



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II**

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May 6, 2016

Mr. Michael D. Skaggs
Senior Vice President
WBN Operations & 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 05000391/2016603**

Dear Mr. Skaggs:

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of construction and testing activities at your Watts Bar Unit 2 reactor facility. The enclosed integrated inspection report documents the inspection results, which were discussed on April 14 2016, with Sean Connors and other members of your staff.

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

Based on the results of this inspection, the enclosed report documents one NRC-identified finding which was determined to involve violations of NRC requirements. However, because the finding was a Severity Level IV violation and was entered into your corrective action program, the NRC is treating the violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the non-cited violation in the enclosed report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTENTION: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Watts Bar Unit 2 Nuclear Plant. In addition, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at Watts Bar Unit 2 Nuclear Plant.

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 website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

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

Sincerely,

/RA/

James Baptist, Chief
Reactor Projects Branch 8
Division of Reactor Projects

Docket No. 50-391
License No. NPF-96

Enclosure:
Integrated IR 05000391/2016603
w/ Attachment

cc w/encl: (See next page)

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Letter to Michael D. Skaggs from James Baptist dated May 6, 2016.

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC INTEGRATED
INSPECTION REPORT 05000391/2016603

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-391

License No.: NPF-96

Report No.: 05000391/2016603

Licensee: Tennessee Valley Authority (TVA)

Facility: Watts Bar Nuclear Plant, Unit 2

Location: Spring City, TN 37381

Dates: March 1, 2016 – March 31, 2016

Inspectors: E. Patterson, Senior Resident Inspector, Reactor Projects Branch (RPB) 8, Division of Reactor Projects (DRP), Region II (RII)
J. Eargle, Resident Inspector, RPB8, DRP, RII
R. Monk, Senior Project Inspector, RPB8, DRP, RII (Sections, P.1.3 and SU.1.6)
C. Even, Senior Construction Project Inspector, RPB8, DRP, RII (Section SU.1.5)

Approved by: James Baptist, Chief
Reactor Projects Branch 8
Division of Reactor Projects

Enclosure

SUMMARY

Watts Bar Nuclear Plant, Unit 2

This integrated inspection included aspects of engineering and construction activities performed by Tennessee Valley Authority (TVA) associated with the Watts Bar Nuclear (WBN) Plant Unit 2 construction project. This report covered a one month period of inspections in the areas of quality assurance (QA), identification and resolution of construction problems, engineering and construction activities, preoperational and startup testing, and follow-up of other activities. The inspection program for Unit 2 construction activities is described in Nuclear Regulatory Commission (NRC) Inspection Manual Chapter (IMC) 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 NRC identified one example of a severity level (SL) IV non-cited violation (NCV) of 10 *Code of Federal Regulations* (CFR) 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to follow work order instructions associated with the sump inspection surveillance 2-SI-304-2. The surveillance instruction required the identification and documentation of foreign material inside of the safety-related containment sump. The licensee failed to identify the foreign material in the containment sump during the inspection. The inspectors determined this performance deficiency was more than minor in accordance with IMC-2517, Appendix C, because the failure to implement the work order instructions to clean the containment sump represented an improper work practice that could impact safety, involving safety-related structures, systems, or components. The finding was determined to be of very low safety significance in accordance with Section 6.5 of the NRC Enforcement Policy because it did not represent a breakdown in the QA process. This finding had a cross-cutting aspect in the Human Performance cross-cutting area, as defined in IMC 0310, regarding work management. The organization did not implement a process of planning, controlling, and execution of the work activities, such that nuclear safety was the overriding priority. The work process did not include the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities (H.5).
- Other areas inspected were adequate with no findings identified. These areas included QA; pre-operational testing activities; startup testing activities; and various NRC inspection procedures.

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REPORT DETAILS

Summary of Plant Status

During the inspection period covered by this report, Tennessee Valley Authority (TVA) performed construction completion as well as preoperational and startup 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.1.1 Identification and Resolution of Construction Problems (Inspection Procedure 35007)

a. Inspection Scope

The inspectors continued to review condition reports (CRs), as part of the licensee's corrective action program, to verify that issues being identified under the corrective action program were being properly identified, addressed, and resolved by the licensee. The inspectors reviewed corrective actions for CR 1140303, and 1142428, for the 2B component cooling system (CCS) pump seal leak. During the performance of the CCS two pump test a significant seal leak on the pump inboard seal developed. The inspectors reviewed Work Order (WO) 117605569, the vendor failure analysis, and reviewed the corrective actions, to verify that the licensee replaced the mechanical seal, the corrective actions were adequate, and the seal failure did not invalidate the licensee's ability to meet the safety function of the CCS system to support dual unit operations.

The inspectors also reviewed and followed up on the corrective actions of several CRs discussed throughout various sections of this report.

b. Observations and Findings

No findings were identified.

c. Conclusions

The issues identified in the CRs 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 and Testing Activity Interface Controls

a. Inspection Scope

The inspectors independently assessed licensee controls, associated with Unit 2 testing 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 planning meetings were

observed, at least once per week, to assess the adequacy of the licensee's efforts to identify those testing activities that could potentially impact the operating unit. This included the review of select testing activities, which the licensee had screened as not affecting Unit 1, to verify the adequacy of that screening effort. Additionally, the inspectors independently assessed select testing 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 testing work locations to verify that controls to protect the operating unit provided an adequate level of protection and had been properly implemented.

Specific work activity observed included work associated with:

- WO 117641714, PMT leak test for ERCW check valve 0-CKV-067-0503G-B

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

b. Observations and Findings

No findings were identified.

c. Conclusions

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

P.1 Preoperational Activities

P.1.1 Preoperational Test Program Implementation Verification (Inspection Procedure 71302)

a. Inspection Scope

02.01 (Weekly Inspection Activities): The inspectors verified that the licensee's management control system was effectively discharging its responsibilities over the preoperational testing program by facility record review, direct observation of activities, tours of the facility, interviews, and discussions with licensee personnel. Preoperational testing activities during the inspection period included the following systems or portions thereof:

- System 99 – Reactor Protection System (RPS)

As systems became available for preoperational testing, inspectors observed the accessible areas of the facility to make an independent assessment of equipment conditions, plant conditions, security, and adherence to regulatory requirements. The inspectors also reviewed the following, as available and on a sampling basis, during the inspections:

- 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 the licensee's procedures
- activities in progress (e.g., maintenance, preoperational testing, etc.) were being conducted in accordance with the licensee's procedures
- watched for abuse of installed instrumentation such as stepping or climbing on the instrumentation that could affect the calibration or ability to function
- listened for the public address system announcements to determine that blind spots do not exist; (i.e., cannot be heard clearly enough to be understood)
- construction work force was authorized to perform activities on systems or equipment
- looked for uncontrolled openings in previously cleaned or flushed systems or components

02.02 (Monthly Inspection Activities): During this inspection period, the inspectors reviewed the turnover package for the Unit 2 portion of the essential raw cooling water system (ERCW), emergency gas treatment system, auxiliary feedwater system, and safety injection systems as part of procedure PP-37, "System Turnover to Operations," Revision (Rev.) 6, to verify jurisdiction controls were appropriate and licensee procedures were followed.

The inspectors reviewed maintenance activities on safety-related equipment WO 117641714, PMT leak test for ERCW check valve 0-CKV-067-0503G-B, to verify that the activities were scheduled in accordance with developed procedures and that these procedures were adequate for the maintenance being performed.

02.03 (Quarterly Inspection Activities): The inspectors reviewed jurisdictional controls to verify that maintenance activities were performed by the proper group and sampled preventative maintenance activities to ensure satisfactory completion. The inspectors also witnessed testing of 2-PTI-99-01 and 2-PTI-99-06 and interviewed personnel to verify that the method for testing was current, that methods existed to assure personnel involved were knowledgeable of the test, that approved change methodologies were followed, that criteria for test interruptions were discussed, and that test deficiencies were properly documented.

b. Observations and Findings

No findings were identified.

c. Conclusion

The licensee's implementation of the preoperational test program was in accordance with procedures for those activities observed during the inspection period.

P.1.2 Preoperational Test Witnessing (Inspection Procedures 70312 and 70317)

a. Inspection Scope

Background: The purpose of preoperational test inspection 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; and
- management controls and procedures, including QA programs, necessary for operation of the facility have been documented and implemented.

Inspection Manual Chapter (IMC) 2513 requires the preoperational test witnessing 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 preoperational test witnessing.

Inspection Activities: The inspectors witnessed activities associated with the performance of preoperational test procedure 2-PTI-099-01, "RPS & ESFAS Response Times," Rev. 0, and 2-PTI-099-06, "Reactor Protection Setpoint Verification," Rev. 0, 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 following surveillance instructions were selected for inspection of this item:

- 2-SI-99-207, WO 117060130, Response Time Test – Input Relays Cycle B, Rev. 3
- 2-SI-99-208, WO 117060133, Response Time Test – Input Relays Cycle C, Rev. 3
- 2-SI-3-26, WO 115872482, 18 Month Channel Calibration, Response Time Test AFW Initiation from Main Feedpump Turbine 2B trip, Rev. 1
- 2-SI-3-201-A, WO 115872210, Response Time Test, AFW Pump 2A-A Suction Header Transfer- Train A, Rev. 4

The inspectors assessed the following attributes associated with this test observation:

- all test personnel were on station and had the latest revision of the procedure;
- test prerequisites were performed;
- plant systems were in service to support the test;
- minimum crew requirements were met;
- testing was performed in accordance with the approved procedure;
- test interruptions and continuations were handled in accordance with approved procedures and documented in the chronological test log;
- testing events and discrepancies were properly evaluated and documented in the test deficiency log;
- testing was executed and coordinated properly;
- data was properly collected;
- temporary equipment was installed and tracked appropriately;
- administrative test controls were properly followed; and
- test personnel were using approved drawings and vendor manuals.

The inspectors observed the tests to verify that the overall test acceptance criteria were met. The inspectors conducted a review with the responsible test engineer to assure that the preliminary test evaluations were consistent with the inspector's observations. During the tests, the inspectors observed important data gathering activities to ensure the data was properly gathered and recorded. A post-test cursory review of the test data was performed to verify legibility, traceability, and permanence of the data sheet entries.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that the licensee's test procedure was performed in a manner consistent with the guidance of procedure SMP-9, Watts Bar Nuclear Plant Unit 2, "Conduct of Test," Rev. 9. The preoperational test witnessing of the RPS and engineered safeguards features actuation system (ESFAS) components are still in progress.

P.1.3 Preoperational Test Results Evaluation (Inspection Procedure 70400)

a. Inspection Scope

Background: IMC 2513, "Light Water Reactor Inspection Program - Preoperational Testing and Operational Preparedness Phase," issue date January 1, 1984, purpose 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; and
- management controls and procedures, including QA 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 pre-operational test results 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 pre-operational test results review.

Inspection Activities: The inspectors performed a detailed review of the results for pre-operational test procedure 2-PTI-070-03, "Component Cooling System (CCS) Dual Unit Shutdown Flow Test," Rev. 0, to verify that the licensee's evaluation of the procedure performance and results was conducted in accordance with approved procedures. This review was performed to provide assurance that the test data was within the established acceptance criteria and the licensee's methods for identifying and correcting deficiencies were adequate. The inspectors performed the following activities associated with this test results review:

- Reviewed all changes made to the test procedure to verify they were properly annotated, did not affect the objective of the test, and were performed in accordance with administrative procedures.
- Reviewed all documented test deficiencies to verify they had been properly resolved, reviewed, and accepted.
- Reviewed the test summary and evaluation to verify that the system was evaluated to meet design requirements and acceptance criteria.
- Reviewed the original “as-run” copy of the test to verify completion of data sheets, calculations and signatures/initials.
- The approval of the test results was reviewed for completeness with respect to the acceptance of the test results.

The inspectors reviewed the test results to verify that the overall test acceptance supported the ability of the component cooling system to meet all of the requirements of General Design Criteria V. The inspectors conducted a review with the responsible test engineer to assure that the test evaluation was performed in accordance with established procedures.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that the licensee’s test procedure results were reviewed, evaluated, and accepted in a manner consistent with the guidance of procedure SMP-10.0, “Watts Bar Nuclear Plant Unit 2 Packaging and Processing Test Results,” Rev. 6. This completes the test results evaluation of pre-operational test procedure 2-PTI-070-03.

SU.1 STARTUP TESTING ACTIVITIES

SU.1.1 Startup Test Procedure Review (Inspection Procedure 72300)

a. Inspection Scope

Background: The purpose of IMC 2514, “Light Water Reactor Inspection Program – Startup Testing Phase,” issue date August 21, 1989, is to verify that the licensee is meeting the requirements and conditions of the facility license for precritical tests, initial fuel loading, initial criticality, low-power testing, and power ascension tests. This verification is to be achieved through reviewing procedures and records, direct observation, witnessing tests, reviewing test data, and evaluating test results.

Inspection Activities: The inspectors reviewed test procedure 2-PAT-1.4, “Pipe Vibration Monitoring,” Rev. 1, to verify that the test procedure adequately addressed NRC requirements and licensing commitments outlined in the final safety analysis report (FSAR), docketed correspondence, safety-evaluation report (SER), Technical Specifications (TS), and Regulatory Guide 1.68. Additionally, the inspectors reviewed

power ascension test procedure 2-PAT-1.4 to verify that the procedure contained the following administrative good practice attributes:

- the title described the purpose of the procedure;
- the cover page had appropriate information and approval signatures;
- procedure format is consistent with Regulatory Guide 1.68, Appendix C;
- a clear statement of procedure purpose/objectives;
- planning information such as prerequisites, precautions, required tools, reference documents, and coordination requirements;
- acceptance criteria were clearly identified and evaluated against the source of the comparison of results with acceptance criteria;
- adequate initial test conditions were specified;
- the procedure included a section listing references to appropriate FSAR sections, TS, drawings, specification, codes, and other requirements;
- signoff requirements including concurrent and independent verification steps established where appropriate;
- actions to be taken within the steps were specifically identified;
- provisions were made for recording details of the conduct of the test, including observed deficiencies, their resolution, and retest;
- procedure provided for identification of personnel conducting the testing and evaluating the test data;
- the procedure as issued was consistent with the test description provided in the FSAR;
- special precautions for personnel and equipment safety were specified;
- detailed instructions specified testing over the full operating range and under the maximum anticipated load change of the system/component; and
- provisions were made for the data taker to indicate the acceptability of the data.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that 2-PAT-1.4, "Pipe Vibration Monitoring," was written in a manner consistent with the guidance of procedure 2-TI-438, "Watts Bar Nuclear Plant Unit 2 Power Ascension Test Program," Rev. 5. This completes the procedure review of power ascension test procedure 2-PAT-1.4, Rev. 1.

SU 1.2 Startup Test Procedure Review (Inspection Procedure 72300)

a. Inspection Scope

Background: The background for this startup test procedure review is the same as that in the background of Section SU.1.1 above.

Inspection Activities: The inspectors reviewed 2-PAT-5.3, "Automatic Steam Generator Level Control Transients at Low Power," Rev. 1, to verify that the power ascension test procedure adequately addressed NRC requirements and licensing commitments outlined in the FSAR, docketed correspondence, SER, TS, and Regulatory Guide 1.68.

Additionally, the inspectors reviewed 2-PAT-5.3 to verify that the procedure contained the following administrative good practice attributes:

- the title described the purpose of the procedure;
- the cover page had appropriate information and approval signatures;
- procedure format is consistent with Regulatory Guide 1.68, Appendix C;
- a clear statement of procedure purpose/objectives;
- planning information such as prerequisites, precautions, required tools, reference documents, and coordination requirements;
- acceptance criteria were clearly identified and evaluated against the source of the comparison of results with acceptance criteria;
- adequate initial test conditions were specified;
- the procedure included a section listing references to appropriate FSAR sections, TS, drawings, specification, codes, and other requirements;
- signoff requirements including concurrent and independent verification steps established where appropriate;
- actions to be taken within the steps were specifically identified;
- provisions were made for recording details of the conduct of the test, including observed deficiencies, their resolution, and retest;
- procedure provided for identification of personnel conducting the testing and evaluating the test data;
- the procedure as issued was consistent with the test description provided in the FSAR;
- special precautions for personnel and equipment safety were specified;
- detailed instructions specified testing over the full operating range and under the maximum anticipated load change of the system/component; and
- provisions were made for the data taker to indicate the acceptability of the data.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that 2-PAT-5.3, "Automatic Steam Generator Level Control Transients at Low Power," Rev. 1, was written in a manner consistent with the guidance of procedure 2-TI-438, "Watts Bar Nuclear Plant Unit 2 Power Ascension Test Program," Rev. 5. This completes the procedure review of 2-PAT-5.3, "Automatic Steam Generator Level Control Transients at Low Power," Rev. 1.

SU 1.3 Startup Test Procedure Review (Inspection Procedure 72300)

a. Inspection Scope

Background: The background for this startup test procedure review is the same as that in the background of Section SU.1.1 above.

Inspection Activities: The inspectors reviewed 2-PAT-5.4, "Calibration of Steam and Feedwater Flow Instruments at 30% Power," Rev. 1, to verify that the power ascension test procedure adequately addressed NRC requirements and licensing commitments outlined in the FSAR, docketed correspondence, SER, TS, and Regulatory Guide 1.68.

Additionally, the inspectors reviewed 2-PAT-5.4 to verify that the procedure contained the following administrative good practice attributes:

- the title described the purpose of the procedure;
- the cover page had appropriate information and approval signatures;
- procedure format is consistent with Regulatory Guide 1.68, Appendix C;
- a clear statement of procedure purpose/objectives;
- planning information such as prerequisites, precautions, required tools, reference documents, and coordination requirements;
- acceptance criteria were clearly identified and evaluated against the source of the comparison of results with acceptance criteria;
- adequate initial test conditions were specified;
- the procedure included a section listing references to appropriate FSAR sections, TS, drawings, specification, codes, and other requirements;
- signoff requirements including concurrent and independent verification steps established where appropriate;
- actions to be taken within the steps were specifically identified;
- provisions were made for recording details of the conduct of the test, including observed deficiencies, their resolution, and retest;
- procedure provided for identification of personnel conducting the testing and evaluating the test data;
- the procedure as issued was consistent with the test description provided in the FSAR;
- special precautions for personnel and equipment safety were specified;
- detailed instructions specified testing over the full operating range and under the maximum anticipated load change of the system/component; and
- provisions were made for the data taker to indicate the acceptability of the data.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that 2-PAT-5.4, "Calibration of Steam and Feedwater Flow Instruments at 30% Power," Rev. 1, was written in a manner consistent with the guidance of procedure 2-TI-438, "Watts Bar Nuclear Plant Unit 2 Power Ascension Test Program," Rev. 5. This completes the procedure review of 2-PAT-5.4, "Calibration of Steam and Feedwater Flow Instruments at 30% Power," Rev.1.

SU1.4 Startup Test Results Evaluation (Inspection Procedure 72301)

a. Inspection Scope

Background: The background for this startup test procedure review is the same as that in the background of Section SU.1.1 above.

Inspection Activities: The inspectors performed a detailed review of the results for power ascension test procedure 2-PAT-3.10, "Reactor Trip System," Rev. 3, to verify that the licensee's evaluation of the procedure performance and results was conducted in accordance with approved procedures. This review was performed to provide

assurance that the test data was within the established acceptance criteria and the licensee's methods for identifying and correcting deficiencies were adequate. The inspectors performed the following activities associated with this test results review:

- Reviewed all changes made to the test procedure to verify they were properly annotated, did not affect the objective of the test, and were performed in accordance with administrative procedures.
- Reviewed all documented test deficiencies to verify they had been properly resolved, reviewed, and accepted.
- Reviewed the original 'as-run' copy of the test procedure to verify that data sheets were completed and properly initialed and dated, data was recorded within acceptance tolerances, and test deficiencies that were identified were noted.
- Reviewed the test summary and evaluation to verify that the system was evaluated to meet design requirements and acceptance criteria.
- The approval of the test results was reviewed for completeness with respect to the acceptance of the test results.

The inspectors reviewed the test results to verify that the overall test acceptance was met. The inspectors conducted a review with the responsible test engineer to assure that the test evaluation was performed in accordance with established procedures.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that the licensee's test procedure results were reviewed, evaluated, and accepted in a manner consistent with the guidance of procedure 2-TI-438, "Watts Bar Nuclear Plant Unit 2 Power Ascension Test Program," Rev. 5. This completes the test results evaluation of pre-operational test procedure 2-PAT-3.10.

SU1.5 Startup Test Results Evaluation (Inspection Procedure 72301)

a. Inspection Scope

Background: The background for this startup test procedure review is the same as that in the background of Section SU.1.1 above.

Inspection Activities: The inspectors performed a detailed review of the results for power ascension test procedure 2-PAT-3.1, "Control Rod Drive Mechanism Timing and CERPI Initial Calibration," Rev. 2, to verify that the licensee's evaluation of the procedure performance and results was conducted in accordance with approved procedures. This review was performed to provide assurance that the test data was within the established acceptance criteria and the licensee's methods for identifying and correcting deficiencies were adequate. The inspectors performed the following activities associated with this test results review:

- Reviewed all changes made to the test procedure to verify they were properly annotated, did not affect the objective of the test, and were performed in accordance with administrative procedures.
- Reviewed all documented test deficiencies to verify they had been properly resolved, reviewed, and accepted.
- Reviewed the original 'as-run' copy of the test procedure to verify that data sheets were completed and properly initialed and dated, data was recorded within acceptance tolerances, and test deficiencies that were identified were noted.
- Reviewed the test summary and evaluation to verify that the system was evaluated to meet design requirements and acceptance criteria.
- The approval of the test results was reviewed for completeness with respect to the acceptance of the test results.

The inspectors reviewed the test results to verify that the overall test acceptance was met. The inspectors conducted a review with the responsible test engineer to assure that the test evaluation was performed in accordance with established procedures.

b. Observations and Findings

No findings were identified.

c. Conclusions

The inspectors determined that the licensee's test procedure results were reviewed, evaluated, and accepted in a manner consistent with the guidance of procedure 2-TI-438, "Watts Bar Nuclear plant Unit 2 Power Ascension Test Program," Rev. 5. This completes the test results evaluation of pre-operational test procedure 2-PAT-3.1.

SU.1.6 System Operational Readiness Assessment Inspection (Inspection Procedure 93806)

a. Inspection Scope

Inspection Activities: The inspectors reviewed the system turnover processes associated with the completion of construction activities and turnover of Unit 2 systems, listed below, to operations to ensure the licensee was following the requirements of procedures 0-TI-37, "Systems Turnover to Operations," Rev. 0; 0-TI-435, "Engineering Programs and Components Turnover," Rev. 3; and 0-TI-441, "Operational Readiness Process for Unit 2 Systems," Rev. 6. As part of the review, the inspectors verified that equipment turnover deferral items were adequately justified and equipment punch-list items were appropriately dispositioned. The inspectors reviewed selected WOs, design changes, program and component evaluation reports to verify that overall system condition and capability supported system turnover. The inspectors interviewed selected control room operators and work management control operators to ensure they were knowledgeable of the procedures governing the system turnover process and changes in plant status configuration controls. The inspectors reviewed a sample of outstanding WOs for each system to verify that there were no significant open WOs that could impact the current mode of operation. The inspectors verified a sample of design changes had been translated to system operating procedures. Additionally, the inspectors performed partial system walkdowns of each system in accordance with IP 71111.04, "Equipment Alignment."

The inspectors performed an independent review of completed 0-TI-37 and 0-TI-441 packages to determine whether the activities were accomplished in accordance with NRC requirements and licensee procedures. The inspectors reviewed system 63, safety injection; system 65, emergency gas treatment system; system 67, essential raw cooling water system; and system 3B, auxiliary feedwater.

During the review of the 0-TI-37 packages the inspectors performed the following:

- The inspectors reviewed Attachment 2, Functional Support Requirements Completion Checklist and Required Drawings, to verify that controlled critical drawings were transferred to the main control room and the online Business Support Library (BSL). The inspectors verified two master equipment list (MEL) items switched to “operating” control.
- The inspectors reviewed Attachment 3, Startup Testing Complete Form, to verify that deferrals were assessed for impact on operability and qualification.
- The inspectors reviewed Attachment 4, Turnover Boundary Walkdown Form, to verify that any incomplete deficiencies were assessed for impact on operability or qualification.
- The inspectors reviewed Attachment 5, Design Engineering Complete Form, and sampled two design documents to verify they were completed.
- The inspectors reviewed Attachment 6, Functional System Turnover Agreement Form.
- The inspectors reviewed Attachment 7, Supporting Documentation, to verify that a list of deferrals or special operating conditions, if any, had been assessed for impact on operability or qualification.
- The inspectors reviewed Attachment 11, Turnover Open Issue Summary Form, to verify all issues identified on the preceding attachments were captured on this summary form.
- The inspectors reviewed Appendix A, Turnover Action Deferral Form, to verify that a list of deferrals or special operating conditions, if any, had been assessed for impact on operability or qualification. The inspectors verified that any deferrals were dispositioned appropriately in the associated 0-TI-441 review for the system.
- The inspectors reviewed Appendix B, Special Operating Conditions Form, to verify that the licensee had listed and assessed special operating conditions that could impact operability or qualification and that they are resolved in the associated 0-TI-441 package.

During the review of the 0-TI-441 packages the inspectors performed the following:

- The inspectors reviewed Appendix A, Boundary Health Indicator Worksheet, to verify all attributes that were outside of acceptance criteria do not adversely impact operability requirements for the system.
- The inspectors reviewed Appendix C, Rescission Process Form, to note any system or components returned by Operations to Nuclear Construction and verify that deficiencies were resolved and the system or component was returned to Operations.
- The inspectors reviewed Attachment 1, Functional Support Requirements, and sampled to verify that system operating instructions and annunciator response instructions were complete, assistant unit operator rounds reflected ownership of

the system, and any outstanding clearances did not affect operability of the system.

- The inspectors reviewed Attachment 2, Operational Alignment Form, to verify that all applicable attributes of the system (Appendix R, IST, etc.) in 0-TI-435, Engineering Programs and Components Turnover, support system operability. The inspectors reviewed all open design changes to verify that they were complete or had been evaluated not to adversely impact system operability. The inspectors verified by sample that surveillance, maintenance, chemistry, radiological, and engineering procedures for the system were available in document control (BSL). The inspectors verified that outstanding items potentially affecting operability from the 0-TI-37 process were reflected in the limiting condition for operation (LCO) tracking system.
- The inspectors reviewed Attachment 3, Licensing Actions Complete, to verify that no outstanding licensing actions remained for the system.
- The inspectors verified that Attachment 4, Declaration of System Boundary Ready to Operate, was complete.

The inspectors evaluated the licensee corrective actions on problems identified and entered into the CAP. The inspectors reviewed CRs to verify that system construction/testing discrepancies had been appropriately characterized and corrected:

- System 63-CR 1091982
- System 63-CR 1097502
- System 3B-CR 1039165
- System 3B-CR 1072954
- System 3B-CR 1039165
- System 3B-CR 1038287
- System 3B-CR 1037971
- System 65-CR 1093577
- System 65-CR 1147403
- System 67-CR 1024651

b. Observations and Findings

No findings were identified. The inspector's review of all outstanding WOs and Modifications indicated that there were no safety significant issues related to their functionality for Mode 4 operation.

c. Conclusions

The licensee met the procedural requirements of 0-TI-37, 0-TI-435, and 0-TI-441 for the safety injection, emergency gas treatment, essential raw cooling water, and the auxiliary feedwater systems.

III. OTHER ACTIVITIES

OA.1.1 (Discussed) Generic Letter 2004-02 - Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors and Pressurized Water Reactor Containment Sump Blockage (Temporary Instruction 2515/166)

a. Inspection Scope

Background: Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors", requested licensees to evaluate the emergency core cooling system (ECCS) and containment spray systems (CSS) recirculation functions and take actions, if appropriate. Pressurized water reactor recirculation sump screens had been identified to be potentially susceptible to debris blockage during design basis accidents requiring recirculation operation of ECCS or CSS and on the potential for additional adverse effects due to debris blockage of flow paths necessary for ECCS and CSS recirculation and containment drainage.

In response to the generic letter mentioned above, WBN determined that they would remove the outer trash racks provided on each side of the sump and install a new strainer. The new strainer has an available flow area of 4600 ft² compared to the original screen area of approximately 200 ft². The new strainer openings are 0.085 inches in diameter compared to the 0.25 inch mesh that cover the outer trash racks. The strainer has an advanced configuration intended to be much more resistant to potential sump blockage.

Unit 2 containment is a mirror image to Unit 1 containment. Therefore, the results of debris generation, transport analyses, and downstream effects will be the same for Unit 2 as for Unit 1. The WBN Unit 2 letter to the NRC dated March, 4, 2011 (Agencywide Documents Access and Management System [ADAMS] Accession Number [No.] ML110680248) stated that Unit 2 actions are to replace containment sump intake screens with an advanced design containment sump strainer arrangement under Engineering Document Construction Release (EDCR) 53580. The design is the same as that used for Unit 1 except that the strainer stack to plenum opening was increased in size. This change reduces the strainer pressure drop, thus increasing the margin to plugging the strainer when compared to Unit 1.

As stated in the NRC closeout letter dated September 18, 2014 (ADAMS Accession No. ML14163A658), it was identified that three actions needed to be accomplished prior to closeout for the GL 2004-02: (1) install sump modifications per the requirements of GL 2004-02 prior to Unit 2 fuel load; (2) complete a confirmatory walkdown for loose debris after containment work is complete, prior to start-up, to ensure that potential quantities of post-accident debris are maintained within the bounds of the analyses and design bases that support ECCS and CSS recirculation functions; and (3) install new throttle valves in the chemical volume control system and safety injection system lines to the reactor coolant system, opened sufficiently to preclude downstream blockage.

As documented in integrated inspection report (IIR) 05000391/2016609 (ADAMS Accession No. ML15287A199), the NRC has completed inspection activities related to installation of the sump screen modifications, installation of throttle valves in the chemical volume and control system, and installation of throttle valves in the safety injection system lines. Remaining items for inspection, as documented in IIR 05000391/2016609, include a review of the TVA confirmatory walkdown for loose debris, review of additional coatings related information, and a final walkdown of the sump once work is complete, prior to start-up.

Inspection Activities: The inspectors performed an inspection of the containment sump to ensure that no loose items or debris were found. As part of the sump inspection close-out, the inspectors reviewed WOs 115886614 and 117656364 and observed the performance of the licensee surveillance 2-SI-304-2, "18 Month ECCS Containment Sump Inspection," Rev. 0. In addition, the inspectors conducted containment closure activities, including a detailed containment walkdown prior to initial criticality, to verify no evidence of leakage and that debris had not been left which could affect the performance of the containment sump or ice condenser.

b. Observations and Findings

Introduction: The inspectors identified an example of a Severity Level (SL) IV non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to follow work order instructions associated with the sump inspection surveillance 2-SI-304-2, which required the identification and documentation of foreign material inside of the safety-related containment sump.

Description: The inspectors conducted a walkdown of the completed safety-related containment sump inspection performed under WO 115886614. The inspectors observed that the completed sump inspection failed to identify and document foreign material, found by the inspector inside the sump. The work instructions to inspect the sump surfaces for foreign material were signed for as complete on March 3, 2016, and indicated that there was no foreign material or discrepancies found during the licensee's inspection.

The inspectors determined that the failure to perform work instructions to identify, document, and evaluate the foreign material found during the safety-related containment sump inspection was a performance deficiency. This performance deficiency was determined to be more than minor in accordance with IMC-2517, Appendix C, because the failure to implement the work order instructions to clean the containment sump represented an improper work practice that could impact safety, involving safety-related SSCs. Specifically, the inadequate removal of foreign material from the containment sump could transport the material throughout the emergency core cooling system during a design basis accident that could challenge the ability of the ECCS to accomplish its design functions. The inspectors determined this finding to be of very low safety significance, (i.e., SL-IV), in accordance with Section 6.5 of the Enforcement Policy because it did not represent a breakdown of the licensee's QA program.

This finding has a cross-cutting aspect in the Human Performance cross-cutting area, as defined in IMC 0310, regarding work management. The organization did not implement a process of planning, controlling, and execution of the work activities, such that nuclear safety was the overriding priority. The work process did not include the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities (H.5).

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires that activities affecting quality shall be prescribed by documented instructions, and procedures, and shall be accomplished in accordance with these instructions, and procedures. WO 115886614 implements 2-SI-304-2, the ECCS containment sump inspection, which documents the performance of the inspection of the

containment internal surfaces. The approved instructions required the containment sump to be inspected and document any foreign material found during the inspection. Contrary to the above, on March 3, 2016, the WO instructions were implemented without identifying and documenting the foreign material identified in the containment sump during the inspection.

The SL IV violation was entered into the licensee's corrective action program as CR 1148722, 1145455 and 1148640 to address this finding. This violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. This NCV is identified as 05000391/2016603-01, "Failure to Accomplish the Containment Sump Inspection in Accordance with the Approved Procedures."

c. Conclusion

The inspectors identified an NCV associated with the inspection of the safety-related containment sump. The licensee generated CR 1148722, 1145455 and 1148640 to address the finding and remove the foreign material prior to entry into Mode 4. Based on inspection activities, the inspectors concluded that Generic Letter 2004-02 and Temporary Instruction 2515/166 will remain open. The remaining items, TVA's completed containment debris and coatings calculations, will be inspected.

IV. MANAGEMENT MEETINGS

X1 Exit Meeting Summary

An exit meeting was conducted on April 14, 2016, to present inspection results to Sean Connors. The inspectors identified that no proprietary information had been received during the inspection and none would be used in the inspection report. The licensee acknowledged the observations and provided no dissenting comments.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

P. Simmons, TVA – Site Vice President
J. O'Dell, TVA - Regulatory Compliance
R. Proffitt, TVA – Licensing
M. Skaggs, TVA – Senior Vice President
G. Arent, TVA – Licensing Manager

INSPECTION PROCEDURES USED

IP 35007	Quality Assurance Program Implementation During Construction and Pre-Construction Activities
IP 70312	Preoperational Test Witness
IP 70317	Reactor Protection System Test
IP 70400	Preoperational Test Results Evaluation
IP 71302	Preoperational Test Program Implementation Verification
IP 72300	Startup Test Procedure Review
IP 72301	Startup Test Results Evaluation
IP 93806	Operational Readiness Assessment
TI 2515/166	Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02)

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Discussed

2004-02	GL	Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors (Section OA.1.1)
2515/166	TI	Pressurized Water Reactor Containment Sump Blockage (Section OA.1.1)

LIST OF DOCUMENTS REVIEWED

P.1 PREOPERATIONAL ACTIVITIES

P.1.3 Preoperational Test Results Evaluation (Inspection Procedure 70400)

CR 1140303, 2B CCS seal leak
CR 1140282, MCB CCS flow indicator for Unit 1 B train CCS flow read higher than MT&E.
CR 1140279, MCB CCS flow indicator for Unit 2 B train CCS flow read higher than MT&E.
2-E-0, Reactor Trip or Safety Injection, Rev. 2
2-E-1, Loss of Reactor or Secondary Coolant, Rev. 1
2-ES-1.3, Transfer to Containment Sump, Rev. 0
2-GO-1, Unit Startup from Cold Shutdown to Hot Standby, Rev. 8
2-GO-4, Normal Power Operation, Rev. 2
2-GO-6, Unit Shutdown from Hot Standby to Cold Shutdown, Rev. 2
0-SOI-67.01, Essential Raw Cooling Water System, Rev. 11
0-SOI-70.01, Component Cooling Water (CCS) system, Rev. 21

SU.1 STARTUP TESTING ACTIVITIES

SU.1.6 System Operational Readiness Assessment Inspection (Inspection Procedure 93806)

Documents Reviewed

0-TI-37 Attachment 1, Drawings

Controlled drawing-2-45W600-63-1, Revision 11, Wiring Diagrams Safety Injection System
Controlled drawing-2-45W724-4, Revision 17, Wiring Diagram 6900V Shutdown Board 2B-B Single Line
Controlled drawing-2-47W803-2, Revision 38, Flow Diagram Auxiliary Feedwater
Controlled drawing-2-45W760-63-7, Revision 9, Wiring Diagram Main and Aux Feedwater Sys Schematic Diagrams
Controlled drawing-2-45W600-65-22, Wiring Diagram, Separation & Misc. Aux Relays,
Controlled drawing-Schematic Diagrams
Controlled drawing-2-45W756-10, Wiring Diagrams, 480V CONT & AUX BLDG VT BD, 2B1-B-single Line Sheet 3
Controlled drawing-2-47W610-65-1A, Electrical Control Diagram, Emerg. Gas Treatment System
Controlled drawing-2-45W751-4, Wiring Diagrams 480V REAC MOV BD 2A2-A Single Line Sheet 1
Controlled drawing-2-47W610-67-3, Electrical Control Diagram, ERCW System2-47W845-7, Mechanical Flow Diagram, Essential Raw Cooling Water System
Controlled drawing-2-47W845-7, Mechanical Flow Diagram, Essential Raw Cooling Water System

0-TI-37 Attachment 2, MEL Status

System 3B-WBN-2-CKV-003-0873-S, Turbine Driven Auxiliary Feed Pump Discharge Check Valve
System 3B-WBN-2-HS-003-01118C-A, Auxiliary Feedwater Pump A-A Motor Switch
System 65, WBN-2-HS-065-0005-A, CNTMT ANNULUS VAC FANS ISLN VLV
System 65, WBN-2-LPP-065-0088, Containment Annulus DP
System 67, WBN-2-ISV-067-0603A-A, SIS/CS/RHR PMP RM CLR ERCWSUP HDR 2A ISOL
System 67, WBN-2-PDT-067-0010F-B, ERCW Strainer 2B-B Flush Diff Press

0-TI-37 Attachment 3, Deferrals

System 65 – CR 1093577, Deficiencies during U2 EGTS Air Flow balance
 System 67 - PER 848656, 2-PTI-067-02B ERCW Flow Balance Test Deficiencies.
 System 67 - PER 969021, 2-PTI-067-02A ERCW Flow Balance Test Deficiencies
 System 63 - None
 System 3B - None

0-TI-37 Attachment 4, Boundary Walkdown

System 3B - No significant unresolved deficiencies
 System 63 - No significant unresolved deficiencies
 System 65 - No significant unresolved deficiencies
 System 67 - No significant unresolved deficiencies
 System 3B-No significant unresolved deficiencies

0-TI-37 Attachment 5, Design Engineering Completion

System 3B - No discrepancies
 System 63 - No discrepancies
 System 65 – No discrepancies
 System 67 - No discrepancies

0-TI-37 Attachment 7, Supporting Documentation for Functional System Turnover

System 63-EDCR 52424-Closed at time of review
 System 63-EDCR 55948-Closed at time of review
 System 63-EDCR 54632-PINST
 System 63-DCN 54912-Closed at time of review
 System 63-DCN 55050-ISS/R
 System 63-EDCR 53600-Closed at time of review
 System 63-CR 1091982-Closed at time of review
 System 63-CR 1097502-Closed at time of review
 System 63-WO 117338682-Closed at time of review
 System 63-WO 110776381-REVWCOMP
 System 63-WO 111033187-Closed at time of review
 System 63-WO 117344411-REVWCOMP
 System 3B-EDCR 59055-Closed at time of review
 System 3B-EDCR 53288-Closed at time of review
 System 3B-EDCR 58210-Closed at time of review
 System 3B-DCN 52376-14-ISS/R
 System 3B-DCN 56035-ISS/R
 System 3B-EDCR 52337-Closed at time of review
 System 3B-WO116776854- REVWCMP
 System 3B-WO116997815- REVWCMP
 System 3B-WO117265512- REVWCMP
 System 3B-WO117326329-Closed at time of review
 System 65 – EDCR 52378. INSTV
 System 65 - EDCR 54632. INSTV
 System 65 - EDCR 55232. PINST
 System 65 – DCN 52376-14. Stage
 System 65 – DCN 55050. ISS/R
 System 65 – EDCR 53393. PINST
 System 65 – EDCR 54923. PINST

System 65 – PER 1109131. Archive
 System 65 – WO 111070833. APPRWRK
 System 65 – WO 112235095. REVWCMP
 System 65 – WO 112854700. REVWCMP
 System 65 – WO 116497601. APPRWRK
 System 65 – WO 117263457. REVWCMP

System 67 - EDCR 53393. PINST
 System 67 - EDCR 52945. Closed at time of review
 System 67 - EDCR 54636. PINST
 System 67 - DCN 55050 – ISS/R. Deferred. This DCN revises the interim ABSCE and interim security boundaries to their configuration for WBN Unit 1 and 2.
 System 67 - DCN 59164 – ISS/R. Power feeder for loose parts monitor panel.
 System 67 - EDCR 55948 - PINST – Closed at time of review
 System 67 - EDCR 54903 – PINST – This ECDR contains the wrap items for the ERCW system that require processing with technical instruction 0-TI-2
 System 67 - PER 1099156 – Closed at time of review
 System 67 - PER 981278 – Closed at time of review
 System 67 - WO 110959391 – APPRWRK
 System 67 - WO 113383398 – REVWCMP
 System 67 - WO 116690352 – INPLNG
 System 67 - WO 119622104 – INPLNG

0-TI-37 Attachment 11, Turnover Open Issues Summary Form

System 63-WO 115448128-Closed at time of review
 System 63-WO 115795650-Closed at time of review
 System 63-WO 117106518-Closed at time of review
 System 63-WO 115759627-Closed at time of review
 System 63-WO 112235095-Closed at time of review
 System 63-WO 112235095-REVWCMP
 System 63-WO 117127297-Closed at time of review
 System 63-WO 117335703-REVWCMP
 System 3B-DCN 65820-INSTV
 System 3B-FCR's 65914, 66012, 66103 and 65946-Closed at time of review
 System 3B-NESSD's 2-L-172,173,174, and 175 incomplete
 System 3B-TROI items 10184545, 111032150, 111032501, 11132556, 113694152, 114088984, 114098605, 114098692, 114113690 and 114113839 in
 System 3B-DRA 52337-Closed at time of review
 System 3B-DRA 52343-INSTV
 System 3B-DRA 54145-Closed at time of review
 System 3B-DRA 52447-Closed at time of review
 System 3B-DRA 52275-Closed at time of review
 System 3B-DRA 53276- INSTV
 System 3B-DRA 53393- PINST
 System 3B-DRA 53401- PINST
 System 3B-DRA 53606-Closed at time of review
 System 3B-WO 116964359- REVWCMP
 System 3B-WO 117315695- REVWCMP
 System 3B-WO 117104470- WO# and description does not match
 System 3B-WO 117327712- Canceled, justification reasonable
 System 3B-WO 117326329- Closed at time of review
 System 3B-WO 116958358- Closed at time of review
 System 3B-WO 117365218- REVWCMP
 System 3B-WO 117365247- Canceled to WO 116354997
 System 3B-WO 117365256- Canceled to WO 116354997
 System 3B-WO 116354997- REVWCMP

System 3B-WO 117365283- REVWCMP
 System 3B-WO 117365295- REVWCMP
 System 3B-WO 117365313- REVWCMP
 System 3B-WO 117365322- REVWCMP
 System 3B-WO 115874519- Closed at time of review
 System 3B-WO 116412262- Closed at time of review
 System 3B-WO 116412263- REVWCMP
 System 3B-WO 116443685- REVWCMP
 System 3B-WO 116412263- REVWCMP
 System 3B-WO 116516045- REVWCMP
 System 3B-WO 116772819- REVWCMP
 System 3B-WO 116776854- REVWCMP
 System 3B-WO 116830107- REVWCMP
 System 3B-WO 116830111- REVWCMP
 System 3B-WO 116902287- REVWCMP
 System 3B-WO 116931476- Canceled
 System 3B-WO 116958236- REVWCMP
 System 3B-WO 116958358- Closed at time of review
 System 3B-WO 115873298- Test Hold
 System 3B-WO 116990511- REVWCMP
 System 3B-WO 116993876- REVWCMP
 System 3B-WO 117013506- REVWCMP
 System 3B-WO 117021489- REVWCMP
 System 3B-WO 117034680- REVWCMP
 System 3B-WO 117049171- Ready???
 System 3B-WO 117105517- REVWCMP
 System 3B-WO 117161507- Canceled to WO 117164161
 System 3B-WO 117164161- Closed at time of review
 System 3B-WO 117164117- Canceled to WO 117227890
 System 3B-WO 117227890- Closed at time of review
 System 3B-WO 117237398- REVWCMP
 System 3B-WO 117246689- REVWCMP
 System 3B-WO 117265512- REVWCMP
 System 3B-WO 117267826- REVWCMP
 System 3B-WO 117295976- REVWCMP
 System 3B-WO 117315695- REVWCMP
 System 3B-WO 117316125- REVWCMP
 System 3B-WO 117316126- REVWCMP
 System 3B-WO 117316127- REVWCMP
 System 3B-WO 117316128- REVWCMP
 System 3B-WO 117326329- Closed at time of review
 System 3B-WO 117333817- REVWCMP
 System 3B-WO 117333875- REVWCMP
 System 3B-WO 117339374- REVWCMP
 System 3B-WO 117356019- Test Hold
 System 67 - WO 111486784 – REVWCMP
 System 67 - WO 111954214 – REVWCMP
 System 67 - WO 112030207 – REVWCMP
 System 67 - WO 112235095 – REVWCMP
 System 67 - WO 112240657 – REVWCMP
 System 67 - WO 113383398 – REVWCMP
 System 67 - WO 113385680 – REVWCMP
 System 67 - WO 116648526 – READY
 System 67 - WO 117038403 – REVWCMP
 System 65 – WO 112235095 REVWCMP
 System 65 – WO 112240657 REVWCMP
 System 65 – WO 116684396 REVWCMP
 System 65 – WO 116891968 REVWCMP

System 65 – WO 116927942 REVWCMP
 System 65 – WO 116927947 REVWCMP
 System 65 – WO 116927952 REVWCMP
 System 65 – WO 117048518 Close
 System 65 – WO 117224797 REVWCMP
 System 65 – WO 117224902 REVWCMP
 System 65 – WO 117229643 REVWCMP
 System 65 – WO 117229883 REVWCMP
 System 65 – WO 117236744 REVWCMP
 System 65 – WO 117256048 REVWCMP
 System 65 – WO 117261085 CAN
 System 65 – WO 117263457 REVWCMP
 System 65 – WO 117267871 REVWCMP
 System 65 – WO 117267883 REVWCMP
 System 65 – WO 117318390 CAN
 System 65 – WO 117340042 COMP
 System 65 – WO 117340043 COMP
 System 65 – WO 117386919 CAN
 System 65 – WO 117256048 REVWCMP

0-TI-37 Appendix A, Turnover Action Deferral Form

System 63-CR 116087079 Cyber Security Items
 System 3B-WO 116099913 Cyber Security Items
 System 3B-CR 1024651-ISS/R-Defer implementation of DCN 52376 until after System 67 turnover.
 System 67 - DCN 53785 – Closed at time of review
 System 67 - DCN 53111 – ISS/R
 System 67 - DCN 52376 – Closed at time of review
 System 67 - CR 1054073 – Cyber Security Items
 System 67 - CR 1054076 – Cyber Security Items
 System 67 - CR 1054078 – Cyber Security Items
 System 67 - CR 1054079 – Cyber Security Items
 System 65 – None

0-TI-37 Appendix B, Special Operating Conditions

System 63-WO 115448128, 115795650, 117106518, 115759627, 112235095 Temporary ABSCE boundary.
 System 3B-None
 System 67 – None
 System 65 – Operator actions to address EGTS testing for dual unit operation are being added to the system 65 description. Delineated in operating and/or test instructions.
 System 63 - WO 115448128, 115795650, 117106518, 115759627, 112235095 Temporary ABSCE boundary.

0-TI-441- Boundary Health Indicator Worksheet, Appendix A

System 63-No significant deficiencies
 System 3B

- IST program some surveillances not updated, 0-TI-100.007 &.011 not issued.

 System 67

- IST program some surveillances not updated, 0-TI-100.007 &.011 not issued.

 System 65 – No significant deficiencies

0-TI-441- Rescission Process Form, Appendix C

System 63-None

System 3B-None

System 67 – None

System 65 - None

0-TI-441- Functional Support Requirements, Attachment 1

System 63-No deficiencies

System 3B-No deficiencies

System 67 - No deficiencies

System 65 – No deficiencies

0-TI-441- Operational Alignment Form, Attachment 2

System 63- No deficiencies

System 3B- No deficiencies

System 67 - No deficiencies

System 65 – Exceptions.

- DCN 66212 – INSTV. Revised SDD N3-65-4001 to incorporate testing requirements. Is a documentation only DCN that identifies special requirements for testing the EGTS ACU system AVCS during dual unit operations.
- WO 113008576 – Close
- CR 1147403 – DEVCAP for DCN 66212

0-TI-441- Licensing Actions Complete, Attachment 3

System 63- No deficiencies

System 3B- No deficiencies

System 67 - No deficiencies

System 65 – No deficiencies

0-TI-441- Declaration of System Boundary Ready to Operate, Attachment 4

System 63-No deficiencies

System 3B-No deficiencies

System 65-No deficiencies

System 63-No deficiencies

0-TI-441- Supporting Documentation, Attachment 5

Deferred item 0-TI-37 Appendix A, Turnover Action Deferral Form

System 63-CR 116087079 Cyber Security Items will remain open, see SSER 28 for basis

Deferred item 0-TI-37, Appendix B, Special Operating Conditions

System 63-WO 115448128, 115795650, 117106518, 115759627, 112235095 Temporary ABSCE boundary. Work has completed since this 0-TI-37 was completed.

System 3B-None

System 67 – WO 116720683, 116852925, 116867691, 116867726, 116902419, and 116941423. REVWCMP.

System 67 – WO 117153684. Ready to work

Defer the implementation of DCN 53785 stages 8-11. This DCN is not required until ERCW is to be declared Operable for both Units

System 67 – CR 1024651 – IMPCAP

System 67 – PER 172713 – Archive

System 67 – Commitment 114098692, Closed on 3/14/16

Defer the implementation of DCN 53111 (ISS/R) until after U2 system 67 and 098 are turned over in accordance with NC-PP-37 and processed for operational readiness in accordance with TI-441.

System 67 – WO 110956257 - Ready
 System 67 – WO 110959391 - APPRWRK
 System 67 – WO 110959936 - APPRWRK
 System 67 – WO 114300303 - APPRWRK
 System 67 – WO 110963544 - INPLNG
 System 67 – WO 116795458 - Closed at time of review
 System 67 – CR 1024651 – IMPCAP
 System 67 – PER 172713 – Archive
 System 67 – Commitment 114098692, Closed on 3/14/16
 Defer the implementation of DCN 52376 (closed at time of review) until after U2 system 67 is turned over in accordance with NC-PP-37 and processed for operational readiness in accordance with TI-441.
 System 67 – WO 10661864 - Ready
 System 67 – WO 111064917 - REVWCMP
 System 67 – WO 111069741 - REVWCMP
 System 67 – WO 111069715 - CAN
 System 67 – WO 111065626 - REVWCMP
 System 67 – WO 111069768 - REVWCMP
 System 67 – WO 111068963 - REVWCMP
 System 67 – WO 111069953 - REVWCMP

Defer the implementation of the Cyber Security Plan Milestone 8 until March 31, 2017, in accordance with SSER 28 and in accordance with the WBN U1 Plan

System 65 - Commitment 10184545 – Open. System 65 will be walkdown when the system is placed into service to ensure compression fittings are properly installed and are not leaking prior to entering mode 2.

Incorporation of Design Changes into Procedures

System 63 - 2-SOI-63.01, Safety Injection System revised per DCN 64237, Appendix R dual unit operation
 System 3B - 2-SOI-3.02, Auxiliary Feedwater system revised per DCN 55050-03, normal valve position change due to removal of temporary ABSCE boundary.
 System 67 – 0-SOI-67.01, Essential Raw Water Cooling System revised per DCN 62151-04/PIC 65699, added 2-ISV-67-923A and 2-ISV-67-716A to checklist 5V.
 System 65 – 2-SOI-65.01, Annulus Vacuum System revised per DCN 66212-A Precaution and Limitation section for isolating non-accident unit from accident unit.

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
BSL	Business Support Library
CFR	<i>Code of Federal Regulations</i>
CR	Condition Report
CCS	Component Cooling System
CSS	Containment Spray System
ECCS	Emergency Core Cooling System
EDCR	Engineering Document Construction Release
ERCW	Essential Raw Cooling Water
ESFAS	Engineered Safeguards Features Actuation System
FSAR	Final Safety Analysis Report
GL	Generic Letter
IIR	Integrated Inspection Report
IMC	Inspection Manual Chapter (NRC)
IP	Inspection Procedure
LCO	Limiting Condition for Operation
MEL	Master Equipment List
NCV	Non-Cited Violation
No.	Number
NRC	Nuclear Regulatory Commission
RCS	Reactor Coolant System
QA	Quality Assurance
QC	Quality Control
Rev.	Revision
RPS	Reactor Protection System
SER	Safety Evaluation Report
SI	Surveillance Instruction
SL	Severity Level
TI	Temporary Instruction
TS	Technical Specification
TVA	Tennessee Valley Authority
WBN	Watts Bar Nuclear Plant
WO	Work Order