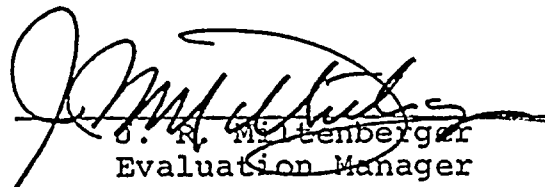


SELF-INITIATED EVALUATION
OF PENNSYLVANIA POWER AND LIGHT'S
SUSQUEHANNA UNIT TWO PROJECT

FOLLOWUP
REPORT


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Followup report on action items identified during the self-initiated evaluation of Pennsylvania Power and Light's Susquehanna Unit Two Project.

1. Major items from report summary

The report summary cited four weaknesses that merited prompt attention. One of these was resolved in the report. The remaining three are discussed below.

1.1 Cable Voltage Verification

Item:

The installed length of electrical control cables was observed to be consistently about 40% greater than the scheduled (design) length. Verification calculations have not been performed to ensure that the as-installed cables will meet the design voltage limits. A Deficiency Report (Serial 0141) has been submitted by PP&L directing Bechtel to correct this situation.

1.1.1 Cable Length

The observations by the evaluation team were correct. The cable lengths are in fact longer than the scheduled lengths in many cases. This occurs because the scheduled lengths shown on the pull cards are rough estimates generated by computer from the raceway and conduit plans. Unlike raceways, which are precisely dimensioned, conduits are normally specified to go from point to point. The actual routing is left to the discretion of the field personnel and is frequently longer than the point to point length generated by the computer.

In February of 1981, PP&L and Bechtel agreed that the length used for design and verification of cable length would be the as-installed length of the via path (i.e., the sum of the raceways and conduits). The as-built conduit lengths are reported to the design office at San Francisco where they are used to correct the scheduling lengths. The resulting "released" length is used for design verification calculations. Therefore, the fact that the observed cable lengths were longer than the scheduled lengths on the pull cards does not affect the design verification process. The relevant figure is the final released length, which should accurately reflect the installation.

1.1.2 Design Verification

Following the INPO Self-Initiated Evaluation, PP&L Quality Assurance investigated the cable design verification question. On November 4, 1982, PP&L Nuclear Quality Assurance issued Deficiency Report 0141 to Bechtel. The situation was defined as potentially reportable per 10CFR50.55(e) and on December 15, 1982 a description of the deficiency was forwarded to the NRC.

The current status is summarized in PP&L's interim report to the NRC dated July 15, 1983.

"CORRECTIVE ACTION

Bechtel Construction Engineering has provided a complete list of cables added or revised from May 1, 1981 to October 25, 1982. The list of 2478 Unit 2 cables was used to ensure a complete cable review and included both safety related and affiliated power and control cables. Each cable was reviewed against the requirements of Bechtel Cable Length Verification Procedure EDPI 2.16.1, Rev. 1. All cables added or revised after November 22, 1982, were reviewed during ongoing design using EDPI 2.16.1, Rev. 1 requirements.

Bechtel Engineering completed the review and required documentation by April 1, 1983, as stated in the previous report. However, in order to satisfy concerns raised by PP&L Engineering, PLNQA/NPE conducted an audit of Bechtel San Francisco Home Office on June 13-17, 1983, to verify corrective action implementation. This audit identified that the existing documentation for the design and verification of power and control cables for the period cited is inadequate. Additional corrective action by Bechtel is required. This additional corrective action is expected to be completed by October, 1983, in response to the PP&L Quality Assurance audit.

PP&L has requested that Bechtel Engineering provide a monthly update of their corrective action implementation progress. This update will continue until PP&L has an adequate degree of confidence that the subject procedures are being properly implemented.

Review of the results of the additional corrective action required will permit a final conclusion on the reportability of the condition. To date, no case has been determined where a Class 1E or Affiliated Class 1E circuit would not adequately perform its safety function."

(This responds to findings DC 2-1, 2-2, 3-2 and CC 4-1, found in the body of the evaluation report)

1.2 Pipe Hanger Program

Item:

In process inspections of pipe supports (hangers) conducted by production supervision have not been effective in ensuring that an acceptable product is presented to Quality Control for final inspection. An excessive percentage of pipe supports is being rejected by Quality Control.

At the time of the evaluation, the Unit Two hanger program was just getting started and the project was experiencing a hanger rejection rate of about 80%. A corrective action program was implemented which essentially reversed the figures. The project went from about 80% rejection to about 75% acceptance of hangers by Quality Control on initial inspection.

As of 8/1/83, the hanger installations are essentially complete.

(This responds to findings CC 5-2, 6-1 and QP 4-2, found in the body of the evaluation report)

1.3 Change Tracking Between Units

Item:

No formal project-wide program covering both Bechtel and PP&L exists to ensure that changes to Unit One are evaluated for applicability to Unit Two and vice versa. (The analysis is being made individually by the various disciplines without central direction). No comprehensive set of records exists, showing the precise disposition of each Unit One change with respect to Unit Two or each Unit Two change with regard to Unit One.

The report stated,

"The finding is technically correct. Change applicability between the two units is handled by the responsible disciplines and no project-wide program exists. However, PP&L has a high

degree of confidence that the functional configuration of the two units is the same. This is based upon an extensive review of all change authorizing documents conducted over the past year, and upon the results of spot checks such as the one made during this evaluation. In the judgement of PP&L, it would not be cost effective to launch a comprehensive change tracking system at this stage of the project.

However, PP&L is in the process of upgrading the NPE Engineering Procedures Manual. Specific provisions are being included to ensure that all modifications are evaluated for unit applicability. The mechanics of tracking the modifications vis-a-vis both units for the long term are being developed. They will be in place by the time that design responsibility for Unit Two is accepted by NPE."

As of August 1, 1983 the procedures are not in place. However, PP&L has not yet accepted design responsibility for Unit Two.

(This responds to finding DC 5-1 in the body of the evaluation report)

2.0 Specific Items from the Body of the Evaluation Report

The following items which were not addressed in Paragraph 1 above are of interest. To facilitate review, the finding is quoted. However, the response or explanation from the basic report is not repeated.

2.1 The following items have been corrected:

Finding Time is wasted transferring 480 V circuit breakers
(CC 2-1) from Unit 2 to Unit 1 for testing.

A Unit Two circuit breaker test shop has been provided.

Finding Conditions exist in the Hazardous Waste Storage
(PS 1-1) area that can contribute to unsafe conditions as
noted below:

- a. Access not controlled except on day shift.
- b. Gates in fence have been removed.
- c. There is no phone in the area to summon aid in case of emergency.

- d. Waste oil storage tanks are in close proximity to heavy crane lifts. Failure of the crane could result in rupture to the tank and allow stored oil to leak into the sediment pond. (See Detail 3)

A new hazardous waste facility has been constructed.

Finding (OA 3-1) Some PP&L personnel are not able to describe their authorities and responsibilities and these are not documented in some cases.

The case in point was the Nuclear Plant Engineering (NPE) On-Site Supervisor. The duties and responsibilities of the NPE On-Site Supervisor have been defined in a charter signed by the Manager-NPE.

Finding (TC 4-1) The possibility exists that test or retest requirements may be missed when work is done on systems turned over to the ISG. No mechanism exists to ensure that all Work Authorization Documents involving an ISG system are reviewed by the cognizant ISG System Engineer. (Detail 1)

Control of Work Authorization documents from all sources is adequately specified by Startup Procedure AD 6.17, Rev. 1.

2.2 The following items are being monitored:

Several of the findings involved problems which are more or less continuous in nature. Specific fixes were cited in the report. However, PP&L recognizes that these problems will not be solved by issuing a piece of paper and we are attempting to monitor compliance on a continuous basis. We believe that our program has been satisfactory although occasional exceptions occur.

Specific items in this category are:

Industrial Safety

Finding (PS 1-2) Personnel safety procedures are not always strictly adhered to. Nine (9) examples of personnel failing to wear protective equipment (safety glasses and hard hats) were noted. (See Detail 2)

Finding (PS 1-3) Some facilities were not maintained in accordance with good safety practices. Nine (9) examples of tripping hazards, protrusions into walkways, and inadequate lighting were noted. (See Detail 3)

Maintenance of Installed Equipments

Finding (CC 3-1) Some installed equipment (Control Panels, Motor Control Centers, Electric Motors) are not being maintained in accordance with equipment maintenance procedures. Some are without covers, heat or both.

Finding (CC 6-3) Bechtel Construction has not taken sufficient corrective action to eliminate the cause of repeated violations of the installed equipment maintenance program. (See evaluation details 6-7)

Protection of Equipments

Finding (CC 4-2) Equipments and systems were not always properly protected from possible damage or contamination by nearby construction activities.

Use of Uncontrolled Drawings

Finding (CC 4-3) Work was sometimes conducted using drawings that were not up to date or which were not properly controlled.

Finding (PS 6-1) Managers and Supervisors are not always enforcing requirements for the control and use of appropriate design documents during construction. Several instances were identified where drawings used for construction were either uncontrolled copies, were not for construction use as defined by procedure, or were not the latest design revision. (See evaluation details 1-3)

Response to Quality Action Requests

Finding (CC 6-2) Bechtel Quality Action Requests (QARs) issued by QA to solicit corrective action from Bechtel Construction and/or QC are not being responded to in a timely manner to provide either interim or final corrective action taken to resolve the conditions identified. (See evaluation detail 5)

2.3 The following items remain open:

Finding (QP 4-3) PP&L has not implemented a formal trending program to identify quality problems (Detail 6)

The report stated:

"Paragraph 4.2 of Quality Assurance Manual Procedure 3.1, Managerial Reporting of

Quality Assurance Status states that NQA-Supervisors are responsible for reporting to the Manager-NQA on a monthly basis, the status of QA activities, including the development of any quality trends that may affect program effectiveness. Trend analyses are performed and frequently appear in the Quality Assurance Monthly Report. However, no definitive instruction for trend analysis exists. NQA has been aware of this need for some time and is developing a trend analysis program as resources permit."

As of 8/1/83, this action has not been completed.

