

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-412/84-12

Docket No. 50-412

License No. CPPR-105

Licensee: Duquesne Light Company
Nuclear Division
P. O. Box 4
Shippingport, PA 15077-0004

Facility Name: Beaver Valley Power Station Unit 2

Inspection At: Shippingport, PA

Inspection Conducted: September 10-14, 1984

Inspectors: *G. Napuda*
G. Napuda, Lead Reactor Engineer
H. VanKessel
H. VanKessel, Reactor Engineer
W. Oliveira
W. Oliveira, Reactor Engineer

10/26/84
date
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Approved by: *J. Spraul*
J. G. Spraul, Acting Chief,
Management Programs Section, DETP

10/26/84
date

Inspection Summary: Inspection on September 10-14, 1984 (Report No. 50-412/84-12) Routine unannounced inspection of the "Turnover" portion of the Quality Assurance Program for pre-operational testing, including QA/QC overview and interface activities. The inspection involved 104 inspection hours by three region based inspectors.

Results: One violation (walkdown group personnel were not certified as qualified for their assignments - paragraph 3.4)

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DETAILS

1. Persons Contacted

Duquesne Light Company (DLC)

R. Bisbee, QA Engineer
J. Cary, Vice President Nuclear
*R. Coupland, Director, QC
H. Crooks, Jr., Assistant Director, QC
*C. Davis, Director, QA
D. Denning, Assistant Director, QC
*J. Dusenberry, Director, Startup Testing
W. Glidden, Senior QA Engineer
*H. Good, Senior QC Welding Specialist
*J. Griffin, Superintendent, Construction Secondary System
*S. Hall, Senior Project Engineer
J. Houghton, Technical Consultant
*M. Howman, Compliance Engineer
*R. Huemme, Supervisor, System/Subsystem Turnover
*J. Hultzter, Construction Liaison
D. Hunter, Startup Group Leader
C. Majundas, Assistant Director, Site QC
*M. Pavlick, Director, Milestone Management
*D. Rohm, Assistant Director, Site QC
*H. Siegel, Engineering Manager
*J. Waslousky, Senior QA Engineer
*L. Williams, Consultant
*R. Williamson, Surveillance Inspector
*E. Woolever, Vice President, Nuclear Construction

Stone and Webster Engineering Corporation (S&W)

C. Bishop, Construction Manager
*A. Burke, Materials Engineer
K. Connich, Piping Analyst
P. Fadden, Assistant Superintendent of Engineering
*R. Fellers, Assistant Superintendent of Construction
*H. Foley, Site Manager
P. McDonagh, Field Engineer
*A. McIntyre, Superintendent Engineer
*J. Novak, Superintendent of Construction
J. Purcell, Assistant Superintendent of Engineering
*R. Wittschen, Licensing Manager
F. Sullivan, Assistant Superintendent of Construction

Schneider Power Corporation (SPC)

M. Brow, QC Engineer
D. Hern, QC Engineer

J. Hines, Construction Engineer
R. Ranko, Engineer

NRC

- *D. Johnson, Resident Inspector Beaver Valley Unit 1
- W. Troskoski, Senior Resident Inspector Beaver Valley Unit 1
- *G. Walton, Senior Resident Inspector Beaver Valley Unit 2

*Attended Exit Interview

2. Licensee Action on Previous Inspection Findings

(Open Unresolved Item (84-07-01): Administrative controls for system turnovers. Based on the discussion in paragraph 3.2, this item remains open.

3. QA Program for Turnover

3.1 References/Requirements

- FSAR Chapter 14, Initial Test Program
- FSAR Chapter 17, Quality Assurance
- ANSI N45.2.6-1978, Qualifications of Inspection, Examination and Testing Personal for Nuclear Power Plants
- Stone and Webster Engineering Corporation (SWEC) Field Construction Procedure (FCP) 29, Exception Work Tracking, Change 8 (8/6/84)
- FCP 51, System Release, Change 3 (7/30/84)
- FCP 80, Conduct of Phase I Test Program, Change 0 (4/27/83)
- FCP 509, Installed Condition Verification, Change 1 (4/30/84)
- Inspection Procedure (IP) 7.20, Piping System Walkdown, Change 0 (3/28/84)

3.2 Program Review

3.2.1 The procedures listed in paragraph 3.1 were reviewed. Meetings were held with S&W and licensee representatives to determine the process used for the turnover of plant systems from the construction group (S&W) to the licensee Startup Group (DLC/CSUG).

3.2.2 The system turnover process was explained by the licensee in a meeting where members of the parties responsible for turnover activities were present. Procedures or instructions, important to the turnover process, were identified in the meeting. The licensee informed the inspectors that the turnover process was being revised to eliminate one turnover. Presently, there are two turnovers; one from the Contractor to CSUG (DLC-Construction Startup Group) and one from CSUG to the OSUG (DLC-Operations Start-up Group).

The turnover to OSUG will be eliminated because the two startup groups will be combined into one Startup Group (SUG). This organizational change, however, will not eliminate the basic steps required to prepare the system for phase 2 testing. The Licensee plans to rewrite procedure FCP-51 to reflect this recent organizational change.

- 3.2.3 A turnover flow/decision tree diagram was developed and licensee/S&W representatives were requested to review the diagram for accuracy and provide corrections and/or additional information. The final version of the diagram will be used by NRC inspectors to improve the efficiency and effectiveness of their efforts.

3.3 Implementation Review

- 3.3.1 The inspector reviewed the piping stress reconciliation packages to determine if procedures with accept/reject criteria were being followed, if the stress reconciliations accomplished the objectives, if the results (including deficiencies) were reported and followed up, and if the stress reconciliations were separate from turnover walk-downs. It was noted that stress reconciliations are often conducted prior to turnover walkdowns. Stress reconciliation packages reviewed were in various stages of completion. The packages were Service Water System - Safeguard Tunnel (150 11107 Rev 2B), Solid Waste Systems - Auxiliary Building (C1-410-211 Rev 4), and Chemical and Volume Control - Auxiliary Building (C1 410-441 Rev 3).
- 3.3.2 Similarly, the official walkdown effort was reviewed. The inspectors also participated in an actual walkdown for a safety related piping subsystem of the Service Water System (SWS), with system release number 25R 30-1E. Representatives of the project parties, shown on release form number 4 (attachment to FCP-51) for piping installation participated actively in the walkdown. The walkdown team leader provided the inspector with a list of activities to be performed by the walkdown team. This list is not a part of an official walkdown procedure. The activities of the subject list are a check on completeness of piping/support installation and correctness of installation for in-line devices as well as a visual inspection of the general condition of this piping. The inspector noted that all team members performed the functions and activities of the list within their assignments.
- 3.3.3 The inspector participated in the identification of walk-down team members for earlier walkdowns for both types of piping walkdowns, i.e., the general walkdown presently performed under procedure FCP-51 and the verification of installed condition in accordance with procedure FCP-509.

Five examples were obtained under the former and three under the latter. These data were obtained to determine the qualification of the team members to perform these inspections.

3.4 Findings

3.4.1 The inspectors determined that the various walkdown groups performed inspections and examinations during official walkdowns that constituted final acceptance of systems for testing. The results of the system tests would then be basis for accepting these systems for operations (e.g., fuel load and startup). The inspectors identified that personnel participating in these walkdowns, other than those from QC and the Startup Group, were not certified as being qualified in accordance with the requirements of ANSI N45.2.6. This is contrary to the following.

- 10 CFR Appendix B, Criterion II, that states in part "The applicant shall establish...a quality assurance program... The program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained.
- FSAR Section 1.8 commits to ANSI N45.2.6-1978, which states in part in paragraph 1.3, Responsibility, "It is the responsibility of each organization...to assure that only those personnel...who meet the requirements of this standard are permitted to perform inspection, examination, and testing activities that result in or assure the attainment of quality," and in paragraph 2.2, Certifications, "Each person who verifies conformance of work activities to quality requirements shall be certified by his employer as being qualified to perform his assigned work."

The inspector stated that the failure to assure all assigned personnel were qualified and certification of the same is a violation (412/84-12-01).

3.4.2 A procedure for system and subsystem walkdowns was absent. Such a procedure would identify what is to be inspected, who is to participate in the inspection, what the qualification of the team members must be, etc. Without such a procedure, the walkdown may overlook items which will not be inspected again. Additionally, the lack of a procedure made it difficult to determine how many official walkdowns are required.

Documented criteria were also absent to judge the testability of a system or subsystem for phase 1 and 2 testing. The startup system engineer has to make a judgement on how many open items can be tolerated in a system without impairing the ability of the system to produce meaningful test results. Without a written guide the startup system engineer may allow the pressure of schedules and cost to dictate the acceptance of the system prematurely. This deficiency was previously reported as part of the unresolved finding 84-07-01 which is still open (see paragraph 2) and will be followed up in conjunction with that item.

- 3.4.3 The SWS subsystem walkdown was conducted and identified deficiencies were being reviewed for inclusion into the Exception Work Tracking List (EWTL). There is however, no procedure for official walkdowns.

Criteria for the review of operations which must be completed prior to turnover (to CSUG) are limited to the dictum that such items must be judged to be required by the responsible system engineer to perform meaningful proof tests (phase-1 testing).

- 3.4.4. It is possible to turnover (to CSUG) a subsystem for proof testing without having completed other subsystems of the same system. The subsystem, however, would be complete (apart from open items) with the I&C and Electrical Portion of the system.
- 3.4.5 Stress reconciliation efforts of the system piping may proceed in parallel with other turnover activities but is really keyed to fuel load. The results of the walkdown (FCP-509) are fed back to the EWTL but none of these items need to be considered for the turnover to CSUG. This walkdown is performed to "verify the installation condition of the piping."
- 3.4.6 There were no completed stress reconciliation packages i.e., packages that have been formally approved by S&W Engineering in Boston, MA. S&W Engineering on site (Site Engineering) has approved and submitted to Boston over 80 stress packages as of August 24, 1984. Formal approval is not a cause for delay of work because S&W Engineering, Boston is required to advise the Site Engineering of any concerns within two days from receipt of the individual stress package.
- 3.4.7 Dimensional checks are performed on the piping and its supports to verify that as built conditions agree with piping drawings and piping/support design criteria within acceptable limits.

4. QA/QC Interface and Overview Activities

4.1 References/Requirements

- FSAR Chapter 17, Quality Assurance
- SQC 6.1, System/Area Release
- IP 7.20, Piping System Walkdown
- IP 8.12, Installation of Electrical Equipment

4.2 Program and Implementation Review

The procedures listed in 4.1 were reviewed, discussions and interviews were held with personnel, various activity logs and reports were reviewed, and the plant was toured to observe QA/QC overview of ongoing activities. The foregoing was to determine the level of overview effort. Staffing, scheduling of overview activities and quality trending were also reviewed.

4.3 Findings

- 4.3.1 The Site QC group, whose director reports to the Manager of QA, conducts the inspection and surveillance overview of turnover activities and participates in the various walkdowns. The more than 200 members of the Site QC group are employees of onsite major contractors, independent consultant companies, or the architect-engineer, however, they are under direct contract to the licensee's QA Unit. The Manager of QA provides not only technical direction but administrative functions such as hire/fire, promotions, and performance appraisals. All QC personnel have completed a formal onsite QC training program and are certified to appropriate ANSI N45.2.6.-1978 and/or SNT-TC-1A requirements. The members of the Site QC Group who were interviewed and/or observed, during the inspection, were found to be knowledgeable and qualified.
- 4.3.2 The QA Audit group conducted an audit in 1983 and another in 1984 of activities associated with the turnover of systems. Additionally, the 1984 Cooperative Management Audit addressed the construction startup group. These audits were determined to provide adequate QA overview for the level of turnover activities to date.
- 4.3.3 The QA audit and QC groups perform trending analyses on their respective findings separately. These trend analyses, and another of NRC findings, are included in the semi-annual QA report that receives wide distribution. The licensee acknowledged that these trending analyses were almost entirely quantitative, lacked a weight factor as to significance (i.e., qualitative analysis), were not integrated to present a composite conclusion, and did not provide a summary that would be useful to a senior management.

It was noted however that when negative QC trending results were observed, the Chairman of the Trending Analysis Committee had a group discussion with the discipline QC Engineers. These discussions identify the causes of deficiencies and reasons for the trend. Minutes of these discussions are provided to the Corrective Action Committee who ensure appropriate action is taken and escalate any problems to the Senior Management Corrective Action Panel. This panel performs an evaluation function, provides analyses of problems and recommends resolutions.

No violations were identified.

5. Management Meetings

License management was informed of the scope and purpose of the inspection at an entrance interview conducted on September 7, 1984. The findings of the inspection were discussed with licensee representatives during the course of the inspection. An exit interview was conducted on September 14, 1984 at the conclusion of the inspection (see paragraph 1 for attendees) at which time the findings were presented to licensee management.

At no time during this inspection was written material other than the turnover flow/decision tree diagram provided to the licensee by the inspectors.