UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

MAY 21 1980

Report Nos. 50-553/80-07 and 50-554/80-06

Licensee: Tennessee Valley Authority
500A Chestnut Street
Chattanooga, TN 37401

Facility Name: Phipps Bend

Docket Nos. 50-553 and 50-554

License Nos. CPPR-162 and CPPR-163

Inspection at Phipps Bend site near Kingsport, Tennessee

Inspector: _____ May 20, 1980
W. P. Kleinsorge Date Signed

Approved by: _____ 5/20/80
A. R. Herdt, Section Chief, RCES Branch Date Signed

SUMMARY

Inspection on April 29 - May 2, 1980

Areas Inspected

This routine, unannounced inspection involved 32 inspector-hours on site in the areas of steel structures and supports (Units 1 and 2) and Safety-Related Piping (Units 1 & 2).

Results

Of the two areas inspected, no items of noncompliance or deviations were identified in one area; one item of noncompliance was found in one area [Steel structures and supports - Infraction - Failure to control welding materials - paragraph 6.b(4)(a)].

DETAILS

1. Persons Contacted

Licensee Employees

*W. P. Kelleghan, Project Manager
*G. W. Wadewitz, Construction Engineer
*D. E. Hitchcock, Supervisor, Site QA Unit
*T. V. Abbatiello, Assistant Construction Engineer, QC
*J. J. Ritts, ENDES, Licensing Engineer
R. M. Jessee, ENDES Welding
W. K. Burner, Manager Welding Quality Control
*H. B. McCracken, Mechanical Engineer
*W. K. Anders, OEDC - QA

Other licensee employees contacted included 12 construction craftsmen, five technicians, and three office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on May 2, 1980 with those persons indicated in Paragraph 1 above. The inspector identified the areas inspected, and discussed in detail the item of noncompliance, and the three unresolved items. No dissenting comments were received from the licensee.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in paragraphs 6.b(2)(a), 7.b(1)(a) and 7.b(1)(b).

5. Independent Inspection Effort

a. Construction Activities (Units 1 and 2)

The inspector conducted a general inspection of the Units 1 and 2 fuel, auxiliary and reactor buildings, boilermaker shop, pipe fabrication shop and welder training area to observe construction progress and construction activities such as welding, nondestructive examination, material handling and control, housekeeping and storage.

6. Steel Structures and Supports (Units 1 and 2)

The inspector observed non welding and welding work activities for steel structures within the containment as described below to determine whether applicable code and procedure requirements were being met. The applicable codes are as follows:

Structure Containment	Code
Reactor Vessel Pedestal	ASME III, S74 (Division 1, NE)
Reactor Vessel Pedestal	AWS D1.1 Revision 2, 1974
Base Plate	ASME III, 1975 (Division 2)

a. Observation of Non Welding Activities (Units 1 and 2)

Observation of specific work activities were conducted to determine conformance, where applicable, with the following; inspection and/or work procedures, record keeping, installation specifications or plans, specified materials, specified NDE, calibration and use of proper test equipment and qualified inspection and NDE personnel.

Activity	Structure	Procedure
Receiving Inspection	Containment Plates	RIS&PM, M-201 Rev. 6
Storage	Containment Plates	RIS&PM, M-201 Rev. 6
Magnetic Particle Examination of Back Gouge	Containment Butt Joint 1-T23-01625	QCI, N-201, Rev. 3
Radiographic Examination	Containment Butt Joint Nos. 1-T23-01590 R1 1-T23-01600 R1	QCI, N-301 R 2

b. Observation of Welding Activities

The inspector observed in-process welding activities of structural field welds as described below to determine whether applicable code and procedure requirements were being met.

(1) Welding

The following welds were examined in process to determine; work conducted in accordance with traveler, welding procedures available; welding technique and sequence; weld geometry, fit-up

electrical characteristics; equipment condition; voltmeters for automatic welding calibrated:

Joint Number	Process*	Unit	Structure
1-T-23-01600R1	**SAW	1	Containment
1-T-23-01590R1	**SAW	1	Containment
1-NY00384	SMAW	1	Reactor Vessel Pedestal
1-NY00385	SMAW	1	Reactor Vessel Pedestal
1-NY00386	SMAW	1	Reactor Vessel Pedestal
1-NY00388	SMAW	1	Reactor Vessel Pedestal
1-NY00396	SMAW	1	Reactor Vessel Pedestal
2-T-23-02303	SMAW	2	Reactor Vessel Pedestal Base Plate

*Shielded Metal ARC Welding (SMAW)
Submerged Arc Welding (SAW)

**Inspection accomplished by review of radiographs

(2) Weld Heat Treatment

The inspector reviewed the TVA program for weld heat treatment for compliance with QA procedures and code requirements. The shielded metal arc welds listed in paragraph 6.b(1) above were examined in process relative to weld joint preheating to determine; procedures available; procedures specify acceptable preheating method; procedures provide monitoring and recording requirements and procedure compliance.

(a) With regard to above inspection, the inspector noted that the inprocess preheat temperature of Joint No. 2-T-23-02303 was less than 250 degrees F, and greater than 200 degrees F. Phipps Bend Work Package D-504-1M-0 requires a minimum preheat temperature of 250 degrees F for the Joint in question. TVA detail welding procedure SM 11B9, the applicable welding procedure for the joint in question, requires a minimum preheat temperature of 200 degrees F. At the time of this inspection it could not be determined whether the actual preheat temperature met the applicable code requirements. The inspector stated that the above would be an unresolved item and identified as 554/80-06-01: "RVP Baseplate Preheat".

(3) Welder Qualification

The inspector reviewed the TVA program for qualification of welders and welding operators for compliance with QA procedures and code requirements.

(a) The following welders and welding operators qualification status records and "Records of Performance Qualification

Test" were reviewed relative to the weld joints listed in paragraph 6.b(1) above, and 7.b(1):

Welder Symbol	Unit	Application
B021	1	Steel structure and supports supports
E024	1	Steel structure and supports
B038	1	Steel structures and supports
B045	2	Steel structures and supports
B099	1	Steel structures and supports
F008	1 & 2	Safety-Related Piping
F014	1 & 2	Safety-Related Piping
F024	1 & 2	Safety-Related Piping
F038	1 & 2	Safety-Related Piping

(b) The inspectors observed in process performance qualification testing for the below listed welders:

Welder Symbol Pay Number or Name	Qualification Test
E. Denton	SM-4BH3
D. Smith	SM-4BH3
B-121	GMFC6BHA
8-225	SM-4BH

(c) The inspector observed the removal and preparation of bend test specimens from qualification test assemblies.

(4) Welding Material Control

The inspector reviewed the TVA program for control of welding materials to determine whether materials are being purchased, accepted, stored and handled in accordance with QA procedures and ASME code requirements. The following specific areas were examined:

- Purchasing procedures
- Receiving
- Storing
- Distributing
- Handling procedures

. Material identification
. Inspection of welding material issuing stations

Welding material purchasing and receiving records for the following materials were reviewed for conformance with applicable procedures and code requirements:

Process*	Type	Size	Heat, Lot or Batch No.
SMAW	7018	5/32"	N93916
SMAW	7018	1/8"	L84741
SMAW	7018	3/32"	401J9821
GTAW	70S6	1/8"	658C253
GTAW	70S6	3/32"	81209
SAW	EM12K	3/32"	77F
SAW	F-72	Flux	77G
SAW	EM12K	3/32"	K-61595
SAW	F72	Flux	61

*SMAW - Shielded metal arc welding
GTAW - Gas tungsten arc welding
SAW - Submerged arc welding

(a) With regard to the above inspection the inspector on April 29, to May 2, 1980 noted the following:

1 The procedure, CEP 8.03 Revision 10 "Control of Welding Materials", used by the site to control the method and assign responsibility for the control of welding materials does not address the control, storage and maintenance of submerged arc welding flux. By interview, with welding QC Unit and QA Unit personnel, the inspector determined the site did not have a documented procedure to control submerged arc welding flux available to personnel accomplishing that activity.

2 Approximately 15 welding material requistion (WMR) slips were completed with missing or incorrect issue dates, missing return times or printed welder and foremen names vice signatures. The above is contrary to the requirements of TVA CEP 8.03, Revision 10 "Control of Welding Material", Paragraph 3, which requires the welder to sign the WMR, and the Welding Materials Issue Inspector to enter the issue date and return time, and to verify that the foreman signed the WMR.

3 Two electrode issue ovens, one in each of two welding material issue stations, had oven therometers that had not been included in the site calibration program, and were not tagged "Hold, Not to be Used Until Calibrated".

The above is contrary to the requirements of TVA CEP 8.03 Revision 10, "Control of Welding Material", paragraph 6 which requires all oven thermometers to be calibrated and CEP 12.01 Revision 6, "Control of Measuring and Test Equipment", paragraph 2.4, which requires Measuring and test equipment that is not calibrated, not to be used until calibrated and to so tagged.

These are examples of failure to have documented procedures and failure to follow procedures for activities affecting quality is in noncompliance with 10 CFR Appendix B Criterion V. This is an infraction and was assigned Item No. 553/80-07-02, 554/80-06-02: "Failure to control Welding Materials".

Within the areas inspected, no items of noncompliance or deviations, except as described in paragraph 6b(4)(a) were identified.

7. Safety-Related Piping (Units 1 and 2)

The inspector observed non-welding and welding work activities for safety-related piping as described below to determine if applicable code and procedure requirements were being met. The applicable code for safety-related piping is the ASME B and PV Code, 1974 Edition with addenda through Summer 1974.

a. Observation of Non Welding Activities

Observation of specific work activities were conducted to determine conformance, where applicable, with the following; inspection and/or work procedures, record keeping, installation specifications or plans, specified materials, specified NDE, calibration and use of proper test equipment and qualified inspection and NDE personnel.

Activity	System or Component	Procedure
Receiving Inspection	Flange: Reducer & Weldolet	RIS&PM M-413 Rev. 8
Storage	Residual Heat Removal System Piping	RIS&PM M-402 Rev. 4
Liquid Penetrant Examination	Essential Service Water System	QCI N-101 Rev. 4
Magnetic Particle Examination	Essential Service Water System	QCI, N-201 Rev. 3
Visual Examination	Essential Service Water System	QCI N-501 Rev. 2

b. Observation Of Welding Activities

The inspector observed in-process welding activities of safety-related piping field welds as described below to determine whether applicable code and procedure requirements were being met.

(1) Welding

The below listed welds in the Essential Service water System were examined in process to determine work location; welding procedure; WPS assignment; welding technique and sequence; materials identity; weld geometry; fit-up; temporary attachments; gas purging; preheat; electrical characteristics; shielding gas; welding equipment condition; interpass temperature; interpass cleaning; process control system; identity of welders; qualification of inspection personnel; and weld history records.

Weld No.	Unit	Size	Stage of Fabrication
KE00220	1 & 2	10" x 0.365"	Welding out
KE00221	1 & 2	10 x 0.365"	Root
KE00225	1 & 2	10 x 0.365"	Root
KE00219	1 & 2	10" x 0.365"	Root
KE00218	1 & 2	6" x 0.280"	Root
KE00202	1 & 2	2.5" x 0.203"	Fitup & Root
KE00244	1 & 2	2.5" x 0.203"	Welding out
KE00245	1 & 2	2.5" x 0.203"	Welding out
KE00246	1 & 2	2.5" x 0.203"	Welding out

(a) With regard to the inspection of paragraph 7.b(1) above, the inspector noted that the licensee was stamping piping assemblies with welder and inspector symbols inside the nondestructive examination area of interest. This practice was required by an internal memorandum dated December 4, 1979. At the time of this inspection, it could not be determined whether the stamping could mask indications of unacceptable indications. The licensee indicated that they would look further in to the matter. The inspector stated that the above would be an unresolved item and identified as 553/80-07-03, 554/80-06-03: "Marking in Area of Interest".

(b) With regard to the inspection of paragraph 7.b(1) above, the inspector noted that the licensee does not mark piping joints with weld numbers. The licensee's system for traceability of the fabrication documentation for piping systems to the welds depends on weld maps and heat numbers of the components, fittings or piping materials used in that system. The inspector observed, that for piping assemblies with a symmetrical configuration and multiple fittings with the same heat numbers, the possibility exists that traceability from the fabrication documentation to a piping assembly could be lost prior to installation. The licensee's representative concurred and indicated that they would look further into the matter. The inspector stated that the above would be an unresolved item and identified as 553/80-07-04, 554/80-07-04: "Fabrication Traceability For Piping Assemblies".

(2) Weld Heat Treatment

The inspector reviewed the TVA program for weld heat treatment for compliance with QA procedures and ASME code requirements. The welds listed in paragraph 7.b(1) above were examined in process relative to weld joint preheating to determine procedures available; procedures specify acceptable preheating method; proceures provide monitoring and recording requirements; and procedure compliance.

(3) Welder Qualification

Welder qualification is discussed in paragraph 6.b(3).

(4) Welding material Control

Welding Material control is discussed in paragraph 6.b(4).

Within the areas inspected, no items of noncompliance or deviations were identified.