld rod issue station was checked to ensure that the ovens were at temperature, applicable instrumentation was calibrated, and issuance of weld wire for that day was correctly documented.
- Drawing control including as-built drawings.
- NDE facilities were inspected and it was pointed out to the inspector that Branch Labs do the NDE work at the shop.
- Calibration of measuring and test equipment including scheduled checks of current at end of welding leads.
- Receipt inspection, storage, identification, handling, and protection of materials.
- Document control.
- Nonconformance reports.
- Sandblasting and painting facilities.
- Use of a traveler and Quality Control Inspection Report (QCIR) with each item being fabricated.

No items of noncompliance were identified.

7. Observation of Unit No. 1 Circular Wall Preparations for Concrete Placement

The inspector noted that preparations for concrete placement of Unit No. 1 circular wall from elevation 102' to 132' were advanced sufficiently to observe the work for adequacy and completeness. Requirements for rebar installation, penetration and embedment installation and adequacy of formwork were reviewed by the inspector in drawings C-0701 through C-0704 prior to work examination. Also, the work plan/procedure record sheets for pours W001 through W004 for the 220° segment of the wall were reviewed and discussed with field engineers and QC engineers. The inspector observed that pre-placement inspection was incomplete and areas were noted not yet released by QC pending installation of some additional reinforcing bars at penetrations and final cleanup of the elevation 102 construction joint. However, the following completed items and activities were verified:

- Concrete Planning - Posting of incomplete items and/or items to be corrected, cold weather enclosure, rain/snow protected and heating elements readied, pump lines and drop chutes installed, vibrators and backup equipment readied.

- Effectiveness of field engineers and QA/QC personnel was evident.
- Forms - Properly secured, leak tight and clean.
- Rebar and Other Embedments - Properly placed, secured and adequate clearance from forms.

No items of noncompliance were identified.

8. Review of Dewatering and Settlement Survey Records

The inspector performed a review of "field surveillance of long term settlement measurement program for the power block structures," as required by Specification C-007. Optical surveying bench marks for the settlement measurement program are identified on drawing C-0073. The location number and installation of the bench marks are progressive sequential additions coordinated with the erection of concrete structures in the power block. Records of bi-monthly readings taken on fourteen markers installed on top of the base mat's uppermost blocks of elevation 54' (Public Service datum, Elevation 100' = +11' USC&GS), between March and September, 1978, show uniform settlement up to November, 1979, an average total settlement of about .030'. Settlement measurements on six markers installed between May and September, 1979 at elevation 102' are also being surveyed to continue the study when the lower markers become buried by structural fill.

Records are also maintained on a weekly basis of Vincentown Aquifer Piezometer levels, monthly Shallow Aquifer Piezometer levels, daily maintenance and repair of dewater wells and pumps, and daily observation of weir output for check on sand and total discharge. These are surveillance activities by BC of dewatering contracted to J. Rich Steers/Moretrench American.

No items of noncompliance were identified.

9. Exit Interview

The inspectors met with licensee and contractor personnel (denoted by an asterisk in Paragraph 1) at the conclusion of the inspection on January 17, 1980. At this time the inspectors summarized the scope and findings of the inspection.