

PP&L

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October 6, 1980

Mr. Robert T. Carlson
Chief RC & ES Branch
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

SUSQUEHANNA STEAM ELECTRIC STATION
NRC INSPECTION OF JULY 8-11, 1980
REPORT NO. 50-387/80-17 & 50-388/80-11
ERs 100450/100508 FILE 840-4
PLA-553

Dear Mr. Carlson:

Reference is to your letter of August 15, 1980 which forwarded IE Inspection Report. 50-387/80-17 and 50-388/80-11 "Appendix A, Notice of Violation".

Your letter advised that PP&L was to submit, within thirty (30) days of receipt, a written explanation addressing (1) corrective steps which have been taken and results achieved, (2) corrective steps which have been taken to avoid further items of noncompliance, and (3) the date when full compliance will be achieved.

The Notice of Violation (Infraction) states as follows and the corrective measures are detailed below:

10CFR50, Appendix B, Criterion V, states, in part, that: "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings...and shall be accomplished in accordance with these instructions, procedures, or drawings."

The Susquehanna PSAR, paragraph D.3.3.3, states, in part, that: "General procedures for carrying out...construction are contained in the following...documents...Bechtel general and technical engineering standards...."

The Bechtel Technical Specification for Forming, Placing, Finishing, and Curing Concrete, 8856-C-8, paragraph 18, Inspection states, in part, that: Inspection of all work...shall include the following:

- a. Inspection of forms...joints, cleanups, waterstops... prior to concrete placement.
- b. Inspection of concrete, after form removal, for rock pockets, grout leaks, and other imperfections.

Contrary to the above, on July 8, 1980, loose debris was observed in the construction joint of concrete placement 391-W-21 at approximate elevation 702', azimuth 142° - 30', in the Unit No. 2 primary



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containment. The debris caused an imperfection approximately 4 feet in length by 1 1/2 inches in height and in excess of 3 inches in depth. The Field Inspection Plan C-8, 1, 2, 3, - 391-W-21 indicates that satisfactory preplacement cleanliness inspection was performed and that no post placement inspection was made.

This is an infraction.

(1) CORRECTIVE STEPS WHICH HAVE BEEN TAKEN AND THE RESULTS ACHIEVED:

An investigation of the circumstances surrounding the failure by QC to perform post placement inspection of Unit #2 containment concrete placement 391-W-21 and the cause of the deficient construction joint revealed the following:

- Post placement inspection record C-8-3C-391-W-21 was closed prior to the performance of the required inspection. A notation on the IR stating "upon complete removal of forms an inspection will be made and repairs, if necessary, will be documented on...." was intended to provide a cross reference to a new post placement IR on which the inspection should have been documented. A cross reference IR number was not provided, the original IR was closed, and the existing joint condition is mute testimony that the inspection was not done.
- It was determined that pre-placement construction joint cleanup progressed radially outward from the liner plate to the forms, with any debris being forced against the forms and removed through clean out "windows" provided in the forms.

Failure to remove all debris through the clean out "windows" caused the construction joint condition noted by the NRC inspector.

In process rework notice 4240 was issued to document and control the condition identified by the inspector and allow for repair of the construction joint for placement 391-W-21. Simultaneously, a supplemental IR C-1.40-391-W21-B, which will be attached to the original inspection record (C-8-3C-391-W-21), was opened to document Bechtel QC's post-placement inspection activities. In addition, Bechtel Field Engineering will issue a Concrete Defect Report for the repair of the construction joint for placement 391-W-21 documenting their assessment of the condition of the construction joint (i.e. sound, acceptable) prior to dry pack or concrete replacement.

(2) CORRECTIVE STEPS WHICH HAVE BEEN TAKEN TO AVOID FURTHER ITEMS OF NONCOMPLIANCE:

In an effort to assure that all post-placement inspection has been and will be performed and in order to determine the effectiveness of past Quality Control pre-placement inspection, Bechtel field forces proceeded in the following manner:

- Field Engineering reviewed all concrete defect reports prepared for the repair of containment concrete placements in order to determine if debris at the construction joint was the cause of any other defects and to evaluate the circumstances which led to the failure to remove debris at the time of pre-placement inspection.



- QC reviewed all (1500) Field Inspection Plans and Inspection Records in the QC vault for instances of premature closeout of the inspection documents. This is a condition similar to that identified by the NRC inspector prior to performance of the actual post-placement inspection.
- QC performed post-placement inspection of all containment placements that were identified during the above record review as not having been inspected.

The results of Field Engineering's review identified one defect in concrete placement 391-W-01 at azimuth 345°, elevation 701'-11" in Unit #1 that had already been repaired and which was caused by an improperly cleaned construction joint. This defect is similar to one observed at the same elevation in Unit 2 by the NRC inspector, and was located in one of the most inaccessible locations in the Containment Building. There was limited access to this joint location from the inside of the wall (once the forms were erected) due to dowels for the diaphragm slab, containment penetrations and trim steel for the penetrations. At this location, the construction joint was prepared prior to form erection and only the final cleaning (washdown) was made with restricted access. Based on the above evaluation, it is concluded that preplacement cleanliness inspection and debris removal for containment concrete placements was performed adequately, with the exception of inaccessible portions of construction joints at Elevation 701'-11" in Units 1 and 2. It appears that the defects at the two construction joints, placements 391-W-01 and 391-W-21 at elevation 701'-11" appear to be isolated instances of poor pre-placement cleanup due in part to poor accessibility during preplacement cleanup operations.

The results of the QC post placement inspection of Unit 1 and 2 containment concrete placements revealed a defect at Elevation 721'-10" in Unit 2. The probable cause of this defect has not yet been determined.

The results of the QC FIP/IR review revealed that 240 post placement records for areas other than the Units 1 and 2 Containments had the same notation that was identified by the NRC inspector on IR C-8-3C-391-W-21. In each instance the preplacement inspection record for the cleanup operation contained a cross reference to a new IR; however, new IRs were never issued and the required post-placement inspections were not performed. For all such records, new IRs have been opened and upon completion of inspection and closure, the IRs will be attached to the respective inspection documents as a supplemental inspection record. These actions will assure accomplishment of the required post placement inspections. In addition, for those areas outside Unit 1 and 2 containment, which are determined to have major defects, Project Engineering will perform an evaluation of the defects on a case by case basis.

Furthermore, to prevent premature closeout of post-placement concrete inspection IRs in the future, the lead civil Quality Control engineer issued a memorandum on September 3, 1980 instructing QCEs not to close the post placement inspection records until form removal and post placement inspections are complete.

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(3) DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:

Post placement inspection by Quality Control for the open IRs relating to areas other than Containment Buildings, Unit 1 and 2 and Project Engineering's evaluation, if any, is anticipated to be completed by 1/81.

Concrete repairs for Unit 2 Containment are anticipated to be completed by November 1, 1980.

Additional assurance of the adequacy of construction joints for Unit 1 Containment is evidenced by the successful completion of the Structural Integrity Test (SIT). All major defects identified and repaired in accordance with Spec C-8 for the Unit 1 Containment were evaluated by Project Engineering and determined not to have invalidated this test.

We trust the Commission will concur that the actions taken to date are adequate.

Very truly yours,



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JRB:mcb

cc: Mr. Robert M. Gallo
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