

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-412/82-10

Docket No. 50-412

License No. CPPR-105 Priority -- Category A

Licensee: Duquesne Light Company
Robinson Plaza Building No. 2
Suite #210, PA Route 60
Pittsburgh, PA 15205

Facility Name: Beaver Valley Power Station, Unit 2

Inspection at: Shippingport, Pennsylvania

Inspection conducted: August 9-13, 1982

Inspectors: A. A. Varela Sept. 8, 1982
A. A. Varela, Reactor Inspector date

Approved by: J. P. Durr 9/14/82
J. P. Durr, Chief Materials and Processes Section date

Inspection Summary:

Inspection on August 9-13, 1982 (Report No. 50-412/82-10)

Areas Inspected: Routine, unannounced inspection by one region based inspector of records relative to reactor pressure vessel storage and maintenance at the site, the vessel lift and transporting and, final rigging and installation in the reactor building. Additionally the inspector observed the installed vessel, its maintenance and protection. The inspector also reviewed licensee actions on previous inspection findings and reviewed the 1981 report on construction phase - building settlement monitoring program. The inspection involved 31 inspector-hours onsite by one region based inspector.

Results: No violations were identified.

DETAILS

1. Persons Contacted

Duquesne Light Company (DLC)

- J. Artuso, Site QC Structural Consultant
- *R. Coupland, Director of Quality Control
- *H. N. C. Joks, Assistant of Quality Control
- *F. G. Curl, Construction
- C. E. Ewing, QA Manager
- *R. W. Fedin, Compliance Engineer
- *W. H. Glidden, Senior QA Engineer
- *S. D. Hall, Senior Compliance Engineer
- W. Huysam, QC Supervisor, Receiving and Storage
- *J. M. Markovich, Compliance Engineer
- *D. Morgan, Senior Structural Engineer

Stone and Webster (S&W)

- *S. T. Adams, Superintendent of Construction
- R. Bernauer, Maintenance Supervisor
- *R. J. Faust, Site Structural Engineer
- *A. C. McIntyre, Head Site Engineering Office
- R. H. Tarr, Site Engineer

Westinghouse Electric Corporation (WEC)

- E. L. Morris, Site Manager

NRC

- *G. Walton, Senior Resident Engineer

*Attendees at exit meeting.

2. Licensee Action on Previous Inspection Findings

a. Significant Deficiency #79-03-C (Closed) Omission of Rebar in Crane Wall

This significant deficiency was reported by DLC under 10 CFR 50.55(e). Corrective action was reviewed in NRC reports number 412/79-08, 79-09 and 80-03. However as a consequence of discrepancies found between other detail reinforcing steel fabricator drawings and S&W engineering drawings the affect on other structures was extensively investigated. A report of this investigation performed by Dick Corporation was completed on July 28, 1982. S&W site engineering office, DLC/SQC and DLC engineering have accepted the corrective actions taken during construction of other category I structures. They conclude that reinforcing steel was properly placed in accordance with the governing S&W engineering drawing in other category I structures. The inspector had no further questions. This item is considered resolved.

b. Significant Deficiency #81-00-02 (Closed): Modifications to Control Room Extension for Reinforcing Steel Design Deficiency

This significant deficiency was reported by DLC under 10 CFR 50.55(e) on May 15, 1981. Corrective actions to the completed structure were reviewed in NRC reports number 50-412/81-07 and 81-09. At this inspection a review was performed of the recently completed reinforcements and modifications to beams and slabs found deficient in reinforcing steel. The inspector reviewed records and discussed the reinforcements prescribed by E&DCRs and the specific field construction procedure with cognizant S&W engineers and site QC personnel. Based on the approved dispositions of N&Ds #1737 and 1746, associated requests for information and supplemented by E&DCRs and QC inspection reports this item is considered resolved.

c. Unresolved Item #82-04-03 (Closed): Wetting of Dome Concrete and Wood Forms During Concrete Curing

The NRC inspector concerns regarding the wetting of the containment dome concrete construction joint and wetting of wooden forms to prevent moisture loss during concrete curing is resolved. The inspector evaluated the S&W response to this item. He finds justification for the following resolution to be acceptable:

- a. The SAR will be revised to take exception to ACI-301, section 12.2.2 regarding the wetting of wood and metal forms
- b. S&W specification 2BVS-904 will be revised to agree with the words in the SAR.

The licensee has approved the above resolution of the inspector concern. This item is considered resolved.

3. Reactor Pressure Vessel (RPV)

The reactor pressure vessel was fabricated by Combustion Engineering for Westinghouse. It arrived at Shippingport site via barge in February 1978. Then it was moved to and maintained in controlled storage until October 1981. At this time it was prepared for onloading to trailer transport for installation in the reactor containment building. By November 15, 1981 the vessel was off-loaded from the trailer, transferred to the skid and moved horizontally through the containment construction hatch. It was up ended, and set in final location on the six nozzles on top of the neutron shield tank by November 22, 1981. The following paragraphs identify the quality related criteria and the quality records reviewed by the inspector.

- RPV Storage and Maintenance
- RPV Lift and Transport Equipment Testing, Qualification and Certification

- RPV Transport, Preparation and Installation

a. RPV Storage and Maintenance

Criteria for the RPV storage and maintenance from February 1978 to October 1981 is contained in WEC instructions for NSSS component receiving and storage dated March 1976 and their correspondence to S&W on inspection for storage and maintenance of the RPV in accordance with ANSI 45.2.2 and Regulatory Guide 1.38. These were implemented by S&W into S&W's storage inspection plan containing ten checklist items with their required frequencies. S&W specification #981, Storage and Maintenance During Storage of Permanent Plant Equipment During the Construction Phase and FCP-11 Material Control Program establish responsibility in S&W construction department. Records were reviewed for the RPV storage from February 1978 through November 1981 when the vessel was in "Q" area storage. The RPV equipment maintenance history cards appear satisfactory and, where correction was required, they were restored to an acceptable status. DLC site QC reviewed and approved all S&W records.

b. RPV Lift and Transport, Equipment Testing, Qualification and Certification

Criteria for equipment used in lifting and transporting the RPV is contained in the following S&W field construction procedures (FCPs):

- FCP-701 Preparation of Equipment Lift Record Card
- FCP-702 Rigging Guildelines
- FCP-703 Identification of Rigging Equipment
- FCP-704 Storage, Maintenance and Testing of Rigging and Lift Equipment
- FCP-705.3 Preventative Maintenance of Reactor Containment Building Crane
- FCP-707 Testing Cranes and Monorail
- FCP-903.11 RPV Onloading in the Storage Area
- FCP-903.2 157" I.D. RPV Storage to Foundation
- FCP-903.3 RPV Installation
- 903.10 RPV Prerequisite Work Activities

Specific and unique records corresponding to the appropriate criteria in the above requirements were observed to fulfill their respective attributes. The DLC site QC inspection reports contain supplemental

records appropriately signed by DLC NDE test personnel, S&W construction, Hake Inc. or WEC.

c. RPV Transport, Preparation and Installation

Criteria for RPV transport is identified in S&W FCP-903.2 for 157" RPV I.D. Storage to Foundation. Criteria in preparation for removal from the transport and preparation for entry into the containment building as well as final RPV installation are contained in FCP-903.10 and FCP-903.3. Records were reviewed and found to satisfy criteria identified in above procedures. DLC site QC sign-off of inspection report attributes corresponding to specific criteria was observed to indicate satisfactory accomplishment of each step. Where special sign-off was required as in vessel lift-beam attachment for containment polar crane pick-up and rough-set placement, the qualified WEC representative and DLC site QC have signed the report. Relifting and resetting after RPV insulation was installed was satisfactorily signed-off on November 30, 1981.

d. Observation of Installed RPV

On August 12, 1982 the inspector observed the installed RPV for completeness of the vessel mounting on the neutron shield tank and the adequacy of storage and maintenance. He noted that sufficient protection of the vessel and the unattached head was provided. Work was incomplete on coolant pipe welds to the vessel nozzles. Adequate temporary protection of the vessel interior was provided.

e. Quality Assurance Audits by Licensee

QA audits by the DLC quality assurance department relating to the Site Material Control Program and Conditional Releases and Rigging were reviewed to verify that the S&W site material control program was adequate to control NSSS components. The audits by DLC also included site handling and rigging to assure compliance with applicable Field Construction Procedures, identified in paragraph 2.B above. These audits were observed to have been conducted annually in accordance with checklist. Audits with adverse findings were responded to, appropriate corrective measures were taken and, QA verification and close-out were observed completed and approved.

No items of violation were identified in the above paragraphs.

4. Construction Phase Building Settlement Monitoring Program

The Supplement #2 of the report on the Construction Phase Building Settlement Monitoring Program was reviewed. This report contains the Ohio River elevation data, piezometric elevation data as well as settlement data collected during 1981 and, an evaluation is presented. The S&W evaluation is noted for the following significant details:

- An accurate interpretation of the general trend to the data cannot be made until sufficient time has elapsed after construction is complete and all of the load has been applied.
- The actual observed total settlements to date are within the magnitude of the predicted settlements.
- Supplement #1 (1980): The observed differential settlements are not of concern at this time since piping connections between structures have not yet been completed.

5. Exit Interview

The inspector met with licensee and contractor representatives (denoted in Paragraph 1) at the conclusion of the inspection on August 13, 1982 at the Shippingport site. The inspector summarized the findings of the inspection. The licensee acknowledged the inspector's comments.