U.S. NUCLEAR REGULATORY COMMISSION
Region I

Report No. 50-412/86-19

Docket No. 50-412

License No. CPPR-105 Category B

Licensee: Duquesne Light Company

Post Office Box 4

Shippingport, Pennsylvania 15077

Facility Name: Beaver Valley Power Station, Unit 2

Inspection At: Shippingport, Pennsylvania

Inspection Conducted: July 14-18, 1986

Inspector: D. I. Gregg 7/30/86
H. I. Gregg, Lead Reactor Engineer date

Approved By: J. F. Wiggins 8/1/86
J. F. Wiggins, Chief, Material and Processes Section, Engineering Branch, DRS date

Inspection Summary: Inspection on July 14-18, 1986 (Report No. 50-412/86-19)

Areas Inspected: Routine unannounced inspection of completed work, work in progress, implementing procedures and quality records associated with the reactor vessel installation and work observations pertaining to installation, modification and quality control of safety related mechanical equipment.

Results: No violations were identified.

DETAILS

1.0 Persons Contacted

1.1 Duquesne Light Company (DLC)

* L. Arch, Principal Engineer
R. Coupland, Director QC
* C. Davis, Director QA
* D. Denning, Assistant Director QC
* J. Jaworski, Senior Engineer
* T. Noonan, Superintendent, Operations and Maintenance
M. O'Neill, Field Engineering Manager
* W. Pfrommer, Senior Engineer
* L. Rabenau, Compliance Engineer
D. Rohm, Assistant Director QC
P. Slifkin, Balance of Plant Supervisor
J. Thomas, Manager of Engineering
* R. Wallauer, Lead Compliance Engineer
L. Williams, Director, Startup Proof Testing

1.2 Stone and Webster Engineering Company (SWEC)

* A. Dasenbrock, Senior Construction Manager
S. Hilaman, NSSS Contract Manager
* D. Lamson, Assistant Res. Engineer
D. Lessard, Assistant Superintendent Engineering
J. Niland, System Engineer
* J. Purcell, Assistant Project Manager
* P. Talbot, Assistant Superintendent Engineering
P. Williams, Mechanical Engineer
* R. Wittschen, Licensing Engineer

1.3 Westinghouse Installation Services

E. Morris, Site Manager

1.4 Westinghouse Construction Service

F. Howard, Construction Manager

1.5 U.S. Nuclear Regulatory Commission

* L. Prividy, Resident Inspector

*Denotes presence at exit meeting on July 18, 1986.

2.0 Licensee's Activities on Previously Identified Items

2.1 (Open) Construction Deficiency 85-00-02, MISV Actuator Latching Mechanism Problem

The inspector reviewed the reports, discussed the problem and the ongoing activities being performed to resolve the problem with cognizant Engineering and QC personnel from both DLC and SWEC, reviewed the QC activities related to repair actions on these valves, and observed the 3 installed valves. It was also noted that prior work of remachining the valve bodies, welding of a corrosion resistant inlay, and changing of some internals was done a year ago.

The inspector determined that the original latching roller was a roller bearing manufactured by Torrington Bearing Company. This roller had capacity problems and was replaced with a solid type with a coated bronze sleeve (no internal needles or rollers) made by Crosby. The roller was a 52100 material and was factory proof load tested at 200,000 lb. On initial cycling of the MSIVs, these new rollers cracked and failed.

Instrumented Tests of an MSIV were performed by SWEC for DLC, to determine the loading forces on the roller and latch mechanism. From the load curves, the max loading was seen to be slightly less than 100,000 lb. The test information and the heat treatment of the 52100 material was reviewed by SWEC, DLC, and Crosby. Recommendations from SWEC were made to Crosby to 1) carefully control the heat treatment to attempt to avoid internal flaws in the 52100 material due to the heat treatment, 2) to production load test each roller at 125,000 lb. at 12 angular positions (30° apart) around the roller O.D., and 3) to MT examine each roller. In addition, the latch bracket was pinned in each of the 3 MSIVs to minimize bracket movement which in turn could cause uneven loading of the rollers on the latching pad.

An alternative roller material 9310 is being pursued, however, rollers of this material won't be available for 6 months.

The licensee has completed the modification of pinning the latch bracket. The licensee is also installing a lexan viewing port in the actuator cabinet to enable observation of the roller.

During this inspection, the inspector learned of a new MSIV problem item concerning the horizontal mounted hydraulic cylinder actuator that opens the valve. The problem related to the MSIV actuators at Nine Mile 2 (the only other USA plant that has this type MISV), where scoring occurred on the bottom internal surface of the cylinder which in turn caused failure of the seals and failure of the valve to open.

The scoring was due to the piston weight (from the information available the inspector determined that the piston is approximately 14" diameter and several inches thick). The licensee has opted to change the hydraulic cylinders to a modified version that has nylon wear bands on the piston and rod end bushing.

Because of the significant safety implication of failure to open or close of these MSIVs, this item will remain open pending licensee's:

- Reinstallation of new rollers and some initial valve cycling to provide some assurance of non-failure.
- Evaluation and decision concerning the alternative 9310 roller material.
- Proposed use of the observation windows.
- Change-out and test of new hydraulic cylinder actuators.

This item remains open.

3.0 Reactor Vessel Installation

The inspector reviewed instruction manuals, installation procedures, work travelers, field construction procedures, QC inspection reports, nonconformance and dispositions and field change notices pertaining to the reactor vessel installation. Discussions relating to the work performed were held with cognizant personnel from all organizations involved: Duquesne Light Company, Westinghouse, and Stone and Webster.

The inspector noted from the review of work record information that there were few nonconformances. Each of the work travelers defined the operations to be performed, the inspection requirements, and the sign-off requirements. Also, in each of the work travelers reviewed, each hold point was appropriately signed and witnessed, and QA/QC overview was evident. Within the Westinghouse involved organizations, there were no remaining open items on the vessel installation.

The DLC site QC records reviewed by the inspector were determined to be in accordance with QC procedural requirements. One N&D (No. 5007A) relating to rust specks on the internal surface of the Rx head was reopened by the licensee's QA department. The inspector determined the item was previously closed by Westinghouse, however, the licensee desired reverification with final disposition to be made after hot functional testing.

The reactor vessel installation was determined to be satisfactorily completed. The procedures and controls for the work performed within each of the interfacing organizations were appropriately completed and evaluated by responsible personnel. Except for the one reopened item, all issues are closed. For this reopened item, the management control system which requires formal close out of the N&D is in place. Based on the inspector's review, the reactor vessel installation procedures were satisfactory.

No violations were identified.

4.0 Safety Related Mechanical Components

4.1 Main Steam Safety Valves (MSSV)

The MSSVs were selected as one of the safety related components to be reviewed by the inspector. These valves were also the subject of a recent IE Notice 86-05 which advised licensee's of the possible problem that the ring settings may not be correct. Improper ring settings can result in lower than full lift and lower than required steam flow relieving capacity.

The inspector reviewed the licensee's records and observed the installed MSSVs located in the main steam valve house at elevation 802. The valves were Crosby 6R10's with 5 valves on each header. The setpoints of the 5 valves were in a sequential range and were 1075, 1085, 1095, 1110 and 1125 psig. The inspector examined each of the valves to determine if the ring settings were stamped on the nameplate or valve body, No ring setting markings were found.

From the review of the licensee's information and discussions with cognizant personnel, the inspector determined that the licensee had requested and received information from Crosby concerning the ring settings. The information from Crosby did state that the ring settings of the Beaver Valley 2 valves are not the current Crosby suggested settings.

The inspector reviewed the licensee's internal response to IE Notice 86-05. This response stated that: the startup group intends to perform setpoint testing only, site full flow testing is not practical, and there are no ASME III code requirements for full flow testing; therefore, engineering doesn't recommend any action at this time. The response also stated that based on further testing by Crosby and Wyle Labs ring setting adjustments may be necessary.

The inspector's determination was that the licensee's response "no action is required at this time" appeared questionable in light of Crosby's information to the licensee that the MSSV ring settings are not proper. Also, the inspector questioned the appropriateness of the licensee awaiting further test result information from Crosby and Wyle that may not be forthcoming in a timely manner.

This item, therefore, remains unresolved pending the licensee's implementation of corrective action that assures proper ring settings of these MSSVs (50-412/86-19-01).

4.2 Motor Driven Auxiliary Feed Pump

The inspector's review of safety related components was to include the "A" Motor Drive Auxiliary Feed Pump (No. 2 FWE*P23A). On recent operation this pump was reported to have a low frequency, high displacement vibration. (46 mils displacement at a 60 cycle frequency).

The inspector verified that information regarding this matter has been given to the licensee's engineering organization for review, however, the licensee's test report was not yet available.

No further action was taken by the inspector due to the limited availability of information.

5.0 Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations or deviations. An unresolved item is discussed in paragraph 4.1 of this report.

6.0 Exit Meeting

The inspector met with the licensee's representative (identified in Paragraph 1.0) at the conclusion of the inspection on July 18, 1986, to summarize the findings of this inspection. The NRC Resident Inspector, L. Prividy, was also in attendance.

During this inspection, the inspector did not provide any written material to the licensee.