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

Region I

Report No. 50-352/80-12
50-353/80-10

Docket No. 50-352
50-353

License No. CPPR-106
CPPR-107 Priority -- Category A

Licensee: Philadelphia Electric Company

2301 Market Street

Philadelphia, Pa. 19101

Facility Name: Limerick Generating Station, Units 1 & 2

Inspection at: Limerick, Pa.

Inspection conducted: June 16-27, 1980

Inspectors: J. C. Mattia — AUG. 1, 1980
J. C. Mattia, Senior Resident Inspector — date signed

G. Walton — Aug. 19, 1980
G. Walton, Reactor Inspector — date signed

S. Reynolds — August 13, 1980
S. Reynolds, Reactor Inspector — date signed

E. Jernigan — August 13, 1980
E. Jernigan, Reactor Inspector — date signed

S. Chaudhary — August 20, 1980
S. Chaudhary, Reactor Inspector — date signed

Approved by: R. W. McGaughy — August 26, 1980
R.W. McGaughy, Chief Projects Section, Reactor Construction and Engineering Support Branch — date signed

Inspection Summary:

Inspection on June 16 - 27, 1980 (Report Nos. 50-352/80-12)

Areas Inspected: Routine, unannounced inspection by regional based inspectors and the resident inspector of work activities and records relative to: safety related pipe erection and storage activities; electrical cable termination and testing; licensee and A/E QA audits of site activities; reactor vessel internal installation activities; review of heating, ventilating and air conditioning subcontractor's activities; NRC independent measurements; review of contractor's control of design changes and as-built drawings; and control rod system activities. The inspection involved 208 inspector hours by the regional based inspectors and the resident inspector.

Results: Of the nine areas inspected, no items of noncompliance were identified in six areas; six apparent items of noncompliance were identified in three areas. (Deficiencies: -- failure to properly qualify an heating, ventilating and air conditioning (HVAC) QC inspector -- para. 19a; failure to maintain the proper setting of electrode storage oven and having inaccurate thermometers -- para. 19b; failure to follow procedures for field construction drawings (ZC) -- para. 16.a; failure of the HVAC subcontractor to follow his QA program audit requirements -- para. 19b Infractions: failure of supplier to record and inspect weld repair to coped area of structural beam -- para. 15; failure of HVAC subcontractor to follow design drawings requirements for installation of duct support inside containment -- para. 18.)

Unit 2 Inspection on June 16 - 27, 1980 (Report No. 50-353/80-10)

Areas Inspected: Routine, unannounced inspection by regional based inspectors and the resident inspector of work activities and records relative to: pipe storage, electrical cable termination testing and licensee and contractor QA audits of site activities. The inspectors also performed plant tours. The inspection involved 60 inspector hours by the regional based inspectors and the resident inspector.

Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

Philadelphia Electric Company

* W. Boyer, Senior Vice President
* J. Clarey, Construction Project Manager
* D. Clohecy, QA Engineer
* J. Conrad, Technical Assistant
* J. Corcoran, Field QA Branch Head
* D. DiPaolo, QA Engineer
  J. Fedick, Construction Engineer
* F. Gloeckler, QA Engineer
* J. Lauderback, QA Engineer
  D. Marascio, QA Engineer
  R. Scott, Lead Construction Engineer
* H. Walters, QA Manager

Bechtel Power Corporation

* T. Altum, Supervisor Field Weld Engineer
* A. Arch, Assistant Project Field Engineer
* C. Berezich, Lead Subcontracts Engineer
  W. Dickey, QC Engineer
* B. Dragon, QA Engineer
* T. Fallon, Assistant Project Field QC Engineer
* R. Faust, Subcontracts Engineer
* H. Foster, Project Field QC Engineer
* R. French, Field Contract Administrator
* M. Held, QC Engineer
* J. Honer, Subcontracts Engineer
* M. Iyer, Resident Project Engineer
  A. Jackim, QC Engineer
* G. Kelly, QA Engineer
* E. Klossin, Project QA Engineer
* R. Leingang, Assistant Project Field Engineer
* J. Martin, QA Engineer
  W. Nastiuk, QC Engineer
* J. Reiney, Project Construction Manager
* M. Tokolics, QA Engineer
* A. Weedman, Project Field Engineer
* R. Yancy, Subcontracts Engineer

Schneider, Inc.

H. Kilmartin, Division Manager
L. Tsaggaris, Corporate Quality Assurance Manager
* J. Archer, Project Manager
* T. Lewis, QC Supervisor
J. Hershberger, Project Engineer

General Electric Co. (NEBG & I & SE)

F. Eaton, QA Manager (I&SE)
W. Lynn, Site Manager (I&SE-Electrical)
R. Manl, Field Engineer (I&SE-Electrical)
* E. McArdle, Site Manager (I&SE-Mechanical)
* W. Neal, Resident Site Manager (NEBG)
L. Piutti, QA Representative (NEBG)
J. Smith, QA Specialist (I&SE)
E. Urick, QA Specialist (I&SE)

Reactor Controls, Inc.

* K. Aspinwall, QC Supervisor
* L. Eddinger, QC Supervisor

*Denotes those present at exit interview.

Other Accompanying Personnel
A. Sassani, NRC, Region I

2. Plant Tour - Units 1 & 2

The inspector observed work activities in progress, completed work and the plant status in several areas of the plant during a general inspection of the plant. The inspector examined work for any obvious defects or noncompliance with regulatory requirements or license conditions. Particular note was taken of presence of quality control, evidence such as inspection records, material identification, housekeeping and equipment preservation. The inspectors interviewed, when appropriate, craft personnel, craft supervision and QC personnel in the work areas.

No items of noncompliance were identified.

3. Review and Inspection of Reactor Core Internals Repairs (Unit 1)

Reactor Controls Inc. (RCI) is conducting specific repairs in accordance with GE FDDR's to rectify workmanship and quality problems in the Sun Shipbuilding fabrication of the core internals. This item was previously discussed in Inspection Report 352/80-07.

a. The inspector reviewed applicable RCI welding procedure specifications (WPS), welding procedure qualification records (PQR), weld data sheets (WDS), process requirement sheets (PRS), weld filler metal control sheets (FCS) and filler metal certifications for the work in progress. The inspector also visually inspected the work in progress.

During the review of the applicable documents, it was observed that RCI welding procedure W-8/8-OTS-1L indicated that ER 308 filler metal is specified for GTAW welding of P8 to P8 materials. RCI welding data sheets for the work in progress (e.g. WDS#1 for J/P Instrument Penetration Seal 285° azimuth) indicate that ER308L filler metal is being issued and used for this welding. This is not an ASME code violation, nor is it a violation of the GE welding specifications which RCI is required to meet, but it represents a laxity in following specific procedural requirements. Immediate action was taken by RCI to revise the applicable procedure specification to permit the use of either ER308 or ER308L. This item is unresolved pending final inclusion of the revised documents in the licensee's system (352/80-12-01).

b. During review of a sampling of welding data sheets for work in progress on the reactor core internals repair, it was observed that many of the data sheets were incompletely filled in by the QC inspector specifically in the preheat and interpass temperature control entry areas. RCI QA Manual paragraph 6.2.1 requires that all criteria on the welding data sheets be addressed in the QC inspection. RCI took immediate action and is processing an NCR to address this deficiency. This item is unresolved pending disposition of the NCR (352/80-12-02).

c. Review of GE Specification 22A4202 which RCI is required to meet for the subject repair welding indicates in paragraph 9.1.2 (Fillet Weld Size) "where a gap is allowed by (the) installer, the fillet size specified in the installer's documents shall be increased by the amount of the gap allowed". Paragraph 9.3.3 (Fillet and Partial Penentration Welds) indicates that the gap for fillet welds and partial penetration welds shall not exceed the lesser of ½T or 1/8 inch, where T is the thickness of the thinner member being joined or as otherwise specified. Although the RCI documents control the inspection of the fit-up to meet maximum gap requirements, there is no specific indication that the size of the fillet welds produced meets the requirements of paragraph 9.1.2. This is an unresolved item, pending satisfactory review and approval of a system to control the fillet weld size (vs. gap size) and review of the work accomplished to date where fillet welds have been used.(352/80-12-03).

4. Review of Bechtel Welding Procedure P8-AT-Ag (Unit 1)

The subject Bechtel welding procedure has general use for making single sided open root for stainless steel butt welds. The procedure was reviewed to assess its effectiveness in "providing sufficient control over heat input" to minimize sensitization. The concern over intergranular stress corrosion cracking of coolant pressure boundary piping caused by residual welding stresses, sensitized austenitic materials and the BWR service environments has been expressed in Reg. Guide 1.44, NUREG -0313, and the GE Welding Specification 22A2284. The GE Alternate Approach to Reg. Guide 1.44 as expressed in Enclosure to BLP-185.5 "Regulatory Guide Status Summary" indicates that the maximem heat input (is restricted) to 110,000 Joules/inch. The Bechtel position to the Reg. Guide indicates "...welding practices are controlled to avoid severe sensitization..." GE Specification 22A2284, Rev. 2, paragraph 4.3 (Heat Input for Austenitic Stainless Steel) indicates "Regardless of the welding process used for joining austenitic steel, the heat input from welding shall not exceed 50,000 Joules/inch with a maximum interpass temperature of 350°F." Bechtel's response to 22A2284 Section 4.3 in GE FDDR HH1-274 dated 1/3/80 states in part, "their (Bechtel) procedures provide sufficient control of heat input consistent with obtaining sound welds". The GE response to the Bechtel comment on 4.3 provides restrictions to weaving techniques and states in part that, "If the above bead width limitations are met, it is assumed that the heat input limitations are being met".

Bechtel's welding Procedure Specification P8-AT-Ag, Rev. 4, dated 8/17/79 permits a calculated worst case heat input of 268,800 Joules/inch.

The NRC inspector questioned the justification of welding parameters permitting 268,800 Joules per inch as a process that provides "adequate control over heat input" to meet the GE specification heat input requirements. This item is considered unresolved pending review of licensee's evaluation of the controls for welding stainless steel pipe. (352/80-12-04).

5. Review of RCI Welding Procedures for the Multi-functional Support Fabrication

The RCI welding of the multi-functional support is required to conform to GE 22A4202 including paragraphs 9.1.2 and 9.3.3. RCI has indicated verbally that their design of the support system includes (assumes) a 1/8" gap in the sizing of fillet welds. The RCI inspection program permits a 1/8" gap in the fit-up for fillet welds. The fillet weld size vs. gap size question is unresolved pending receipt of an engineering verification letter on this subject (352/80-12-05).

6. Review of GE I & SE Product Quality Report - 807 (Units 1 & 2)

The NRC inspector reviewed and inspected the mechanical test specimens, metallographic results and radiographs for the composite F43 buttered P8 to F43 buttered P8 qualification for instrument nozzles for the reactor vessel field change. The PQR document has not been accepted by the licensee and is in the state of revision. The proposed revisions were reviewed.

No items of noncompliance were identified.

7. Review of Uncapped Outdoor Stainless Steel Piping Storage (Units 1 & 2)

Unresolved item 50-352-79-02 was written concerning the adequacy of outdoor storage of stainless steel piping without end caps. The NRC inspector conducted a random visual inspection of the piping for possible deleterious corrosion effects from the outdoor uncapped storage. Special attention was paid to areas adjacent to circumferential welds with ID reinforcement where aqueous corrodants would concentrate. No indications of corrosion were noted.

This item will remain unresolved pending review of the licensee's flushing procedures for removal of corrodants introduced by the outdoor exposure.

8. Review of RCI Documents (Units 1 & 2)

The NRC inspector reviewed the following RCI documents for compliance with Regulatory & Code requirements:

MS-1 Rev. 3 dated 1/11/79
MS-4 Rev. 4 dated 2/14/79
MS-2 Rev. 3 dated 1/30-79
MS-13 Rev. 0 dated 8/15/77
VE-100 Rev. 0 dated 4/13/78
PE-100 Rev. 2 dated 10/25/78
FL-100 Rev. 1 dated 4/28/78
CP-100 Rev. 2 dated 10/16/79
MS-5 Rev. 3 dated 4/12/79
RE-100 Rev. 1 dated 2/1/79
GWS-1-44 Rev. 2 dated 2/20/80
RCI PO 1754-00 for Sandvik ER308L and ER309 filler metal

No items of noncompliance were identified.

9. Power Generation Complex Center (PGCC) (Units 1 & 2)

The inspector reviewed the reports attached to the GE letter to PECO (PE-2129). The reports are entitled:

-- Factory Reinspection of Limerick 1 cables
-- Factory Reinspection of Limerick 2 cables
-- Limerick 1 & 2 T Mods
-- Reinspection of Limerick panels - wiring workmanship
-- Bechtel quality question responses

The inspector reviewed the results of testing on Unit 1 termination modules (T-Mods) which were tested in accordance with GE document FDI-TNCX (Revision 1). The testing consisted of a 100% inspection of T-Mods for damaged wire insulation.

The inspector witnessed the testing of Unit 2 panel connectors which were tested in accordance with GE FDI-TRDC (Revision 2). The test consisted of a 100% inspection of connector crimps and utilized GE procedure CA-014 (Revision 4).

The inspector witnessed the inspection of and reviewed the results of Unit 1 PGCC cables addressed in NCR-4066 and GE FDDR-HH1-1064. This activity consisted of PGCC cable inspection for damage to jackets, conductors, connectors or pins.

No items of noncompliance were identified.

10. 4160 Volt Termination to Safeguard Bus (Unit 1)

The inspector witnessed portions of cable termination of 4160 volt cable from 1B Core Spray Pump to D124 Safeguard Bus, in Panel #101A11606.

The inspector verified the following:

-- The activity agreed with Wire and Cable Notes and Details, E-1412 (Revision 11) sheets 3.5 & 3.6

-- The activity agreed with Job Rule for Permanent Plant Cable Installation and Termination procedure, 8031-JR-E-10 (Revision 2)

-- The activity agreed with procedure QCI E-5.0 (Revision 4)

-- The data sheet was completed and in accordance with the specified requirements.

-- Cable code #H17 agreed with electrical circuit schedule E-1506

No items of noncompliance were identified.

11. Spade Lugs on Termination Modules (Units 1 & 2)

The GE specification, main control room panels, #22A2805AM (Revision 3) sheets 8 and 9 identifies the solderless ring type terminations to be used in the control room and PGCC terminations to terminal blocks. The inspector identified spade lugs in use on terminals of T-Mods. This is a specification

deviation that was addressed in the PECO internal letter of March 8, 1979. The inspector informed the licensee that GE did not amend their design specification to allow the use of spade type connectors. During this inspection period GE issued field deviation disposition requests HH1-1087 (Unit 1) and HH2-1088 (Unit 2) to amend their design specification 22A2805A to allow the use of spade type connectors. No items of noncompliance were identified.

12. Spray Pond Pump House Erection (Unit 1)

During a general walk-through inspection of the spray pond pump house area the inspector observed the following:

a. The rebar curtain for the pump house walls was being installed.

b. The mechanical splices in #14 bars in many places were installed adjacent to each other at the same elevation and same face without any stagger.

c. Some horizontal #14 bars were attached to structural steel columns by welding.

d. At corners, the rebar congestion was such that the minimum spacing was not maintained.

To determine the acceptability and adequacy of above work, the inspector reviewed the following documents and held a discussion with licensee personnel.

a. Bechtel Specification C-34, Rev. 13, "Splicing of Reinforcing Steel".

b. Bechtel Specification C-36, Rev. 13, "Forming, Placing, Finishing and Curing of Concrete".

c. ACI-318-71, "Building Code Requirements".

d. Drawing C-1146; Rev. 8.

e. Drawing C-1147; Rev. 6.

f. Bechtel Specification 8031-Q-List, Rev. 12.

g. Bechtel correspondence REM-182 and 193.

h. LGS PSAR, Appendix C, Sec. C.2.6.

Based on the above review and discussion, the inspector determined that presently there is no requirement in the project procedure to stagger splicing in reinforcing steel.

The embedded portions of structural steel columns in the pump house are not classified safety-related, thus they are outside the scope of full quality assurance. Therefore, the welding of support bars to columns was not controlled, inspected or documented.

The rebar installation inspections are conducted with Bechtel design drawing, which do not show the splice location.

The work was still in process and the final inspection by quality control had not been conducted.

No items of noncompliance were identified.

13. Review of Civil Field Change Requests (Units 1 & 2)

a. The inspector reviewed Field Change Requests (FCR) pertaining to civil/structural area. The FCR's were reviewed for conformance to the following formal requirements; adequate technical description of the required change; formal approval; and controlled distribution. The inspector also verified that completed and closed FCR's are readily available on site for reference. The inspector reviewed the following documents:

-- PECO QAP, Appendix W covering record management.

-- Job Rule G-5, "Design Document Control".

-- FCR's C-3500 to C-3599, covering the period July 1977 to August 1977.

-- FCR's C-5000 to C-5099, covering the period September 1978 to November 1978.

-- FCR's C-6000 to C-6099, covering the period August 1979 to September 1979.

Based on the above document review, personal observations and discussions with licensee and A-E/constructor personnel, the inspector determined the following:

1) The FCR's were complete and conformed to the required format.

2) The FCR's were adequately controlled in distribution, filing and retrievability.

3) All FCR's were approved by project and/or field engineering and contained adequate technical description of requested changes.

However, the inspector noticed that a substantial number of these documents contained corrections by "Wite-out" correcting fluid obliterating the previous information; also the new information entered onto them was not initialled and dated by the individual entering such information. A few FCR's also contained cut-outs from drawings pasted on them showing changes and other information. The inspector questioned the propriety of such practices on controlled permanent records. In response to the inspector's question, the licensee and the A/E's Resident Engineer replied that there are no provisions or rules on the project which specifically prohibit these practices; and they have been using these practices extensively on this project for a number of years. This item is unresolved pending further review. (352/80-12-06; 353/80-10-01)

b. The inspector noticed that a substantial number of FCR's had been issued for only one specific condition. These FCR's had a note from design engineering indicating that the affected drawings would not be changed or revised to show the requested change. The inspector determined that it is currently not required that the approved FCR's be even referenced on the affected drawings. In response to the inspector's concern in this regard, the licensee and the A/E's Resident Engineer indicated that they have initiated a program in April 1980 which will reference all approved FCR's on the affected drawings. Therefore, any changes not incorporated in design will be readily traceable and retrievable for review and inspection during the plant life. However, the licensee's Quality Assurance Plan, Appendix W does not designate FCR's to be a life-time record. The FCR's are designated as a one-year record by the licensee. Therefore, the inspector determined that referencing of FCR's on affected drawings does not adequately satisfy the inspector's concern. A reference of an FCR on any drawing is of no value if the FCR itself will not be available for the life of the plant. This item is considered unresolved pending review of licensee's evaluation. (352/80-12-07)

14. Review of In-Process Rework Notices (Units 1 & 2)

The inspector reviewed the civil/structural in-process rework notices issued by quality control. The reports were reviewed for format, completeness, adequacy of technical details and corrective action. The following documents were reviewed:

-- SF/PSP-C-6.4, Project Special Provision Notice, Rev. 1

-- In-Process Rework Notices:

C-2027	C-2012	C-1996	C-1921
C-2036	C-2011	C-1992	C-1923
C-2020	C-2008	C-1987	C-1928
C-2018	C-2005	C-1915	C-1930
C-2016	C-2004	C-1919	C-1920

-- In-Process Rework Notice Log

Based on the above document review and discussions with licensee and A/E personnel, the inspector determined that the rework notices were properly used as provided in the project procedures. The notices were properly filled, had adequate technical detail describing the problem and were properly controlled.

No item of noncompliance was identified.

15. Structural Steel Storage Area (Units 1 & 2)

During a general walk through the laydown area for structural steel, the inspector noticed that a structural beam identified as 8051-F-5747, C-671-403A had an apparent indication of repair in the coped area on one end. On a closer examination it appeared that during the coping operation the cope was extended beyond the prescribed limit and this excess was repaired by welding. The repair weld also seemed to have an indication. The licensee initiated an investigation to verify the inspector's observation and to determine the extent of this problem.

The inspector reviewed the following documents to confirm his observations:

-- Bechtel specification C-43, Rev. 14, "Furnishing, Detailing, Fabrication and Delivery of Miscellaneous Embedded Steel and Non-Embedded Steel and Furnishing Unfabricated Stock Material".

-- QCIR-C-43-MRR-62697, dated 3/27/79.

-- Industrial Mechanics Specification 425, dated 10/25/79.

-- Industrial Mechanics Certificate of Conformance No. TMI W.O. # 8141-A

-- AWS D1.1-72, Rev. 1-73, Rev. 2-74.

The inspector also witnessed an etch test conducted by the licensee. At the conclusion of the investigation, the licensee informed the inspector that the cope was in fact repaired by welding, and the weld was not acceptable due to slag inclusion and lack of fusion. Also, there was no indication of this repair on the beam in supplier's documentation package accompanying the material. The inspector also determined that the supplier is required to inspect the material 100% before shipment. (The licensee has uniquely identified the beam as PECO NCR Tag # N-196.)

Based on the above observation and information, the inspector informed the licensee that failure to exercise sufficient control over the purchased material and services to assure receipt of proper and conforming material on site is an item of noncompliance contrary to 10 CFR 50, Appendix B, Criterion V. (352/80-12-08)

16. Review of Field Prepared Drawings (Units 1 & 2)

a. The inspector reviewed the field generated drawings in the civil/structural area. The drawings were reviewed for conformance to the requirement of project procedures, timely revisions and control. The inspector reviewed the following procedures and drawings:

-- Job Rule G-5, "Design Document Control"

-- Job Rule G-30, "As Built Documents"

-- Specification 8031-Q-List, Rev. 12

-- Drawings:
ZC-450, Rev. 1, dated: 8-31-77
ZC-455, Rev. 1, dated: 8-31-77
ZC-456, Rev. 1, dated: 12-20-74
ZC-457, Rev. 2, dated: 3-6-75
ZC-458, Rev. 1, dated: 3-26-77
ZC-459, Rev. 1, dated: 3-26-77
ZC-660, Rev. 0, dated: 8-31-77
C-602, Rev. 21, dated: 5-15-79

Based on the review of the above documents and discussion with licensee personnel, the inspector determined as follows:

1) The ZC series drawings are covered by project procedure G-5 as a controlled document.

2) The project procedure G-30 classifies the ZC series drawing as an "as-built" document.

3) Bechtel drawing C-602, Rev. 21, note 4 indicates that actual "as-built" locations of construction joints are shown on ZC drawings.

4) The ZC series drawings are not properly controlled, maintained and up-dated by licensee.

5) The licensee indicated that ZC series drawings are not currently intended to be design or "as built" drawings, and are not covered by quality assurance requirements.

6) The procedure JR-G-30 requires that each ZC drawing shall contain a note specifying the ultimate use of the drawing. If the drawing is not to show as-built conditions, then a note, "Installation shown on this drawing is not required to reflect the As-Built condition" must be placed near the title block of the drawing.

However, the inspector determined that the ZC drawings listed above had no ultimate use note near the title block. Drawing ZC-456, Rev. 1, dated 12/20/74 does not reflect the as-built location of a construction joint in a wall, and the licensee personnel indicated that they are not concerned about these deficiencies, as they do not consider the drawings as design and/or as-built documents. The licensee was informed that the failure to follow the requirements of Job Rules G-5 and G-30 and design drawing C-602 is an item of noncompliance contrary to Criterion V of Appendix B, 10 CFR 50. (352/80-12-09)

b. During this inspection period the licensee revised the Job Rule G-5 and G-30 and design drawing C-602 to delete references to the "ZC" drawings. The inspector questioned whether this would hamper the retrievability of records for a specific wall or slab concrete placement. A seismic Class I wall was chosen by the inspector at random. The QC records for this concrete placement were not readily retrievable without the use of nonpermanent records. The licensee was informed that if the "ZC" drawings are not to be used for as-built records, then their system for readily retrieving records will be reviewed at a subsequent inspection. This item is considered unresolved. (352/80-12-10).

17. Review of Licensee QA Audits & Surveillances (Unit 1 & 2)

The inspector reviewed a random sample of audits, surveillances and finding reports performed by the licensee's site QA group to determine compliance with their QA procedures Q.A.I.-18-11, Revision 4; Q.A.I.-18-21, Revision 4. The following documents were reviewed:

Audit Report # G-084
Audit Report # M-188
Finding Report # C-244
Audit Report # G-085
Audit Report # M-214
Audit Report # M-224
Audit Report # M-276
Surveillance Report # M-282
Surveillance Report # M-281
Audit Report # M-231
Audit Report # M-243
Finding Report # C-214
Finding Report # C-225

During the inspection of the above documents, two unresolved items were noted, which are as follows:

a. The inspector was concerned that two of the licensee's findings (C-214 and C-225) were issued in June of 1979 and have not been closed out. These findings involve the subcontractor that was responsible for the post tensioning the fuelpool girders. The work on fuel pool girders has been completed for several months. Further investigation also indicated that there were several Bechtel quality control exceptions (Nos. 34 through 41, dated 10/10/79 through 1/24/80) that are still outstanding. The inspector reviewed all of these outstanding quality related items and also discussed them with the PECO and Bechtel cognizant engineers. It is their opinion that the actual work (post tensioning) performed by the subcontractor was satisfactory and the remaining outstanding quality items are to upgrade the quality documents to acceptable levels.

Bechtel issued a letter to the subcontractor on May 5, 1980 informing them that they are withholding $140,000 until all the quality related problems are satisfactorily resolved. The inspector informed the licensee that this item is considered unresolved, pending review by NRC of the resolution of the quality related problems. (352/80-12-11 and 353/80-10-02).

b. The review of the above PECO documents did not indicate that the PECO field QA group was conducting a post-surveillance or audit conferences with the site subcontractor after the surveillance or audit had uncovered an item requiring corrective action, as required by PECO procedures Q.A.I. 18-11 and Q.A.I. 18-21. The PECO QA group is conducting what they call a "finding draft for exit meeting". This meeting is held with all concerned parties and the PECO finding is then discussed in detail prior to issue. This meeting is not documented as to when it was held or who the attendees were. The inspector informed the licensee that this item is considered unresolved pending review by NRC of the revision of the PECO procedures to reflect how the post conferences are held. (352/80-12-12 and 353/80-10-03).

18. Welding to Primary Containment Liner Plate

The inspector noted that the heating, ventilation and air conditioning (HVAC) duct support #11 had improper tack welds at the support flange (Channel MC8 x 18.7) to the containment floor liner plate. The A/E was informed of this. Further investigation by them indicated that the subcontractor made unauthorized tack welds. The Bechtel design drawing C-1411 Detail 10, Rev. 1 doesn't require any welding of this HVAC duct support to the liner plate. Bechtel issued a nonconformance report #4207 for these four unauthorized tack welds. The inspector informed the licensee that this unauthorized welding is contrary to Criterion V of Appendix B in 10 CFR 50. (352/80-12-13).

19. Installation of Heating, Ventilating and Air Conditioning Systems (HVAC) - Unit 1

The inspector audited the contractor's (Schneider Inc.) activities for installing the HVAC system in the containment building. The following areas were audited:

a. Personnel Qualifications - Quality Control Inspectors

Review of Schneider procedure PPM 5.1 Revision 0, Qualification and Certification of Inspection and Test Personnel. This procedure requires that QC inspection personnel receive training and have sufficient experience to perform inspections. The procedure states that it shall be the responsibility of the Corporate Quality Assurance Manager or his designee to certify Quality Control inspectors as Level I, II or III.

The inspector reviewed personnel records for five QC inspectors who had performed inspections on site for Schneider, Inc.

- QC Inspector Level II, certified September 10, 1979
- QC Inspector, Level II, certified April 24, 1980
- QC Inspector, Level II, certified May 5, 1980
- QC Supervisor, Level II, certified May 1980
- QC Inspector. This individual was not properly certified as being qualified. There is a letter on file which states the individual is qualified as of April 24, 1980 based on the following performance:

    (1) Read Procedure PPM 5.2
    (2) Performed 2 field receipt inspections
    (3) Oral interview with QC Supervisor

The above listed actions are not in compliance with the procedure requirements for certifying QC inspectors. Specifically, for performing inspections, the individual must have previous experience as a Level I. This requires examinations and certification as a Level I. For performing examinations, the individual must be a certified Level II. Paragraph 4.2.2 of Procedure PPM 5.2 states, "Level II; is an individual who can perform the duties of Level I and evaluate and report the results of inspections,..." There is no record of this individual ever holding a Level I or Level II qualification in accordance with Procedure PPM 5.2.

A review of his previous work experience does not show any previous experience in either Quality Control or nuclear type disciplines (mechanical, welding, electrical, etc.).

There are records of receipt inspections performed by this individual, for example, report number CF-075 performed on June 18, 1980. This is contrary to Appendix B, Criterion V, and Schneider, Inc. procedure PPM 5.1, "Qualification and Certification of Inspection and Test Personnel" in that the individual was performing receipt inspections without certification as required by the above documents. (352/80-12-14)

b. Weld Rod Storage Oven Temperature Control

The inspector audited the calibration and storage facilities for weld rod ovens. This included a review of the "Weld Material Control" procedure PPM 3.8, Revision 5, dated 12/79. This procedure requires that "Low hydrogen type coated electrodes and stainless steel covered electrodes shall be stored in vented ovens at 250°F to 350°F. The ovens shall be checked quarterly using a calibrated thermometer and the temperature documented on form 3.8.b."

The inspector requested a temperature check of weld rod oven number 1 which contained E7018 electrodes: The following conditions were observed:

A calibrated thermometer identified at 002 was used and indicated a temperature of 371°F. Since this indicated a temperature of 20°F over that allowed, a second calibrated thermometer 001 was used. This showed a temperature of 290°F which was 81°F lower than the 002 reading. The inspector then requested that the temperature using thermometer 002 be retaken. The second reading was 332°F, a change of approximately 40°F. It appeared that thermometer 001 and 002 were giving erroneous readings. A third thermometer 015 was used which showed a 400°F temperature. This corresponded to the control setting on the oven. The QC supervisor stated that 015 thermometer appeared to be correct. The inspector stated that this temperature was 50°F over the allowable temperature. The contractor acknowledged this and took the following corrective actions.

(1) Thermometers 001 and 002 were taken out of the calibration program and destroyed.

(2) The oven temperature was reduced to below 350°F.

The inspector stated that this was in violation of Appendix B, Criterion V and Schneider procedure PPM 3.8, Revision 5 Weld Material Control Procedure in that on June 20, 1980 the temperature of oven number 1 was 400°F whereas the procedure requires control of temperature at 250°F to 350°F. (352/80-12-15)

c. Procedure Review and Direct Inspection of Supports and Ducting

The inspector audited the following procedures and documents applicable to the installation of the HVAC:

- o Schneider QA Manual, dated October 28, 1977
- o Weld material distribution log
- o Quality control checklist
- o Calibration of test equipment
- o Storage of components
- o Nonconformance and disposition report
- o Shop standards book
- o Document controls
- o Weld rod storage and issue

The inspector verified conformance with applicable requirements by re-examinations. This was accomplished through direct use of micrometers, weld gages, thickness meters and scales. The following items were examined: bolt lengths, washer sizes and locations, structural steel dimensions, hole locations, fillet weld lengths, sizes and locations, location and size of slotted holes. The inspector found discrepancies with the slotted holes, but it was later found that PECO Quality Assurance reports M293 and M307 had previously identified the discrepancies. Another questionable area found by the inspector, the "torquing of bolts", was also previously identified by PECO (Quality Assurance reports M286, M264, M311 and M308). The inspector found that except for those items documented elsewhere in this report, all areas reviewed were acceptable.

d. Review of QA Site Audit Reports

The inspector reviewed reports of site audits conducted by the subcontractor's (Schneider Inc.) corporate office QA personnel. This review was performed to determine whether the audit program was being implemented in accordance with requirements delineated in the QA Manual. The inspector's review included reports of audits conducted during the 1978 and 1979 calendar years. The inspector found that site QA activities controlled by each section of the QA Manual had been audited during 1978 and during 1979, with the exception of "Document Control", (Section 6 of QA Manual). Reports of audits conducted in 1978 of the field implementation of Document Control indicated deficiencies that required corrective action. However, reports of audits conducted during 1979 did not include the follow-up of the corrective action of the previously identified document control deficiencies. Furthermore, documents reviewed by the inspector did not indicate that the annual audits required by the QA Manual were performed of Section 6 during 1979.

This is contrary to APpendix B, Criterion V, and Schneider Inc. Quality Control Manual Section 18, titled, Audits. (352/80-12-16)

The inspector also noted that a recent reorganization invalidated the Quality Assurance Manual description of the reporting responsibilities of the site QA Supervisor. The contractor representative stated that necessary changes are being made to reflect the current organization and assigned responsibilities.

The inspector had no further questions regarding this matter.

20. Direct Verification Inspection - Unit 1

The inspector performed direct verification inspection on two separate piping systems to verify minimum wall thicknesses. This was accomplished using an ultrasonic thickness gage, Nortec NDT 123D. The welds and adjacent base materials were verified on piping systems GBC 101-11-5 and GBC 101-3. The thickness readings obtained verified that design mimimum wall thickness was obtained.

No items of noncompliance were identified.

21. Preservice Inspection Activities - Unit 1

The inspector audited the personnel qualification records for four nondestructive examination inspectors to ascertain compliance with applicable procedures and governing document SNT-TC-1A. The following records were reviewed:

1st inspector - Qualified Level II in PT, UT & Vis.

2nd inspector - Qualified Level III in LP, UT & MT.

3rd inspector - Qualified Level II in MT, PT & UT.

4th inspector - Certified Level I UT on 8/15/79, Certified Level II PT on 8/15/79.

The inspector questioned the qualifications of the fourth inspector on the following basis: The governing document, SNT-TC-1A, requires a UT Level I to have six months experience plus 40 hours training before certification to Level I. It further recognizes a minimum of three months experience if the individual has additional experience in other NDE disciplines. The NES procedure requires a minimum of three months experience under the direction of a certified Level II before qualifying as a Level I in UT.

To be qualified as a Level II in PT, the procedure requires the candidate to have one month experience before qualifying as a Level I and two months experience as a Level I before qualifying as a Level II.

A review of this individual's experience certification record shows the following:

4/79 - 8/79 -- 100 hours UT training at Spartan School of Aeronautics. Sixty hours MT/PT training at Spartan School of Aeronautics. Employed at NES on 8/14/79 and certified as qualified on 8/15/79.

The inspector stated that the experience requirements were not met for this individual.

In an interview with the individual involved, the inspector determined that he had only worked in the capacity of an assistant in UT. He has not actually performed any inspections in UT or PT.

The inspector was further advised that the Authorized Nuclear Inspector had questioned this individual's qualifications and as a result, the records would be reviewed by the NES Level III. Corrective actions would be taken where required.

This item is unresolved pending a review of the actions which have been initiated. (352/80-12-17).

22. Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in paragraphs 3, 4, 5, 13, 16, 17 and 21.

23. Exit Interview

The inspectors met with licensee representatives (denoted in para. 1) at the conclusion of the inspection on June 27, 1980. The inspectors summarized the purpose and the scope of the inspection and the findings.