



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos. 50-321/80-48 and 50-366/80-48

Licensee: Georgia Power Company
270 Peachtree Street
Atlanta, GA 30303

Facility Name: Hatch Nuclear Plant

Docket Nos. 50-321 and 50-366

License Nos. DPR-57 and NPF-5

Inspection at Hatch site near Baxley, Georgia

Inspector: J. J. Lenahan *J. J. Lenahan* *for* 2/12/81
Date Signed

Approved by: T. E. Conlon, Section Chief, RC&ES Branch *T. E. Conlon* 2-12-81
Date Signed

SUMMARY

Inspection on December 10-12, 1980

Areas Inspected

This special, announced inspection involved 18 inspector-hours on site in the areas of follow-up IE Bulletin 80-11, backfill replacement for support of RHR and service water piping at the intake structure, and licensee action on previous inspection findings.

Results

Of the three areas inspected, no violations or deviations were identified in one area; two violation were found in two areas (Inadequate procedure for placement of intake structure backfill - paragraph 3; Failure to follow procedures in amending design change and writing nonconformances - paragraph 6).

DETAILS

1. Persons Contacted

Licensee Employees

- *C. E. Belflower, QA Site Supervisor
- *J. M. Watson, Senior QA Field Representative
- *C. R. Miles, QA Field Supervisor
- *M. Manry, Plant Manager
- *D. A. McCusker, QC Supervisor
- *R. M. Herrington, Senior QC Specialist
- *J. Rearden, Junior Engineer
- *T. Green, Assistant Plant Manager
- *C. E. Rand, Manager, Field Operations Construction
- M. Meeks, Civil Engineer, (telephone conversation)
- J. Jordan, Licensing Engineer, (telephone conversation)

Other Organizations

- T. Morrison, Electrical Engineer, Southern Services Company
- *L. Young, Geotechnical Engineer, Law Engineering
- *A. Lancaster, Senior Geotechnical Engineer, Law Engineering
- G. Kosi, Civil Engineering Group Supervisor (telephone conversation)
- R. Gladsby, Project Engineer, Bechtel (telephone conversation)
- C. Feltmar, Electrical Engineering Group Supervisor (telephone conversation)

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on December 12, 1980 with those persons indicated in Paragraph 1 above. The violations described in paragraphs 3 and 6 were discussed during the exit interview.

3. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item 321/80-26-01 and 366/80-26-01 "Plant Service Water and RHR Service Water Intake Structure and Associated Piping Backfill Controls". The inspector reviewed the procedures which addressed placement of backfill around the intake structure. The procedure did not specify the required QC test frequency, and permitted fill placement in lifts of thickness which were excessive for good compaction control. The results of the detailed investigation conducted by the licensee on the backfill materials under the RHR and service water lines showed that the placement and quality control testing of the fill was inadequate. There were no records of any QC tests being performed on fill materials below the RHR and service water piping. This item is closed as Unresolved Item 321/80-26-01 and 366/80-26-01 and upgraded to Violation Item 321/80-48-01 and 366/80-48-01, "Inadequate Procedure for Placement of Intake Structure Backfill".

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in paragraph 6.

5. Independent Inspection Effort

There was no independent inspection effort conducted during this inspection.

6. Licensee Identified Item (LER): Settling of Fill Under Plant Service Water and RHR Service Water Piping

a. Background

On June 12, 1980, the licensee notified Region II that an investigation into the cause of pavement deflection beneath a crane outrigger pad disclosed that settling of backfill from under the RHR and Service water intake lines had occurred. This was reported to Region II as LER 50-321/1980-062. The settlement was observed under an approximate 12 foot continuous section of the pipelines. After discovering this problem, the licensee initiated an extensive investigation to determine the extend of this problem. This investigation included soil borings, test pits, installation of piezometers, and field and laboratory soils testing. The investigation, which was performed by Law Engineering, disclosed that the fill materials supporting the RHR and service water lines did not meet design requirements from the intake structure to a point approximately 100 feet south of the structure. The licensee and its Architect-Engineer, Bechtel, prepared plans and specifications detailing the method for correcting the problem. A contract for the repair work was awarded to Spencer White and Prentis, Inc.. During this inspection, the inspector reviewed drawings, quality control and work procedures, the work completed to date, and quality records associated with the repair work. The details examined are stated in the following paragraphs.

b. Review of drawing and procedures for accomplishment of Intake Backfill Repair Work

The repairs to the backfill are being completed under a Design Change Request number DCR 80-279. The inspector examined the following documents which control the backfill repair activities:

- (1) Law Engineering: "Procedure for Field Quality Control for Construction and Backfilling of a Braced Excavation for the Intake Structure Service Water Piping and Utilities for E. I. Hatch Nuclear Plant Units 1 and 2".

- (2) Bechtel: "Technical Specification for Design, Construction and Backfilling of a Braced Excavation for the Intake Structure Service Water Piping and Utilities for E. I. Hatch Power Plant Units 1 and 2".
- (3) Bechtel: "Procedure for Monitoring Horizontal and Vertical Movement".
- (4) Georgia Power procedure: "External Surface Coating of Underground Metallic Pipe".
- (5) Bechtel: "Technical Specification for External Surface Treatment of Underground Metallic Pipe".
- (6) Spencer White and Prentis, Inc.: drawing number 2654-1 through 2654-6, "Intake Structure-Utility Underpinning".
- (7) Design Change Request number DCR 80-279.

Review of the above documents disclosed the following unresolved item:

Paragraph 17.5 of the Bechtel specification for design, construction, and backfilling of the excavation states that the K-Krete shall have a minimum unit weight of 120 to 130 pcf and a minimum 7-day unconfined compressive strength of 10 to 30 psi. This requirement needs clarification to specify the acceptability of K-Krete with unit weights greater than 130 pcf and unconfined compressive strengths greater than 30 psi. Also the maximum elapsed time between batching and placing of the K-Krete is not specified in the specification. Law engineers stated that the time limit they are currently using is one and one-half hours, which is the same as for concrete. The apparent unclear acceptance criteria in the specification was identified to the licensee as Unresolved item 321/80-48-04 and 366/80-48-04, "K-Krete QC Requirements", pending further review by NRC and the licensee.

c. Examination of Intake Backfill Repair Work Completed to Date

The inspector examined the excavation and K-Krete placed as of the inspection date. K-Krete had been placed to within 1 foot of the bottom of the pipe on approximately 50 linear feet of the west lines and 40 linear feet of the east lines. The inspector observed wrapping of protective coating material on the west lines and discussed the methods of application of the protective coating materials with craftsmen performing the work. The inspector also discussed QC inspection of the work with Law engineers and licensee QC personnel. During the examination of the completed work the inspector noted that the details of the excavation and the temporary supports for the pipes were different than shown on the construction drawings. The inspector discussed the justification for these changes with Bechtel and licensee engineers and reviewed a memorandum and attached sketch showing the details of the changes. These above discussions and review of

completed work disclosed the following examples of failure to follow procedure:

Georgia Power procedure number HNP-809 requires that changes to Design Change Requests (DCR) be reviewed by the Plant Review Board (PRB) before being implemented. The repair to the intake backfill is being performed under DCR-80-279. Discussions with licensee engineers disclosed that the change to DCR 80-279 concerning the details of excavation and the method of temporary support of the pipes had not been reviewed and approved by the PRB.

During inspection of the exposed pipes the inspector noted the following apparent deviations from original design requirements;

- (1) The protective coating materials were improperly applied on pipe joints on the RHR and service water lines during the original pipe installation.
- (2) Protective coating materials were damaged at several spots on the RHR and Service water lines.
- (3) During the original pipe installation two 2-inch pipe lines were supported by pieces of angle iron which had been welded to one of the 18" RHR lines.

Discussions of these problems with licensee personnel disclosed that these problems had not been documented on a Nonconformance Report as required by procedure HNP-801.

Failure to obtain approval prior to implementing a change to a DCR and failure to initiate a nonconformance report on deviations to design requirements was identified to the licensee as violation Item 321/80-48-02 and 366/80-48-02.

d. Review of Quality Records Related to the Intake Backfill Repair

The inspector reviewed the following quality records relating to the intake backfill repair:

- (1) Results of the investigation performed to determine the extent of the backfill problem, including soil borings and test pit logs, piezometer data, and soil testing data.
- (2) Results of the testing program which was performed to determine the properties of the K-Krete backfill replacement material.
- (3) Daily shift QC Inspector Records for November 20, November 24-26, December 1-5, and December 8-10, 1980.

- (4) Subgrade Inspection Sign-off Sheet.
- (5) Unconfined compressive strength and bulk unit weight data for 3 x 6 inch K-Krete cylinders from pour numbers 3, 4, 5, 6, and 7.

This LER remains open pending completion of the intake backfill repair.

No deviations were identified.

7. (Open) IE Bulletin 80-11, Masonry Wall Design - Units 1 and 2

The inspector examined Southern Company procedure, "Surveillance Procedure for Concrete Masonry Walls for Georgia Power Company for E. I. Hatch Nuclear Plant - Units 1 and 2". This procedure addresses the work to be performed in the Field to complete IE Bulletin 80-11 requirements. The inspector also discussed methods used to identify masonry walls in proximity of safety related equipment and preparation of masonry walls as-built drawing with Southern Company engineers. This bulletin remains open.

No deviations or violations were identified.