

U. S. NUCLEAR REGULATORY COMMISSION

REG I

Report No. 50-412/84-05
 Docket No. 050-412
 License No. CPPR-105 Prior -- Category B
 Licensee: Duquesne Light Company
Robinson Plaza Building No.
Suite No. 210, PA Route 60
Pittsburgh, Pennsylvania
 Facility Name: Beaver Valley Power Station, Unit
 Inspection At: Shippingport, Pennsylvania
 Inspection Conducted: April 16 - May 25, 1984

Inspector: G. A. Walton
 G. A. Walton, Senior Resident Inspector

June 1, 1984
 date

Approved by: L. E. Tripp
 L. E. Tripp, Chief, Reactor Projects Section
 No. 3A, Reactor Projects Branch No. 3,
 Division of Project and Resident Programs,
 Region I

6/7/84
 date

Inspection Summary: Routine, unannounced inspection by one resident inspector of activities pertaining to previously identified unresolved items, followup on Bulletins, 50.55(e) items and Information Notices, anonymous allegation, self-initiated INPO audit, design and inspection of seismic Category 2 components, and daily site tours. Meetings were held onsite May 17 and 22 with DLC, S&W and NRC Regional specialists to discuss unresolved item 83-05-09 (Cable Raceway Fill) and Violations 83-11-01 (Post Weld Heat Treatment) and 82-01-01 (Piping Notches and Transitions). The inspection involved 107 hours onsite by one resident inspector.

Results: All items inspected were found acceptable except an unresolved item on motor operated valve storage. The three items discussed in the meetings will continue to be unresolved pending further actions by the licensee and Stone and Webster and further analysis by the NRC. The meeting attendees are shown on Attachment 1. The allegation was unsubstantiated and considered closed.

DETAILS

1. Persons Attending Exit Interview

Duquesne Light Company

J. Bajuszik, Director - Construction Engineering
R. Coupland, Director - Quality Control
C. Davis, Director - Quality Assurance
C. Ewing, Manager - Quality Assurance
H. Good, Senior Q.C. Weld Specialist
C. Kirschner, Senior Q.A. Engineer
J. Waslousky, Senior Q.A. Engineer
R. Wallover, Compliance Engineer

Stone and Webster Engineering

A. Champagne, Assistant Superintendent - Engineering
R. Faust, Principal Structural Engineer - Engineering
A. McIntyre, Superintendent - Engineering
J. Novak, Superintendent - Construction

2. Construction Site Walk-Through Inspections

Daily tours of the construction site were made to observe work activities in progress, completed work and plant status of the construction site. The presence of quality control inspectors and quality records were observed. The areas observed were found acceptable and no violations were identified.

3. Licensee Action On Previous Findings

(Closed) Bulletin 83-07, Information Notice 83-01 and Supplement 1 - Apparent Fraudulent Products Sold by Ray Miller, Inc.

This item pertained to fraudulent products that may have been sold to nuclear industry companies by Ray Miller, Inc. Holders of construction permits were required to respond in writing by March 22, 1984, regarding the identification and disposition of any suspect materials purchased from Ray Miller, Inc.

The licensee responded in writing on March 22, 1984, and advised that reviews made by Duquesne Light, Westinghouse, and Stone and Webster Engineering Corporation identified that two suppliers received materials from Ray Miller, Inc. which were used onsite. First, Pittsburgh-DesMoines (PDM) Steel received blind flanges which were used in the containment building lightning rods and second, Joseph Oats received one section of 12 inch schedule 40S, 304 stainless steel pipe.

The licensee determined that the blind flange received by PDM is a different material than the fraudulent material supplied by Ray Miller, Inc. The stainless steel pipe supplied by Joseph Oats was certified by Swepeco Tube Corporation and passed directly to Joseph Oats Corporation without alteration.

The inspector performed reviews of these items and determined that the licensee's analysis was thorough and correct. The certifications for the two items discussed above were not altered and do not require any additional actions. The inspector also determined that the blind flange is not safety related. This item is closed.

(Closed) Bulletin 83-08, Undervoltage (UV) Trip Circuit Breakers

This Bulletin required holders of construction permits to identify applications of Westinghouse types DB and DS or General Electric type AK-2 circuit breakers other than reactor trip breakers with the UV trip feature as discussed in IEB 83-01 and 83-04.

The licensee responded in writing on April 2, 1984, and reported they have no safety related circuit breakers with undervoltage trip features, other than the reactor trip breakers, installed or planned for installation at BVPS-2. This item is considered closed.

(Closed) Bulletin 82-04, Bunker Ramo Electrical Penetration Assemblies

This bulletin identified deficiencies on Bunker Ramo electrical penetrations utilizing a hard epoxy module design and required holders of construction permits to determine its application at each site. Beaver Valley, Unit 2 has determined that Bunker Ramo electrical penetration assemblies are not used in BV-2. The electrical penetrations are supplied by Westinghouse.

The inspector verified the assemblies were supplied by Westinghouse. This item is closed.

(Closed) Unresolved Item 82-02-03, Verification of Installed Piping and Supports

This unresolved item identified a need for the licensee to establish that piping and associated supports are being located, installed, and connected in compliance with the final approved drawings as required by ANSI-N45.2.8. A program for verification of conformance to design requirements had not been provided.

The licensee has now established a program by issuance of Field Construction Procedure FCP-509 titled "Installed Condition Verification of Piping." As stated in FCP-509, it is the responsibility of the "Installed Condition Verification Group", (ICVG) consisting of representatives from the appropriate contractor, Site Quality Control, and Stone and Webster Engineering Construction to verify by physical inspection that the information shown on the drawings reflect the installed condition. The ICVG will perform inspection by measuring and/or verifying twenty-one separate attributes. Some examples are: pipe elevation, dimension to building column, elbow, reducer and flange types, support locations, vent/drain location and dimensions, operated valve orientation and pipe slopes. The twenty-one attributes will include 100 percent of ASME Class 1 piping, 70 percent of ASME Class 2 piping, 50 percent of ASME Class 3 piping and 25 percent of B31.1 seismic piping. In order to establish a confidence factor for ASME Class 2 and 3, 100 percent of the first 10 percent of the Class 2 and 3 isometric drawings will be verified.

In addition to the above, an instrumentation verification will be performed in accordance with the requirements of inspection procedure IP 7.2.9.

The inspector found the verification programs acceptable and this item is closed.

(Closed) Unresolved Item 84-01-01, FSAR Description of Spent Fuel Racks

This item was unresolved because the description given in the FSAR for the spent fuel racks was significantly different than the ordered racks.

Amendment 6, to the FSAR was issued April, 1984, which changed the description from that previously described in the FSAR for the spent fuel racks. The description provided in Sections 7.2.7 and 9.1.2, Amendment 6, accurately describes the ordered condition of the spent fuel racks. This item is considered closed.

(Closed) CDR 82-06, Limitorque Motor Key Failures

In complying with the resolution to IEB 81-02, operators on valves supplied by Westinghouse were reworked at the BVPS-2 jobsite. During disassembly and inspection, six valves with SB-0-25 operators were found to contain sheared pinion keys. Metallurgical evaluation of the failed pinion keys, performed by Westinghouse, indicated that they were low carbon steel rather than the required hardened alloy.

Westinghouse has determined that the potential for sheared keys is limited to Westinghouse Electro-Mechanical Division manufactured valves equipped with Limitorque Model SB-0-25 motor operators. Westinghouse replaced the pinion keys on all SB-0-25 motor operators on site at BVPS-2.

The inspector reviewed the following documentation associated with the replacement program; Nonconformance and Disposition Report Number 6539, "Certificate of Compliance" for replacement keys, purchase orders, Westinghouse deficiency report number FDR-DMWM-10044 and memorandums between Stone and Webster Engineering, Duquesne Light Company and Westinghouse resolving the disposition.

The inspector found all items reviewed acceptable and this item is closed.

(Closed) Information Notice 83-20, ITT Grinnell Mechanical Snubbers

Several 50.55(e) reports were submitted to the NRC from other nuclear facilities because ITT Grinnell, Figures 306/307 mechanical snubbers do not permit 5 degree lateral pipe movement as required, due to binding.

Stone and Webster Engineering responded to this item by memoranda number 2BVM-3372, stating that ITT-Grinnell Mechanical Snubbers, Figures 306/307 have not been used in pipe support rupture restraint or equipment support applications at BVPS Unit 2.

The inspector reviewed the documentation associated with the Stone and Webster review and found adequate reviews were performed. This item is closed.

(Open) Unresolved Item 83-05-09, Cable Raceway Fill

On May 17, 1984, a meeting was held onsite between Duquesne Light Company, Stone and Webster Engineering and NRC to discuss Unresolved Item 83-05-09 "Cable Raceway Fill." An NRC region based specialist and the resident inspector attended the meeting.

This item was unresolved because the licensee had insufficient controls on the amounts of cable overfill allowed. Also, the FSAR did not adequately describe the amount of tray fills for certain cables and the licensee was not performing inspections to determine when trays were overfilled. Tray fill controls are necessary to assure support adequacy, ampacity rating, and access for tray covers to meet cable separation requirements.

At the meeting held May 17, and subsequent telephone conversations on May 24 between DLC Engineering Manager and the Resident Inspector, the following commitments by the licensee were made:

- (a) 2BVM 88 "Cable Schedule Information System" will be revised to give the engineer clear direction when overriding the computer to allow additional cable fill beyond the 100 percent level. This includes actions to attempt to reroute to other trays when above 130 percent fill. Between 100 - 130 percent the engineer must determine if the actual fill would be more than 1-1/2 inches above the top rail. If above 1-1/2 inches, the engineer would not be authorized to proceed with fill. The engineer would also notify the structural engineer when the weight per linear foot of cable is over a certain amount.
- (b) Specification 2 BVS-931 "Installation Specification for Electrical" and 2 BVM-88 will be revised to only allow the actual cable fill above the side rails in the following conditions:
 - Any actual fill more than 1-1/2 inches above the side rails is unacceptable.
 - Any actual fill above 0 inches to 1-1/2 inches over side rails requires engineering approval.

Fills above 0 inches to 1-1/2 inches will require a raised tray cover. Raised tray covers cannot accommodate cable fills above 1-1/2 inches.

- (c) Field Construction Procedures (FCPs) and Inspection Procedures (IPs) will be revised and require construction to comply with the requirements described above. Also, Quality Control will perform inspections to assure compliance.
- (d) Cable trays which are completed, i.e., all cables are pulled, will be "backfit" inspected by Q.C. in accordance with the new requirements discussed above. Nonconforming conditions will be dispositioned by engineering.
- (e) Special cases, such as tray T's and crosses will be handled by engineering by separate controls which will be developed.
- (f) The tray fill controls discussed above will also apply to non-safety related trays adjacent to safety related trays.
- (g) Table 8.3-4 of the FSAR will be revised to better describe the criteria for "K", "C", and "X" type trays. The FSAR states that the maximum tray fill is 50 percent. The revised description will state; 50% tray fill is defined as the total of the cross-sectional areas of all cables routed in a tray section being equal to 50% of the cross sectional area of the tray. In a typical installation, 50% cross sectional fill will result in cable being level to, or below, the top of the tray rails. In the design-basis computer system, 100% fill is equal to the values under the "Maximum Tray Fill" described in Table 8.3-4. In no cases will the tray fill exceed 1-1/2 inches above the side rails.

The licensee has committed to complete all of the changes described above by July 30, 1984. This item will remain open pending a review of these changes.

(Open) Noncompliance 83-11-01, Post Weld Heat Treatment (PWHT)

On May 22, 1984, a meeting was held onsite between Duquesne Light Company, Stone and Webster Engineering, and NRC to discuss violation 83-11-01, "Post Weld Heat Treatment." Two NRC region based specialists and the resident inspector attended the meeting.

This violation identified that Power Piping Company failed to comply with the ASME B&PV Codes Section III and IX, and Power Piping Procedure N-1141-P-8 for PWHT piping in that heating rates were exceeded, temperatures were taken higher than qualified by the welding procedure, the proper amount of temperature recording devices were not used during the heat treating cycle, and repairs were made to post weld heat treated material without receiving a required re-post weld heat treatment. Also, there are conflicting requirements regarding the applicable ASME Code addenda. The PWHT was performed to different rules than described in the FSAR. See Unresolved Item 83-07-02.

At the meeting, Stone and Webster Engineering presented their analysis and proposed corrective actions to each item as described below.

(a) Maximum Allowable Heating/Cooling Rates Were Exceeded

The heating and/or cooling rates exceeded the allowable rates specified in ASME Section III.

The licensee plans to re-PWHT twelve spools on the main steam system.

Welds which were PWHT'ed that do not meet the 1971 Winter 72 Addenda (FSAR requirements), but are not required to be PWHT'ed in accordance with 1971 Winter 73 Addenda were accepted by engineering based on the low to moderate thermally induced stress per calculation 12241-NP(B)-415-X1.

(b) Maximum PWHT Temperature Exceeded Weld Procedure Specification (WPS) Qualified Range

WPS Number 1021 and 1042 were qualified to a maximum temperature of 1200°F. However, the PWHT temperature exceeded this qualified range.

The licensee has revised the affected WPS's to specify PWHT temperature range of 1100-1250°F per NB 4620 of ASME Section III, 1971 Winter 73 Addenda.

(c) PWHT'ed Material Was Not Re-PWHT'ed After Repairs Were Made

The repair weld procedure used was qualified using PWHT. The contractor failed to perform PWHT of these repairs as required. This is an essential variable of ASME Section IX.

The licensee has stated they have other weld procedures which are qualified without PWHT and propose adopting those rules where PWHT of repairs was required but not performed.

(d) Insufficient Temperature Recording Devices

Power Piping's PWHT procedure required a minimum of two thermocouples (heat sensors) per pipe assembly when performing PWHT. Contrary to that, the inspector found that more than one piping assembly was PWHT'ed in the same furnace simultaneously with only two thermocouples connected to the furnace recording devices.

The licensee performed a furnace survey per Procedure SFT-1 which shows a maximum variance of 750F throughout the furnace area. The licensee has determined that, based on the even heating throughout the furnace, two thermocouples were acceptable to control temperatures during PWHT.

This item will remain open pending a review of the documentation revisions, including the final report which the licensee committed to send to the NRC which describes the licensee's written position on this matter.

(Open) Noncompliance 82-01-01, Welding - Inadequate Taper

On May 22, 1984, a meeting was held onsite between Duquesne Light Company, Stone and Webster Engineering, and NRC to discuss violation 82-01-01, "Inadequate Taper." Two NRC region based specialists and the resident inspector attended the meeting.

This violation identified that piping welds were not faired to the required 3 to 1 taper from the weld surface to the adjacent base material as required by the ASME B&PV Code Section III, Winter 72 Addenda for Class 1, 2, and 3 components. In order to preclude the recurrence of such condition, the licensee revised specifications 2BVS-920 and 2BVS-58. Also, Quality Control inspection plans were revised by July 15, 1982, and included specific acceptance standards. A reinspection by QC of 552 ASME Class 3 components revealed 51 to not meet criteria. One hundred seventy-seven welds were inaccessible.

The licensee has proposed the following actions regarding the unacceptable and inaccessible conditions.

- (a) A total of 25 class 3 butt-welded valves, all accessible, which do not meet the criteria will be reworked to meet the criteria.
- (b) A total of 26 accessible pipe to fitting welds which do not meet the criteria and 177 inaccessible pipe to fitting welds are acceptable as is based on the following:

The stress intensification factors required by ASME III ND/NC-3672 range typically between 1.3 and 4.5 for the Tee and E11 fittings, thus requiring the maximum allowable moment loadings to be reduced by the amount of the factor. Since the fittings' eccentricity and excess base metal tend to increase with increasing diameter, along with the stress intensification factors, the currently required stress intensification factors for fittings also sufficiently offset potential weld surface conditions at their connecting butt welds. Existing calculations will verify this position.

The licensee has committed to submit the above information in writing to the NRC.

Analysis of this position, including reviews of the calculations, will be performed by the NRC to determine acceptance. This item will remain open pending this review.

4. Allegation - RI-84-A-0043 Anonymous Telephone Calls Received by the Resident Inspector

On March 23, 1984, the resident inspector received a telephone call in which two persons (apparently male) made allegations to the effect that an incompetent person was working on site at Beaver Valley, Unit 2. It was alleged that the incompetent person worked in the Site Project Engineering Group for Schneider, Inc., the piping contractor. Both persons stated they also worked in the same group. They could not give any specific instances which showed that the named individual was incompetent. They believed this individual did not meet the education and experience requirements and requested the NRC to inquire and determine his qualifications. They agreed to call the resident inspector on April 5, 1984, to further discuss the matter.

The investigation of the allegation was conducted by the resident inspector. The allegation was not substantiated.

Details of the Investigation

Schneider Power, Site Project Engineering, comprises approximately 50 persons. Their responsibilities include isometric drafting, issuing Construction Revision Notices, and implementing design changes taken from Stone and Webster Engineering drawings. Prior to fuel loading, all isometric drawings which reflect design changes will be reviewed by Stone and Webster Engineering.

From the organization chart, the inspector selected four individuals, one being the individual being investigated, and requested copies of their resumes. In addition, the inspector requested copies of the education and experience requirements from Stone and Webster Engineering which describes the minimum acceptable requirements for each position description of these individuals.

No deficiencies were found for the four individuals audited. Each person possessed ample experience and education when compared to the position description for his respective title and grade.

In the telephone conversation on April 5, 1984, the inspector advised the allegers that the named individual did meet the requirements for education and experience and that unless they could give some specifics of incompetence for this individual, no further investigation could be performed by the NRC.

No specific cases were given. The allegers then indicated their problem with this individual was more of a personality conflict between certain people in that group. The inspector advised the callers that the NRC would not get involved in an internal conflict that had no apparent safety significance. The inspector advised the callers and also Schneider, Inc. management that this conflict should be resolved within their own organization.

This allegation is unsubstantiated and considered closed.

5. Inplace Storage of Motor Operated Valves

In the primary intake structure, common to Units 1 and 2, the inspector observed two motor operated valves (MOV) without any apparent heat source to prevent moisture from entering the motors. The MOVs are identified as 2-SWS-MOV-102B and 102C2 and located on the 30 inch service water line. The motor operated valves were located in the pump cubicle room where water and high humidity was present from apparent in-leakage from operation of Unit 1. The inspector noted that in addition to water dripping from overhead, that high humidity was causing formation of water droplets accumulating on equipment in areas away from the in-leakage.

The MOVs were covered with plastic which prevented direct water impingement on the motors but no provisions were made to control the high humidity to prevent moisture from accumulating within the motors. This item is unresolved pending the licensee's review and disposition of the need to provide additional protection to these MOVs located in a high humidity area. 84-05-01.

6. Review of Licensee's Self Initiated (SI) INPO Audit

The inspector performed a review of the licensee's self-initiated "Institute of Nuclear Power Operations" (INPO) audit conducted onsite during the period from October 18, 1982, through November 5, 1982.

The inspector performed this review to assure that the licensee reviewed the SI for significant safety issues and complied with the requirements of 10 CFR 50.55(e), if applicable, and to assure the licensee has taken timely corrective actions on audit findings.

The evaluation was initiated by Duquesne Light Company and conducted by an evaluation team comprised of technical and management personnel from Duquesne Light Company, Ohio Edison Company, Toledo Edison Company, Engineering Consultants, Inc., and Quadrex Corporation. The team consisted of 16 people. The team utilized performance objectives and criteria developed by INPO.

The inspector's review found that no significant problems were identified which required a 50.55(e) submittal. The licensee had used the INPO performance objectives and criteria provided by INPO. Corrective actions related to the findings were reinspected by Duquesne Light Quality Assurance Department to assure proper corrective actions had been taken. The inspector found the Self-Initiated INPO audit was thorough and effective. No violations were identified and no items will require followup inspections.

7. Oil Additives Used in Reactor Coolant Pump Motors

At WNP-3, an NRC inspector observed that "Gummy Oil" was found in the anti-rotation devices for the reactor coolant pump motors. The "Gummy Oil" apparently occurred from the improper use of an oil additive called "Vaportec" manufactured by Mobil Oil Company.

The inspector questioned the licensee regarding the use of "Vaportec" as an oil additive for equipment supplied to Beaver Valley Unit 2.

Stone and Webster Engineering performed a review of this concern and by memorandum number 2BVM-3330 has advised that the reactor coolant pumps at BVPS, Unit 2 are stored using Mobil 824 oil, without any additives. They further advised that no additives, such as "Vaportec" are used in any oils for equipment onsite.

The inspector found this item acceptable.

8. Seismic Design Classification

The inspector performed an audit of the feedwater system to ascertain compliance with Regulatory Guide 1.29 and Table 1.8-1 of the FSAR.

R.G. 1.29 requires that Seismic Category 1 design requirements should extend to the first seismic restraint beyond the defined boundaries. Table 1.8-1 of the FSAR further clarified this requirement; "The piping up to, and including, the first seismic restraint beyond the valve shall be designed to Seismic Category 1 requirements but shall not be designated Seismic Category 1. These portions of the system are designated Seismic Category II between the seismic boundary and the first seismic restraint. By this means, the Seismic Category 1 boundary is defined with respect to safety related function, and the interfacing portions meet the seismic design requirements in order to ensure the integrity of the boundary."

The feedwater lines are designed and constructed as safety class 2, Category 1, out to and including the outermost containment isolation valve. The piping and restraints and/or supports outside of the safety class 2 boundaries are identified as Seismic Category 2. In discussions with Stone and Webster Engineering and Duquesne Light Company Quality Control, the inspector verified that Category 1 and Seismic Category 2 are designated and Q.C. inspected in the same manner as Category 1 components. The designation change is made to identify the safety boundaries as described in the FSAR.

The inspector found this item acceptable and no violations were identified.

9. Exit Meeting

The inspector met with licensee and contractor representatives (denoted in paragraph 1) at the conclusion of the inspection on May 25, 1984. The inspector summarized the scope and findings of the inspection as described in this report.

During this inspection, no written material was given to the licensee by the inspector.

Personnel attending the meetings held May 17 and 22, 1984, are shown on Attachment 1.

ATTACHMENT 1

MEETING HELD MAY 22, 1984

ITEM 83-11-01 AND 82-01-01

<u>NAME</u>	<u>TITLE</u>	<u>REPRESENTING</u>
R. F. Blake	Engineer	Stone & Webster
B. R. Newmark	Asst. Chief Materials Engineer	Stone & Webster
R. H. Federico	Asst. Project Engineer	Stone & Webster
R. A. Loranges	Lead Engineer - Mechanical	Stone & Webster
C. E. Kirschner	Sr. O.A. Engineer	Duquesne Light Co.
R. D. Harris	Site Materials Engineer	Stone & Webster - SEG
H. R. Good	Sr. O.C. Weld Spec.	Duquesne Light/SQC
L. E. Arch	Sr. Project Engineer	Duquesne Light/SES
M. Zaki	Sr. Project Engineer	Duquesne Light/NCD
S. D. Hall	Sr. Project - Lic.	Duquesne Light/NCD
R. J. Wallauer	Compliance Engineer	NCD/RAD
K. G. Fellers	Asst. Supt. Construction	Stone & Webster
H. N. Crooks, Jr.	Asst. Dir.	Duquesne Light/QC
G. E. Benner	Q.C. Engineer	Duquesne Light/SQC
H. M. Krafft	Lead Materials Engineer	Stone & Webster
Hankinson	Section Manager - EWD	Stone & Webster
J. H. Raval	Inspector	NRC
J. P. Durr	Chief, M&PS	NRC
G. A. Walton	Senior Resident Inspector	NRC
R. Coupland	Director	Duquesne Light/QC
C. McIntyre	Head SEG	Stone & Webster

MEETING HELD MAY 17, 1984

ITEM 83-05-09

<u>NAME</u>	<u>TITLE</u>	<u>REPRESENTING</u>
G. A. Walton	Senior Resident Inspector	NRC
R. Paolino	Lead Reactor Engineer	NRC
E. Horvath	Sr. Project Engineer	Duquesne Light/SES
C. Majumdar	Asst. Director, QC	Duquesne Light/SQC
R. Couplind	Director, QC	Duquesne Light/QC
W. F. Mahoney	Des. Supv.	Stone & Webster
D. Hurley	Electrical Engineer	Stone & Webster
S. D. Hall	Sr. Compliance Engineer	Duquesne Light
R. Matherwicz	Lead Electrical Engineer	Stone & Webster
H. M. Siegel	Engineering Mgr.	Duquesne Light
J. F. Konhus	Project Engineer	Duquesne Light