

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-334/78-21

Docket No. 50-334

License No. DPR-66 Priority -- Category C

Licensee: Duquesne Light Company

435 Sixth Avenue

Pittsburgh, Pennsylvania 15219

Facility Name: Beaver Valley Power Station, Unit 1

Inspection at: Shippingport, Pennsylvania

Inspection conducted: August 22-25, 29-31, 1978

Inspectors: R. A. McBrearty

for A. N. Fasano, Reactor Inspector

R. A. McBrearty
R. A. McBrearty, Reactor Inspector

9/13/78
date signed

9/13/78
date signed

date signed

Approved by: S. D. Ebnetter
S. D. Ebnetter, Acting Chief, Engineering
Support Section No. 1, RC&ES Branch

9/13/78
date signed

Inspection Summary:

Inspection on August 22-25, 29-31, 1978 (Report No. 50-334/78-21)

Areas Inspected: Routine, unannounced inspection by regional based inspectors of the new high density spent fuel racks and eddy current inspection of steam generator tubes including receipt inspections, receipt documentation, installation, testing and operational procedures. The inspection involved 43 inspection-hours on site by two NRC regional based inspectors.

Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Duquesne Light Company

- *G. L. Beatty, QA Engineer
- R. Burski, Senior Engineer
- *W. H. Glidden, QA Engineer
- **R. Hansen, QC Engineer
- R. Hoak, QC Inspector
- J. Kowalski, Engineer (Pittsburgh Office)
- ***F. J. Lipchick, Station QA
- *J. J. Maracek, Reactor Engineer
- **A. C. Mazukna, QC Supervisor
- *L. G. Schad, Station Operation Supervisor
- E. Schnell, RADCON Foreman
- *J. Starr, Site Engineer
- ***J. A. Werling, Station Superintendent
- ***H. P. Williams, Chief Engineer
- R. Woodling, Senior Engineer

Nuclear Services Company

- *R. J. Jurrus, Engineer

Westinghouse Nuclear Services Division

D. N. Carroll, Field Service Activity Coordinator

- *denotes those present at the August 25, 1978 exit interview.
- **denotes those present at the August 31, 1978 exit interview.
- ***denotes those present at the August 25 and August 31, 1978 exit interview.

2. Plant Tour and Plant Status

The inspector examined stored new fuel storage racks sealed in polyethylene wrappers. Work was in progress to ready the spent fuel storage area for the acceptance of the new fuel storage racks. The inspector examined work being performed in the spent fuel storage area.

The spent fuel storage area remains to be cleared of low density spent fuel racks. The low density spent fuel racks, as they are removed, are being decontaminated.

The plant is in an extended outage due to the failure of the main transformer. Work is in progress on the main turbine.

3. New Fuel Storage Racks

The following documents were used as the basis for inspector evaluation of licensee compliance to commitments for the procurement, receipt, installation, and operation of the new fuel storage racks.

- Letter dated May 31, 1977, from Duquesne Light to NRC w/enclosures: Technical Specification changes to paragraphs: Design Features, 5.3.1 Fuel Assemblies, 5.6.1 Criticality and 5.6.3 Capacity.
- Letter dated December 3, 1976, from Duquesne Light to NRC w/enclosures: Unit 1 Spent Fuel Storage Facility Modification Safety Analysis Report, November 30, 1976; High Density Spent Fuel Racks Fabrication and Inspection Specification No. 80A946; Beaver Valley FSAR Revisions, Section 9.5 and 9.12; and Revised Technical Specification Requirements 3.93, 4.93 and 3/4.9.3.
- Letters dated February 14, 1978 and May 23, 1977, from Duquesne Light Company to NRC with responses to NRC question and additional information.
- NES 81A0441, Nuclear Design Analysis Report for BVPS-1 High Density Fuel Storage Racks, March 5, 1976.
- Letter dated May 31, 1978 from NRC to Duquesne Light Company which issues Amendment No. 14 permitting modification of the spent fuel storage pool to accommodate 833 fuel assemblies vs. 272.
- a. Procurement, Receiving, and Inspection Records for the High Density Spent Fuel Racks

The inspector reviewed the Quality Control records for verification of control of safety related equipment. Records were reviewed for verification of vendor quality controls; adherence

to purchase specifications, and specified codes and standards. Inspection records were reviewed for checks and measurement documentation and installation procedures.

The following documents were reviewed at the site, with respect to the above.

- Specification No. 336 for High Density Spent Fuel Racks, Revision 2, March 1978 (Four Additional Racks) w/Appendix A - Design Criteria; Appendix B, Specification No. 80A0946 for Fabrication and Inspection, April 1, 1976; Appendix C, Quality Assurance Program Plan for High Density Fuel Storage Rack Program; and Appendix D, Nuclear Energy Services, (NES), Quality Assurance Manual.
- Overall NES Document Package which includes: Letter dated May 9, 1978 from NES to Stone and Webster (No. 5112-66) and attachments:
- Attachment A - Mill Certifications - Metal Products Corporation Certification with test reports for metal used in construction of Racks, January 17, 1977.
- Attachment B - Process Procedures and NES Approvals June 16, 1976 (No. 5112-30). This Attachment contained confirmation of NES Review of Metal Products Company Procedures QC-S)I-123, Visual Inspection of Welds; QC-PPS-203, Liquid Penetrant Testing of Welded Components; QC-PPS-205-1, GTAW of 304 Stainless Steel; QC-PPS-211, Repair of Defective and Unsound Welds; QC-PPS-212, Sand Blasting of Stainless Steel Materials and Assemblies for Nuclear Applications; QC-PPS-217, Packaging and Shipping of Nuclear Fuel Storage Racks. The document also includes NES findings pertaining to the procedures and subsequent corrective actions taken by Metals Product Corporation.

The procedures were written to meet applicable codes and standard, i.e., ASME Section V, 1974; ASME Section IX (Welders Qualification latest Addenda); and ASME Section IX for weld Procedure Qualifications.

- Attachment C, NES Inspection Reports.
- Attachment D, Nondestructive Tests, including dimensional inspection and drag test results for Racks Number NES-1 through 13.
- Attachment E, Certificate of Compliance from Metals Product Corporation, January 17, 1977.

Findings:

The records available address the first 13 racks. Final data will be transmitted with the completed new high density spent fuel storage racks.

The licensee has performed receipt inspections (BV DLCo File 855). The Nuclear Service Quality Control general inspection report, Receipt Inspection of High Density Spent Fuel Storage Racks for racks NES-5 and NES-11 including the 45 individual cells for each rack resulted in the return to the vendor of the items inspected.

The licensee has made subsequent trips to the Metal Product Company for pre-shipment inspections, (Reference July 17 and 20 Memoranda, Subject: BVPS Unit 1 High Density Spent Fuel Rack, Trip to Metal Products Company). The documents also show that NES has evaluated the licensee's findings for the first two units inspected and returned. The NES July 11, 1978 Letter to Duquesne Light details corrective actions.

It appears that the licensee has an active receipt inspection program that should result in an assured quality product.

No items of noncompliance were identified.

b. Construction and Preoperational Testing

The inspector reviewed the licensee's procedures: Installation, Inspection and Construction Procedures and Specifications of 17 High Density Fuel Racks, Revision 0, May 1978. The objective of this procedure is to provide instructions

for the removal of 17 existing low density spent fuel racks. The procedure references specific drawings to be used in the performance of the work. The inspector noted minor errors which were discussed with the licensee and corrected. The Spent Fuel Racks Modification Installation Schedule, DC-0097, indicates that a drag test will be performed. The Fuel Cell Drag Test procedure is listed as ECN No. 00012, affecting the above May 1978 procedure. The procedure includes the acceptance criteria of 50 pound drag limits and all 833 cells to be tested.

No items of noncompliance were identified.

c. Operational Procedures and Water Chemistry Checks

The inspector interviewed licensee personnel and reviewed procedures relative to the spent fuel pool, SFP. There are alarms for high and low SFP water levels. Operation Manual Chapter 54, Section 3, Item No. 117 requires verification each shift which meets Technical Specification requirements.

The checks required (TS 4.9.10) prior to start of fuel movement were not traceable to procedure. This evolution is required for the forthcoming refueling. This is an unresolved item pending changes to existing procedures to reflect the periodic level checks. (50-334/78-01-21)

There are operating surveillance tests for weekly checks (TS 3.9.11) for a minimum of 23' of water over the top of irradiated fuel assemblies. Reference procedure OST 1.20.1.

The licensee has alarm procedures under procedure F of Operating Manual Chapter 1.20.4. Annuciation is on windows A6-11 and A6-3 for high and low water levels.

There is spent fuel pool temperature high indication in the Control Room, indicator T1-1FC-103. The current high temperature set point is 143°F. The licensee has an alarm procedure F.12 in chapter 1.20.4 of the operating manual addressing actions to be taken for high temperature alarm.

The alarm procedures for radiation monitoring are found in chapter 43, Section 4, procedure H series. Alarms have indicators in the control room for the new fuel storage area high activity and high-high activity and for the fuel pool bridge area high and high-high activity monitors.

The operating Manual Chapter 54, item 52 addresses checks for the ultimate heat sink river water temperature and level.

The licensee plans to re-index during the final drag testing of the new high density fuel racks. Procedure 1.4.14, Step by Step Core Loading Sequence, will be changed to reflect the new data. The licensee plans to change BVF 1.3.01, Fuel Procedure based on the final configuration of the new racks.

Discussion with the licensee concerning use of emergency water and/or an auxiliary pump and pipe arrangement for addition of emergency water to the spent fuel pool was discussed. The licensee stated that it is feasible to meet the SAR description for adding water and piping but a procedure to accomplish the functions does not exist. The licensee plans to write an emergency procedure for loss of spent fuel pool water. This is an unresolved item pending the review by the licensee of water supply arrangements and approval of an emergency procedure. (50-334/78-02-21)

The inspector interviewed the Radiation Control (RADCON) licensee personnel with respect to radiation readings and decontamination of the spent fuel pool. The inspector also reviewed survey sheets showing contamination level and radiation levels found on the old spent fuel pool racks. No airborne activity has been detected. The records indicate that the work was started around March 28, 1978 and is continuing. The work is being performed under RWP-3922. The data available indicate that the racks are decontaminated prior to release from the decontamination area.

d. Onsite and Offsite Review Committee

The inspector reviewed the minutes of the onsite (OSC) and offsite (ORC) committee minutes for confirmation that reviews were performed with respect to the high density spent fuel racks. The ORC minutes for Meeting No. 29, and No. 38 were

reviewed. The OSC minutes for meetings BV-OSC-76-76, 97-76 and 48-77 were reviewed. The review committees recommended request for forwarding the proposal to the NRC for Technical Specification and License Amendment changes.

No items of noncompliance were identified.

4. Eddy Current Examination of Steam Generator Tubing

The steam generator inspection program conducted during the current outage was carried out to satisfy the requirements of the facility technical specification.

Westinghouse Electric Corporation, Nuclear Service Division (NSD) was contracted by the licensee to perform the eddy current examination of selected tubes in steam generator "A" and "B". Data interpretation and evaluation were done by a Zetec, Inc. NDE Level IIA individual.

The purpose of the examination was for the detection of defective tubes in each of the two steam generators included in the inspection program for this outage. Specific tubes scheduled for examination were identified in the program.

The inspector reviewed Westinghouse eddy current procedure MRS 2.4.2 GEN-18, Revision 0, dated September 16, 1977 and technical supplement number 1, Revision 2 dated October 10, 1977 entitled, Steam Generator Tubing Inspection for Tube Wall Degradation - Detection and Quantification, and observed the eddy current examination of the following tubes in steam generator "A":

<u>Row</u>	<u>Column</u>
28	77
29	77
30	77
29	78
30	78

The above tubes were examined for defects in accordance with procedure MRS 2.4.2 GEN-18 and technical supplement number 1.

The examinations were done at a test frequency of 400 KHz using an A-700-F probe by an individual certified as NDE level 1 assisted by a shift supervisor.

The inspector observed that data were collected and recorded on magnetic tape and strip chart as the eddy current probe was withdrawn from the tube under examination. The inspector noted that complete examination of the above tubes could not be accomplished due to inadequate probe insertion. The charts for the tubes which would not permit complete passage of the probe were so identified. On September 5, 1978, the licensee informed the inspector by telephone that the inadequate probe insertion was attributed to an equipment problem which was corrected subsequent to the inspector's leaving the site. The associated tubes were reexamined completely with acceptable results.

Test system calibration was done in accordance with the technical supplement 1 using an inconel 600 calibration standard, serial number 92, heat number 8777, which was supplied by Westinghouse.

The inspector observed the method for data interpretation and evaluation done by a Zetec, Inc. Level IIA individual at an offsite location using equipment similar to that used for data collection. The inspector found that documentation of findings was in accordance with MRS 2.4.2 GEN-10.

Calibration and certification records associated with the equipment used for data collection and interpretation were reviewed and found to be current for each piece of equipment.

No items of noncompliance were identified.

5. Unresolved Items

Unresolved items are items about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Two unresolved items disclosed during this inspection are discussed in paragraph 3.

6. Exit Interview

The inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on August 25-31, 1978. The inspectors summarized the purpose and the scope of the inspection and the findings.