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

Report Nos. 50-553/80-06 and 50-554/80-05

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

Facility Name: Phipps Bend Nuclear Plant Units 1 and 2

Docket Nos. 50-553 and 50-554

License Nos. CPPR-162 and CPPR-163

Inspection at Phipps Bend site near Kingsport, Tennessee

Inspector: R. W. Wright — 4/22/80
R. W. Wright — Date Signed

Approved by: F. S. Cantrell — 4/22/80
F. S. Cantrell, Section Chief, RCES Branch — Date Signed

SUMMARY

Inspection on March 31 - April 3, 1980

Areas Inspected

This routine, unannounced inspection involved 27 inspector-hours on site in the areas of licensee action on previous inspection findings; concrete placement observations; VSL QA manual review; inspector followup items; and the handling of licensee identified items (LII).

Results

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

DETAILS

1. Persons Contacted

Licensee Employees

*W. P. Kelleghan, Project Manager
*G. W. Wadewitz, Construction Engineer
*T. V. Abbatiello, Assistant Construction Engineer, QC
*D. E. Hitchcock, Site QA Unit Superviosr
*H. B. McCracken, Mechanical Engineer, TSU
G. V. Hogg, Material & Civil QC Unit Supervisor
M. Alva, Site QA Engineer
R. Templin, Electrical Quality Control (QC) Engineer
J. Fifrick, Site QA Engineer
J. Mauro, Mechanical Engineer, VSL site Coordinator, TSU
W. R. Andrews, Material Services Unit Supervisor
W. K. Burner, Welding Unit Supervisor, QC
P. H. Davis, Engineering Associate, Level II RT
**J. J. Ritts, Licensing Engineer, ENDES

Other licensee employees contacted included construction craftsmen, technicians, QC inspectors and office personnel.

Other Organizations

A. G. Bishop, General Electric Company Field Representative

*Attended exit interview
**Participated in exit interview by telephone

2. Exit Interview

The inspection scope and findings were summarized on April 3, 1980 with those persons indicated in Paragraph 1 above. The licensee was advised that no new items of noncompliance or deviations were identified by the inspector.

3. Licensee Action on Previous Inspection Findings

(Open) Unresolved Item 553-554/80-01-01: RIS&PM implementation for HPCS diesel generator and RCIC turbine. Inspection of and discussions with responsible licensee personnel revealed that only one switch handle as provided by the vendor is required for the diesel generator control pannels consequently none are missing as previously reported. However, the dial faces of the subject control pannels still require protection as required by RIS&PM M-535. TVA closed QCIR 20391 which reports the absence of a connected heating element and the lack of preparation for storage for the subject steam turbine. The inspector verified that the heating element was

connected to the turbine motor but since the second part of the QCIR (absence of preparation for storage function) was not as yet completed the licensee initiated QCIR 20584 to insure control and followup of this activity.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort

Unit 1, Emergency Service Water Pumping Station (Structural Concrete I) - Observation of Work and Work Activities.

The RII inspector observed the preparation, partial delivery, placement and inspection of Unit 1's emergency service water (spray pond) pumping station base slab placement Nos. K-AB02-12, 4 and 5. The qualification and training records for the concrete QC placement inspector working the subject pour were examined. The activities associated with the above concrete placements were inspected to the following acceptance criteria:

Section 3.8 and 17 of the PSAR TVA Specifiation G-2 "Plain and Reinforced Concrete"

Drawing Nos. 4KE 1406-K6-02R1
4KE 1407-K6-01R0
4KE 1407-K6-02R0
QCI C-201, 207
CEP 2.10, 9.02, 17.01

No items of noncompliance or deviation were identified.

6. Review of QA Manual - VSL Corporation Heavy Rigging Quality Assurance Program For Power Industry Projects

CBI Nuclear (CBIN) a subcontractor for GE will be responsible for transporting the reactor pressure vessels (RPV), RPV heads, shroud heads and drywell heads by barge from Memphis, Tennessee to Pickel Island near Knoxville Tennessee. At this point VSL takes responsibility for the unloading and transporting of the above components overland to Mossy Creek. From there the components will be transported by barge again via Cherokee Lake. The barge will dock at Malinda Bridge (West of Rodgersville, TN) and the components then carried overland by a multiwheel transporter to the Phipps Bend site. Current plans do not call for any storage requirements for the RPV in that they will be installed by VSL shortly after arrival at the site.

VSL will handle their own QA/QC during their phase of transporting and installation of the RPV's. TVA plans to perform QC surveillance and QA audits of VSL activities. To date VSL procedures and checklists PB-1, 2,

3, 4, 5, 13, 14 and 15 have been reviewed, approved and returned to VSL subject to comments. VSL has "Hold Points" in its various procedures that allows for signoff by responsible TVA personnel. Discussions with licensee personnel revealed they are expecting additional procedures for their review shortly.

The RII inspector reviewed the subject VSL QA Manual which was approved by TVA (G. T. Neibert) dated November 26, 1979. This review was conducted to assure that adequate plans and procedures had been established for the scope of work involved. This review included examination of VSL's QA manual for organization structure; quality requirements; work and QC inspection procedures/checklists; provisions for control of materials and processes, control of conditions adverse to quantity, document control, test control and control of test equipment, control of quality records and audits.

No items of noncompliance or deviations were identified.

7. Licensee Identified Items (LII)

Prior to this inspection the licensee identified several items which were considered potentially reportable under 10 CFR 50.55(e). The items are as follows:

a. (Open) Item 553/79-15-01, 554/79-14-01 (NCR PBN -033): High pressure core spray diesel generator control switchgear wiring discrepancies. RII received the licensee's third interim report dated February 25, 1980 on this item. General Electric (GE) has determined that the vendor Morrison-Knudson (MK) did test the Phipps Bend Unit 2 switchgear as committed to in the final report on NCR HNP-A-021; however, the test evidently addressed only those items specifically identified in the NCR and did not include a 100 - percent inspection and checkout of all wiring as the test should. RII electrical inspectors were on site February 25, 1980 (RII Rpt 553-554/80-03) when GE and MK met to investigate and resolve the subject wiring discrepancies. On April 1, 1980, the RII inspector accompanied by a site QA representative and a knowledegable electrical QC inspector examined the repair work accomplished by MK on unit 1's HPCP DG control cabinets and the DG air compressor skid assembly. The QC inspector described in detail the various wiring defects found, the repairs accomplished to date and the repairs that still exist. Work still remains to be done on the control cabinets because some parts were not readily available and are on order to repair a few broken terminal slips, or replace indicating lights and lugs that need to be changed out. TVA electrical QC inspectors were observed in the process of investigating the wiring of unit 1's HPCS motor control center and discussions revealed they plan to check the HPCS metal clad switchgear to insure these items are free of similar defects. The licensee anticipates transmitting a final report on this matter on or before April 28, 1980.

b. (Closed) Item 553/80-01-05 (NCR S-13): Reactor pressure vessel pedestal (RPVP) welds incorrectly radiographed and evaluated. The licensee initially reported the subject deficiency to RII on January 18, 1980, and submitted a final report and a revised final report on this matter dated February 15 and March 31, 1980 respectively. The plates for the RPVP were being provided to TVA by Lakeside for the Phipps Bend Units. As previously reported (RII Rpt - 553-554/79-11-01), defects were found in plates fabricated by Lakeside which contained buttered edges. As a result of those deficiencies, GE instructed Lakeside to perform 100 - percent RT on buttering and Lakeside agreed that, "For all RPVP structure segments shipped from Lakeside on or after June 1, 1979, Lakeside would perform 100 percent RT and repair, as necessary, all buttered edges before the segments were shipped to TVA". McManus Inspection Service performed the RT's for Lakeside but did not consistently place the penetrameters on the source side of the plate. Consequently the presence of slag in the subject plates was not detected due primarily to inaccurate interpretation of the slag inclusions as "surface defects" and partially due to the low density or quality of the RT's. Discussions with the site welding QC supervisor and a responsible Level II RT inspector revealed that TVA has shot 100% RT of all weld preps on both the lower and upper segments of the RPVP where buttering was done by TVA or Lakeside. Any defects found were repaired by TVA and all repairs were 100% RT'd. Final acceptable radiographs for both the upper and lower segments for unit 1's RPVP are being maintained in the DCU vault. TVA reports that McManus is no longer evaluating RT film for Lakeside and TVA has verbally requested that Lakeside not let any further inspection contracts with McManus on items fabricated for TVA. This item is closed.

c. (Open) Item 553/80-06-01, 554/80-05-01 (NCR CEB 80-11): Incorrect root face on cadweld sleeves welded to plate. On March 14, 1980, TVA notified RII that skewed cadwelds were welded to drywell vent segments with root faces varying from 3/32 to 1/2 - inch. Design calculations are based on a 1/16-inch root face, consequently not enough weld throat buildup has been provided. A written report is due on this matter by April 14, 1980.

d. (Open) Item 553/80-06-02 (NCR PBN -067): Welding procedure weave requirements for containment shell plate welds not followed. The licensee initially reported the subject deficiency to RII on March 6, 1980 and submitted a final report on this matter dated April 3, 1980. Weld metal deposited in excess of 5/8-inch maximum weave width will be removed by thermal air arc gouging to original joint geometry. Gouged areas will have NDE performed, will be rewelded and receive final acceptance NDE in accorance with original requirements and specifications. This deficiency was also discussed in TVA's March 14, 1980, response for noncompliance item 50-553/79-17-01. Corrective actions are anticipated to be completed by September 30, 1980.

8. Inspector Followup Items (IFI)

a. (Closed) Item 553-554/79-03-02: QCIR - NCR system corrective action. During inspection 553-554/80-01, the RII inspector examined and identified no problems with DCU's QCIR-NCR master logs, and numerous written QCIR's and NCR's which were checked for dispostioning, completeness and handling in accordance with Construction Engineering Procedures, CEP 15.01 and 15.03. Followup inspection in this area revealed that related site QA audit deficiencies identified are now closed. Review of associated training revealed that all but one QC inspector has been retrained by the site QA unit in the process of handling QCIR's. However, this one inspector has participated in the review of the encoding of QCIR's and due to his experience is considered certified. Discussions with knowledgeable site personnel and review of records (RII Rpt 553-554/80-01) revealed that the retraining of site QC inspectors has resulted in more effective, explicit, detailed dispositions and documentation that is more standardized and consequently complete. The RII inspector examined QCIR hold tags for various items in warehouse storage and in the unit 1 and 2 construction work areas and found them to be complete. The inspector examined the QCIR logs maintained by the "welding, electrical, materials and civil, and mechanical QC unit supervisors and found they had been properly maintained. Quarterly checks on open QCIR hold tags were found completed by the above mentioned QC unit supervisors with the exception of the welding area. This quarterly verification of hold tags was performed prior to the inspector leaving the site. This item is closed.

b. (Open) 553-554/80-01-02: RIS&PM implementation for safety related equipment transferred from Hartsville Storage facilities. The RII inspector examined a copy of TVA Form 209 for the RCIC turbine and in accordance with CEP-13.02 this item been entered into the sites prevent maintenance program. Discussions with RIS&PM supervision and QC personnel revealed that "Form 144, Shipping Ticket" is the document that is now being recognized primarily rather than TVA Form 209 for triggering the Phipps Bend prevent maintenance program for a particular item or component. Warehousing personnel have been instructed to notify QC receiving of any delivery prior to accepting the shipment. Conversation with QC receiving personnel revealed that all Form 144's at the Hartsville site were examined to identify what items were shipped to Phipps Bend. The RII inspector was informed that all items shipped to Phipps Bend which inadvertently missed entry into the preventive maintenance system are now in the program.

RIS&PM Controls for the transfer of safety related equipment from one TVA site to another was an item of discussion at the licensee's last Construction Engineer's/QA meeting conducted March 18, 1980. Because the use of Form 209 or receiving inspection checklists are not the same for all projects, it was recognized that CEP - 13.02 may be

affected when a standard imput to the Prevent System is determined. This item is on the agenda to be discussed at the next April 15, 1980 meeting.

The RII inspector has left this item open pending the possible need for procedure revision, the need to verify the corrective actions taken and further assurance that items received at Phipps Bend from TVA sites other than Hartsville have been placed in the Prevent Maintenance Program.

c. (Closed) Item 553-554/80-01-04: Procedure revision for cadweld installations. The RII inspector examined procedural revision 2 to QCI C-401, "Reinforcing Cadweld Splice Inspection". Item 7 of the subject revision permits the use of No. 9 tie wire for venting and alignment purposes. The inspector was shown a copy of "ERICO's Cadwelds Rebar Splicing Bulletin No. 101", dated 1974 where note 2 endorsed this technique for venting of vertical splices. Item 8 of the subject revision further clarifies the allowable void limits for B-series structure splices (bar to steel shape). This item is closed.