U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-412/85-12

Docket No. 50-412

License No. CPPR-105 Priority -- Category B

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

Facility Name: Beaver Valley Power Station, Unit 2

Inspection At: Shippingport, Pennsylvania

Inspection Conducted: May 13 - 17, 1985

Inspectors: H. I. Gregg Lead Reactor Engineer — 6-7-85 date

Approved by: J. P. Durr, Chief, Engineering Branch, Division of Reactor Safety — 6-10-85 date

Inspection Summary: Inspection on May 13 - 17, 1985 (Report No. 50-412/85-12)

Areas Inspected: Routine, unannounced inspection of work in process and completed work associated with safety related mechanical equipment installation and the review and closeout of previously identified items. The inspection included observations of the installed equipment, review of engineering drawings and documentation, observation of equipment undergoing repair, QA/QC involvement and discussions with supervisory and work force personnel. The inspection involved 38 hours on site by one region based inspector.

Results: No violations were identified.

DETAILS

1.0 Persons Contacted

1.1 Duquesne Light Company

*L. Arch, Sr. Project Engineer
R. Bisbee, QA Engineer
*R. Coupland, Director QC
*D. Denning, Assist. Director QC
*S. Hall, Lead Compliance Engineer
*J. Kasunick, Maint. Director Start-Up Group
*C. Kieschner, Sr. QA Engineer
C. Majumdar, Assist. Director Elect. QC
D. Rohm, Assist. Director QC
*R. Willauer, Licensing Engineer

1.2 Stone and Webster Engineering Company

D. Ames, Mechanical QC Supervisor
P. Bienick, Assist Supt. Electrical Engineering
*A. Dasenbrock, Sr. Construction Mgr.
*H. Durkin, Supt. of Engineering
J. Jaworski, Sr. Welding Engineer QC
T. Leone, Lead Controls Engineer
*D. Lessard, Assist. Supt. of Engineering
*A. McIntyre, Supt. of Engineering
C. Mills, Systems Engineer
W. Pelzer, Mechanical QC Inspector
*J. Ronco, Assist. Supt. Construction
*R. Wittschen, Licensing Engineer

*Denotes presence at exit meeting on May 17, 1985.

1.3 U.S. Nuclear Regulatory Commission

G. Walton, Senior Resident Inspector

2.0 Safety Related Mechanical Equipment

During a tour of the plant, the inspector selected the safety related mechanical equipment to be examined during the inspection. The equipment was:

-- Main Steam Isolation Valves

-- Pressurizer Piping for Safety Valves

-- Pressurizer Block Valves and PORVs

-- Component Cooling Water Pumps

2.1 Main Steam Isolation Valves (MSIVs) Installation

The inspection relating to MSIVs was separated into two individual efforts: 1) the MSIV installation and engineering details are discussed within this paragraph, and 2) the inplace repair of the MSIVs, which has distinct tracking identification, is discussed in paragraph 3.1.

The inspector performed MSIV installation work observations, documentation verification of engineering design specifications and topical report details, and review of test records and QC involvement.

The inspector observed that 2 valves had undergone repair (valves 2MSS-HYV-101A and 101B) and one valve was being repaired (valve 2MSS-HYV-101C). Each of the three valves had its internals and actuators removed and stored.

The inspector verified that the three MSIVs are 24" ball valves with 32" end connections manufactured by Crosby Valve and Gage Co. (formally manufactured by Gulf and Western Mfg. Co./Energy Products Group). The inspector reviewed the design specifications and documentation records and verified that; the valves were built to the ASME Code, Section III, Class 2; the design specification required testing of the valves; the actuators required and were environmentally tested; the valve topical report adequately described the design and operability; vendor shop inspection reports were on file, test records were on file, and QA/QC was involved.

Documents reviewed included:

-- Design Specification 2BVS-211, Addendum No. 1, March, 1985, "Main Steam Line Trip Valves"

-- Specification 2BVS-211A, Addendum No. 1, May 13, 1983, "Environmental Qualification Valve Actuators"

-- MSIV Dwg. D 24900-3, Rev. 3 of G&W/EPG 24" MSIV

-- Procurement QA Shop Inspection Reports No. 0001 dated June 28, 1983 and No. 002 dated July 26, 1985

-- ASME NPV-1 forms for each of the three valves

-- Venders hydrostatic and seat leakage test specifications, PS 1123 Rev. 0, Addend. II, PS 1129 Rev. 1, Addend. 7, PS 1222 Rev. 2, PS 1130 Rev. 7, PS 1223 Rev. 1, PS 1174 Rev. 3, and individual test data reports

-- Gulf & Western Topical report No. FSD 2538, "Nuclear Main Steam Isolation Valve Systems, dated January, 1979.

During the review of test records, the inspector was concerned that valve "C" was not cycle tested and that stem packing leakage was not checked for valve "A". The licensee provided adequate information that valve "C" was cycled and that system operability verification test 2.26 B.01 and preoperational test 2.21 A.03 require observation of valves including packing leak areas and there are also requirements for valve cycle stroke and stroke time verification for all MSIVs.

No violation were identified.

2.2 Component Cooling Water Pump (CCPs)

The inspector reviewed the site QC installation package for each of the CCPs (Nos. 2CCP* P21"A", "B", and "C"), observed the installed pumps located in the NW coner of the Auxiliary building at elevation 735, and evaluated the documentation on file.

The inspector determined from the installed equipment nameplates and documents that the pumps (Ingersoll Rand-Cameron Division with Westinghouse 400 H.P. motors) were designed and built to ASME Code, Section III, Class 3 and were vendors size 10x18AA, Head 200 ft., RPM 1750, GPM 6000.

The inspector reviewed the QC inspection records for each of the CCPs and several NCRs relating to the pumps, observed the work performed to fill voids in the pump base as dispositions by the NCR, and reviewed the completed document record file.

Documents reviewed included:

-- Ingersoll-Rand, Cameron Pump Division general arrgt. Dwg. No. C-10x18AA86 x 39-C, Rev. 3B.

-- Site QC Inspection Reports ME-MW0049 and ME-AB-0037, of verification of installation acceptability and CCP internals disassembly and assembly.

-- NRCs Nos. 6435 and 6221 relating to a damaged carbon seal insert and voids in pump base.

-- Site QC CDR 7070 relating to short bolts to be replaced.

-- Documentation records file.

The inspector noted that the licensee identified that the pump seal plate material was not bend tested per the specification requirements. The inspector verified that the licensee had contacted the vender and that the NPV-1 form was in process of being updated to a later code edition which no longer requires bend testing.

During the records review, the inspector noted there were no hydrostatic test records or pump performance curves. The licensee provided the updated Pump Specification which had been revised to include the pump performance curve for each of the 3 pumps. The licensee additionally provided the vendor surveillance inspection reports of the actual Hydrostatic Test Report for each pump. These licensee inputs satisfactorily addressed the inspector's concerns.

No violations were identified.

2.3 Pressurizer Safety Valve (SV) Piping, Block Valves and PORVs

The inspector observed the installation, reviewed drawings and applicable specifications, work performance, partially completed work and completed work relating to this equipment.

Items examined included:

-- Drawing No. 1SO-1091, SV Piping

-- Drawing No. 1D99836, Westinghouse 3" Motor Operated Gate Valve

-- Drawing No. 3750014 Rev. K, 3" x 6" Garrett/Air Research PORV

-- Drawing No. DS-C-56963 Rev. C, Crosby 6M, 6 Nozzle Type Safety Valve

The inspector observed that the three separate 6"SV piping lines from the pressurizer were installed up to the first portion of the loop seal. Each of the piping ends were temporarily sealed until further work is performed. The inspector also observed that the 6" piping line from the pressurizer and the three 3" branch lines to each of three block valves and PORVs were installed and that the valves were in place and protectively wrapped.

The inspector verified that the installed equipment met the drawing and specification requirements.

No violations were identified.

3.0 Licensee's Activities on Previously Identified Items

3.1 (Open) Unresolved Item 84-16-04, Repair of MSIVs

The inspector observed the machining and the polishing being performed on the Inconel 625 weld inlay of MSIV "C". The inspector reviewed the specification for the repair work, drawings, activity summary reports of discussions concerning the repair QC, Inspection records, N&Ds, and an E&DCR. Discussion were also held with cognizant supervisors, engineers, and machinists involved with the repair.

Documents reviewed included:

-- Specification 2BVS-211B, Engineering Service Scope of Work

-- Activity Summary Reports of December 4, 1984 and December 6, 1984

-- N&D No. 7033 and 7035A

-- E&DCR No. 2P-4616 describing the MSIV modification and test and record requirements

The inspector determined that the work is an ASME Section XI repair, the machining is being performed satisfactorily and there is QC coverage. It was noted that the spool packing bore on the downstream side of valve "C" was being machined approximately 7/16" longer than valves "A" and "B". (Due to the findings of a crack in the venders original repair). The additional machining will require a special venders supplied spacer ring for valve "C".

The inspector reviewed an area of concern relating to seat leakage testing upon completion of the repairs. The inspector determined that the licensee has a procedure for seat leakage testing to be performed with air or nitrogen as the test fluid. The air or nitrogen is to be injected in the valve bonnet between the two seats, whereby, both seats will be tested. The inspector verified that pressurizing the seats from the bonnet would be more conservative than pressurizing from the upstream or downstream valve end since the seat rings would not obtain additional closing force from the pressure, therefore, the inspectors determination was that the licensee's test plan is adequate.

Each area reviewed by the inspector was found acceptable.

This item remains open pending completion of the repair.

3.2 (Closed) CDR 83-00-01, Westinghouse Gate Valve Indicating "Closed" when valve isn't fully closed.

The inspector reviewed the documentation relating to this item as described in N&D No. 6660, Westinghouse letter ELM-W-1429 to SWEC dated February 27, 1985, and Westinghouse FCN DMWM-10559. The inspector verified that N&D 6660 requires work modifications to all three categories of valves, even those in the optional group (Westinghouse identified the valves and categorized them as mandatory, required and optional).

The inspector noted that the work on the mandated group of 6 valves was completed and that the licensee's N&D 6660 requires all the valves to be completed before the N&D can be closed. The inspector

verified that the licensee's N&D system provide the means for all the valves to be corrected.

This item is closed.

3.3 (Open) CDR-85-00-02, MSIV Actuator Latching Mechanism problem (latch roller bearings not capable of design loads)

The inspector verified that the modified design (by the manufacturer-Crosby) has not been finalized to date. This activity will be reviewed when the corrective action modification is furnished and the work performed.

This item remains open.

3.4 (Open) Violation 83-07-01, Failure to consider Heavy Wall Fittings thickness in analyses (analyses utilize nominal wall)

The inspector reviewed the correspondence relating to this item. The Office of NRR evaluated the initial licensee's study as described in their letter of January 28, 1983, and concluded that the effects of seismic loadings on oversized fittings was not significant, however, there was concern of thermal expansion loadings. NRR requested the licensee to address 1) the impact of thermal expansion loads on equipment nozzles, and 2) the impact of the effect of oversized fittings on thermal expansion stresses for restraints and piping other than tees and elbows.

The licensee's letter to RI dated August 20, 1984, responded to the NRR request and provided two reports: 1) (B2-12241-142) "Specific Evaluation of Overthickness in Pipe Fittings", July, 1984, and 2) (B2-12241-65) "Structural Review of Piping Analysis Including Effects of Heavy Elbows", July, 1984.

The licensee advised the inspector that all documentation was provided to RI to enable close-out of this item. On return to the Region Office the inspector verified that the Region based specialist hasn't had time to evaluate the data due to other priorities.

This item remains open pending evaluation of submitted data.

3.5 (Open) CDR 83-00-08, Excessive Thickness in Diesel Generator Exhaust

The inspector noted that this item and the item designated as Violation 83-07-01 are intertwined.

The inspector reviewed the licensee's correspondence to RI of July 28, 1983 and August 19, 1983, and the RI meeting summary dated August 25, 1983, which described the CDR problem and the concerns due to the thick wall fittings and pipe.

The inspector verified that the NRR evaluation and requested action and the licensee's report submittals of August 20, 1984, has bearing on this item.

As pointed out under paragraph 3.4 the data packages provided to RI have not been reviewed.

This item remains open pending evaluation of the licensee's submitted data.

4.0 Independent Measurements and Observations

During the inspector's observation of the in-place repair machining of the Inconel 625 weld inlay of MSIV "C" valve the machined surfaces were examined. The inspector visually examined and compared the machined surfaces to the comparison finish gages and by fingernail scraping of the surface. The inspector determined the finished cut to be 125 and the polished (with emory cloth) surface to be better than 64.

Additionally, during the examination of MSIV parts in the storeroom, the inspector measured the ball porting, and determined it to be 21" dia.

5.0 QA/QC Interface

The inspector noted there was effective QC involvement with the in-process MSIV repair work, CCP pump installation, and the other areas examined during this inspection as noted in earlier sections of this report.

6.0 Exit Meeting

The inspector met with the licensee's representatives (identified in paragraph 1.0), at the conclusion of the inspection on May 17, 1985 to summarize the findings of this inspection.

At no time during this inspection was written material provided to the licensee by the inspector.