U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-440/85-03(DRS); 50-441/85-03(DRS)

Docket Nos. 50-440; 50-441 Licenses No. CPPR-148; CPPR-149

Licensee: Cleveland Electric Illuminating Company
Post Office Box 5000
Cleveland, OH 44101

Facility Name: Perry Nuclear Power Plant, Units 1 and 2

Inspection At: Perry Site, Perry, OH

Inspection Conducted: January 15-17, 1985

Inspector: K. D. Ward 1/29/85
Date

Approved By: D. H. Danielson, Chief 1/29/85
Materials and Processes Section Date

Inspection Summary

Inspection on January 15-17, 1985 (Reports No. 50-440/85-03(DRS); 50-441/85-03(DRS))
Areas Inspected: Unannounced special safety inspection to review 10 CFR 50.55(e) items and allegations. The inspection involved a total of 19 inspector-hours by one NRC inspector including seven inspector-hours during off-shifts.
Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Cleveland Electric Illuminating Company (CEI)

*E. Riley, General Supervisor
*R. Solt, Unit Supervisor
*K. Kaplan, Senior Engineering Technician

Gilbert Associates, Incorporated (GAI)

*G. Parker, Unit Supervisor
*R. Matthys, Lead Piping

Pullman Power Products (PPP)

J. Miller, QA Manager

The inspector also contacted and interviewed other licensee and contractor employees.

*Denotes those present at the exit meeting.

2. Licensee Action on 10 CFR 50.55(e) Items

a. (Closed) 50.55(e) Item (440/83-19-EE; 441/83-19-EE) DAR 140. Westinghouse Electric Corporation supplied Class 1E electrical penetrations to the Perry Nuclear Power Plant (PNPP) under procurement specification 563. This specification requires that materials for pressure retaining parts of the electrical assembly be in accordance with ASME Section III, Subsection NE. Twenty-six penetrations were identified containing bulkhead material of indeterminate status relative to procurement requirements of ASME Section III. The inspector reviewed the final report dated July 26, 1984, DAR, NCRs, & related documentation.

A review of the procurement and handling history of the material was made by Perry Nuclear Power Plant Project personnel during a September 21, 1983, meeting with Westinghouse. It was concluded from that meeting that ASME Code Case N242 could be utilized. Confirmation that the bulkhead material was that as prepresented by the material test report was needed. Because all bulkhead material in question was from one material heat number, samples were removed from three of the affected penetrations and a chemical analysis performed. Review of the results of the chemical analysis by Project Organization and the inspector confirmed that the material is as represented by the original material test report. With these results, it was the licensee's intention to utilize ASME Code Case N242 for the bulkhead material. Engineering Change Notice 21802-563-05 has been initiated to revise the original procurement specification to permit the use of the Code Case

and documentation updated as required. The additional requirements identified in the NRC Regulatory Guide 1.85 for use of the Code Case was complied with.

Project Organization Nonconformance Report OPQC 480 had been written to identify the indeterminate status of the bulkhead material and is now closed. The inspector agreed with the licensee action and considers this action closed.

b. (Closed) 50.55(e) Item (440/83-24-EE; 441/83-24-EE) DAR 148. Defective capstan spring in mechanical snubbers. The inspector reviewed the final report dated June 29, 1984, an update to the final report, NCRs and related documentation. All affected snubbers were sent to Pacific Scientific Company (PSC) for rework and recertification and all were returned to the site. A total of 287 snubbers were within the scope of this deficiency.

The inspector agreed with the licensee action and considers this action closed.

c. (Closed) 50.55(e) Item (440/84-01-EE) DAR 153;
(Open) 50.55(e) Item (441/84-01-EE) DAR 153.
Borg-Warner motor shaft keys are too long. The inspector reviewed the final report dated June 14, 1984, NCRs and documentation related to the item.

All Unit 1 valves supplied by Borg-Warner which utilize stem keys have been inspected for the subject condition. Three valves with discrepant stem keys were identified on Nonconformance Reports. No additional cases of improper stem keys were found. The three discrepant valves have been repaired and the corresponding Nonconformance Reports are closed out.

The indeterminate status of the Unit 2 Borg-Warner valves which utilize stem keys has been documented on Nonconformance Report OPQC 727. Unit 2 work will be completed consistent with the Unit 2 construction schedule. The inspector agreed with the licensee action and considers the item for Unit 1 closed.

d. (Closed) 50.55(e) Item (440/84-04-EE; 441/84-04-EE)DAR 156. On January 9, 1984, Transamerica Delaval, Inc. (TDI) filed a 10 CFR 21 notification with the NRC relative to a problem identified with flexible coupling drive hubs which were found loose on the shafts in the Overspeed Governor and Engine Driven Fuel Oil Pump Drive on a non-nuclear commercial engine installation manufactured by TDI. The inspector reviewed the final report dated July 27, 1984, Part 21 Letter, NCRs and other related documentation.

Upon receipt of the TDI notification, Nonconformance Report TAS-0074 was initiated to track resolution of this problem and transmit the inspection/rework program recommended by TDI in Service Information Memo NBR 363 to the site contractor. The required corrective action has now been completed for Units 1 and 2 engines.

The inspector agreed with the licensee action and considers this item closed.

e. (Closed) 50.55(e) Item (440/84-13-EE; 441/84-13-EE) DAR 171; Fourteen ASME piping tees were found to have excessive thickness. The inspector reviewed the final response dated April 27, 1984, NCRs, surveillance report and other related documentation to the item. In addition, the results of the block forged tee analysis was reviewed and found to be acceptable.

A review of documentation and filed inspections by the licensee identified a total of fourteen block forged fittings in ASME Class 1 piping systems and these have been identified in site Nonconformance Reports. The four fittings found in the E32 MSIV Leakage Control System were replaced immediately due to the ready availability of acceptable replacement fittings and the difficulty of qualification analysis.

The licensee performed an evaluation of the effects of the block forged fittings supplied for use in the G33 Reactor Water Cleanup and N22 Main Steam Drain Systems. This involved the use of two-dimensional heat transfer analyses to provide thermal data which could then be used to perform ASME Class 2 fatigue analyses. Both stress and fatigue evaluations were performed using ASME Section III, NB-3600 analytical techniques. The component geometries used in the evaluations were taken from samples of the fittings in question. The results of these evaluations are as follows:

> While the detailed thermal analysis of the four G33 fittings indicated an increase in thermal stress due to the block forged geometry, the calculated fatigue usage factors were still well below the ASME Code allowable of 1.0. These fittings may be used "as-is".
>
> Thermal analysis of the six N22 fittings also showed increases in the thermal stress due to geometry. While revised stress evaluations have shown that the fatigue usage factors are still well below ASME Code limits, they are very close to the NRC break exclusion limits applicable to this piping subsystem. As a result, the Owner has chosen to rework these fittings by grinding to reduce the excess wall thickness in the transverse cross-section, thereby providing additional margin for future reanalysis.

The inspectors agreed with the licensee action and considers this item closed.

f. (Closed) 50.55(e) Item (440/84-15-EE; 441/84-15-EE) DAR 175. Potential defect in two piston skirt castings. The inspector reviewed the final report dated October 25, 1984, NCRs and other related documentation.

The two spare "type AN" pistons have been returned to Transamerica Delaval (TDI) and dispositioned as "scrap". They were replaced by properly heat treated "type AE" pistons.

The inspector agreed with the licensee action and considers this item closed.

g. (Closed) 50.55(e) Item (440/84-21-EE) DAR 182;
(Open) 50.55(e) Item (441/84-21-EE) DAR 182.
Inadequate weld documentation and questionable welds on equipment hatch for the drywell. The inspector reviewed the final response dated December 13, 1984, and related documentation to the subject.

The designer/fabricator, NNIV, evaluated the conditions identified on the noncomformance reports (NRs) to determine if the 10% magnetic particle examination's (MT) as performed, was adequate to ensure the structural integrity of the assemblies. It was determined that the 10% MT would not be sufficient. In preparation for the required 100% MT, it was necessary to perform a 100% visual examination (VT) of all welds, record all rejectable defects, and remove them entirely regardless of their depth. Where this excavation resulted in removal of material which exceeded design allowables, the excavation was VT'd and MT'd to ensure complete removal of the defect and the area repaired by welding. After all welds were visually acceptable, all welds were then 100% MT'd and repaired as necessary. With respect to the required radiographic examination (RT) of the full penetration butt welds, it was determined that the welds were not RT acceptable and would have to be repaired or replaced. In lieu of completely excavating all of the full penetration welds, rewelding, and performing the required RT, NNIV redesigned the stiffener configuration and eliminated the full penetration welds. This redesign resulted in the complete physical removal of all of the full penetration butt welds and the installation of doubler plates across the faces of the stiffener flanges. These plates were attached to the stiffeners using fillet welds which received 100% VT and MT. The work described above, and all related documentation, has been completed for the Unit I Equipment Hatch Cover and the inspector considers this item closed. The Unit 2 work will be completed consistent with the Unit 2 construction schedule.

h. (Open) 50.55(e) Item (440/84-48-EE; 441/84-48-EE) DAR 213. Failure of a Borg-Warner gate valve to properly operate. This item is still being investigated and may be completed March 1985.

4. (Closed) Allegation No. RIII-84-A-0183

On December 11, 1984, a Region III project inspector was called by a welder/fitter who works at Perry for Pullman Power Products (PPP) (piping contractor). The welder indicated that he had a pipe support concern. The following is a summary of the welder's concerns:

Allegation

Pipe Support 2G42H001 (suppression pool clean up system) was not installed as required. The following discrepancies were noted:

- Welders were not qualified to perform heavy wall weld (weld was stated to be 2" thick).
- No preheat was used to weld base plates together.
- Weld rod 7018 was used to weld stainless steel pipe to a carbon steel saddle when 309 rod should have been used.
- No preheat was used on saddle to pipe weld which may gave resulted in damage to the pipe.

The welder stated that he had brought this problem to the attention of several people and received no satisfactory answer or indication that the support will be corrected. However, he did state that a hold tag was placed on the support due to one or more of the discrepancies listed above. The welder did not believe the hold tag or subsequent action by the contractor (Pullman) would correct the problem.

NRC Findings

The inspector visually examined pipe support 2G42H001, related documentation and interviewed Pullman personnel. This nonsafety-related pipe support was fabricated during October and November 1984, in accordance with ANSI B31.1.

Nine welders performed the welding of the heavy wall 2" weld. Two welders were qualified to 2" thick material and three welders were qualified to weld up to and including 1" thick material. They were all qualified to ASME Section IX. There were two, 2" thick plates welded together with the weld being 3'-7" long. It took the five welders several days on two shifts to weld this area. It is permitted to "stack weld," allowing more than one welder to weld in this area; therefore, no welder came near to welding 2" thick material. This part of the allegation was substantiated. However, the allegation concerned a nonsafety-related pipe support. Further, because of the stack welding, no one welder came near to welding 2" thick material, this item is considered acceptable.

A Pullman QC inspector did observe preheat at one time and a "rosebud" heating torch tip in the area at several occasions. Since this is a nonsafety-related item, the observation by Quality Control of preheat was not required. It is the responsibility of welders to follow the procedures and drawings. In inspecting the support the inspector did not observe any warpage and all the welds were viewed as being acceptable. This part of the allegation could not be substantiated.

As a result of the alleger bringing this problem to the attention of the licensee, a magnet was used to verify that stainless steel or carbon steel weld material was used to weld the stainless steel pipe to a carbon steel saddle. It was found that the ends of the saddle that were welded to the pipe were aceptable but where the two halves of the saddle are welded together it was found that the welds were magnetic which is unacceptable. It was decided by the licensee on approximately December 16, 1984, that the two welds that are magnetic would be removed and two stainless welds would be welded in their place. A deficiency report was written and rework was presently being scheduled. In reviewing the weld rod stores requisition slips, weld rod E309L-16, ER30L-L, E7018, E70S-2, ER70S-2 and E6010 were used on several welds on the pipe support. This part of the allegation was substantiated, but because Pullman had made the decision to cut out the unacceptable welds prior to the visit of the NRC, this action is considered acceptable.

No preheat was used on the saddle to the pipe because the saddle was 3/4" thick and the applicable Code does not require preheat for this thickness. This part of the allegation was substantiated but because preheat was not required, this action is considered acceptable.

The QA Manger of Pullman informed the inspector that an individual made him aware of the above problems and was told that the welds would be cut out and that preheat was not a concern. The QA Manager could not remember the date. There was a hold tag on the two maxi-bolts in one of the 2" plates because of problems with the bolts only. This hold tag did not relate to the welding concerns mentioned above.

This allegation is considered closed.

4. Exit Interview

The inspector met with site representative (denoted in Paragraph 1) at the conclusion of the inspection. The inspectors summarized the scope and findings of the inspection noted in this report.