



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

May 9, 2014

Mr. Michael D. Skaggs
Senior Vice President
Nuclear Generation Development and Construction
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

**SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC INTEGRATED
INSPECTION REPORT 05000391/2014603**

Dear Mr. Skaggs:

On March 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of construction activities at your Watts Bar Unit 2 reactor facility. The enclosed integrated inspection report documents the inspection results, which were discussed on April 21, 2014, with Mr. Hruby and other members of your staff.

This inspection examined activities conducted under your Unit 2 construction permit as they relate to safety and compliance with the Commission's rules and regulations, the conditions of your construction permit, and fulfillment of Unit 2 regulatory framework commitments. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

No findings were identified during this inspection.

In accordance with 10 *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

M. Skaggs

2

Should you have questions concerning this letter, please contact us.

Sincerely,

/RA/

Robert Haag, Chief
Construction Projects Branch 3
Division of Construction Projects

Docket No. 50-391
Construction Permit No: CPPR-92

Enclosure: Inspection Report 05000391/2014603
w/Attachment

cc w/encl: (See next page)

Should you have questions concerning this letter, please contact us.

Sincerely,

/RA/

Robert Haag, Chief
 Construction Projects Branch 3
 Division of Construction Projects

Docket No. 50-391
 Construction Permit No: CPPR-92

Enclosure: Inspection Report 05000391/2014603
 w/Attachment

cc w/encl: (See next page)

* Previous Concurrence

PUBLICLY AVAILABLE
 NON-PUBLICLY AVAILABLE
 SENSITIVE
 NON-SENSITIVE
 ADAMS: Yes
 ACCESSION NUMBER: ML14129A381
 SUNSI REVIEW COMPLETE
 FORM 665 ATTACHED

OFFICE	RII:DCP	RII:DCP	RII:DCP	RII:DCP	RII:DCI	RII:DCP
SIGNATURE	TXN1	EJP1 via e-mail	NDK1 via e-mail	TXN1 for CNO1 via e-mail	CJE via e-mail	JBB%
NAME	TNazario	EPatterson	NKarloovich	DPiccirillo	CEven	JBaptist
DATE	05/09/2014	05/09/2014	05/02/2014	05/09/2014	05/02/2014	05/09/2014
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
OFFICE	RII: DCP	RII: DCP	RII: DCI	RII: DCI	RII: DCI	RII: DRS
SIGNATURE	DJS3 via e-mail	AAW via e-mail	TXN1 for CNO1 via e-mail	CAJ via e-mail	DXT2 via e-mail	AXT6 via e-mail
NAME	JSeat	AWilson	COelstrom	CJulian	DTerryWard	AToth
DATE	05/01/2014	05/01/2014	05/09/2014	05/02/2014	05/01/2014	05/01/2014
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
OFFICE	RII: DRS	RII: DCI	RII: DCP	RII: DCP	RII: DCI	RII: DCI
SIGNATURE	BLC2 via e-mail	DMH3 via e-mail	TXN1 for CNO1 via e-mail	TXN1 for CNO1 via e-mail	TXN1 for CNO1 via e-mail	TXN1 for CNO1 via e-mail
NAME	BCaballero	DHarmon	MMagyar	JKent	TSteadham	PCarman
DATE	05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: OFFICIAL RECORD COPY DOCUMENT NAME:
 G:\CC\DCP\CPB3\WATTS BAR 2\CURRENT DRAFT INSPECTION REPORT\2014\IR 2014-603\INTEGRATED IR
 2014603 FINAL.DOCX

cc w/encl:

Mr. Gordon P. Arent
Director, Licensing
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. O. J. Zeringue, General Manager
Engineering and Construction
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. R. A. Hrubby, General Manager
Technical Services
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City Tennessee 37381

Mr. James O'Dell, Manager
Licensing and Industry Affairs
WBN Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. Joseph P. Grimes
Chief Nuclear Officer
and Executive Vice President
Tennessee Valley Authority
1101 Market Place
3R Lookout Place
Chattanooga, Tennessee 37402-2801

County Executive
375 Church Street
Suite 215
Dayton, Tennessee 37321

Mr. Dave Gronek
Plant Manager, WBN Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. R. R. Baron, Senior Manager
Nuclear Construction Quality Assurance
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. Joseph Shea, Vice President
Nuclear Licensing
Tennessee Valley Authority
1101 Market Street
3R Lookout Place
Chattanooga, TN 37402-2801

Mr. E. J. Vigluicci
Assistant General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
6A West Tower
Knoxville, Tennessee 37402

Mr. Lawrence E. Nanney, Director
Tennessee Department of Environmental
Health & Conservation
Division of Radiological Health
3rd Floor, L&C Annex
401 Church Street
Nashville, TN 37243-1532

Mr. Chris Church
Site Vice President
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

County Mayor
P.O. Box 156
Decatur, Tennessee 37322

Ms. Ann P. Harris
Public
341 Swing Loop
Rockwood, TN 37854

M. Skaggs

4

cc email distribution w/encl:

Greg Scott
Tennessee Valley Authority
Electronic Mail Distribution

Watts Bar 2 Licensing
Tennessee Valley Authority
Electronic Mail Distribution

Letter to Michael D. Skaggs from Robert C. Haag dated May 9, 2014.

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC INTEGRATED
INSPECTION REPORT 05000391/2014603

Distribution w/encl:

Region II Regional Coordinator, OEDO

J. Quichocho, NRR

J. Poole, NRR

A. Hon, NRR

J. Dion, NRR

V. McCree, RII

L. Douglas, RII EICS

J. Bartley, RII DRP

R. Monk, RII WBN Unit 1 SRI

OE Mail

ConE_Resource@nrc.gov

PUBLIC

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-391

Construction Permit No.: CPPR-92

Report No.: 05000391/2014603

Applicant: Tennessee Valley Authority (TVA)

Facility: Watts Bar Nuclear Plant, Unit 2

Location: Spring City, TN 37381

Dates: February 16 – March 31, 2014

Inspectors:

- T. Nazario, Senior Resident Inspector, Construction Projects Branch (CPB) 3, Division of Construction Projects (DCP), Region II (RII)
- C. Jones, Resident Inspector, CPB3, DCP, RII
- E. Patterson, Resident Inspector, CPB3, DCP, RII
- N. Karlovich, Resident Inspector, CPB3, DCP, RII
- P. Carman, Construction Inspector, Construction Inspection Branch (CIB) 3, Division of Construction Inspection (DCI), RII
- J. Kent, Construction Project Inspector, CPB4, DCP, RII
- M. Magyar, Construction Project Inspector, CPB2, DCP, RII
- C. Oelstrom, Construction Inspector, CIB2, DCI, RII
- D. Piccirillo, Senior Construction Project Inspector, CPB2, DCP, RII
- T. Steadham, Senior Construction Inspector, CIB3, DCI, RII
- D. Harmon, Construction Inspector, CIB3, DCI, RII, Section C.1.2
- J. Baptist, Senior Construction Project Inspector, CPB3, DCP, RII, Section P.1.2
- C. Even, Senior Construction Project Inspector, CPB3, DCP, RII, Sections OA.1.9, OA.1.11 and OA.1.12
- J. Seat, Construction Project Inspector, CPB3, DCP, RII, Sections OA.1.7 and OA.1.8
- A. Wilson, Construction Project Inspector, CPB3, DCP, RII, Sections OA.1.5, OA.1.6
- A. Matos, Construction Inspector, CIB1, DCI, RII, Section OA.1.10
- C. Julian, Senior Construction Inspector, CIB1, DCI, RII, Section P.1.3
- D. Terry-Ward, Construction Inspector, CIB1, DCI, RII, Section P.1.3
- B. Caballero, Senior Operations Engineer, Operations Branch 2, Division of Reactor Safety (DRS), Sections O.1.1, OA.1.3, and OA.1.4

Enclosure

A. Toth, Operations Engineer, Operations Branch 2, DRS,
Sections O.1.1, OA.1.3, and OA.1.4

Approved by:

Robert C. Haag, Chief
Construction Projects Branch 3
Division of Construction Projects

EXECUTIVE SUMMARY

Watts Bar Nuclear Plant, Unit 2

This integrated inspection included aspects of engineering and construction activities performed by TVA associated with the Watts Bar Nuclear (WBN) Plant Unit 2 construction project. This report covered a six-week period of inspections in the areas of quality assurance (QA), identification and resolution of construction problems, engineering and construction activities, pre-operational testing, operation readiness activities, and follow-up of other activities. The inspection program for Unit 2 construction activities is described in NRC Inspection Manual Chapter 2517, "Watts Bar Unit 2 Construction Inspection Program." Information regarding the WBN Unit 2 Construction Project and NRC inspections can be found at <http://www.nrc.gov/info-finder/reactor/wb/watts-bar.html>.

Inspection Results

- The inspectors concluded that issues pertaining to several open items, including two construction deficiency reports (CDRs), one violation, three temporary instructions (TIs), one Three Mile Island (TMI) action item (AIs), two Appendix HH items, and two inspection procedures (IPs) have been appropriately addressed for WBN Unit 2. These items are closed.
- Other areas inspected were adequate with no findings identified. These areas included QA; piping and supports; mechanical systems and components; electrical systems and components; engineering activities; pre-operational testing activities; operational staffing; and various NRC inspection procedures.

Table of Contents

I. QUALITY ASSURANCE PROGRAM.....	5
Q.1 Quality Assurance Oversight Activities.....	5
Q.1.1 Identification and Resolution of Construction Problems (Inspection Procedure 35007).....	5
II. MANAGEMENT OVERSIGHT AND CONTROLS.....	6
C.1 Construction Activities.....	6
C.1.1 Unit 1 and Unit 2 Construction Activity Interface Controls.....	6
C.1.2 Nuclear General Welding and Nondestructive Examination Procedure Radiographic Examination (Inspection Procedures 55050 and 57090).....	7
C.1.3 Electrical Components and Systems – Work Observation (Inspection Procedure 51053).....	7
C.1.4 Instrument Components and Systems – Work Observation (Inspection Procedure 52053).....	8
C.1.5 Electrical Cable – Work Observation (Inspection Procedure 51063).....	10
C.1.6 Reactor Vessel and Internals Work Observation (Inspection Procedure 50053).....	11
C.1.7 Conduit Walkdowns and Loading Calculations (Inspection Procedures 51063, 51053, and 37051).....	11
E.1 Engineering Activities.....	12
E.1.1 Verification of As-Builts for Safety-Related Piping Systems (Inspection Procedures 37051, 49063, and 50073).....	12
P.1 Pre-Operational Activities.....	14
P.1.1 Preoperational Test Program Implementation Verification (Inspection Procedure 70312).....	14
P.1.2 Preoperational Test Procedure Review (Inspection Procedures 70300 and 70311).....	15
P.1.3 Preoperational Test Procedure Review (Inspection Procedures 70300 and 70305).....	17
T.1 Training and Qualification of Plant Personnel.....	18
T.1.1 Craft and Field Engineer Training for Kapton Insulation and Thermo-Lag (Inspection Procedure 51063, Temporary Instruction 2512/022).....	18
III. OPERATIONAL READINESS ACTIVITIES.....	19
O.1 Operations.....	19
O.1.1 (Closed) Operational Staffing (Inspection Procedure 36301).....	19
F.1 Fire Protection.....	21
F.1.1 Fire Protection (Inspection Procedure 64051).....	21

IV. OTHER ACTIVITES	22
OA.1.1 (Closed) Fire Loop Installation (Inspection Procedure 64053)	22
OA.1.2 (Closed) Violation 86-13-08: Failure to Follow Procedure G-53 and WBN-QCP-1.42-3 (Inspection Procedure 92702).....	23
OA.1.3 (Closed) Supplemental Safety Evaluation Report (SSER), Appendix HH, Open Item 9: Education and Experience of Management and Principle Supervisory Positions Conform to RG 1.8. (Inspection Procedure 36301)	25
OA.1.4 (Closed) SSER, Appendix HH, Open Item 10: Licensed and Non-Licensed Operators in the Training Pipeline (Inspection Procedure 36301).....	26
OA.1.5 (Closed) Temporary Instruction 2515/66, Inspection Requirements for IE Bulletin 84-03, Refueling Cavity Water Seals (Temporary Instruction 2515/66 and Inspection Procedure 92701)	26
OA.1.6 (Closed) TMI Action Item II.K.3.10, Applicant's Proposed Anticipatory Trip at High Power (Inspection Procedure 92701).....	28
OA.1.7 (Closed) Construction Deficiency Report 391/85-19: Potential Interaction of Flux Mapping System and Seal Table (Temporary Instruction 2500/16 and Inspection Procedure 35007).....	29
OA.1.8 (Closed) Construction Deficiency Report 391/87-05-01: Failure to Consider Vendor Requirements in the Design of the Hydrogen Analyzer System and Failure to Specify Classes of Cleanliness in Specifications or Drawings (Inspection Procedure 35007)	29
OA.1.9 (Closed) Temporary Instruction 2515/065-02: Three Mile Island Action Plan Requirement Follow-up	31
OA.1.10 (Discussed) Electrical Cable Issues CAP – Sub-issue: Cable Bend Radius Deficiencies (Temporary Instruction 2512/016 and Inspection Procedure 51063)	31
OA.1.11 (Discussed) Quality Assurance Records Corrective Action Program (Temporary Instruction 2512/028, Inspection Procedures 55050 and 49065).....	32
OA.1.12 (Discussed) Design Basis Verification Program CAP (Temporary Instruction 2512/019, Inspection Procedure 51055)	33
V. MANAGEMENT MEETINGS.....	33
X1 Exit Meeting Summary.....	33

REPORT DETAILS

Summary of Plant Status

During the inspection period covered by this report, Tennessee Valley Authority (TVA) performed construction completion and pre-operational testing activities on safety-related systems and continued engineering design activities of the Watts Bar Nuclear (WBN) Plant, Unit 2.

I. QUALITY ASSURANCE PROGRAM

Q.1 Quality Assurance Oversight Activities

Q.1.1 Identification and Resolution of Construction Problems (Inspection Procedure 35007)

a. Inspection Scope

The inspectors continued to review problem evaluation reports (PERs), as part of the applicant's corrective action program, to verify that issues being identified under the corrective action program were being properly identified, addressed, and resolved by the applicant.

The inspectors reviewed applicant disposition and actions associated with PER 749111, American Society of Mechanical Engineers (ASME) related, ASME N-5 data reports; and PER 756440, 2B containment spray heat exchanger bolt tightening method not in accordance with procedure. Inspectors verified that corrective actions were implemented to include correct bolt tightening method.

The inspectors reviewed PER 687378, which documented construction mistakenly removing pipe support 2-ISLS-998-3371 (auxiliary building, Elevation 676), under work order (WO) 110734889. The inspectors verified that pipe support 2-ISLS-998-3371 was properly evaluated, documented, and re-installed per WO 110734889.

The inspectors reviewed PER 735081, which documented the use of QA-3 steel plate on several pipe supports that are safety related, instead of QA-1 (or TVA equivalent QA-2). The inspectors reviewed the procurement engineering document, PKG NO. CJC350P-X and verified that the subject ½" steel plate was commercial grade dedicated as safety related QA-2 (TVA) in accordance with procedures.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The issues identified in the PERs reviewed were adequately identified, addressed, and resolved.

II. MANAGEMENT OVERSIGHT AND CONTROLS

C.1 Construction Activities

C.1.1 Unit 1 and Unit 2 Construction Activity Interface Controls

a. Inspection Scope

The inspectors independently assessed applicant controls, associated with Unit 2 construction work activities, to prevent adverse impact on Unit 1 operational safety. The inspectors attended routine Unit 1/Unit 2 interface meetings to assess the exchange and sharing of information between the two site organizations. Periodic construction and planning meetings were observed, at least once per week, to assess the adequacy of the applicant's efforts to identify those construction activities that could potentially impact the operating unit. This included the review of select work activities, which the applicant had screened as not affecting Unit 1, to verify the adequacy of that screening effort. Additionally, the inspectors independently assessed select construction activities to verify that potential impacts on the operating unit had been identified and adequately characterized with appropriate management strategies planned for implementation. Furthermore, the inspectors performed independent walkdowns of select construction work locations to verify that controls to protect the operating unit provided an adequate level of protection and had been properly implemented. Some inspection samples associated with Unit 1 and Unit 2 interface activities that occurred during the first six weeks of 2014 were also documented in Integrated Inspection Report (IIR) 05000391/2014602 (Agencywide Documents Access and Management System [ADAMS] Accession Number [No.] ML14086A063).

Specific work activity observed included work associated with:

- WO 114811476, Seal Conduit at location C15882B
- WO 114306265, Install Conduit Seal for 2PV2641

Specific work activities that the applicant had screened out as not affecting Unit 1 included, but were not limited to, electrical work activities and refurbishment activities as noted in this inspection report.

b. Observations and Findings

No findings were identified.

c. Conclusions

Overall, adequate management oversight and controls were in place for observed construction activities that could potentially impact the operating unit.

C.1.2 Nuclear General Welding and Nondestructive Examination Procedure Radiographic Examination (Inspection Procedures 55050 and 57090)

a. Inspection Scope

The inspectors observed in process welding of weld numbers 2-001A-D001-26 and 2-001A-D001-07 to replace a section of the main steam line in the south valve room. This was done to verify that the welding process was in conformance with welding procedure P1-AT-Lh (CVN+10) Revision (Rev.) 1, and the 1973 edition of the ASME Section III code. Specifically, the inspectors verified the following welding variables:

- SMAW electrode size and classification
- Electrode polarity
- Interpass temperature
- Amperage and voltage
- Heat input
- Travel speed
- Interpass cleaning

In addition, the inspectors reviewed the radiographic film and associated weld records associated with the main steam weld repairs for weld number 2-001A-D001-07 to determine if the radiographic quality was in accordance with procedure 25402-000-4MP-T040-S0126, "Nondestructive Examination Standard Radiographic Examination RT-ASME/ANSI Piping," Rev. 5. The inspectors reviewed the radiographic film and nondestructive examination reports to verify the following:

- Penetrameter type, size, and placement
- Penetrameter sensitivity
- Film density, density variation
- Film identification and quality

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The welding process observed and the radiographic records were completed in accordance with the approved procedures.

C.1.3 Electrical Components and Systems – Work Observation (Inspection Procedure 51053)

a. Inspection Scope

The inspectors walked down storage yard 'C' for two specific types of conduits (2 ½" conduit with a product code BYC743M and 1 ½" conduit with a product code BYC739C) to verify that they were stored in the proper storage level designation and that

components were properly identified. The inspectors also walked down storage yard 'C' to verify that in-place storage requirements for conduit in procedure NPG-SPP-04.3, "Materials Storage and Handling," Rev. 001, were met (i.e., conduit not on end, sloped, and ends were protected) and to verify that storage requirements for American National Standards Institute (ANSI) N45.2.2 were met.

The following samples were inspected:

- IP 51053 Section 02.02b - 2 samples

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors concluded that the conduit in the storage yard was stored in accordance with procedures and the ANSI standard.

C.1.4 Instrument Components and Systems – Work Observation (Inspection Procedure 52053)

a. Inspection Scope

The inspectors observed the onsite storage of 2-LT-68-367 in level B storage trailer to verify that the component was in the proper storage level designation, storage conditions were controlled and monitored, nonconforming items were identified and segregated, and in-place storage requirements were satisfied in accordance with ANSI N45.2.2 and NPG-SPP-04.3, Rev. 001. The inspectors also observed the storage of 2-LT-68-369 and 2-LT-68-372 in the main warehouse to verify that the components were in the proper storage level designation, storage conditions were controlled and monitored, nonconforming items were identified and segregated, and in-place storage requirements were satisfied in accordance with ANSI N45.2.2 and NPG-SPP-04.3, Rev. 001. Level transmitters, 2-LT-68-367, 2-LT-68-369 and 2-LT-68-372, are associated with reactor vessel level indicating system (RVLIS), which are post-accident monitoring system variables.

The inspectors observed in-process work associated with WO 110892444, Fabricate and Install Mounting Plates, New Local Panel 2-L-659, and Instruments, which involved pressurizer pressure transmitter 2-PT-68-340-D and pressurizer level transmitter 2-LT-68-339-D. The inspectors also observed in-process work associated with WO 114790530, Install Instruments on Panel 2-L-388 (reference engineering design change request 55385), which involved RVLIS Level transmitters 2-LT-68-0367-D, 2-LT-068-0368-D, 2-LT-068-0369-D, and a reactor coolant system (RCS) loop 1 hot leg pressure which feeds into RCS wide range pressure 2-PT-68-63 (a Category 1 post-accident monitoring system [PAMS] variable).

The inspectors observed the following:

- latest revisions of applicable drawings were available for the installers;
- components were as specified;

- mounting hardware was the material specified;
- components were installed in the proper location and orientation by qualified craft personnel using suitable equipment and tools;
- component identification was properly maintained;
- inspections were performed before work was finalized;
- inspection activities were timely and properly completed by qualified personnel; and
- non-conformances were identified and handled in accordance with established procedures

For the work associated with WO 114790530, the inspectors also observed that equipment was protected from damage by adjacent construction activities.

The inspectors observed and inspected the in-process installation, completed installation, and performed an as-built verification of eight relays associated with the reactor trip system (RTS) variable for reactor coolant low flow trip (2-27-068-0008A, 2-27-068-0008B, 2-27-068-0031A, 2-27-068-0031B, 2-27-068-0050A, 2-27-068-0050B, 2-27-068-0073A, 2-27-068-0073B). The inspectors reviewed drawings and the vendor manuals and walked down instrument installations to verify that location, configuration, and installation were completed in accordance with the latest approved drawings, specifications, and the updated master equipment list. The inspectors verified that installed equipment was adequately protected from adjacent construction activities, that cleanliness had been maintained, and that physical and electrical independence between redundant parts had been maintained. The inspectors reviewed WOs to verify that calibrated measuring and test equipment was used in support of the installations and that all required quality records were available and complete in support of the installation.

Documents reviewed are listed in the Attachment.

The following samples were inspected:

- IP 52053 Section 02.02.b – 3 samples
- IP 52053 Section 02.02.c – 14 samples (10 samples RTS, 4 samples PAMS)
- IP 52053 Section 02.02.d – 8 samples
- IP 52053 Section 02.02.e – 8 samples

b. Observations and Findings

No findings were identified.

c. Conclusions

Storage requirements for instrumentation were being met. In-process work observed followed established procedures. Completed work was in conformance with properly approved design output and was identified and protected in accordance with project procedures and regulations.

C.1.5 Electrical Cable – Work Observation (Inspection Procedure 51063)

a. Inspection Scope

The inspectors observed in-process and completed installation of three control cable terminations and splicing associated with 2-FCV-68-305-A. The cables terminated and spliced in WO 11555497 were 2V5503A, 2V5504A, and 2V5505A. The inspectors observed the termination installation at 2-JB-292-1374-A and splicing at 2-JB-292-8350-A. The inspectors reviewed the WO to verify that the latest drawings were being used. The inspectors observed the work to verify that cable identification was preserved, proper bending radius was maintained, crimping tools were in proper working order, terminations were properly located, cable trays and conduits were not used as climbing aids, and quality control (QC) inspectors were present and performing their assigned tasks. The inspectors observed the work to verify that the cable wire and splice kits were as specified, the junction boxes were maintained free of debris, inspections were made by qualified personnel, and documentation of completed activities was proper and timely.

The inspectors also observed in-process work associated with in-line splice joints on a safety-related medium voltage cable under WO 114489928. The work observed included splices on each phase conductor of the 3/1C #2/0 power cable number 2PP820B by using an inline compression connector and a model NHVS-822S Raychem® splice kit. Interviews, document reviews, and direct observations were conducted to verify the following:

- all work was performed according to the latest approved revision of applicable construction specifications, procedures, and splice-kit manufacturer installation instructions;
- unterminated cable ends were protected;
- all conductors were properly identified;
- the materials used were as specified;
- cable temperature was acceptable for the work being performed;
- proper bending radius was maintained;
- adequate cutbacks were performed on each conductor per the splice-kit manufacturers' instructions;
- the materials were installed at the proper location by qualified craft personnel using suitable tools;
- crimping tools used were in proper working order;
- QC hold points were observed;
- required inspections were performed by qualified QC personnel; and
- adequate documentation of installation activities was completed in a timely manner.

Documents reviewed are listed in the Attachment.

The following samples were inspected:

- IP 51063 Section 02.02.c - 4 samples
- IP 51063 Section 02.02.d – 3 samples

b. Observations

No findings were identified.

c. Conclusions

The inspectors determined that adequate measures were in place to ensure that electrical work was performed in accordance with applicable procedures and drawings.

C.1.6 Reactor Vessel and Internals Work Observation (Inspection Procedure 50053)

a. Inspection Scope

The inspectors observed portions of interior of the hot leg piping from steam generator (SG) 1 to the reactor vessel during work associated with WO 111963388, which installed RCS hot and cold leg pipe plugs. The inspectors observed the use of platforms and scaffolding inside the vessel to verify the scaffolding would prevent the spread of accidental fires. Access controls were inspected to verify entries into the reactor pressure vessel (RPV) were controlled, the entry logs documented each entry into the RPV, and authorized entry and exit of tools, equipment, and personnel were tracked.

- IP 50053 Section 02.01.c - 1 sample
- IP 50053 Section 02.03.b - 1 sample

b. Observations and Findings

No findings were identified.

c. Conclusions

Adequate controls were in place to protect the reactor vessel.

C.1.7 Conduit Walkdowns and Loading Calculations (Inspection Procedures 51063, 51053, and 37051)

a. Inspection Scope

The inspectors reviewed the ampacity calculations, environmental thermal load calculations, and reviewed integrated cable and raceway design system (ICRDS) data which showed the mass loading for as-built power cable conduits 2PP2596B, 2PP02190B, 2PP02354A. The inspectors performed as-built walkdowns of the conduits to verify that location and routing, supports, separation and isolation, and identification, was consistent with ICRDS data, associated drawings, and specifications.

The following samples were inspected:

- IP 51063 Section 02.03.b – 3 samples
- IP 51053 Section 02.02.f – 3 samples
- IP 37051 Section 02.01.b.2 – 3 samples

Documents are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors concluded that the conduits were adequately installed.

E.1 Engineering Activities

E.1.1 Verification of As-Built for Safety-Related Piping Systems (Inspection Procedures 37051, 49063, and 50073)

a. Inspection Scope

The inspectors performed field walkdowns of selected portions of four safety-related piping systems including system 062, chemical volume and control system (CVCS); system 063, safety injection system (SI); system 072 containment spray system (CS); and system 074, residual heat removal system (RHR) to determine if:

- as-built design and construction drawings and specifications correctly reflected the as-built condition of the plant (including supports, pipe welds, and piping);
- changes from the original design were properly reviewed and approved;
- activities relative to safety-related components were accomplished in accordance with NRC requirements, safety analysis report (SAR) commitments, and licensee procedures;
- pipe-to-pipe and interdisciplinary clearance requirements were met; and
- hydrostatic testing was performed satisfactorily.

The inspectors performed inspection activities on the following mechanical structures, systems, or components:

System 062, CVCS:

- pipe section between discharge of centrifugal charging pump (CCP) 2B to node 70 on drawing 2-47W406-332;
- pipe section between suction of CCP 2B to node 61A on drawing 2-47W406-350 including pipe supports 62-2CVC-R018 and 47A406-1-22; and
- pipe section between node 66 to node 34 on drawing 2-47W406-360 including valve 2-FCV-063-39.

System 063, SI:

- pipe section between nodes A86H and 41H on drawing 2-47W435-277;
- pipe section between nodes 82B and 34A on drawing 2-47W437-208 including pipe supports 72-2CSR96 and 72-2CS-R97;
- pipe section between nodes 74I and 84 on drawing 2-47W435-263 including pipe supports 2-63-039 and 2-63-038, and valves 2-CKV-63-551 and 2-THV-063-550;

- pipe section between nodes 139 and 148 on drawing 2-47W435-263 including pipe supports 2-63-466 and 2-63-468, and valves 2-CKV-63-557 and 2-THV-063-556;
- pipe section between node NC41 and NC42 on drawing 2-47W435-256 including supports 2-63-388 and 2-63-389;
- pipe section between node B21 and B35 on drawing 2-47W435-215 including support 63-2SIS-R57;
- pipe section between node 7V3 and 272 on drawing 2-47W435-212;
- pipe section between node 245 and 196 on drawing 2-47W435-212 including valves 2-CKV-63-510 and 2-FCV-63-5;
- pipe section between node 3V1C and 171 on drawing 2-47W435-212 including valve 2-FCV-63-48 and support 63-2SIS-R080; and
- pipe section between node A48 and A68S on drawing 2-47W435-275.

System 072, CS:

- pipe section between nodes 230 and 237 on drawing 2-47W437-204B including valve 2-FCV-72-2;
- pipe section between nodes 201 and 229 on drawing 2-47W437-207;
- pipe section between the CS pump 2B-B discharge (node 150) and the CS heat exchanger nozzle (node 253) on drawing 2-47W435-206A including support 72-2CSR144-1;
- pipe section between CS pump 2B-B suction and node 30B on drawing 2-47W435-276 including support 63-2SIS-R232;
- pipe section between node 77B and 83B on drawing 2-47W435-276; and
- pipe section between node 67A and 73A on drawing 2-47W435-276.

System 074, RHR:

- pipe section between nodes B61 and B40 on drawing 2-47W432-209;
- pipe section between nodes B15 and B1 on drawing 2-47W432-209 including pipe supports 74-2RHR-R91 and 74-2RHR-V90;
- pipe section between nodes 29 and A19 on drawing 2-47W432-216;
- pipe section between nodes 1DD and 18 on drawing 2-47W432-216;
- pipe section between nodes A2 and A23A on drawing 2-47W432-208 including valve 2-FCV-74-16; and
- pipe section between nodes A75 and RHR Pump 2A-A suction on drawing 2-47W432-216.

Additionally, for each of the sampled field changes, the inspectors compared final detailed construction drawings and specification requirements with the actual installation by performing field walkdowns to determine if:

- final design drawings and specifications reflected as-built conditions for supports (location, type, and configuration) and piping (location, size, configuration, component location, and valve/operator orientation);
- materials of construction, configuration, and orientation conformed to the applicable design specifications;

- an adequate process was in place to ensure that final as-built design documents (drawings, specifications, and calculations) would be readily available to site operations personnel at the initiation of commercial operation;
- design verification records were adequate by ensuring their consistency with the actual field configuration; and
- the as-built condition of the plant was used as the input to the stress and seismic analysis of the system or that the as-built condition conforms to the original stress and seismic criteria, as applicable.

The following samples were inspected:

- IP 37051 Section 02.01.b.1 – 4 samples
- IP 37051 Section 02.02.a – 4 samples
- IP 37051 Section 02.02.b – 4 samples
- IP 49063 Section 02.03 – 2 samples (2 piping systems outside RCS)
- IP 49063 Section 02.04 – 4 samples (4 piping systems outside RCS)
- IP 50073 Section 02.04 – 12 samples (12 drawings and twenty-one SR mechanical components)

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusion

Based on the activities reviewed in this and previous inspections, the inspectors concluded that the as-built configuration of the sampled systems reflected the construction drawings and specifications, safety analysis report (SAR), and NRC requirements. Additional inspection samples are required to meet the requirements of IP 37051.

P.1 Pre-Operational Activities

P.1.1 Preoperational Test Program Implementation Verification (Inspection Procedure 70312)

a. Inspection Scope

The inspectors verified that the applicant's management control system was effectively discharging its responsibilities over the preoperational testing program by direct observation of activities, tours of the facility, interviews and discussions with licensee personnel, and reviewing facility records. Preoperational testing activities were limited during the inspection period and included the following systems or portions thereof:

- System 062, CVCS

As systems became available for preoperational testing, inspectors toured the accessible areas of the facility to make an independent assessment of equipment

conditions, plant conditions, security, and adherence to regulatory requirements. Inspectors also verified the following, as available and on a sampling basis, during the tours:

- general plant/equipment conditions;
- plant areas for fire hazards - examined fire alarms, extinguishing equipment, actuating controls, firefighting equipment, and emergency equipment for operability and also verified that ignition sources and flammable material were being controlled in accordance with licensee's procedures (further discussed in Section F.1.1);
- activities in progress (e.g., maintenance, preoperational testing, etc.) were being conducted in accordance with licensee's procedures;
- listened for the public address system announcements to determine that the announcements can be heard and understood
- construction work force authorized to perform activities on systems or equipment.

In addition, the inspectors witnessed the performance of component test procedure GTE-04, WO 112228233 Coupled/Uncoupled Motor Run-In Test, for the charging pump 2B-B (2-MTR-062-0104-B), system 062 chemical and volume control system. The inspections were completed to verify that the testing was conducted in accordance with approved procedures and to verify the adequacy of test program records and preliminary evaluation of test results. The inspectors verified the following activities associated with this test observation:

- all test personnel were on station and had the latest revision of the procedure;
- plant systems in service to support the test;
- test equipment installed and within calibration;
- test was performed in accordance with the approved procedure;
- testing events and discrepancies were properly documented;
- test was executed and coordinated properly;
- data was properly collected; and
- test personnel were using approved drawings and vendor manuals

b. Observations and Findings

No findings were identified.

c. Conclusions

The applicant's implementation of the preoperational test program and the CVCS motor run-in test was implemented in accordance with procedures for those activities observed during the inspection period.

P.1.2 Preoperational Test Procedure Review (Inspection Procedures 70300 and 70311)

a. Inspection Scope

Background: The purpose of Inspection Manual Chapter (IMC) 2513, Light Water Reactor Inspection Program - Preoperational Testing and Operational Preparedness

Phase, issue date January 1, 1984, is to verify through direct observation, personnel interviews, and review of facility records that:

- Systems and components important to the safety of the plant are fully tested to demonstrate that they satisfy their design requirements.
- Management controls and procedures, including quality assurance programs, necessary for operation of the facility have been documented and implemented.

IMC 2513 defines the minimum inspection program for a finding of readiness for license issuance (IP 94300, Status of Plant Readiness for an Operating Licensee). IMC 2513 requires the procedural review of the mandatory tests defined in IMC 2513 and five of the primal tests defined in IMC 2513. The following inspection was performed in relation to satisfying the required procedural review.

Inspection Activities: The inspectors reviewed pre-operational test procedures for the following safety injection tests:

- 2-PTI-063-01, Safety Injection System (SIS) Integrated Test, Rev.0
- 2-PTI-063-02, Safety Injection System (SIS) Accumulators, Rev.0
- 2-PTI-063-03, Safety Injection System (SIS) Charging, SI, and RHR Flow Balance, Rev.0

These reviews were performed to verify that the procedures contained the following administrative good practice attributes:

- the title described the purpose of the procedure
- the cover page had appropriate information and approval signatures
- each page had appropriate identification information
- the last page was clearly identifiable by markings
- a clear statement of procedure purpose/objectives
- planning information such as prerequisites, precautions, required tools, reference documents, and coordination requirements
- signoff requirements including concurrent and independent verification steps established where appropriate
- equipment alignment instructions were clear and concise
- equipment identifiers were accurate
- actions to be taken within the steps were specifically identified
- instrumentation units were consistent for data collection
- graphs, charts, tables, data sheets, and work sheets were clearly usable
- calculation sheets were technically accurate
- clear coordination of instructions for test activities involving multiple test personnel
- clear instructions for system restoration
- guidance for follow-up actions and points of contact
- overall, clear concise steps for testing with action critical (acceptance criteria) steps identified
- clear quantitative acceptance criteria with acceptability and contingencies
- overall sequence of the procedure consistent with the obtaining the intended result

The inspectors also reviewed the procedures to verify that precautions or explanations were placed immediately ahead of the steps to which they applied. The inspectors performed a detailed review with the responsible test engineers to verify that the acceptance criteria met design requirements.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that the applicant's test procedures were written in a manner consistent with the guidance of procedure SMP-8.0, "Watts Bar Nuclear Plant Unit 2 Administration of Preoperational Test Instructions," Rev. 9. This completes the procedure review of pre-operational test procedures 2-PTI-063-01, 2-PTI-063-02, and 2-PTI-063-03.

P.1.3 Preoperational Test Procedure Review (Inspection Procedures 70300 and 70305)

a. Inspection Scope:

Background: NRC IMC 2513, Light Water Reactor Inspection Program- Preoperational Testing and Operational Preparedness Phase, issue date January 1, 1984, defines the minimum inspection program for a finding of readiness for operating license issuance (IP 94300, Status of Plant Readiness for an Operating Licensee). IMC 2513 requires the procedural review of the mandatory tests defined in IMC 2513 and five of the additional primal tests defined in IMC 2513. The following inspection was performed in relation to satisfying the required procedural review for the mandatory testing associated with the reactor protection system (RPS).

Inspection Activities: During this inspection period the inspectors reviewed pre-operational test procedures 2-PTI-099-01, RPS and ESFAS Response Times, 2-PTI-099-03, RPS Operational Test, and 2-PTI-099-04, Safeguard System Operational Test, to verify that the procedures were technically adequate, consistent with regulatory requirements and licensee commitments, and contained the following administrative good practice attributes:

- the title described the purpose of the procedure;
- the cover page had appropriate information and approval signatures;
- each page had appropriate identification information;
- the last page was clearly identifiable by markings;
- there was a clear statement of procedure purpose/objectives;
- planning information such as prerequisites, precautions, required tools, reference documents, and coordination requirements were included;
- signoff requirements including concurrent and independent verification steps were included where appropriate;
- equipment alignment instructions were clear and concise;
- equipment identifiers are accurate;

- actions to be taken within the steps were clearly identified;
- tables, data sheets, and work sheets were clearly usable;
- calculation sheets were technically accurate ;
- clear instructions for system restoration;
- overall, clear concise steps for testing with action critical (acceptance criteria) steps identified;
- clear quantitative acceptance criteria with acceptability and contingencies;
- the overall sequence of the procedure was consistent with the obtaining the intended result; and
- precautions or explanations were placed immediately ahead of the steps to which they applied.

The review was conducted to verify the procedures focused on important system performance functions of RPS components such as:

- response time of protection channels;
- correct operation of protection systems;
- alarm functions;
- electrical independence and redundancy;
- logic functions;
- automatic and manual system operation;
- permissive, prohibit and bypass functions; and
- ESF signal functions

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

This inspection effort was partially complete at the end of this inspection period. Inspection completion will be documented in a subsequent integrated report.

T.1 Training and Qualification of Plant Personnel

T.1.1 Craft and Field Engineer Training for Kapton Insulation and Thermo-Lag (Inspection Procedure 51063, Temporary Instruction 2512/022)

a. Inspection Scope

The inspectors observed a classroom training session for craft and field engineer personnel that covered the installation of Thermo-Lag electrical raceway fire barriers. The training provided for the application of TVA General Engineering Specification G-98, Installation, Modification and Maintenance of Electrical Raceway Fire Barrier Systems, Rev. 9, dated September 9, 2013. The training also included the following drawings which contained Thermo-Lag requirements:

- 0-47W243-1, Thermo-Lag 330-1 Single Layer Design for Conduits 4” and Larger Rev. 0,
- 0-47W243-2, Thermo-Lag 330-1 Two Layer Design for Conduits 3” and smaller Rev. 0;
- 0-47W243-4, Thermo-LAG 330-1 18” Cable Trays Rev. 0; and
- 0-47W243-75, Three Hour Rated Thermo-Lag 330-1 Baseline Conduit ERFBS Rev. 0.

The training emphasized the requirements for the use of Thermo-Lag 330-1 One-Hour Rated Electrical Raceway Fire Barrier Systems. At the end of the training session the instructor administered a written exam.

The inspectors observed a classroom training session for field engineer personnel that was a familiarization course for Kapton Inspection and Repair, WB2-306, Rev. 00 Kapton Insulation Inspection and Familiarization. The training covered the history of Kapton issue, the ease of which Kapton can be damaged, how to recognize potential damage, and acceptable repair methods. The training also demonstrated how to remove Kapton insulation.

b. Observations and Findings

No findings of significance.

c. Conclusions

TVA’s program for training of personnel associated with fire barrier systems and Kapton insulation inspection familiarization was adequate.

III. OPERATIONAL READINESS ACTIVITIES

O.1 Operations

O.1.1 (Closed) Operational Staffing (Inspection Procedure 36301)

a. Inspection Scope

During the period of March 2 – 28, 2014, the inspectors reviewed the applicant’s staff organization using criteria in:

- ANSI standard N18.1-1971, Selection and Training of Nuclear Power Plant Personnel
- ANSI/ANS 3.1-1981, Selection, Qualification and Training of Personnel for Nuclear Power Plants
- TVA-NQA-PLN89-A, Quality Assurance Program Description
- RG 1.8-1987, Qualification and Training of Personnel for Nuclear Power Plants

Each inspection activity was performed to verify all staff positions were filled; to verify that the staff members satisfied the education, experience, and training requirements per the applicable standards for their designated position; and to verify that an adequate number of licensed and non-licensed operators would be available to support the Unit 2

preoperational test program, fuel loading, and dual unit operation. These activities are also related to inspection of Items 9 and 10 which are described in NUREG-0847, Supplement 22, Safety Evaluation Report (SSER) for WBN Unit 2, Appendix HH, WBN Unit 2 Action Items Table (See Sections OA.1.3 and OA.1.4 of this report).

The inspectors reviewed education, experience, and training records for the following staff positions to ensure the adequacy of staff qualifications for their designated assignments:

- Operations Manager
- Operations Superintendent
- Shift Manager (2)
- Senior Maintenance Manager
- Engineering Manager
- Radiation Protection Manager
- Shift Technical Advisor (2)
- Unit 2 QA Manager
- Site Quality Assurance Manager
- Quality Control Technician (2)

The inspectors compared the Operations Department's watch standing bill for dual unit operation to the following items to verify that all crew shift manning requirements could be satisfied:

- AOI-30.2, Fire Safe Shutdown;
- Fire Protection Report, Part II, Fire Protection Plan, Section 9.0, Fire Brigade Staffing;
- Fire Protection Report, Part V, Manual Actions, Repairs, and Emergency Lighting, Section 2.1, Safe Shutdown Procedures;
- OPDP-1, Conduct of Operations;
- Unit 2 Tech Spec Section 5.2.2, Unit Staff, and Section 5.3, Unit Staff Qualifications;
- 10 CFR50.54, Conditions of licenses, § 50.54 (m)(2)(i);
- TVA-NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan; and
- the number and type of licensed operators at Sequoyah Nuclear Plant (a similar TVA dual-unit site)

The inspectors also reviewed a version, dated January 10, 2014, of the Watts Bar organizational chart to verify that the actual organizational structure matched Section 13.1.2.2, Onsite Organization, of the Watts Bar Final Safety Analysis Report (FSAR); TVA-NPOD89, Nuclear Power Organization Description; and TVA-NQA-PLN89-A, Quality Assurance Program Description.

Documents reviewed are listed in the Attachment.

b . Observations and Findings

No findings were identified. The inspectors brought several questions to the attention of the Watts Bar staff, specifically involving the Unit 1 QA manager and how he meets the

requirements described in the Quality Assurance Plan, TVA-NQA-PLN89-A. These questions were captured in the corrective action program as SR 864410. Because Unit 2 was under construction and not under the operational programs of an operating unit, the questions will be inspected under the Unit 1 inspection program, Inspection Manual Chapter 2515, Light-Water Reactor Inspection Program. If any findings are identified as a result of the inspection, the results will be documented in a Watts Bar Unit 1 inspection report.

c. Conclusion

The inspectors determined that the Watts Bar organizational structure for dual-unit operation is in accordance with the FSAR, TVA-NPOD89, and TVA-NQA-PLN89-A. Staff positions required for dual-unit operation are filled, and the qualifications of a sample of individuals filling those positions conform to Regulatory Guide 1.8, as they concern Unit 2. This item is closed.

F.1 Fire Protection

F.1.1 Fire Protection (Inspection Procedure 64051)

a. Inspection Scope

The inspectors performed a walkdown of construction areas to determine whether construction activities and areas met procedure requirements for fire protection. The inspectors took a limited set of field-verifiable attributes from preventive maintenance guidance into the field and evaluated 17 fire suppression devices. The inspectors reviewed labeling, accessibility, cartridge weight, extinguisher agent, and physical condition of fire extinguishers to verify no evidence of deterioration was present, the extinguisher agent was free of contamination, and cartridge weight met the preventive maintenance specifications. The inspectors reviewed preventive maintenance instructions to determine whether records of these 17 fire suppression devices met procedure inspection requirements.

The inspectors observed three construction activities using ignition sources to determine whether fire prevention procedure requirements were met. This included the handling and use of flammable materials and the use of combustible materials relative to locations of flammable ignition sources. Specifically, the inspectors observed fire watch activities related to:

- Welding under WO 110892470, Install Sense Lines
- Welding under WO 115211938, Install Sense Line
- Welding under WO 113530394, South Valve Room Welding

The following fire suppression devices were observed and associated records were reviewed:

Portable Fire Extinguishers

- U2-72-A (El. 713'; Az. 40)
- U2-21 (El. 713'; Az. 40)

- U2-19-A (El. 722'; Az. 75)
- U2-25 (El. 722'; Az. 75)
- U2-20-A (El. 703; Az. 50)
- U2-26 (El. 703; Az. 50)
- U2-29 (El. 708; Az. 305)
- U2-22 (El. 708; Az. 305)
- U2-18 (El. 708; Az. 340)
- U2-28 (El. 708; Az. 340)
- U2-FW-68 (El. 708; Az. 72)
- U2-33-A (El. 708; Az. 72)
- U2-58A (El. 708; Az. 155)
- U2-18 (El. 708; Az. 155)
- AB-5 (El. 692)
- AB-6 (El. 692)

Temporary Hose Station

- 2-THS—26 (El. 708; Az. 345)

Documents reviewed are listed in the Attachment.

The following samples were inspected:

- IP 64051 Section 02.07 – 17 samples
- IP 64051 Section 02.08 – 3 samples

b. Observations and Findings

No findings were identified.

c. Conclusions

The applicant generally implemented adequate fire protection measures and controls to support Unit 2 construction activities and minimize impact on Unit 1 operational activities.

IV. OTHER ACTIVITIES

OA.1.1 (Closed) Fire Loop Installation (Inspection Procedure 64053)

a. Inspection Scope

Background: Inspection Procedure (IP) 64053, "Fire Loop Installation," addresses the main fire loop and whether field activities pertaining to the installation or modification of the fire loop are being accomplished in accordance with applicable codes, standards, and commitments. As defined in IP 64053, a fire loop is a main water piping loop for fire protection usually feeding hydrants, standpipes, and other fire protection systems and components. Fire loops are provided to permit feeding hydrants and other components and systems from at least two directions. This IP was reconstituted for Unit 1 and documented in NUREG-1528, "Reconstitution of the IMC 2512 Construction Inspection

Program for Watts Bar Unit 1.” For Unit 2, the IP was not reconstituted because it only required verification that Unit 1 actions satisfied any Unit 2 considerations. The main fire loop is a shared system currently credited as part of Unit 1’s licensing basis.

Inspection Activities: The inspectors reviewed the Unit 1 reconstitution results documented in NUREG-1528 and determined that work activities had been completed and inspected for both units prior to 2007. Additionally, the inspectors held discussions with TVA regarding any future work to the main fire loop. TVA indicated that Unit 2 has not done nor plans to do any major work activities to the main fire loop. Current work activities are considered to be outside of the main fire loop and, therefore, outside the scope of IP 64053. These remaining modifications primarily focus on the sprinkler head arrangement inside Unit 2 containment and, therefore, are considered a branch connection to the main fire loop and not part of the main water piping loop. The inspectors also reviewed immediate corrective actions associated with PERs 849281 and 850575 which documented the drilling of an underground fire protection pipe. The damaged pipe was caused by drilling activities performed in the area for diverse and flexible coping strategies (FLEX) modifications and located between 0-ISV-26-652 and 0-ISV-26-1662 (supplies fire hydrant 0-HYD-26-512). Inspectors interviewed personnel and reviewed records documenting the pipe repair, including data sheets and leak test results.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that activities and inspections pertaining to the Unit 1 and Unit 2 common fire main loop had been previously completed and documented in NUREG-1528. IP 64053 is considered closed; however, if additional fire main loop activities are performed, inspections may be performed at the NRC’s discretion.

OA.1.2(Closed) Violation 86-13-08: Failure to Follow Procedure G-53 and WBN-QCP-1.42-3 (Inspection Procedure 92702)

a. Inspection Scope:

Background: This item is associated with CDR 391/86-54, Use of Long Slotted Holes without Plate Washers, previously closed for Unit 2 in Section OA.1.14 of IIR 05000391/2013-605 (ADAMS Accession No. ML13220A640).

During an NRC inspection conducted April 21 through May 20, 1986, structural steel connections with long slotted holes were identified that did not have required plate washers on outer plies. These issues were captured in inspection reports (IRs) 50-390/86-12 (ADAMS Accession No. ML072500278) and 50-391/86-13 (ADAMS Accession No. ML072500278) as violations 50-390/86-12-08 and 50-391/86-13-08, NCR W-431-P, significant condition report (SCR) 6835-S, and PER 143722. The plate washer requirement was specified in American Institute of Steel Construction (AISC),

7th edition, 1970; however, 90 percent of bolted connections with long slotted holes were installed prior to this requirement being incorporated in General Specification G-53 and site procedures. Corrective actions for WBN Units 1 and 2 were implemented through the following actions:

- The final interim report, WBRD-390/86-57 (Unit 1) and WBRD 391/86-57 (Unit 2), documented the revision of General Specification G-53 and implementing procedures Modification and Additions Instruction (MAI)-9 and MAI-5.2, which was the successor to procedure WBN-QCP-142-3.

Specifically, the changes included in procedure MAI-5.2, "Bolting for Structural Connections," were specific instructions on the dimensions and material conditions of the plate washers required. In addition, a table describing the nominal hole dimensions for long slotted holes according to bolt diameters was extracted from the AISC code, 7th edition, 1970, and incorporated in procedure MAI-5.2.

In addition, TVA preformed the following corrective actions:

- Engineering conducted a complete review of all structural steel drawings in order to determine bolted configurations where slotted holes were specified.
- Calculations WCG-1-260 and WCG-1-287 were issued to qualify connections where washers were not required.
- Connections in Unit 1 were re-worked to the standards of the revised specification G-53 and site procedures.

The remaining corrective actions for Unit 2 were tracked on significant condition report (SCR) WBN 6835 SSSA which was converted to PER 143722. Calculation WCG-2-440 documented the remaining Unit 2 drawings with connections requiring disposition as determined by engineering change notice (ECN) 6495. In addition, calculation WCG-2-440 summarized all actions taken for the Unit 2 locations of connections on the remaining drawing list. IIRs 50-390/95-24 and 50-391/95-24 (ADAMS Accession No. ML072760218) documented the closure of violation (VIO) 50-390/86-12-08 and 50-391/86-13-08.

IR 50-391/86-13-08 identified that a failure to follow procedures which resulted in structural steel connections that did not have the required plate washers or bars installed over slotted holes on the outer ply of structural members. Some examples of these deficiencies were found in the Unit 2 containment building and the areas that house the RHR and CS heat exchangers on elevation 713'.

Inspection Activities: The inspectors performed the following for Unit 2:

- Reviewed the applicant's engineering complete open item completion form including the corrective actions associated with PER 143722. This PER was used to track required Unit 2 corrective actions associated with the addition of plate washers for long slotted hole connections;
- Performed a walkdown of structural connections located in the RHR heat exchanger rooms to determine if the connections were in accordance with construction drawings and design specifications or bounded by existing calculations; and

- Reviewed WCG 1-1260, Rev. 0 to verify that drawing 48N1210-3 Detail A typical beam connection loads were within the bounded calculation.

b. Observations and Findings:

No findings were identified.

c. Conclusion

The as-built condition for those areas inspected and construction drawings reviewed were in conformance with the actions implemented to address CDR 86-54 and VIO 86-13-08. Based on the review of the engineering complete closure package and complete inspections, Violation 86-13-08 is closed.

OA.1.3(Closed) Supplemental Safety Evaluation Report (SSER), Appendix HH, Open Item 9: Education and Experience of Management and Principle Supervisory Positions Conform to RG 1.8. (Inspection Procedure 36301)

a. Inspection Scope

The inspectors reviewed NUREG-0847, Supplement 22, Safety Evaluation Report for WBN Unit 2, Appendix HH, WBN Unit 2 Action Items Table, Item 9, in conjunction with the performance of Inspection Procedure 36301, Operational Staffing, as described in Section O.1.1 of this report.

Item 9 in Appendix HH of SSER 22 has the following description:

- TVA should provide information to the NRC staff to allow the staff to confirm that:

The education and experience of management and principal supervisory positions down through the shift supervisory level conform to RG 1.8. The staff will review the resumes to confirm this.

As noted in Section O.1.1, the inspectors reviewed the education, experience, and training records for a number of staff positions including the Operations Manager, the Operations Superintendent, and two Shift Managers. One of the criteria used during this inspection was RG 1.8.

b. Observations and Findings

No findings were identified.

c. Conclusions

The education and experience of management at Watts Bar were confirmed to conform to the requirements of RG 1.8, regarding the management of Unit 2 post-construction. Open item 9 of Appendix HH is closed.

OA.1.4 (Closed) SSER, Appendix HH, Open Item 10: Licensed and Non-Licensed Operators in the Training Pipeline (Inspection Procedure 36301)

a. Inspection Scope

The inspectors performed an assessment of Item 10 in Appendix HH, WBN Unit 2 Action Items Table, of NUREG-0847, Supplement 22, Safety Evaluation Report for WBN Unit 2, in conjunction with the performance of IP 36301 (Operational Staffing), as described in Section O.1.1 of this report.

Item 10 in Appendix HH of SSER 22 has the following description:

- TVA should provide information to the NRC staff to allow the staff to confirm that:

TVA has an adequate number of licensed and non-licensed operators in the training pipeline to support the preoperational test program, fuel loading, and dual unit operation.

As noted in Section O.1.1, the inspectors compared the Operations Department's watch standing bill for dual unit operation to various documents which specified operations staffing requirements to verify that all crew shift manning requirements could be satisfied. In addition, the inspectors interviewed training personnel, reviewed class rosters for License Classes E (1506) (June 2015) and E (1606) (June 2016), and reviewed the Operations Group List as of March 10, 2014. The Operations Group List contains a list of all Operations personnel and the qualifications they hold.

b. Observations and Findings

No findings were identified. The applicant had an adequate number of non-licensed operators. At this time, the applicant does not have sufficient licensed reactor operators to support dual Unit operation. However, the applicant does have a surplus of senior reactor operators that will allow them to staff the reactor operator position with senior reactor operators until License Class E (1606) takes its NRC exam and additional reactor operator licenses are obtained in June 2016.

c. Conclusions

The applicant had enough qualified personnel to staff for dual unit operation. The applicant had enough reactor operators in the training pipeline to be able to staff the reactor operator position with reactor operators (rather than with senior reactor operators) after the June 2016 License Class. Open item 10 of Appendix HH is closed.

OA.1.5 (Closed) Temporary Instruction 2515/66, Inspection Requirements for IE Bulletin 84-03, Refueling Cavity Water Seals (Temporary Instruction 2515/66 and Inspection Procedure 92701)

a. Inspection Scope

Background: The NRC issued TI 2515/66 to provide guidance for inspection follow-up to licensee's response to Bulletin 84-03, "Refueling Cavity Water Seals". Bulletin 84-03 notified licensees of a refueling cavity water seal failure at Haddam Neck and required

licensees to evaluate the potential for and consequences of such a failure. TVA responded by letter dated December 6, 1984 (ADAMS Accession No. ML082321342), stating that such a seal failure was not a credible event at WBN and that all potential seal leakage could be adequately mitigated. The TVA analysis was based on documentation for an identically configured inflatable seal installed at Sequoyah Nuclear Plant. WBN Unit 1 issued procedure MI-68.001, "Removal and Replacement of the Reactor Vessel Head and Attachments," which included requirements for seal shelf life, storage, pre-use inspection and testing, and subsequent destruction. Also abnormal operating instruction AOI-29, "Dropped or Damaged Rod or Refueling Cavity Seal Failure," contained steps to assist operators in diagnosing seal leakage and corrective actions to mitigate the event. The requirements of Bulletin 84-03 were inspected using TI 2515/66 and was closed for Unit 1 in IR 50-390/94-73 and 50-391/94-73 (ADAMS Accession No. ML072750564). As of 2007, Unit 1 replaced the inflatable reactor cavity seal with a segmented passive seal. This change was evaluated in EDC 52238, which noted that the seal leak calculation remained valid. Unit 1 maintained the option of using either seal. For Unit 2, an inflatable seal was installed using WO 110959805 on February 28, 2014.

Inspection Activities: The inspectors reviewed the applicant's engineering complete closure package to verify that the TVA analysis: (1) appropriately identified potential seal failure modes, (2) appropriately evaluated the consequences of a seal failure, and (3) ensured that seal leakage rates are limited to less than makeup capacity. Calculation EPMJB102092 was reviewed to verify the reactor cavity water seal maximum leak rate calculation was generic to the Unit 2 inflatable seal and that sufficient makeup capacity exists from several sources. The inspectors reviewed WO 110959805 to verify that work instructions included requirements for seal shelf life, storage, and pre-use inspection. The inspectors reviewed abnormal operating instruction 0-AOI-29, "Dropped or Damaged Fuel or Refueling Cavity Seal Failure," Rev. 0, to confirm that operators are provided actions to respond to a refueling cavity seal failure. At the time of the inspection, 0-AOI-29 was approved but not issued. The procedure had received a qualified review, was sponsor approved, and contained the appropriate Unit 2 guidance for the issues covered by Bulletin 84-03.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

Based on the above activities and review of the engineering complete closure package, the inspectors determined that the applicant had adequately evaluated the potential for and consequences of a failure of the reactor cavity seal. TI 2515/66 is closed.

OA.1.6 (Closed) TMI Action Item II.K.3.10, Applicant's Proposed Anticipatory Trip at High Power (Inspection Procedure 92701)

a. Inspection Scope

Background: TMI Action Item II.K.3.10 of NUREG-0737 contains the following position:

For plants proposing to modify the anticipatory reactor trip on turbine trip to limit it to operation at high power, show that the probability of a small break loss-of-coolant-accident (LOCA) resulting from a stuck-open power-operated relief valve (PORV) is substantially unaffected by the modification.

For Unit 1, the anticipatory reactor trip on turbine trip feature was modified so that it operates at power levels of 50 percent and above (P-9 interlock) instead of power levels of 10 percent and above.

In SSER 4 to NUREG - 0847, dated March 1985 (ADAMS Accession No. ML0720605240), NRC reviewed the applicant's analysis and concluded that TVA had adequately addressed the requirements of NUREG-0737 Item II.K.3.10 for removal of the anticipatory trip at or below 50 percent power. This item was closed in NRC IR 50-390/95-70 and 50-391/95-70 dated October 31, 1995 (ADAMS Accession No. ML072610753). The inspectors noted that the requirements were incorporated into the technical specifications (TS) and confirmed that the required tests were incorporated into surveillance procedures.

For Unit 2, a related commitment was addressed in TVA framework letter dated January 29, 2008, Watts Bar Nuclear Plant (WBN) Unit 2 – Regulatory Framework for the Completion of Construction and Licensing for Unit 2 (ADAMS Accession No. ML080320443). The commitment was contained in Enclosure 2, Item 130, II.K.3.10, "Anticipatory Trip at High Power". WBN Unit 2 Technical Specifications and surveillance procedures will address this issue.

Inspection Activities: The inspectors reviewed Revision A of the Unit 2 TS to verify that the TS appropriately address the anticipatory reactor trip feature and that there were no changes from the design approved in SSER 4 or from the WBN Unit 1 TS. The inspectors reviewed Unit 2 surveillance instructions to verify the corresponding anticipatory reactor trip setpoints are appropriately tested by TS surveillance requirements.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

Based on the above activities and review of the final closure package, the inspectors determined that the applicant has appropriately addressed the requirements of TMI Action Item II.K.3.10. This item is closed.

OA.1.7 (Closed) Construction Deficiency Report 391/85-19: Potential Interaction of Flux Mapping System and Seal Table and Temporary Instruction 2500/16: Inspection to Determine if Potential Seismic Interaction Exists Between Flux Mapping System and Seal Table (Temporary Instruction 2500/16 and Inspection Procedure 35007)

a. Inspection Scope

The inspectors continued inspection efforts initiated in IIR 05000391/2014602 (ADAMS Accession No. ML14086A063), Section OA.1.19. Specifically, the inspector reviewed the applicant's revised engineering complete closure package and associated documents. The initial approach to resolving the seismic interaction issues identified in CDR 391/85-19 was to perform modifications, through ECCR 52321, identical to those performed on Unit 1. Those modifications made the Unit 1 movable frame assembly (MFA) a seismic category (SC)-1L item. Subsequently a decision was made to utilize the Westinghouse In-Core Information, Surveillance, and Engineering (WINCISE) system in Unit 2 instead of the Moveable In-Core Detector System (MIDS) utilized in Unit 1. Because the Unit 2 MFA will be supporting WINCISE components, which are Institute of Electrical and Electronics engineers (IEEE) class 1E, it must be designed to meet SC-1 requirements, not SC-1L requirements. The applicant initiated field change request (FCR) 62012 to facilitate the design and modification of the Unit 2 MFA. The inspector performed the following:

- performed walkdown inspection to verify the existing condition of the Unit 2 MFA;
- reviewed calculation CDQ0020942013000319 to verify that inputs coincided with the existing conditions and the proposed design;
- reviewed FCR 62012 to verify adequacy of proposed modifications;
- reviewed EDCR 52321 to verify incorporation of FCR 62012; and
- reviewed WO 114985750 to verify incorporation of FCR 62012 and EDCR 523321.

a. Observations and Findings:

No findings were identified.

c. Conclusions

The inspectors determined that based on the engineering complete closure package and previous inspection activities, the applicant had adequately addressed or initiated activities to address the original construction deficiency. CDR 391/85-19 and TI 2500/16 are closed.

OA.1.8 (Closed) Construction Deficiency Report 391/87-05-01: Failure to Consider Vendor Requirements in the Design of the Hydrogen Analyzer System and Failure to Specify Classes of Cleanliness in Specifications or Drawings (Inspection Procedure 35007)

a. Inspection Scope

Background: In May 1987, the applicant was issued Notice of Violation (NOV) 390,391/87-05-01(ADAMS Accession No.ML072530762), Failure to Consider Vendor

Requirements in the Design of the Hydrogen Analyzer System and Failure to Specify Classes of Cleanliness in Specifications or Drawings. This NOV cited two design control violation examples: (1) the applicant did not consider vendor requirements for slope and maximum height of instrument process tubing and (2) the applicant failed to specify classes of cleanliness for in-place storage of equipment as required by ANSI N45.2.1.

To address the specific technical issue of example one for Unit 1, the applicant installed vacuum trap assemblies to compensate for the lack of slope and excess height of the instrument tubing in the hydrogen analyzer system. The applicant's Vendor Information (VI) Corrective Action Plan (CAP) was created to address the generic aspects of example one of this violation and similar deficiencies. The VI CAP was found to be adequate, and was closed for Unit 1 in NRC IR 50-390/95-67 (ADAMS Accession No. ML072610765). The NRC determined that the Unit 1 corrective actions adequately addressed the first example of the violation; example one of VIO 390/87-05-01 was closed for Unit 1 in NRC IR 50-390/95-67.

To address the second example of this violation, the applicant created matrices for the 28 applicable ANSI standards listed in the FSAR and compared these matrices with 433 applicable site procedures. The review yielded non-conformances associated with 14 of the 28 ANSI standards. NRC inspectors reviewed the associated non-conformance reports and a sample of the associated corrective actions. The NRC determined the corrective actions adequately addressed the second example of the violation, and the violation was closed for Unit 1 in IR 50-390/95-77 and 50-391/95-77 (ADAMS Accession No. ML072610797).

For Unit 2, the hydrogen analyzer system has been redesigned. The vendor for the new system gave no specific requirements for line slope or maximum height, therefore the specific technical aspects of example one are no longer applicable to Watts Bar Unit 2. The generic aspects of example one of this violation are covered by the applicant's Unit 2 VI CAP. The NRC concluded that the applicant had adequately addressed issues identified in the Unit 2 VI CAP, and closed the CAP in IIR 05000391/2013605 (ADAMS Accession No. ML13220A640).

For Unit 2, current specifications and procedures contain the applicable ANSI cleanliness requirements. Historic non-conformances associated with example 2 of the VIO are currently captured in PER 143789.

Inspection Activities: The inspectors performed the following inspection activities for Unit 2:

- reviewed the applicant's open item closure reports including any actions associated with PERs 143789 and 143760, which were issued to track required Unit 2 actions for VIO 391/87-05-01;
- reviewed current hydrogen analyzer system drawings and vendor data to verify that applicable vendor requirements were considered or incorporated;
- reviewed specifications and procedures to ensure incorporation of applicable cleanliness requirements; and
- reviewed WOs associated to PER 143789 to ensure that non-conformances associated with system cleanliness were adequately addressed or planned.

Documents reviewed are listed in the attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

Based on a review of the engineering complete closure packages and inspection activities listed above the inspectors determined that the applicant had resolved the original construction deficiency. This item is closed.

OA.1.9 (Closed) Temporary Instruction 2515/065-02: Three Mile Island Action Plan Requirement Follow-up

a. Inspection Scope

Background: This TI was issued as a result of a need to coordinate and track the completion of inspections for the remaining TMI Action Plan items at each operating reactor. A series of TIs was developed and issued to provide guidance for inspection follow-up as the license requirements came due. This TI was meant to be a “closeout” procedure and to consolidate all TMI inspection requirements into one procedure. This TI did not add any new inspection requirements.

Inspection Activities: The inspectors reviewed the TI to verify that no new requirements were added and that all applicable TMI inspection items for WBN Unit 2 were being coordinated and tracked through the IMC 2517, Watts Bar Unit 2 Construction Inspection Program.

b. Observations and Findings

No findings were identified.

c. Conclusions

Because this TI did not add any new inspection requirements, and all applicable TMI Action Item inspections are being coordinated through the IMC 2517 inspection program, this item is closed.

OA.1.10 (Discussed) Electrical Cable Issues CAP – Sub-issue: Cable Bend Radius Deficiencies (Temporary Instruction 2512/016 and Inspection Procedure 51063)

a. Inspection Scope

Background: The Cable Issues CAP was initiated based on various employee concerns, conditions adverse to quality documents, and NRC findings related to cable installation and routing. One of the sub-issues identified was excessive bending of cables with the potential of damaging and adversely affecting cable performance. The cable bend radius deficiencies sub-issue had been described and inspected previously as documented in NRC IIRs 05000391/2011610 (ADAMS Accession No. ML12034A202), 05000391/2012602 (ADAMS Accession No. ML12087A324), 05000391/2012604

(ADAMS Accession No. ML12167A212), and 05000391/2013610 (ADAMS Accession No. ML14049A158).

Inspection Activities: The inspectors performed direct observations of low voltage class 1E cables with terminations inside a junction box to verify whether minimum bending radius was maintained as required. Review of documents such as wiring diagrams and ICARDS reports for 12 cables were conducted to determine if the final configuration matched the cable records.

Additionally, the inspectors performed direct observation to verify the following:

- cable identification was preserved;
- terminations were of the correct type and properly installed;
- required separation and segregation criteria were maintained;
- no evidence of damage to cable existed; and
- junction box was maintained free of debris

The following samples were inspected:

- IP 51063 02.02.d – 12 terminations

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that all low voltage cables inspected were properly installed. Additional inspections of installed low voltage cable are needed before closing this item.

OA.1.11 (Discussed) Quality Assurance Records Corrective Action Program (Temporary Instruction 2512/028, Inspection Procedures 55050 and 49065)

a. Inspection Scope

The inspectors reviewed a sample of welding and pipe flushing QA records. The inspectors reviewed the applicant's sample assessment of the records to verify that the records specified the correct component type and location, that the functional specifications were met, that the required QA/QC inspections were performed, and that they were complete and legible. To verify that records were retrievable, the inspectors observed document control personnel locate independent samples of records from within the vault.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspection results are too limited to support a conclusion on the QA Records CAP at this time.

OA.1.12 (Discussed) Design Basis Verification Program CAP (Temporary Instruction 2512/019, Inspection Procedure 51055)

a. Inspection Scope

The inspectors reviewed a sample of design criteria documents to verify that the requirements related to the original steam generators had been reinstated, and that the revisions were accurate. The inspectors also reviewed a sample of system description documents to verify that they contained appropriate level of detail, and that they accurately reflected WBN Unit 2 design basis.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspection results are too limited to support a conclusion on the Design Basis Verification Program CAP at this time.

V. MANAGEMENT MEETINGS

X1 Exit Meeting Summary

An exit meeting was conducted on April 21, 2014, to present inspection results to Mr. Hruby and other members of his staff. The inspectors identified that no proprietary information had been received during the inspection and none would be used in the inspection report. The applicant acknowledged the observations and provided no dissenting comments.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Applicant personnel

R. Baron, TVA - QA Manager, Unit 2
E. Brumfield, Bechtel PQAM
D. Charlton, TVA Regulatory Compliance
R. Daniels, TVA Regulatory Compliance
B. Enis, TVA Oversight
R. Hruby, TVA - General Manager Technical Services
T. Niessen, TVA Audits & Assessment Manager
J. O'Dell, TVA - Regulatory Compliance
G. Scott, TVA – Licensing
M. Skaggs, TVA – Senior Vice President
N. Welch, TVA - Preoperational Startup Manager
O. J. Zeringue, TVA - General Manager Engineering and Construction
L. B. Belvin, Site Quality Assurance Manager
J. Calle, Interface and Transition Manager
R. Detwiler, General Manager, Quality Assurance
B. Hunt, Nuclear Construction, Pre-operation
R. Stroud, Licensing
G. Newton, TVA – Engineering
A. Aboulfaida, Bechtel – Electrical Design
A. Bangalore, Bechtel – Electrical Design
D. Beckley, Bechtel – Electrical Design
D. Reynolds, Bechtel – Field Engineer
J. Fisher, TVA – Regulatory Compliance
R. Hruby, TVA – General Manager
S. Lujan, Bechtel – Construction Field Engineer
M. Evans, Bechtel – Mechanical Design
M. McGrath, TVA - Oversight
C. Stewart, Bechtel - Construction Field Engineer

INSPECTION PROCEDURES USED

IP 35007	Quality Assurance Program Implementation During Construction and Pre-Construction Activities
IP 36301	Operational Staffing
IP 37051	Verification of As-Builts
IP 49063	Piping – Work Observation
IP 49065	Safety-Related Piping-Records Review
IP 50073	Mechanical Components – Work Observation
IP 51053	Electrical Components and Systems – Work Observation
IP 51055	Electrical Components and Systems – Record Review
IP 51063	Electrical Cable – Work Observation
IP 52053	Instrument Components and Systems - Work Observation
IP 55050	Nuclear Welding General Inspection Procedure
IP 57090	Nondestructive Examination Procedure Radiographic Examination Procedure Review/Work Observation/Record Review

IP 64051	Procedures - Fire Prevention/Protection
IP 64053	Fire Loop Installation
IP 70300	Preoperational Test Procedure Review
IP 70305	Reactor Protection System Test Preoperational Test Procedure Review
IP 70311	Preoperational Testing Procedure Verification
IP 70312	Preoperational Test Witnessing
IP 92701	Follow-up
TI 2500/16	Inspection to Determine if a Potential Seismic Interaction Exists Between the Movable In-Core Flux Mapping System and Seal Table at Westinghouse Designed Facilities or Facilities with Similar Designs
TI 2512/016	Inspection of Watts Bar Nuclear Plant Cable Issues Corrective Action Program Plan
TI 2512/019	Inspection of Watts Bar Nuclear Plant Design Baseline Corrective Action Program Plan
TI 2512/022	Inspection of Watts Bar Nuclear Plant Fire Protection Corrective Action Program Plan
TI 2512/028	Inspection of Watts Bar Nuclear Plant QA Records Corrective Action Program Plan
TI 2515/65	TMI Action Plan Requirement Follow-up
TI 2515/66	Inspection Requirements for IE Bulletin 84-03, "Refueling Cavity Water Seals"

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

None

Closed

36301	IP	Operational Staffing (Section O.1.1)
64053	IP	Fire Loop Installation (Section OA.1.1)
86-13-08	VIO	Failure to Follow Procedure G-53 and WBN-QCP-1.42-3 (Section OA.1.2)
Open Item 9	SSER Appendix HH	Education and Experience of Management and Principle Supervisory Positions Conform to RG 1.8 (Section OA.1.3)
Open Item 10	SSER Appendix HH	Licensed and Non-Licensed Operators in the Training Pipeline (Section OA.1.4)
2515/66	TI	Inspection Requirements for IE Bulletin 84-03, Refueling Cavity Water Seals (Section OA.1.5)
II.K.3.10	TMI	Applicant's Proposed Anticipatory Trip at High Power (Section OA.1.6)

391/85-19	CDR	Potential Interaction of Flux Mapping System and Seal Table (Section OA.1.7)
2500/16	TI	Inspection to Determine if Potential Seismic Interaction Exists Between Flux Mapping System and Seal Table (Section OA.1.7)
391/87-05-01	CDR	Failure to Consider Vendor Requirements in the Design of the Hydrogen Analyzer System and Failure to Specify Classes of Cleanliness in Specifications or Drawings (Section OA.1.8)
2515/65-02	TI	Three Mile Island Action Plan Requirement Follow-up (Section OA.1.9)
<u>Discussed</u>		
2512/016	TI	Electrical Cable Issues CAP – Sub-issue: Cable Bend Radius Deficiencies (OA.1.10)
2512/028	TI	Quality Assurance Records Corrective Action Program (Section OA.1.11)
2512/019	TI	Design Basis Verification Program CAP (OA.1.12)

LIST OF DOCUMENTS REVIEWED

I. QUALITY ASSURANCE PROGRAM

Q.1.1 Identification and Resolution of Construction Problems

Miscellaneous

NRC 901099-20, ASME Code N-5 Data Report Correction, 6/17/2013
 WO 11163709, Remove and Re-install upper support steel for CS HTX 2B-B

II. MANAGEMENT OVERSIGHT AND CONTROLS

C.1.2 Nuclear General Welding and Nondestructive Examination Procedure Radiographic Examination

Miscellaneous

RT-ASME III Report # 766, Weld # 2-001A-D001-07, C1R0, 3/6/14
 RT Technique Report, Weld # 2-001A-D001-07, C1R0, 3/1/14
 RT Technique Report, Weld # 2-001A-D001-07, C1R0, 3/2/14
 RT Technique Report, Weld # 2-001A-D001-07, C1R1, 3/5/14
 RT-ASME III Report # 767, Weld # 2-001A-D001-07, C1R1, 3/6/14
 RT-ASME III Report # 776, Weld # 2-001A-D001-07, C1R2, 3/8/14
 RT Technique Report, Weld # 2-001A-D001-07, C1R2, 3/8/14
 UT NDE Report #650, Weld #2-001A-D001-07, C1R0, 3/3/14

C.1.4 Instrument Components and Systems – Work Observation

FCR 63042-A
 FCR 63269-A AA01, AA-02
 VR WBC0745, Barton Model 764 Differential Pressure Transmitter User Manual, Rev. 1
 VR WBC0083, Rosemount 1154 Series H Transmitters
 MAI 4.4B, Instrument and Instrument Panel Installation, Rev. 006
 VR WBC 0744, Barton Model 763A Gage Pressure Transmitter, Rev. 1
 DRA 55385-002, Rev. 2
 DRA 55385-005, Rev. 3
 WO 115447930
 WO 110757683
 FCR 62267
 MEL Pkg# 09EEC2422
 MAI 3.3, App. C, Rev. 0033
 MAI 3.8, Rev. 0009
 Drawing 2-45W760-68-5, Rev. 4, Reactor Coolant System Schematic Diagram
 DRA 54103-005, Rev. 2
 DRA 54103-001, Rev. 7

C.1.5 Electrical Cable – Work Observation

Miscellaneous

FCR 63042-A
 FCR 63269-A AA01, AA-02
 VR WBC0745, Barton Model 764 Differential Pressure Transmitter User Manual, Rev. 1
 VR WBC0083, Rosemount 1154 Series H Transmitters
 MAI 4.4B, Instrument and Instrument Panel Installation, Rev. 006
 VR WBC 0744, Barton Model 763A Gage Pressure Transmitter, Rev. 1
 DRA 55385-002, Rev. 2
 DRA 55385-005, Rev. 3
 WO 115447930
 WO 110757683
 FCR 62267
 MEL Pkg# 09EEC2422
 MAI 3.3, App. C, Rev. 0033
 MAI 3.8, Rev. 0009
 Drawing 2-45W760-68-5, Rev. 4, Reactor Coolant System Schematic Diagram
 DRA 54103-005, Rev. 905
 DRA 54103-001, Rev. 7
 MAI 3.3, Cable Terminating, Splicing, and Testing for Cables Rated up to 15,000 Volts Rev. 3
 DRA 53760-005, Rev. 2
 DRA 53712-008, Rev. 0
 DRA 54103-055, Rev. 1
 ICRDS report 2PP820B
 Material Traceability and Sub-Division Record (WO 114489928, Job No. 25402)
 Material Pick List (MWR-34761; Dated September 13, 2013)
 MAI 3.2
 Manufacturer's Installation Instructions for Raychem® Splice Kit Model NHVS-822S
 WO 114489928 "Retrain Cable 2PP820B at tray transition from tray segment 0-5TRY-292-2158/2157-B to conduit 2PP02620 IAW ICRDS, EDCR and MAI-3.2"

C.1.7 Conduit Walkdowns and Loading Calculations

Miscellaneous

DS-E12.6.3, Auxiliary and Control Power Cable Sizing, up to 15,000 Volts, Rev. 10
 45W3000-1, Cable/Wiring Separation Requirements Notes, Rev. 1
 N3C-944, Conduit and Conduit Support Installations, Rev. 1
 EDQ00299920080001, Rev. 11, Unit 2 V5 Cable Ampacity
 ICRDS Raceway 2PP2354A, dated Thursday, March 20, 2014
 ICRDS Raceway 2PP2596B, dated Thursday, March 20, 2014
 ICRDS Raceway 2PP02190B, dated Thursday, March 20, 2014
 WBNEEBMSTI090046, Electrical Heat Generation in the Auxiliary Building- elevation 757.0
 (RMS A2 & A24)
 2-47E235-07, Environmental Data Environment – Mild EL 757.0, Rev. 0
 45W828-2, Conduit & Grounding EI 757-COLS A8-A15, Q-U Floor Plan & Details, Rev. 20
 45W828-18, Conduit & Grounding EL 757 Details, Rev. 15
 45W828-1, Conduit & Grounding EI 757-COLS A1-A8, Q-U Floor Plan & Details, Rev. 32
 45W828-17, Conduit & Grounding EL 757 Details, Rev. 18
 WBNEEB-MS-TI09-0047, Electrical Heat Generation in the Auxiliary Building, EL. 674, 676,
 685, and 692, Rev. 014
 2-47E235-62, Environmental Data Environment- Harsh EI 692.0, Rev. 0
 2-47E235-79, Environmental Data Environment- Harsh EI 692.0, Rev. 1
 MAI 3.1, Installation of Electrical Conduit Systems & Conduit Boxes, Rev. 25
 WB-DC-30-4, Separation/Isolation, Rev. 23
 47A056-200, Mechanical Category I Support Conduit Typical, Rev. 4
 47A056-200A, Mechanical Category I Support Conduit Typical, Rev. 5
 47A056-214, Mechanical Category I Support Conduit Typical, Rev. 3

E1.1 Engineering Activities

E.1.1 Verification of As-Builts for Safety-Related Piping Systems

Drawings

2-47W811-1, Rev. 32, Flow Diagram, System 063
 2-47W435-212, Rev. 5, System 063 Isometric
 2-47W435-215, Rev. 4, System 063 Isometric
 2-47W435-256, Rev. 6, System 063 Isometric
 2-47W435-263, Rev. 3, System 063 Isometric
 2-47W435-275, Rev. 4, System 063 Isometric
 2-47W406-360, Rev. 4, System 063 Isometric
 SK 435-13, Sh 1, Rev. 8, (Weld Map), System 063
 SK 435-13, Sh 5, Rev. 9, (Weld Map), System 063
 WBN-E-2882-IC-117, Rev. 10, (Weld Map), System 063
 WBN-E-2882-IC-120, Rev. 12, (Weld Map), System 063
 2-47W437-207, Rev. 1, Isometric, System 072
 2-47W812-1, Rev. 23, Flow Diagram, System 072
 2-47W435-277, Rev. 6, Isometric, System 072
 WBN-E-2882-IC-122, Rev. 11, (Weld Map), System 063
 2-47W437-208, Rev. 2, Isometric, System 072

WBN-E-2882-IC-44, Rev. 8, (Weld Map), System 072
2-47W435-276, Rev. 4, Isometric, System 063
WBN-E-2882-IC-34, Rev. 7, (Weld Map), System 072
WBN-E-2882-IC-35, Rev. 4, (Weld Map), System 072
WBN-E-2882-IC-23, Rev. 12, (Weld Map), System 074
2-47W810-1, Rev. 18, Flow Diagram, System 074
2-47W432-209, Rev. 2, Isometric, System 074
2-47W432-216, Rev. 2, Isometric, System 074
WBN-E-2882-IC-31, Rev. 15, (Weld Map), System 074
2-47W432-208, Rev. 2, Isometric, System 074
WBN-E-2882-IC-28, Rev. 5, (Weld Map), System 074
WBN-E-2882-IC-26, Rev. 14, (Weld Map), System 074
2-47W435-275, Rev. 4, Isometric, System 074
WBN-E-2882-IC-23, Rev. 12, (Weld Map), System 074
2-47W809-1, Rev. 25, Flow Diagram, System 062
2-47W406-332, Rev. 3, Isometric, System 062
WBN-E-2882-IC-9, Rev. 16, (Weld Map), System 062
SK 435-12 SH 8, Rev. 13, (Weld Map), System 063
SK 435-12 SH 9, Rev. 6, (Weld Map), System 063
2-47W406-350, Rev. 2, Isometric, System 062
WBN-E-2882-IC-8, Rev.9, (Weld Map), System 062
2-47W812-1, Rev. 23, Flow Diagram, System 072
2-47W437-204B, Rev. 1, Isometric, System 072
WBN-E-2882-IC-42, Rev. 3, (Weld Map), System 072
2-47W437-207, Rev. 1, Isometric, System 072
2-47W437-206A, Rev. 1, Isometric, System 072
WBN-E-2882-IC-37, Rev. 7, (Weld Map), System 072
2-47W406-369, Rev. 2, Isometric, System 062
2-47W435-212, Rev. 5, Isometric, System 063
62-2CVC-R19, Rev. 902, Support, System 062

Drawing Revision Authorization

DRA 52538-025, Rev. 4
DRA 52538-026, Rev. 4
DRA 52533-022, Rev. 2
DRA 52533-024, Rev. 4
DRA 52501-052, Rev. 2
DRA 52500-003, Rev. 1
DRA 52491-194, Rev. 2
DRA 52491-192, Rev. 2
DRA 52497-082, Rev. 6
DRA 52491-206, Rev. 3
DRA 52473-023, Rev. 2
DRA 52533-022, Rev. 2
DRA 52533-023, Rev. 2
DRA 52533-025, Rev. 3
DRA 52533-024, Rev. 4
DRA 52473-023, Rev. 2
DRA 52473-009, Rev. 1
DRA 52473-010, Rev. 1
DRA 52534-020, Rev. 2
DRA 52502-277, Rev. 2
DRA 52502-278, Rev. 2

DRA 52502-279, Rev. 2
 DRA 52491-020, Rev. 2
 DRA 56241-162, Rev. 3
 DRA 52491-148, Rev. 2
Field Change Requests (FCRs):

FCR 59710-A
 FCR 61817-A
 FCR 61624-A
 FCR 57951-A
 FCR 57387-A, AA-01
 FCR 58915-A
 FCR 61488-A
 FCR 62484-A
 FCR 57831-A
 FCR 60755-A

Engineering Document Construction Releases

52473, Rev. B, Modification of pipe supports for system 062

Pressure Test Data Sheets

2-074-47W810-1-2-B2, Rev. 1, WO 111382965
 2-074-47W810-1-2-B2A, Rev. 0, WO 115160064
 2-074-47W810-1-2-B1, Rev. 2, WO 111382942
 2-074-47W810-1-2-B3, Rev. 1, WO 111385097
 2-062-47W809-1-2-B02, Rev. 2, WO 112506982
 2-062-47W809-1-2-B01, Rev. 0, WO 112506845
 2-063-47W811-1-2-B12, Rev. 1, WO 111138648
 2-063-47W811-1-2-B31, Rev. 0, WO 111138656
 2-063-47W811-1-2-B7, Rev. 1, WO 111138989
 2-072-47W812-1-2-B2, Rev. 2, WO 112334028

Work Orders

WO# 115022259

Procedures

25402-000-GPP-0000-N3506, Rev. 10, Pressure Testing of Piping, Tubing and Components
 MAI-4.2A, Rev. 0020, Piping/Tubing Supports
 CDQ 002 999 2013 000262, Rev. 0, IIP Participation on SMP-4.0 System Turnover Walkdowns

Miscellaneous

Limited Scope Walkdown LWSD-3358, Outlier 49, WBN2 Seismic Category 1 Suspended
 Systems, 11/13/13
 LSWD-3332 Rev 2, WBN2 Seismic Category 1 Suspended Systems
 Walkdown Deficiency Log, System 062
 LSWD-3359, Outlier 19, Rev. 0, WBN2 Category 1 Suspended Systems, 12/4/13
 NPV-1 Data Report for Valve 2-CKV-63-551
 NPV-1 Data Report for Valve 2-THV-63-550
 NPV-1 Data Report for Valve 2-THV-063-556
 NPV-1 Data Report for Valve 2-CKV-063-557

NPV-1 Data Report for Valve 2-FCV-063-5
 NPV-1 Data Report for Valve 2-THV-063-542
 NPV-1 Data Report for Valve 2-FCV-063-39
 NPV-1 Data Report for Valve 2-FCV-063-6
 NPV-1 Data Report for Valve 2-FCV-063-7
 NPV-1 Data Report for Valve 2-CKV-063-510
 ASME Code Data Report for RHR valve 2-FCV-74-016, Serial Number 19460984
 ASME Code Data Report for RHR Pump A 2-074-PMP-10A, Serial Number 127424
 N-5 Data Report for System 062 Piping
 NPV-1 Data Report for Valve 2-FCV-72-2
 WBN2-PD-072-155-00, Rev. 2, As-Built Sketch 3, Pg. 69

P.1 Pre-Operational Activities

P.1.2 Preoperational Test Procedure Review

Miscellaneous

2-TSD-63-3, Safety Injection System Pump Performance Test and Flow Balance Test, Rev.4
 WBN2-63-4001, Safety Injection System, Rev.3
 Westinghouse Letter WBT-D-4376, Watts Bar Unit 2 ECCS Analysis Report, Dated June 24, 2013.

Drawing 2-47811-1, Flow Diagram Safety Injection System, Rev.33
 Drawing 2-47W810-1, Flow Diagram Residual Heat Removal System, Rev.19
 Drawing 2-47W809-1, Flow Diagram Chemical and Volume Control System, Rev.26
 Technical Instruction 31.02, Plant Equipment Vibration Monitoring & Vibration Diagnostics Program, Rev.0023
 2-TSD-63-3, Safety Injection System Pump Performance Test and Flow Balance Test, Rev. 4
 WBN2-63-4001, Safety Injection System, Rev. 3
 Westinghouse Letter WBT-D-4376, Watts Bar Unit 2 ECCS Analysis Report, Dated June 24, 2013

Drawing 2-47811-1, Flow Diagram Safety Injection System, Rev. 33
 Drawing 2-47W810-1, Flow Diagram Residual Heat Removal System, Rev.19
 Drawing 2-47W809-1, Flow Diagram Chemical and Volume Control System, Rev. 26

2-TSD-63-2, SIS Accumulators and Related System Performance Test, Rev.4
 WBN2-63-4001, Safety Injection System, Rev.3
 Westinghouse NSSS Startup Manual, Volume 2 Section 2.3.2, Rev. 3
 Drawing 2-47811-1, Flow Diagram Safety Injection System, Rev.33
 SSD-2-LPP-63-128, Setpoint and Scaling Document: SIS Accumulator Tank 1 Pressure, Rev.1
 SSD-2-LPL-63-129, Setpoint and Scaling Document: SIS Accumulator Tank 1 Level, Rev.1

P.1.3 Preoperational Test Procedure Review

2-PTI-099-01, RPS and ESFAS Response Times, Rev. 0
 2-PTI-099-03, RPS Operational Test, 2-PTI-099-04, Safeguard System Operational Test, Rev. 0

III. OPERATIONAL READINESS ACTIVITIES

O.1 Operations

O.1.1 Operational Staffing

Procedures

AOI-30.2, Fire Safe Shutdown, Rev. 2
 OPDP-1, Conduct of Operations, Rev. 31

TVA-NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan,
 Rev. 100

TVA-NPOD89-A, Organization Topical Report, Rev 19

TVA-NQA-PLN89-A, Quality Assurance Program Description, Rev 29

Miscellaneous

10 CFR50.54, Conditions of licenses, § 50.54 (m)(2)(i)

ANSI standard N18.1-1971, Selection and Training of Nuclear Power Plant Personnel, 3/8/1971

ANSI/ANS 3.1-1981, Selection, Qualification and Training of Personnel for Nuclear Power
 Plants, 12/17/1981

Fire Protection Report, Part II, Fire Protection Plan, Section 9.0, Fire Brigade Staffing,
 12/20/2012

Fire Protection Report, Part V, Manual Actions, Repairs, and Emergency Lighting, Section 2.1,
 Safe Shutdown Procedures, 12/20/2012

Inspection Procedure 36301, Operational Staffing, 7/1/1977NRC list of Licensed Operators at
 Sequoyah Nuclear Plant, dated 2/10/2014

NRC list of Licensed Operators at Watts Bar Nuclear Plant, dated 2/10/2014

RG 1.8, Qualification and Training of Personnel for Nuclear Power Plants, Rev 2, April 1987

TVA Nuclear Power Group Organizational Chart, September 2013

TVA Watts Bar Nuclear Plant Nuclear Power Group, 1/10/2014

Unit 2 Technical Specifications Rev H, Sections 5.2.2, Unit Staff, and 5.3, Unit Staff
 Qualifications, 12/12/2013

F.1.1 Fire Protection

Miscellaneous

PM 600114132, WBN 0-FPS-510-EXT/INSP, Preventative Maintenance Instruction, 3/7/14

WO 114139048, WBN 0-FPS-510-0001-C, Preventative Maintenance Instruction, 5/27/13

WO 113112169, WBN 0-FPS-026-0004, Preventative Maintenance Instruction, 8/11/12

IV. OTHER ACTIVITIES

OA.1.1 (Closed) Fire Loop Installation

WO 11509527, Repair of Fire Protection Line documented in PER 850575.

OA.1.5 (Closed) Temporary Instruction 2515/66, Inspection Requirements for IE Bulletin 84-03, Refueling Cavity Water Seals

Calculation

EPMJB102092, Unit 2 Reactor Cavity Water Seal Maximum Leak Rate During Refueling, Rev. 0

Drawing

44N293-3_B, Seals and Gaskets Sheet 3, Reactor Cavity Annulus Seal, Rev. 1

Procedures

0-MI-68.029, Refuel Floor Pre-Outage Preparations, Rev. 3
 0-AOI-29, Dropped or Damaged Fuel or Refueling Cavity Seal Failure, Rev. 0

Miscellaneous

EDC 52238, Replace Inflatable Reactor Cavity Seal with a Segmented Passive Seal
 TVA Letter to the NRC dated December 6, 1984, IE Bulletin 84-03 Refueling Cavity Water Seal

Work Order

110959805, Install Inflatable Cavity Seal per Drawing 44N293-3

OA.1.6 (Closed) TMI Action Item II.K.3.10, Applicant's Proposed Anticipatory Trip at High Power

Procedures

2-SI-92-41; 18 Month Channel Calibration of Power Range Nuclear Instrumentation System Channel N-41; Rev. 1
 2-SI-92-42; 18 Month Channel Calibration of Power Range Nuclear Instrumentation System Channel N-42; Rev. 0
 2-SI-92-43; 18 Month Channel Calibration of Power Range Nuclear Instrumentation System Channel N-43; Rev. 1
 2-SI-92-44; 18 Month Channel Calibration of Power Range Nuclear Instrumentation System Channel N-44; Rev. 0
 2-SI-47-28; Perform RTS Channel Calibration Turbine Trip Turbine Stop Valve Closure; Rev. 0
 2-SI-47-73; Perform RTS Channel Calibration Turbine Trip Low Fluid Oil Pressure; Rev. 1
 2-SI-47-74; Perform RTS Channel Calibration Turbine Trip Low Fluid Oil Pressure; Rev. 1
 2-SI-47-75; Perform RTS Channel Calibration Turbine Trip Low Fluid Oil Pressure; Rev. 1
 2-SI-47-76; Perform RTS TADOT Turbine Trip Low Fluid Oil Pressure; Rev. 0
 2-SI-47-77; Perform RTS TADOT Turbine Trip Turbine Stop Valve Closure; Rev. 0

OA.1.8 (Closed) Construction Deficiency Report 391/87-05-01: Failure to Consider Vendor Requirements in the Design of the Hydrogen Analyzer System and Failure to Specify Classes of Cleanliness in Specifications or Drawings

PERs

114114386
 143760

Procedures

SMP-7.0, Watts Bar Nuclear Plant Unit 2 Control of Cleanliness, Layup, and Flushing
 25402-000-GPP-0000-N1206, Work Order Processing
 25402-000-GPP-0000-N2102, Housekeeping
 25402-000-GPP-0000-N3505, Piping System Cleanliness
 25402-000-GPP-0000-N3510, Insulation
 25402-3DP-G04G-00090, Engineering Evaluation for Commodity Refurbishment

Specifications

N3M-890, Chemical Cleaning Instructions for Piping

N3E-934, Instrument and Instrument Line Installation and Inspection

Work Orders

11026407
 112446172
 08-953182-000
 111743253
 110798681
 1112871940
 111070639

Miscellaneous

EDCR 52694-A, Replace/install two inboard and two outboard containment isolation valves (2-FCV-43-201, -202, -433 and 434) for Hydrogen Analyzer 2-H2AN-043-200, 02/12/2010
 FCR 59309-A, Revise DRA 52694-003 to accommodate suction and discharge head requirements of the 2-PNL-43-200A Meggitt Safety Systems sample pump and remove all heat trace from sample lines, 03/05/2012
 Letter from Meggitt Safety Systems, Special Requirements for the MSSl Amended Rule Hydrogen CAMS, dated 02/06/2012

OA.1.10 (Discussed) Electrical Cable Issues CAP – Sub-issue: Cable Bend Radius DeficienciesMiscellaneous

Drawing No 45N2630-13, Wiring Diagrams - Miscellaneous Valves Sheet 13; Dated: 3/31/2011
 Equipment Standard Report, Equipment ID: 2-JB-293-712; Dated: Feb 19, 2014
 ICARDS reports for the following cable numbers: 2V6376B, 2V6377B, 2V6378B, 2V6379B, 2V6396B, 2V6397B, 2V6398B, 2V6399B, 2V6410B, 2V6411B, 2V6412B, and 2V6413B; All dated: Feb 19, 2014

OA.1.11 (Discussed) Quality Assurance Records Corrective Action ProgramWelding Documents

2CLAWT01902, Inspection AAA
 2CLAWT02411, Inspection AA
 2001AD00909A, Inspection AA
 2001BT07107B, Inspection AAA
 2003AT00401, Inspection AAF
 2003CT03913, Inspection AA
 2003CT18012, Inspection AAA
 2003BT01821, Inspection AAA
 2062AT03609, Inspection AAA
 2062AT12114, Inspection AAA
 2062BT31404, Inspection AAA
 2063BD19503, Inspection AA
 2067BT22615A, Inspection AA
 2067CT40201C, Inspection AAA
 2067CT54220A, Inspection AA

2067CT61906, Inspection AA
 2067JT54904, Inspection AA
 2068AT03113, Inspection AAAA
 2070AD07216, Inspection B
 2070BT35302, Inspection C

Pipe Flushing Documents

2-026-PCLN-850/0704, Inspection 56A
 2-031-4.36-101, Inspection 49A
 2-062-PCLN-809/0203, Inspection 56A
 2-063-PCLN-811/0136A03, Inspection 82A
 2-067-PCLN-845/0402A01, Inspection 82A
 2-072-PCLN-812/0110A10, Inspection 82A

OA.1.12 (Discussed) Design Basis Verification Program CAP

Design Documents

WB-DC-40-64, Design Basis Events Design Criteria, Rev. 14
 WB-DC-30-5, Power, Control, and Signal Cables for use in Category I Structures, Rev. 23
 NPG-SDD-WBN2-68-4001, Reactor Coolant System, Rev. 3
 WBN-SDD-N3-3B-4002, Auxiliary Feedwater System, Rev. 17
 WBN-SDD-N3-63-4001, Safety Injection System, Rev. 29
 WBN-SDD-N3-67-4002, Essential Raw Cooling Water System, Rev. 27

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AI	Action Item
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CCP	Centrifugal Charging Pump
CDR	Construction Deficiency Report
CFR	<i>Code of Federal Regulations</i>
CS	Containment Spray
CVCS	Chemical Volume Control System
ECN	Engineering Change Notice
EDCR	Engineering Document Construction Release
FCR	Field Change Request
FLEX	Flexible Coping Strategies
FSAR	Final Safety Analysis Report
ICRDS	Integrated Cable and Raceway Design System
IMC	Inspection Manual Chapter (NRC)
IEEE	Institute of Electrical and Electronics Engineers
IP	Inspection Procedure (NRC)
IP&S	Inspection Planning and Scheduling
IIR	Integrated Inspection Report
IR	Inspection Report
LOCA	Loss-Of-Coolant-Accident
MAI	Modification/Addition Instruction
MFA	Movable Frame Assembly

MIDS	Movable Incore Detector System
NCV	Non-Cited Violation
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation (NRC)
PAMS	Post-Accident Monitoring System
PER	Problem Evaluation Report
PORV	Power-Operated Relief Valve
QA	Quality Assurance
QC	Quality Control
RCS	Reactor Coolant System
Rev.	Revision
RHR	Residual Heat Removal System
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
RTS	Reactor Trip System
RVLIS	Reactor Vessel Level Indicating System
SAR	Safety Analysis Report
SCR	Significant condition Report
SG	Steam Generator
SI	Safety Injection
SIS	Safety Injection System
SSER	Supplemental Safety Evaluation Report
TI	Temporary Instruction
TMI	Three Mile Island
TS	Technical Specification
TVA	Tennessee Valley Authority
VI	Vendor Information
VIO	Violation
WBN	Watts Bar Nuclear Plant
WINCISE	Westinghouse In-Core Information Surveillance & Engineering
WO	Work Order