



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
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ATLANTA, GEORGIA 30303-1257

March 14, 2018

EA-17-022  
EA-16-061

Mr. Joseph W. Shea  
Vice President, Nuclear Regulatory  
Affairs and Support Services  
Tennessee Valley Authority  
1101 Market Street, LP 4A  
Chattanooga, TN 37402-2801

**SUBJECT: WATTS BAR NUCLEAR PLANT – FOLLOW-UP FOR NRC CONFIRMATORY  
ORDER EA-17-022 AND CHILLED WORK ENVIRONMENT LETTER EA-16-061;  
NRC INSPECTION REPORT 05000390/2017009, 05000391/2017009**

Dear Mr. Shea:

On February 2, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed a follow-up inspection of NRC Confirmatory Order (CO) EA-17-022 (Agency-wide Documents Access and Management System (ADAMS) Accession Number ML17208A647) and Chilling Effect Letter (CEL) EA-16-061 (ADAMS Accession No. ML16083A479) at Watts Bar Nuclear Plant Units 1 and 2. The NRC inspection team discussed the results of this inspection with you and other members of your staff on February 2, 2018. The results of this inspection are documented in the enclosed report.

The inspection reviewed TVA's actions taken to date to address the NRC Confirmatory Order (CO) EA-17-022 and Chilling Effect Letter (CEL) EA-16-061. In addition to reviewing actions taken by the licensee to establish and maintain a safety-conscious work environment (SCWE), the team also interviewed station personnel to evaluate the SCWE. The staff evaluated the attributes of a SCWE as described in inspection procedure (IP) 93100, "Safety Conscious Work Environment Issue of Concern Follow-up." IP 93100 identifies a SCWE as an environment in which employees are encouraged to raise safety concerns, are free to raise concerns both to their own management and to the NRC without fear of retaliation, where concerns are promptly reviewed, given the proper priority, appropriately resolved, and timely feedback is provided to those raising concerns. No findings were identified.

J. Shea

2

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Anthony D. Masters, Chief  
Projects Branch 5  
Division of Reactor Projects

Docket Nos.: 50-390, 50-391  
License Nos.: NPF-90, NPF-96

Enclosure:  
05000390/2017009, 05000391/2017009  
w/Attachments A-1, A-2, A-3, A-4

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SUBJECT: WATTS BAR NUCLEAR PLANT – FOLLOW-UP FOR NRC CONFIRMATORY ORDER  
EA-17-022 AND CHILLED WORK ENVIRONMENT LETTER EA-16-061; NRC  
INSPECTION REPORT 05000390/2017009, 05000391/2017009 March 14, 2018

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## TABLE OF CONTENTS

SUMMARY.....	2
4OA5.A Other Activities: Follow-up of Confirmatory Order EA-17-022 Commitments (IP 92702).....	3
1. Communication (Commitment V.1.a).....	3
2. Training (Commitment V.1.b).....	4
3. Work Processes (Commitment V.1.c).....	6
4. Independent Oversight (Commitment V.1.d).....	8
5. Assess and Monitor Nuclear Safety Culture and Safety Conscious Work Environment (Commitment V.1.e).....	9
6. Other (Commitment V.1.f).....	11
7. Root Cause Analysis.....	13
4OA5.B Other Activities: Chilling Effect Letter Follow-up (IP 92702).....	15
1. Safety Over Production (S.1-3).....	15
2. Corrective Action Program (CAP) is Effective (CAP.1-5).....	15
3. Management and Employee Mutual Respect (ME.1-9).....	17
4. Nuclear Safety Culture is Understood and Reinforced (NSC.1-10).....	20
5. Root Cause Analysis.....	23
4OA5.C Other Activities: SCWE Follow-up (IP 93100).....	24
4OA6 Exit Meeting Summary.....	27
LIST OF ACRONYMS.....	A-1
LIST OF DOCUMENTS REVIEWED.....	A-2
TABLE 1: Summary and Status of Requirements Associated with Confirmatory Order....	A-3
TABLE 2: Summary and Status of Corrective Actions Associated with Chilled Work Environment Letter EA-16-061.....	A-4

**U.S. NUCLEAR REGULATORY COMMISSION  
REGION II**

Docket Nos.: 50-390, 50-391

License Nos.: NPF-90, NPF-96

Report No.: 05000390/2017009, 05000391/2017009

Licensee: Tennessee Valley Authority (TVA)

Facility: Watts Bar, Units 1 and 2

Location: Spring City, TN 37381

Dates: January 22 through February 2, 2018

Inspectors: T. Nazario, Senior Test Engineer (Team Lead)  
S. Morrow, Human Factors Engineer (Lead Safety Culture Assessor)  
N. Staples, Senior Project Engineer  
S. Smith, Senior Construction Inspector  
P. Heher, Project Engineer

Approved by: Anthony D. Masters, Chief  
Reactor Projects Branch 5  
Division of Reactor Projects

## **SUMMARY**

IR 05000390/2017009 and 05000391/2017009; January 22 through February 2, 2018; Watts Bar, Units 1 and 2; Follow-up for NRC Confirmatory Order and Chilling Effect Letter.

This inspection was initiated to review TVA's actions to address the NRC Confirmatory Order (CO) EA-17-022 and Chilling Effect Letter (CEL) EA-16-061. The team consisted of a senior test engineer, human performance engineer, senior project engineer, senior construction inspector, and a project engineer. Activities performed included a review of: historical Confirmatory Orders and associated corrective actions; recent Problem Identification & Resolution for Safety Conscious Work Environment (SCWE) observations; licensee SCWE-related policies, communications, and training materials; recent licensee safety culture and SCWE assessments; and the root-cause analysis for both the Chilled Work Environment and Failure to Implement the Adverse Employment Action Process. Inspectors also performed management and employee observations, site walkdowns, and conducted site-wide focus groups interviews.

## REPORT DETAILS

### **40A5.A Other Activities: Follow-up of Confirmatory Order EA-17-022 Commitments (IP 92702)**

#### 1. Communication (Commitment V.1.a)

##### a. Inspection Scope

The inspectors reviewed corrective actions associated with Section (Commitment) V.1.a of Confirmatory Order EA-17-022 to verify completion of corrective actions. Specifically, the inspectors performed the following for each commitment listed in EA-17-022:

- (1) Commitment V.1.a.1.a: The team verified that the TVA Chief Nuclear Executive Officer informed all working status TVA nuclear first-line supervisory employees and above about employee protections and the need to maintain an environment free from even the appearance of retaliation or discrimination. The team reviewed the email message sent on August 14, 2017. An additional 43 individuals were sent the same email message on September 18, 2017, to reconcile differences between the original Outlook group and the Human Resources employee list. These actions were completed within three months of the Order.
- (2) Commitment V.1.a.1.b: The team verified that the TVA Chief Nuclear Officer conducted a video briefing for all working status TVA nuclear employees and contractors who perform NRC-regulated activities. The team verified that the video consisted of the following: 1) reason why TVA's implementation of the Adverse Employment Action process as required by the 2009 CO had not been fully effective; 2) brief summary regarding the background and reason the Adverse Employment Action Process exists; 3) brief summary of the NRC's concerns expressed in the March 2017 Inspection Report; 4) the corrective actions, both taken and planned, to restore TVA's compliance; and 5) informing the employees of the possible avenues (including to the NRC) that they have to raise concerns as outlined in TVA-SPP-11.8.4, "Expressing Concerns and Differing Views," Rev. 8. The team verified that the video entitled, "Enhancing Compliance with TVA's Nuclear Adverse Employment Action Process," was assigned in TVA's Learning Management System on August 11, 2017.
- (3) Commitment V.1.a.1.c: The team verified that the TVA Chief Nuclear Executive Officer completed a 90-day action to document that all working status TVA nuclear employees and contractors who perform NRC-regulated activities received the one-time video briefing, which also required response to one or more questions to document employee understanding in order to receive credit for the training. The action was completed on October 16, 2017, and included all 5,329 individuals who were in working status as of July 27, 2017. Additional individuals included HR staff with potential for involvement in the adverse employment action process, Employee Concerns Program staff, contract technical stewards for nuclear related activities, and personnel in the Office of General Counsel who are engaged in nuclear related activities. The team reviewed a tracking spreadsheet that identified each individual's work location, business unit, title, and date of completion.

- (4) Commitment V.1.a.1.d: The inspectors verified presentation material titled, “Watts Bar Adverse Employment Action – All-Hands Discussions”, presented by each site Vice President during All Hands meetings at each TVA nuclear site where employees were allowed the opportunity to provide feedback and ask questions of management related to the details of the Confirmatory Order and Adverse Employment Action Process for employees and contractors. Inspectors reviewed the sign-in sheets for Watts Bar dated October 3, 2017; Sequoyah dated September 28, and 29, 2017; and Browns Ferry dated October 17, 19, and 23, 2017; all which were completed within three months of the commitment due date.
- (5) Commitment V.1.a.2.a and b: Inspectors reviewed procedures NPG-SPP-01.7, “Nuclear Safety Culture,” Revision (Rev.) 0004 and NPG-SPP-01.7.2, “Nuclear Safety Culture Monitoring,” Rev. 0010, to verify that nuclear safety culture and safety conscious work environment policies and guidance (e.g., procedures) were in place, updated, and consistent with the NRC’s March 2011 Safety Culture Policy Statement and associated traits and the NRC’s May 1996 Safety Conscious Work Environment Policy Statement. Inspectors also verified that the material was informed by: 1) the NRC’s Regulatory Issue Summary 2005-18, “Guidance for Establishing and Maintaining a Safety Conscious Work Environment”; and 2) the industry’s common language initiative (i.e., INPO 12- 012, Rev. 1, April 2013). Inspectors reviewed TVA’s Nuclear Operating Model booklet and communication titled “Revised Nuclear Safety Culture Monitoring Process Available” to verify that the material contained updated Nuclear Safety Culture (NSC) policies. Inspectors walked down the site and attended meetings to verify that information was readily available to all onsite staff. Actions were completed by November 21, 2017, which was within four months of issuance of the confirmatory order.
- (6) Commitment V.1.a.3: Inspectors reviewed TVA presentation material dated November 29, 2017, which discussed the company’s experiences and insights with respect to the importance of implementing an Adverse Employment Action process, including lessons learned and actions taken by TVA. The presentation was shared during a Region II Regulating Utility Group meeting in Atlanta, GA, with several other nuclear utilities and representatives. Inspectors also reviewed the Agenda and sign-in sheet to verify the representatives in attendance and to confirm that the action was completed within six months of issuance of the confirmatory order.

b. Observations and Findings

No findings were identified.

2. Training (Commitment V.1.b)

a. Inspection Scope

The inspectors reviewed corrective actions associated with Section (Commitment) V.1.b of Confirmatory Order EA-17-022 to verify completion of corrective actions. Specifically, the inspectors performed the following for each commitment listed in EA-17-022:



- (1) Commitment V.1.b.1.a-b: The inspectors verified that TVA obtained the services of Pillsbury Winthrop Shaw Pittman LLP (Pillsbury) to develop and provide safety conscious work environment training to TVA employees before the commitment due date of October 27, 2017. Inspectors reviewed the qualifications of Pillsbury and verified that they were an independent third party with experience in NRC employee protection regulations, nuclear safety culture, and safety conscious work environment. The inspectors reviewed the training material, "Management Actions to Promote a Safety Conscious Work Environment," dated January 26, 2018. The inspectors also observed instructors from the independent third party deliver the training to a group of TVA employees on January 26, 2018. The inspectors verified that the training included case study examples, definitions of key terms, behavioral expectations, and discussion of implementing the adverse employment action process.
- (2) Commitment V.1.b.1.c: This commitment and action required that training records be retained consistent with applicable TVA record retention policies and made available to the NRC upon request. The inspectors reviewed the training records that were available as of the time of the inspection. However, it should be noted that licensee actions to implement the training by the commitment date of July 27, 2018, were ongoing. Only eleven of 193 individuals at Watts Bar had taken the training and training had not started for employees at Sequoyah or Browns Ferry; therefore, inspections of training records may be performed at a later date.
- (3) Commitment V.1.b.2: This commitment and action required that training be provided within one year and on an annual basis thereafter to, at a minimum, all working status nuclear business group supervisory employees, contractor supervisory employees involved in nuclear-related work activities, human resource staff involved in the adverse employment action process, employee concerns program staff, contract technical stewards for nuclear-related work activities, and the personnel in the TVA Office of General Counsel who are engaged in nuclear-related work activities. TVA identified 193 individuals at Watts Bar who were required to complete the training. The inspectors verified that the list of individuals included first line supervisors and above, contract technical stewards, human resources personnel, and employee concerns personnel. As noted previously, licensee actions to implement the training by the commitment date of July 27, 2018, were ongoing at the time of inspection; therefore, inspections may be performed at a later date.
- (4) Commitment V.1.b.3: This commitment and action required that new supervisory employees complete initial training through in-person or computer-based training within three months of their hire or promotion effective date. The training also required, at a minimum, a discussion of the training material with personnel in the TVA Office of General Counsel who are engaged in nuclear-related work activities. This commitment applies to new supervisory employees who are not included in the initial training specified in Commitment V.1.b.2. Licensee actions to implement the initial training by July 27, 2018, were ongoing at the time of inspection; therefore, inspections of this commitment may be performed at a later date.
- (5) Commitment V.1.b.4: This commitment and action required that initial training be conducted in person by the independent third-party for personnel specified in V.1.b.2 who work at Watts Bar and personnel in the TVA Office of General Counsel who are

engaged in nuclear-related work activities. Additionally, initial training for the other employees specified in V.1.b.2 and subsequent refresher training shall be conducted by personnel in the TVA Office of General Counsel who are engaged in nuclear-related work activities. Licensee actions to implement the training by July 27, 2018, were ongoing at the time of inspection; therefore, inspections may be performed at a later date.

b. Observations and Findings

No findings were identified.

3. Work Processes (Commitment V.1.c)

a. Inspection Scope

The inspectors reviewed corrective actions associated with Section (Commitment) V.1.c of Confirmatory Order EA-17-022 to verify completion of corrective actions. Specifically, the inspector performed the following for each commitment listed in EA-17-022:

- (1) Commitment V.1.c.1: Inspectors reviewed procedure NPG-SPP-01.7.4, "Adverse Employment Action and Executive Review Board," Rev. 0, dated October 20, 2017, and Rev. 1, dated December 21, 2017. The purpose of this review was to ensure that by no later than six months after the issuance of the order, which was dated July 27, 2017, that TVA was: maintaining a uniform process to ensure independent management review of all proposed adverse actions in accordance with the procedure; that the process was executed by an ERB chaired by a TVA Vice President or above; and that the ERB, at a minimum, reviewed proposed adverse employment actions which included suspensions (one or more days without pay), terminations for cause, involuntary reduction in force and no-fault terminations of employment. Based on the issue date and inspector review, actions were completed by the six-month due date.
- (2) Commitment V.1.c.2: Inspectors reviewed procedure NPG-SPP-01.7.4, "Adverse Employment Action and Executive Review Board," Rev. 0, dated October 20, 2017, and Rev. 1, dated December 21, 2017. The purpose of this review was to ensure that by no later than three months after the issuance of the order, which was dated July 27, 2017, that TVA had revised the Adverse Employment Action procedure to require all adverse employment actions, (as described in V.1.c.1) to be reviewed for potential effects on the safety conscious work environment, regardless of whether the employee engaged in a protected activity. Based on the procedure NPG-SPP-01.7.4, Rev. 0 issue date of October 20, 2017, and inspector review of the documentation, actions were completed by the three-month due date.
- (3) Commitment V.1.c.3: This commitment and action required that, by no later than three years after the issuance of the CO, TVA perform in person benchmarking of at least two external organizations in the nuclear industry with developed adverse employment action processes, specifically including ERBs. Licensee actions were ongoing at the time of inspection; therefore, inspections may be performed at a later date.

- (4) Commitment V.1.c.4: Inspectors reviewed individual performance appraisal assessment criteria for nuclear vice presidents and plant managers, to verify how expectations with regard to employee protection, nuclear safety culture, and safety conscious work environment for their respective organizations were being met. Inspectors also reviewed 2017 performance assessment results for the WBN plant manager and vice president.
- (5) Commitment V.1.c.5: Inspectors reviewed TVA Procedure NPP-SPP-01.7.2, "Nuclear Safety Culture Monitoring," Rev. 0010, Section 3.1.7, to confirm that a statement was included in the procedure in accordance with the Order. The statement required the Senior Leadership Team to conduct a review of Adverse Employment Actions and SCWE mitigation plans to identify trends impacting the organization's nuclear safety culture. The procedure became effective November 21, 2017; within six months of issuance of the CO. Inspectors also reviewed 2017 monthly Nuclear Safety Culture Monitoring Panel Minutes to verify that the minutes included trend data and 2017 quarterly Nuclear Safety Culture Site Leadership Team reports to verify that the information obtained from the trend data was properly communicated to senior management.
- (6) Commitment V.1.c.6: Inspectors reviewed fleet communication material titled, "Opportunities for Departing Nuclear Employees to Share Concerns" and issued on September 25, 2017. The fleet communication discussed and reinforced that personnel who may have engaged in work associated with NRC-regulated activities departing the company have the opportunity to participate in an Employee Concerns Program Exit Interview/Survey to facilitate identification of nuclear safety issues and identifying resulting trends and conclusions as part of the TVA Employee Checkout process. The communication stated which forms were available for use and Employee Concerns Program (ECP) points of contact. Inspectors also reviewed the email distribution list and interviewed several site personnel to confirm that information had been received within three months of the confirmatory order issuance.
- (7) Commitment V.1.c.7.a-c: Inspectors reviewed TVA Procedure NPP-SPP-01.7.2, "Nuclear Safety Culture Monitoring," Rev. 0010, to verify that it provided procedural guidance for a safety culture peer team and outlined additional oversight, specifically focused on fleet wide safety culture performance and safety conscious work environment at all TVA nuclear locations. Inspectors also reviewed Nuclear Safety Culture Peer Team (NSCPT) Implementation Final Report dated December 21, 2017, which documented observations made of the NSPT meetings. Inspectors verified that meetings had taken place at least twice a year, that guidance from Nuclear Energy Institute (NEI) 09-7 was utilized, and that the initial implementation of the peer team was advised by an external consultant with extensive nuclear experience. Inspectors also reviewed 2017 reports and minutes from the Nuclear Safety Culture Monitoring Panel and Nuclear Safety Culture Site Leadership Team meetings as noted under Commitment V.1.c.5. The procedure became effective November 21, 2017, and actions were completed by December 2017; within six months of issuance of the confirmatory order.

b. Observations and Findings

No findings were identified.

4. Independent Oversight (Commitment V.1.d)

a. Inspection Scope

The inspectors reviewed corrective actions associated with Section (Commitment) V.1.d of Confirmatory Order EA-17-022 to verify completion of corrective actions. Specifically, the inspector performed the following for each commitment listed in EA-17-022:

- (1) Commitment V.1.d.1: The team verified that John F. McCann Consulting Services LLC met the requirements for being an independent third-party auditor. Inspection activities included the review of the qualifications, past experience and independence of the third party auditor. As part of this review, inspectors verified that the auditor was experienced with NRC employee protection regulations (10 CFR 50.7, Section 211 of the Energy Reorganization Act, as amended); experienced with nuclear safety culture and safety conscious work environment; and had no previous involvement in the TVA Employee Review Board (ERB) process. Inspectors also verified that the auditor was independent of TVA, and had no direct, previous involvement with implementation of the adverse employment action process.

The team reviewed “First Independent Auditor’s Report of the TVA Adverse Employment Action Process,” dated September 30, 2017, and “Second Independent Auditor’s Report of the TVA Adverse Employment Action Process,” dated December 31, 2017. The team also verified that the audits included a review of all adverse employment actions, periodical attendance at Executive Review Boards and a review of chilling effect mitigation plans (inclusive of recommendations as appropriate). The audit was also reviewed to determine if: (1) evaluation of effectiveness of process for adverse employment actions comport with employee protection regulations; (2) adverse employment actions could negatively impact the SCWE; (3) development of plans to mitigate the potential chilling effects of adverse employment actions; and (4) audit reports all findings and recommendations from audits to the CNO. Inspections of future audits may be performed at a later date.

As part of the scope for the audits, procedures NPG-SPP-11.10, Rev. 7, “Adverse Employment Action,” dated 1/24/2017, and NPG-SPP-01.7.4, Rev. 0, “Adverse Employment Action and Executive Review Board,” dated 10/20/2017, were reviewed to ensure compliance with:

- 10 CFR 50.7,
- Section 211 of the Energy Reorganization Act of 1974 as amended,
- the NRC’s Safety Culture Policy Statement,
- the NRC’s Policy Statement for Nuclear Employees Raising Safety Concerns Without Fear of Retaliation, and
- Regulatory Issue Summary 2005-18

It should be noted that the most recent procedure in place at the time of the inspection was NPG-SPP-01.7.4, Rev. 1, “Adverse Employment Action and Executive Review Board,” dated 12/21/2017. Inspectors reviewed this and past versions to ensure compliance with the documents listed above in addition to the requirements of the Confirmatory Order. Inspections of future procedure revisions may be performed at a later date.

Inspectors also performed an independent review of recent Adverse Employment Action and Executive Review Board (ERB) packages. Specific activities included review of the background information associated with recent ERBs, associated SCWE Mitigation Plan Screening, SCWE Mitigation Plans, and results of recent pulse surveys conducted as a result of adverse actions taken against employees. Inspectors also observed an ERB which was held on January 21, 2018.

- (2) Commitment V.1.d.2: Inspectors reviewed procedure NPG-SPP-01.7.4, "Adverse Employment Action and the Executive Review Board," Rev. 0, effective October 20, 2017, to ensure that it met the requirements of Confirmatory Order EA-17-022. Review of the procedure confirmed that TVA had modified its process for conducting pulsing surveys such that it was informed by the adverse action process. In addition, inspectors confirmed that pulsing surveys were conducted, as appropriate, shortly after a SCWE mitigation plan had been implemented in an effort to assess whether additional mitigation actions were necessary. Based on this review, actions were completed by the three-month due date.

b. Observations and Findings

No findings were identified; however, the following observations were noted and shared with the licensee during the inspection. Based on the review of the procedures, ERB packages, SCWE Mitigation Screening, SCWE Mitigation Plans, Adverse Action Pulse Surveys, and audits; it was determined that the licensee was meeting the requirements identified in the Confirmatory Order (EA-17-022). However, the inspectors did note that improvements could be made to the SCWE Mitigation Plan Screening and the format of the third party audits. These observations were captured in Condition Reports (CRs) 1380707, 1380749, and 1381117.

Additionally, the inspectors determined that TVA met the requirement to modify its process for conducting pulsing surveys based on review of the revised procedure dated October 20, 2017. Specifically, the revised procedure required that pulse surveys be informed by the Adverse Employment Action process and conducted shortly after a SCWE mitigation plan had been implemented. In addition, results of these surveys were communicated back to management and reviewed to determine if additional mitigation actions were needed.

5. Assess and Monitor Nuclear Safety Culture and Safety Conscious Work Environment (Commitment V.1.e)

a. Inspection Scope

The inspectors reviewed corrective actions associated with Section (Commitment) V.1.e of Confirmatory Order EA-17-022 to verify completion of corrective actions. Specifically, the inspector performed the following for each commitment listed in EA-17-022:

- (1) Commitment V.1.e.1: The inspectors reviewed the Watts Bar Nuclear Safety Culture Evaluation, dated September 2017, and prepared by Oak Ridge Associated Universities (ORAU) to verify that an independent nuclear safety culture assessment was performed at Watts Bar in 2017 consistent with industry practices. The inspectors reviewed additional supporting documentation prepared by the independent nuclear safety culture assessment team to verify that the results from

the 2017 assessment had been compared with prior years' survey results in an effort to identify trends. The inspection team also reviewed corrective actions and enhancements associated with the nuclear safety culture assessment (CR 1346431) to verify that corrective actions were developed to address weaknesses identified through the assessments.

- (2) Commitment V.1.e.2: The inspectors reviewed the TVA procedure for Nuclear Safety Culture Monitoring (NPG-SPP-01.7.2, Rev. 10) and a sample of meeting minutes from Nuclear Safety Culture Monitoring Panel and Site Leadership Team meetings held at Watts Bar in 2017 to verify that TVA is maintaining a nuclear safety culture monitoring panel informed by the guidance in NEI's 09-07, Rev. 1, Fostering a Healthy Nuclear Safety Culture.
- (3) Commitment V.1.e.3: The inspectors reviewed TVA Nuclear Safety Culture Monitoring Panel Training, dated November 2017, which was planned for use as initial and refresher training for nuclear safety culture monitoring panel members. The inspectors verified that the training material familiarizes panel members with the nuclear safety culture monitoring panel process, and for each safety culture trait includes behavioral indicators of a declining safety culture and example actions that could be taken to address the declining safety culture. Although the training was dated November 2017, the inspectors reviewed email communications between TVA and the training developer and verified that the training was developed by an independent third-party and delivered to TVA before the commitment due date of October 27, 2017.

b. Observations and Findings

No findings were identified; however, the following observations were noted and shared with the licensee during the inspection. The inspectors determined that the nuclear safety culture assessment performed at Watts Bar in 2017, was consistent with industry practices because: 1) the assessment was comprehensive; 2) the assessment was methodologically sound; 3) the assessment team members were appropriately qualified and independent of TVA; and 4) the data collected supported the conclusions derived from the assessment. The inspectors noted two minor weaknesses in the assessment methodology, which could have affected interpretation of the results.

- The assessment reported that personal accountability and questioning attitude were strengths at Watts Bar. However, the survey questions related to those safety culture traits all included "I" statements, such as, "I understand my responsibility for performing work safely." Whereas other traits included "We" or "Our" statements, such as "Our approach to safety decision-making is consistent." Individuals tend to rate statements about their own personal behavior higher than statements about collective behavior in the organization. In addition, perceptions about collective behaviors are generally considered to be more appropriate reflections of the organizational culture than self-responses about personal behavior. The higher scores on traits that were measured using "I" statements may be a methodological artifact, rather than a cultural strength.
- The assessment did not include much detail about department-specific results. A table and graph showing department comparisons by safety culture trait was

presented in Appendix E of the report. However, there were a number of TVA-specific questions included in the survey, such as perceptions about whether the nuclear safety culture at Watts Bar has improved in the past year, that were not presented at the department level. This may limit TVA's ability to detect and fully understand departmental differences in perceptions of the nuclear safety culture.

The inspectors discussed these minor weaknesses with Watts Bar management and determined that they did not affect the overall interpretation of the assessment results. Supplemental information, collected via focus groups and write-in comments on the survey, was used to validate the survey responses regarding personal accountability and questioning attitude. In addition, ongoing actions such as the ECP pulsing surveys and nuclear safety culture monitoring panel inputs provided supplemental department-specific insights to the nuclear safety culture at Watts Bar.

The inspectors confirmed that the 2017 nuclear safety culture assessment results had been compared to assessments from previous years, primarily the observations from the NRC Problem Identification and Resolution (PI&R) inspections in 2016 (05000390/2016007 and 05000390/2016013) and a safety conscious work environment assessment performed for TVA by Conger and Elsea in 2016. The supplemental report prepared by ORAU noted that comparisons were limited because the 2016 assessments were focused on safety conscious work environment, which is only a subset of an organization's nuclear safety culture. The ORAU team also explored potential comparisons between the 2017 results and a 2015 survey performed by the Gelfond Group for TVA, but noted a number of methodological issues that limited the comparability of the results. The inspectors determined that the qualitative comparison between 2017 and 2016 results was reasonable given the methodological differences that limited a more direct or quantitative comparison. The inspectors also noted the importance of maintaining consistency in measurement of nuclear safety culture in future assessments to facilitate future trending.

Section V.1.e.1 of Confirmatory Order EA-17-022 also required TVA to implement and track corrective actions from the nuclear safety culture assessment to completion. However, these commitments were not included in the scope of the inspection because corrective actions had yet to be implemented at the time of the inspection. Further, Section V.1.e.1 required independent nuclear safety culture assessments to be performed at Browns Ferry Nuclear Plant, Sequoyah Nuclear Plant, and Corporate Nuclear within one year of the issuance of the Confirmatory Order and one additional assessment at each site within approximately two years of the first assessment. These commitments had not been completed and therefore were not within the scope of this inspection, but should be considered for future inspection.

## 6. Other (Commitment V.1.f)

### a. Inspection Scope

The inspectors reviewed corrective actions associated with Section (Commitment) V.1.f of Confirmatory Order EA-17-022 to verify completion of corrective actions. Specifically, the inspector performed the following for each commitment listed in EA-17-022:

(1) Commitment V.1.f.1.a: Inspectors reviewed TVA's Letter to the NRC from December 27, 2017, which documented the results of their review of previous Confirmatory Orders issued to TVA in order to verify that the review entailed:

- an assessment of the safety impact of contributing cause 03 (CC-03) from TVA's root cause analysis (RCA) on TVA's nuclear fleet;
- an evaluation of compliance with previously-issued Confirmatory Orders;
- periods of time when TVA was not in compliance with previous issued Confirmatory Orders; and
- corrective actions taken and planned and timeline to restore compliance, and corrective actions taken and planned to preclude recurrence

Inspectors also reviewed the December 27, 2017, letter to verify that TVA completed their review of previously-issued Confirmatory Orders within four months of issuance of Confirmatory Order EA-17-022 and that the results of their review were submitted to the NRC within one month of completion of their review. Confirmatory Order EA-17-022 was issued on July 27, 2017. TVA completed their review on November 27, 2017, within four months of issuance of Confirmatory Order EA-17-022. TVA submitted the results of their review to the NRC on December 27, 2017, (ML17361A395) within one month of the completion of their review.

The inspectors reviewed CR 1362399, which documented TVA's corrective actions taken and planned to restore compliance and preclude recurrence for any periods of time when they were not in compliance with previously issued Confirmatory Orders. The inspectors independently developed a list of Confirmatory Orders previously issued to TVA (including Browns Ferry, Sequoyah, and Watts Bar nuclear plants) and compared it to the list that TVA developed as part of their review in order to verify that all applicable orders were included within the scope of TVA's review. In addition, the inspectors also reviewed the Confirmatory Orders listed below in order to verify the adequacy of the results from TVA's review:

- Confirmatory Order for Sequoyah Unit 1 (Docket No. 50-327), dated 4/04/1980
- Confirmatory Order for Browns Ferry Unit 1 (Docket No. 50-259), dated 4/04/1980
- Confirmatory Order for Browns Ferry Unit 2 (Docket No. 50-260), dated 4/04/1980
- Confirmatory Order for Browns Ferry Unit 3 (Docket No. 50-296), dated 4/04/1980
- Order Confirming Licensee Commitments on Emergency Response Capability for Browns Ferry Nuclear Plant Unit 1 (Docket No. 50-259), dated 6/12/1984
- Order Confirming Licensee Commitments on Emergency Response Capability for Browns Ferry Nuclear Plant Unit 2 (Docket No. 50-260), dated 6/12/1984
- Order Confirming Licensee Commitments on Emergency Response Capability for Browns Ferry Nuclear Plant Unit 3 (Docket No. 50-296), dated 6/12/1984
- Order Confirming Licensee Commitments on Emergency Response Capability for Sequoyah Nuclear Station Unit 1 (Docket No. 50-327), dated 6/15/1984
- Order Confirming Licensee Commitments on Emergency Response Capability for Sequoyah Nuclear Station Unit 2 (Docket No. 50-328), dated 6/15/1984



- Confirmatory Order: EA-84-54 (Reference Report Nos. 50-259/84-02, 50-260/84-02, 50-296/84-02, 50-259/83-60, 50-260/83-60, and 50-296/83-60), dated 7/13/1984
- Confirmatory Order (Effective Immediately) [NRC Office of Investigation Report No. 2-2007-025], EA-08-211, dated 1/05/2009
- Confirmatory Order (Effective Immediately) (Office of Investigation Report Nos. 2-2006-025 & 2-2009-003), EA-09-009 and EA-09-203, dated 12/22/2009
- Confirmatory Order (Effective Immediately) [NRC Office of Investigation Report No. 2-2011-003], EA-12-021, dated 6/18/2012
- Confirmatory Order (NRC Inspection Report 05000259/2013005, 05000260/2013005, and 05000296/2013005), EA-14-005, dated 5/01/2014

(2) Commitment V.1.f.1.b: Inspectors reviewed TVA Procedure NPG-SPP-03.12, Technical Specifications/Licenses and Amendments, Rev 0004 Section 3.2.8 to confirm that the procedure was revised to ensure that current and future confirmatory order requirements continue to be met. The procedure detailed how confirmatory orders in the corrective action program are subject to 10 CFR 50.9 requirements for completeness and accuracy of information. The procedure became effective January 5, 2018; within six months of issuance of the confirmatory order. Inspectors also reviewed site corrective action program procedure NPG-SPP-22.300, Rev. 0010 to verify that actions and commitments stemming from a confirmatory order would continue to be met.

(3) Commitment V.1.f.1.c: This commitment and action required that, by no later than three years after the issuance of the CO (+/- 3 months), TVA perform an assessment of the effectiveness of corrective actions taken in response to CC-03. The commitment also stated that this assessment be made available for NRC review. Licensee actions specific to this commitment had not been completed at the time of inspection; therefore, inspections may be performed at a later date.

b. Observations and Findings

No findings were identified; however, the following observations were noted and shared with the licensee during the inspection. During review of corrective action program (CAP) procedure NPG-SPP-22.300, Rev. 0010, the inspectors noted that the procedure did not reference Technical Specifications/Licenses and Amendments procedure, NPG-SPP-03.12, Rev 0004 which contained detailed guidance in Section 3.2.8 for managing the closure of confirmatory orders to ensure that current and future requirements continue to be met. The licensee initiated CR 1382756 to consider enhancing the CAP guidance to reference the Technical Specifications/ Licenses and Amendments procedure, as appropriate.

7. Root Cause Analysis

a. Inspection Scope

Inspectors reviewed CR 1271309, "WBN Failure to Implement Adverse Employment Action Process," Rev. 0, May 12, 2017, which documented the root cause analysis and corrective actions associated with weaknesses identified in the Adverse Employment Action Process. The inspectors reviewed the RCA to verify that it addressed audit-

identified findings and evaluated organizational and programmatic weaknesses. Inspectors also reviewed corrective actions including the need for additional training.

The licensee used Event and Causal Factor Charting (ECFC) as the primary analysis tool. Data used in the ECFC analysis was gathered from a review of documentation related to the event, previous similar events, a comprehensive collection of interviews, and the output from analysis techniques used during the investigation. Two root causes and four contributing causes were identified as a result of TVA's RCA. Inspectors reviewed the root causes, contributing causes, analysis, and the associated corrected actions. It should be noted that two Focused Self Assessments, which will be used to monitor the effectiveness, are tentatively scheduled for April 6, 2018, and April 5, 2019. This item was also reviewed under the CEL corrective action ME.2 titled "Perform RCA of Weakness in the Adverse Employment Action Process."

b. Observations and Findings

No findings were identified.

#### **40A5.B Other Activities: CEL Follow-up (IP 92702)**

##### 1. Safety Over Production

###### a. Inspection Scope

The inspectors reviewed corrective actions listed in Attachment 1, TVA Chilled Work Environment Action Plan, and discussed in TVA's updated response to NRC. Specifically, the inspectors performed the following for each "Safety over production" corrective action:

- (1) S.1-Develop NSC Outage Actions for U1R14: As part of the inspection activities, inspectors reviewed the criteria/attributes that were assessed during the outage to promote and measure NSC health; communication of the NSC criteria/attributes that were addressed; and the defined outage roles and expectations. Materials reviewed can be found under the Documents Reviewed section located at the end of this report.
- (2) S.2- Implement NSC Outage Actions during U1R14 and Unit 2 Condenser Outage: Prior to the January 2018 inspection, resident inspectors attended licensee meetings to observe communications from TVA management regarding the Nuclear Safety Culture actions. The residents also periodically met with site management during the outage periods to discuss ongoing Nuclear Safety Culture actions and their effectiveness. In addition, inspectors reviewed the 6 Month NSC Observation Trend Report, the U1R14 NSC Observation Trend Report, and the U2 Forced Outage NSC Observation Trend report to develop understanding of how the defined pre-outage NSC criteria/attributes were measured during the U1R14 and Unit 2 Condenser Outages.
- (3) S.3-Assessment of NSC Outage Action following U1R14 and Unit 2 Condenser Outage: As part of the U1R14 and Unit 2 Condenser Outages assessment of the NSC, inspectors reviewed the NSC presentations that communicated the NSC performance during the outages and the feedback and insights that were obtained from the workforce for lessons learned.

###### b. Observations and Findings

No findings were identified.

##### 2. Corrective Action Program (CAP) is Effective

###### a. Inspection Scope

The inspectors reviewed corrective actions listed in Attachment 1, TVA Chilled Work Environment Action Plan, and discussed in TVA's updated response to NRC. Specifically, the inspectors performed the following for each "Effectiveness of Corrective Action Program" corrective actions:

- (1) CAP.1 - Conduct Monthly Pulsing Surveys: The inspectors reviewed the "Revised Pulsing Schedule," dated January 13, 2017, and documentation of the results of 2017 pulsing surveys to verify that pulsing surveys had been conducted in

accordance with the pulsing schedule. Inspectors also interviewed ECP personnel to confirm that pulsing surveys had been conducted and trended in 2017 to evaluate (1) effective use of the Corrective Action/Employee Concerns programs to raise concerns, and (2) specific Departments that must be addressed to improve confidence in CAP.

- (2) CAP.2-Conduct Snapshot Self-Assessment of CAP: Inspectors reviewed TVA's snapshot self-assessment report of their CAP at Watts Bar Nuclear Plant in order to determine the effectiveness of the Management Review Committee (MRC) and the Plant Screening Committee (PSC). The inspectors also reviewed the learning opportunities that TVA identified from the self-assessment and verified that TVA was implementing actions from the identified learning opportunities. The inspectors attended the MRC and PSC meetings on January 24, 2018, and on January 29, 2018, to verify that the meetings were effective and being conducted in accordance with approved procedures.
- (3) CAP.3-Develop Condition Report Status Reports: Inspectors met with TVA staff to discuss how Condition Report (CR) Status Reports were being developed and distributed to the different departments at Watts Bar Nuclear Plant. TVA set up a specific report titled, "WBN Operations Departments CR Closures and Details," which contains CR action closures from the last seven days and any CRs that have been closed immediately. The inspectors reviewed a screenshot from COGNOS, the software program used to generate the automatic report, in order to verify that the report would be automatically generated every day at 5:00 PM and would also be sent to the appropriate departments. The inspectors also reviewed an example of the automatic email that is sent out along with the attached "WBN Operations Department CR Closures and Details" report to verify that they contain the necessary CR status for Watts Bar Nuclear Plant departments to review.
- (4) CAP.4-Implement Actions to Drive Improvement in Corrective Action Closure Quality: The inspectors reviewed TVA's CAP procedure, TVA's Nuclear Power Group (NPG) "PI Health Monitor – Metrics Table" Desk Guide, and the Quality Review Team (QRT) Charter, which set up the committee that periodically reviews Level 1, 2, and 3 CRs. The inspectors also reviewed a sample of monthly performance improvement metrics from the months of October, November, and December 2017 for Watts Bar Nuclear Plant and the monthly performance improvement metrics for the month of December 2017 for TVA, which compared data from Browns Ferry, Sequoyah, and Watts Bar nuclear plants. Specifically, the inspectors reviewed these metrics to verify that TVA was completing corrective action closure quality reviews for Level 1 and 2 condition reports in accordance with the CAP procedure, the NPG "PI Health Monitor – Metrics Table" Desk Guide, and the QRT Charter. The inspectors also reviewed these metrics to verify that corrective action closure reviews were being performed on a sampling basis for Level 3 condition report actions in accordance with the NPG "PI Health Monitor – Metrics Table" Desk Guide and the QRT Charter.
- (5) CAP.5-Form Superintendents Issue Resolution Group: Inspectors reviewed the charter for the Watts Bar Nuclear Plant (WBN) Superintendents Meeting, reviewed presentation slides from the Superintendent Group to Senior Leadership on July 19, 2016, and reviewed agendas and minutes from several WBN Superintendents Meetings in order to verify that TVA had formed a Superintendents Leaders Group to address issues raised by the workforce at Watts Bar Nuclear Plant. The inspectors

also attended the WBN Superintendents Meeting on February 1, 2018, in order to determine if the meeting was effective and if issues raised by the workforce at Watts Bar Nuclear Plant were being adequately addressed.

b. Observations and Findings

No findings were identified; however, the following observations were noted and shared with the licensee during the inspection. The pulsing surveys instructed individuals to respond to statements using a response scale of “Always,” “Often,” “Sometimes,” “Seldom,” or “Never.” The inspectors observed that ECP personnel prepared two different reports on pulsing survey results: one report displayed the percentage of individuals who answered a statement positively with a response of “Always” or “Often”, the second report displayed the percentage of individuals who answered a statement positively with a response of “Always,” “Often,” or “Sometimes.” As a result, the second report provided a much more optimistic snapshot of the nuclear safety culture at Watts Bar because individuals who answered “Sometimes” were characterized as providing a positive response, even though “Sometimes” was the midpoint of the response scale, which is typically indicative of a neutral response. This observation was also included in NRC inspection report 05000390/2016013, 05000391/2016013, Page 14, as an example of a relaxation of standards for evaluating safety culture data.

Pulsing survey results were used as an input to the interim effectiveness reviews related to the Chilled Work Environment Root Cause Analysis (CR 1155393), and one of the criteria for evaluating effectiveness of corrective actions used pulsing survey results that included “Sometimes” as a positive response. ECP personnel also stated that pulsing results were shared with Watts Bar management on a monthly basis, and used as an input to monthly nuclear safety culture monitoring panel meetings. The use of “Sometimes” as a positive response was not consistent with standard survey practices. It also limited the effectiveness of using pulsing survey results as a leading indicator of declines in safety culture.

The inspectors provided this observation to Watts Bar management and CR 1382810 was written to discontinue the use of “Sometimes” as a positive response when presenting future pulsing survey results.

3. Management and Employee Mutual Respect

a. Inspection Scope

The inspectors reviewed corrective actions listed in Attachment 1, TVA Chilled Work Environment Action Plan and discussed in TVA’s updated response to NRC. Specifically, the inspectors performed the following for each “Management and Employee Mutual Respect” corrective action:

- (1) ME.1 - Expand Nuclear Safety Culture Monitoring Panel Participation: The inspectors conducted interviews with the Nuclear Safety Culture Monitoring Panel chairperson and other attendees at panel meetings, reviewed the TVA procedure for Nuclear Safety Culture Monitoring (NPG-SPP-01.7.2, Revision 10) and reviewed a sample of meeting minutes from 2017 Nuclear Safety Culture Monitoring Panel meetings to verify that nuclear safety culture monitoring panel participation had been expanded to encourage participation from additional workforce personnel. The

inspectors confirmed that expanded participation had been maintained throughout 2017. The monitoring panel meeting minutes indicated that workforce personnel beyond the minimum required for quorum regularly attended meetings and participated in the assessment of the nuclear safety culture traits.

- (2) ME.2 - Perform a Root Cause Analysis of Weaknesses in the Adverse Employment Action Process Implementation: Inspectors reviewed, CR 1271309, “WBN Failure to Implement Adverse Employment Action Process,” Rev. 0, dated May 12, 2017, which documented the root cause analysis and corrective actions associated with weaknesses identified in the Adverse Employment Action Process. The inspectors reviewed the RCA to verify that it addressed audit-identified findings and evaluated organizational and programmatic weaknesses. Inspectors also reviewed corrective actions including the need for additional training. This item is also discussed in Section 4OA5.A.7 of this inspection report.
- (3) ME.3 - Evaluate Methods to Predetermine Stressors in the Organization: As part of TVA’s response to the Chilling Effect Letter, TVA identified the following actions for methods to predetermine stressors in the organization. Specific actions included the development and implementation of an Organizational Stressor Indicator and communication of those results.

At the time of the inspection, inspectors were unable to review the procedure for the Organizational Stressor Index (OSI) tool since it was in a draft format. However, inspectors were able to interview the site Employee Concerns Program Manager and the Corporate Employee Concerns Manager in an effort to understand how the Organizational Stressor Index tool was currently being implemented at the site. Specifically, inspectors were able to gather sufficient information on how OSI data was collected and organized, and how that information was being provided to management for its use. Inspectors also reviewed the most recent OSI, which included data from the 3<sup>rd</sup> quarter of 2017, and the standing agenda for the T-16 meeting, which identified discussion of current stressors within the organization.

- (4) ME.4 - Conduct Quarterly Audits of the Adverse Action Process: Actions developed with respect to the quarterly audits included the review of Adverse Action documentation, review of the Executive Review Board actions, and review of the effectiveness of the Chilled Work Environment Mitigation Plans, when applicable.

As part of the inspection, inspectors reviewed the audits to ensure that they covered all adverse employment actions packages for the identified periods and documented the auditor’s review of the chilling effect mitigation plans. Inspectors also reviewed the audits to ensure that they provided an assessment on the effectiveness in determining whether adverse employment actions comport with employee protection regulations; whether adverse employment actions could negatively impact the SCWE; and the development of plans to mitigate the potential chilling effects of adverse employment actions.

In addition to review of the audits, inspectors also performed an independent review of recent Adverse Employment Action and Executive Review Board packages. Specific activities included review of the background information associated with recent ERBs, the associated SCWE Mitigation Plan Screening, the SCWE Mitigation Plans, and results of recent pulse surveys conducted as a result of adverse actions

taken against employees. Inspectors also observed an ERB, which was held on January 21, 2018. This action was also associated with commitment V.1.d.1 in Confirmatory Order EA-17-022.

- (5) ME.5 - Conduct Adverse Action briefings at Site Leadership Meetings: Inspectors attended Site Leadership meeting on January 31, 2018, and verified that, as appropriate and needed, the site leadership communicated significant adverse actions and the critical thinking for taking the action. As part of the inspection activities, inspectors reviewed the standing agenda for the meeting during which a recent adverse action was communicated to the first line supervisors by senior management.
- (6) ME.6 - Conduct Independent Assessment of WBN Nuclear Safety Culture: The inspectors reviewed the Watts Bar Nuclear (WBN) Nuclear Safety Culture Evaluation, dated September 2017, to verify that TVA conducted an independent assessment of the Watts Bar safety culture using an independent nuclear safety culture survey and focus groups. This action was also associated with commitment V.1.e.1 in Confirmatory Order EA-17-022.
- (7) ME.7 - Conduct Operations Pulse Surveys: The inspectors reviewed the “Revised Pulsing Schedule,” dated January 13, 2017, and results of 2017 pulsing surveys to verify that monthly pulsing surveys had been conducted in the Operations department. The inspectors verified that pulsing surveys included questions on willingness of operators to raise nuclear safety concerns, indications of valuing production over safety, indications of undue influence over licensed duties, and effective use of the Corrective Action/Employee Concerns programs to raise concerns. This action was also associated with the pulsing surveys inspected as part of CAP.1.
- (8) ME.8 - Conduct Pulse Surveys in Additional Departments: The inspectors reviewed the “Revised Pulsing Schedule,” dated January 13, 2017, and results of 2017 pulsing surveys to verify that monthly pulsing surveys had been conducted in select other departments outside of Operations for a period of 12 months. This action was also associated with the pulsing surveys inspected as part of CAP.1.
- (9) ME.9 - Site Leadership Interaction (SLT) with Operators: During the inspection, the inspectors observed an Auxiliary Unit Operator (AUO) perform their rounds while accompanied by a member from the Site Leadership Team (SLT) to verify that TVA is taking actions to improve relationships between the SLT and plant operators. The inspectors also conducted interviews of control room personnel to verify that the Duty Plant Manager toured the Main Control Room each week to engage with the operating crews.

b. Observations and Findings

No findings were identified; however, the following observations were noted and shared with the licensee during the inspection. The inspectors confirmed that TVA conducted an independent assessment of the Watts Bar nuclear safety culture consistent with industry practices. The inspectors noted minor weaknesses in the assessment related to questions associated with the questioning attitude and personal accountability traits of a nuclear safety culture, and limited presentation of department-specific results.

However, these minor weaknesses did not affect the overall interpretation of the assessment results. Refer to observations associated with commitment V.1.e.1 in Confirmatory Order EA-17-022 for more detail.

The inspectors observed a weakness in some of the reporting of pulsing survey results. In particular, the mid-point of the response scale for the survey questions (“Sometimes”) was included as a positive response in some reports of the pulsing results, which presented an overly optimistic snapshot of the nuclear safety culture and limited the effective use of the pulsing surveys as a leading indicator of declines in perceptions of safety culture. Additional details on the weakness in the reporting of pulsing survey results are addressed in the observations related to CAP.1.

The inspectors also noted that while TVA did not have an approved procedure for implementation of the OSI, the site ECP and corporate ECP managers had developed and were utilizing an OSI tool. In addition, the results of the OSI tool had been communicated to site management and were incorporated into multiple meetings. However, at the time of the inspection, the impacts of this tool were unclear due to the fact that there was not an approved procedure and there had been no audits or effectiveness reviews performed to date.

Based on the review of the ERB packages, SCWE Mitigation Screening, SCWE Mitigation Plans, Adverse Action Pulse Surveys, and audits; it was determined that the licensee was performing the associated actions.

The inspectors noted during the management alignment meeting that that the senior manager clearly communicated the adverse action at a level appropriate to the situation. In addition, details were provided with regards to the Adverse Employment Action process and questions related to the adverse action were appropriately addressed.

#### 4. Nuclear Safety Culture is Understood and Reinforced

##### a. Inspection Scope

The inspectors reviewed corrective actions listed in Attachment 1, TVA Chilled Work Environment Action Plan, and discussed in TVA’s updated response to NRC. Specifically, the inspectors performed the following for each “Nuclear Safety Culture is Understood and Reinforced” corrective actions:

- (1) NSC.1 - Conduct Semi-Annual Seminars for Senior Leadership Team: Inspectors reviewed CR 1258384 Action 18 to verify that semi-annual seminars for the Senior Leadership Team were conducted through 2017. The inspectors reviewed several presentations and sign-in sheets to verify that the presentation material focused on a) managing and communicating in a changing work environment, and (b) managing performance expectations without creating a fear of retaliation. Inspectors also reviewed CR 1369804 dated December 18, 2017, (prior to the NRC inspection) which was identified by the licensee and documented the licensee’s failure to perform semi-annual seminars in 2017 as described in Attachment 1 of TVA Chilled Work Environment Action Plan and TVA’s updated CEL response to the NRC.
- (2) NSC.2 - Establish Nuclear Safety Culture Observations at Key Meetings: Inspectors reviewed CR 1258384 Action 19 to verify that nuclear safety culture expectations



were established and clearly communicated during observation key meetings. Inspectors attended and observed the following meetings during the inspection:

- Plan of the Day meeting
- Senior management alignment meeting
- T-10 meeting
- Management Review Committee meeting
- PSC and MRC meetings
- ERB
- Compliments and Concerns meetings

The inspectors also reviewed monthly trending and communication of observation insight reports to Site Leadership Team. Inspectors interviewed the performance improvement manager to verify that data was trended and communicated as appropriate.

- (3) NSC.3 - Communicate Safety Conscious Work Environment Expectations and Learnings at the Weekly Site Leadership Meeting: Inspectors reviewed CR 1258384 Action 20 to verify that nuclear safety work environment expectations and learnings at the weekly site leadership meetings were communicated. Inspectors verified that the presentation material included:

- Nuclear Safety Culture attributes
- Trends and Insights from NSCMP meetings
- CAP metrics and key accomplishments
- Adverse actions, as applicable

Inspectors attended the senior management alignment meetings on January 24 and 31, 2018, and verified that the topics above were discussed during the meetings. Inspectors also interviewed site personnel to better understand their understanding of NSC and SCWE expectations.

- (4) NSC.4 - Conduct TVA Nuclear Senior Management Review of WBN NSC: Inspectors reviewed CR 1258384 Action 21 to verify that TVA conducted monthly oversight of WBN Chilled Work Environment Action Plan. Inspectors reviewed WBN CWEL monthly meeting minutes for the first half of 2017 and verified that the following topics were covered:

- Progress against plan deliverables
- Effectiveness of actions taken
- Need for additional actions

Inspectors also interviewed the TVA Chief Nuclear Officer, WBN site vice president, and site plant manager to verify that oversight of nuclear safety culture was being performed.

- (5) NSC.5 - Conduct Safety Conscious Work Environment Refresher Training: Inspectors reviewed CR 1258384 Action 22 to verify that computer based training (CBT) was conducted for all Watts Bar Nuclear Plant personnel including contractors. Inspectors reviewed training material HRD099.028R Rev 00 titled

- “Safety Conscious Work Environment/Nuclear Safety Culture Refresher” to verify that the training material included nuclear safety culture traits and attributes for a safety conscious work environment. Inspectors also reviewed the list of individuals that completed the CBT training.
- (6) NSC.6 - Conduct a Seminar for Site Supervision: Inspectors reviewed CR 1258384 Action 23 to verify that seminars for site supervisory staff were conducted. The inspectors reviewed several presentations and sign-in sheets to verify that the presentation material focused on establishing the vision and expectations for managing and communicating in a changing work environment. Inspectors also reviewed CR 1369804 which was identified by the licensee and documented for the licensee’s failure to perform semi-annual seminars in 2017.
- (7) NSC.7 - Implement Corrective Action Program (CAP) Information Sharing: Inspectors reviewed CR 1258384 Action 24 and verified that CAP presentations and tutorials titled “Closing the GAP,” “Successes in the Corrective Action Program,” “Engineering CAP Boot Camp,” and “Job Aid for closing CR and Corrective Action to WO” to verify that CAP tutorials were being provided to different departments. Inspectors reviewed the material and also verified sign-in sheets for several 2017 information sharing sessions (targeted and non-targeted).
- (8) NSC.8 - Establish a Fleet Safety Culture Peer Team: Inspectors reviewed CR 1258384 Action 25 to verify that a Fleet Safety Culture Peer Team was established to monitor and discuss the health of the site’s safety culture and safety conscious work environment. Inspectors reviewed the Nuclear Culture Safety Peer Team Charter and NPG-SPP-01.5, Peer Teams, Rev. 0013. Inspectors also interviewed the industry support project manager and the General Manger of Organizational Effectiveness.
- (9) NSC.9 - Establish an Experienced Executive Safety Culture Advisor Role: Inspectors reviewed CR 1258384 Action 26 to verify that TVA utilized an experienced executive to perform, review, and observe activities at TVA sites and provide feedback, coaching, and recommendations to the TVA leadership team on achieving sustainable improvement in safety culture at the sites. Inspectors reviewed observation reports dated November 10, 2017, and December 14, 2017, to verify that leadership observations of key nuclear leadership engagements and oversight of the safety culture peer team were conducted. Inspectors also reviewed CRs 1364037 and 1363489 which documented recommendations and suggestions made by the Executive Nuclear Safety Culture Advisor.
- (10) NSC.10 - Revise Nuclear Safety Oversight Guidance: Inspectors reviewed CR 1258384 Action 27 and verified that procedure NPG-SPP-03.2, “Nuclear Safety Oversight,” Rev 0011 included requirements for periodic independent observations and selective interviews to gain NSC insights. Inspectors also reviewed “Nuclear Safety Review Board,” dated November 14, 2017, to verify that interviews and observations had been performed by the oversight team.

b. Observations and Findings

No findings were identified; however, the following observations were noted and shared with the licensee during the inspection. The inspectors noted that while the Executive Safety Culture Advisor reports contained a number of recommendations, it was not clear as to which recommendations warranted documentation/actions by the site. The process by which recommendations/suggestions were recorded appeared to be inconsistent. Upon discussion with the Senior Advisor to the TVA Chief Nuclear Officer, the inspectors were able to obtain detailed insight into how recommendations/suggestions were being tracked.

5. Root Cause Analysis

a. Inspection Scope

The inspectors reviewed Root Cause Analysis CR 1155393, "Watts Bar Chilled Work Environment," Revision 2, dated September 15, 2017, to determine the overall effectiveness of the following: (1) completion of corrective actions; and (2) status of the interim effectiveness review plan.

b. Observations and Findings

No findings were identified; however, the following observations were noted and shared with the licensee during the inspection. The inspectors reviewed the CWE RCA event and causal factor charting, barrier analysis and interim effectiveness review. The WBN's interim effectiveness review for RCA CR 1155393 evaluated both quantitative and qualitative measures in accordance with NPG-SPP-22.001, Effectiveness Reviews, and the criteria specified in the Chilled Work Environment RCA, Section 11.0, and Effectiveness Review Plan. The review originally encompassed four attributes associated with SCWE:

- Safety Has Priority Over Production,
- CAP is Effective,
- Management and Employee Mutual Respect,
- Nuclear Safety Culture is Understood and Reinforced.

WBN management added the focus area, Leadership Values, subsequent to the TVA's April 12, 2017, letter to the NRC.

The inspectors determined that overall, the effectiveness review demonstrated that the corrective actions and enhancements were being implemented and ultimately were having a positive effect on the chilled work environment and that WBN management had made progress concerning the chilled work environment recovery efforts. Though the NRC identified weaknesses in the RCA as discussed in the 2016 NRC PI&R, the NRC considered WBN's Interim Effectiveness Review to be comprehensive. The team reviewed additional aspects of the RCA pertaining to the Chilling Effect Letter (event and causal factors, extent of condition/cause, and barrier analysis) and determined that additional review would be necessary.

During the inspection, the inspectors were unable to fully determine whether observations from an earlier NRC PI&R Part 2 inspection had been addressed. Some of these observations included the identification of weaknesses in the performance of formal root cause evaluations for significant problems including RCA CR 1155393. Additionally, the inspectors learned that RCA CR 1155393 may undergo a final revision and a subsequent final effectiveness review in the future; therefore, inspection and review of the final version of the RCA may be performed at a later time.

#### **4OA5.C Other Activities: SCWE Follow-up (IP 93100)**

##### 1. Safety Conscious Work Environment Assessment

###### a. Inspection Scope

Qualified safety culture assessors performed a limited assessment of the safety conscious work environment at Watts Bar in accordance with IP 93100, "Safety Conscious Work Environment Issue of Concern Follow-up," and other IPs as referenced by IP 93100. The objectives of the assessment were to: (1) determine whether actions taken by TVA have improved the work environment in the Operations department and other departments at Watts Bar since the March 2016 Chilling Effect Letter was issued to TVA; (2) determine if employees are currently reluctant to raise safety or regulatory issues; and (3) determine if employees are currently being discouraged from raising safety or regulatory issues.

The safety culture assessors conducted semi-structured focus groups and interviews with 98 Watts Bar employees and management. Individuals were randomly selected for the focus groups by the assessors to represent at least 10 percent of the Watts Bar workforce. The following departments were sampled: Operations, Engineering, Maintenance, Work Management, Security, Chemistry, and Radiation Protection. Each focus group consisted of employees from the same organizational level and from the same department.

###### b. Observations and Findings

No findings were identified; however, the following observations were noted and shared with the licensee during the inspection.

The observations reflect common themes from the interviews and focus groups in response to questions about changes in the work environment at Watts Bar, willingness to raise nuclear safety concerns, perceptions about various avenues for raising concerns, and management support for and responsiveness to raising concerns.

###### Improvements in Environment for Raising Nuclear Safety Concerns

The majority of individuals reported improvements in the work environment at Watts Bar in the past year. Examples of improvements included:

- Less pressure during outages
- Managers who were more willing to listen and support stopping when unsure
- Better communication and respect among employees

The majority of individuals reported feeling free to raise nuclear safety concerns without fear of retaliation. Most individuals had confidence that if a nuclear safety concern was raised, it would get the attention it deserved. Most individuals also reported improvements in management behaviors, particularly during outages, which had improved their perceptions of the environment for raising nuclear safety concerns.

However, the assessors noted that the report on the 2017 nuclear safety culture assessment at Watts Bar indicated that 10 percent of participants had a negative response to the question, “I feel free to raise a safety concern without fear of retaliation,” and 8 percent of participants had a negative response to the question, “In the past year, I have not experienced retaliation for raising a safety issue or concern.” The report notes that this is still a relatively high level of negative responses in the nuclear industry. It is not clear whether individuals responded to these questions in regard to nuclear safety concerns or other types of safety concerns. Nevertheless, the percentage of negative responses still indicates more room for improvement.

### Management Response to Non-Nuclear Safety Concerns

Most individuals made a distinction between nuclear and non-nuclear safety concerns. Although individuals had confidence in management attention to nuclear safety concerns, many individuals felt that managers were not consistently supportive or responsive to non-nuclear concerns, such as those related to personal safety.

Many individuals expressed frustration with issues being categorized as low priority even though they had significant impacts on workers. Although the issues may not have been risk-significant from a nuclear safety perspective, their low prioritization contributed to the perception that the organization does not value its workers. Many individuals believed that the priority of fixing safety issues did not consider the impact of the issue on the worker. For example:

- Industrial safety issues that increase risk of personal injury, but the task has no impact on nuclear structures, systems, or components.
- Longstanding equipment issues that increase workload because the equipment was used for frequently performed activities and the workaround takes more time/energy.
- Unclear or inconsistently applied work processes that increase potential for human error. Individuals were concerned that they would be blamed and disciplined for a human performance failure that should be attributed to a systemic issue.
- Longstanding staffing issues that result in excessive overtime, but are low priority because impacted employees are not covered by work hour controls and/or staffing shortages have not affected work quality, just quality of life.

Some individuals and managers referenced the new behavioral observation team, called the Behavior Equals Accident Reduction (BEAR) team, as a recent positive example of improving the safety culture specific to industrial safety. The BEAR team was seen as positive because it was made up of non-supervisory employees who were respected peers from different departments across the site. Representatives of the BEAR team focused on coaching when they saw unsafe behaviors during the outages rather than punitive discipline. Individuals attributed the actions of the BEAR team to improving the

safety mindset at the site because representatives were helping people be safe rather than trying to catch people being unsafe.

#### Problem Resolution for Lower Priority Issues and Repeated Identification

Many individuals also expressed low confidence in the corrective action program (CAP) for resolving lower priority issues. In particular, a common theme was frustration with writing CRs for repeat issues, and seeing issues closed to trend with no explanation of whether or how they were addressed.

Some individuals noted recent improvements in communications and training about the CAP. For instance, there was some recognition that issues with problem resolution stem from the site's work management process, rather than flaws in CAP. An individual also provided an example of attending CAP training, expressing frustration with how an issue was prioritized, and getting assistance from the training staff on how to add new information to the CR, which resulted in the issue being reprioritized.

#### Accountability

Many individuals believed that accountability was not applied equally or consistently for individual contributors and managers. Some individuals perceived that managers involved in the events that prompted the Chilling Effect Letter were promoted. Although there was recognition that accountability measures could not always be shared with the workforce due to personal privacy concerns, individuals were not necessarily aware of accountability standards managers were expected to adhere to, or that there would be consequences for not adhering to those standards.

#### Transparency in Communications and Follow-through

Some individuals felt that site-wide and departmental communications lacked transparency and openness. In addition, many individuals perceived a lack of consistency in what people say and what they do. Examples were given regarding departments raising issues to senior managers and receiving commitments from managers for changes, but then a lack of follow-through on those commitments. With regard to communications about the chilled work environment, some individuals perceived mixed messages from management about ownership of the chilled work environment. Individuals in some departments also perceived a lack of transparency in communications about the contents of anonymous CRs.

#### Neutral or Negative Perceptions of the Employee Concerns Program

The majority of individuals interviewed were aware of the ECP program. Most individuals were familiar with the ECP person on site and recognized the ECP person from pictures posted around the site. However, when asked about willingness to go to ECP with a concern, individuals were either neutral based on lack of experience or held negative perceptions of the program. Negative comments generally related to a perception of:

- lack of independence from management;
- lack of confidentiality; and

- ineffectiveness at resolving issues.

The assessors noted that most people did not have first-hand experience with ECP, but that perceptions were strongly influenced by the experiences of coworkers, even if that experience was not recent. Individual perceptions appeared to be more strongly influenced by coworkers in the same department, such that some departments tended to have more negative perceptions than others.

### Sustainability

It was clear from the focus groups that most individuals had seen improvements, but there were reservations about the sustainability of changes. Most individuals expressed positive opinions of the current management team at Watts Bar, but concerns about falling back into old patterns of behavior if new managers were brought in who did not embrace the same management style as the current team. Many individuals also expressed concerns about stopping actions and declaring success too soon. Most individuals indicated that more improvements were needed to continue to build trust and ensure that changes were truly embedded in the culture.

### Overall Assessment of Safety Conscious Work Environment

In summary, the team did not identify any findings. As noted in earlier sections of this inspection report, TVA completed many of the commitments from the Confirmatory Order EA-17-022 (ML17208A647) and corrective actions from Chilling Effect Letter (CEL) EA-16-061 (ML16083A479).

Based on the current inspection the inspectors determined that, at this time, the work environment supports operators to raise nuclear safety concerns without fear of retaliation and operators are willing to raise concerns. TVA has specifically addressed the concerns documented in NRC Chilling Effect Letter dated March 23, 2016. While there may be evidence that TVA had made progress in improving the nuclear safety culture at Watts Bar, the inspectors noted several areas for improvement and themes from the interviews that suggest ongoing challenges to a healthy safety culture, as discussed throughout earlier sections of this inspection report.

#### **40A6 Exit Meeting Summary**

On February 2, 2018, the inspectors presented the inspection results to Mr. Joseph W. Shea, Vice President of Nuclear Regulatory Affairs and Support Services; Tom Marshal, Plant Manager; and other members of the licensee staff. The inspectors confirmed that all proprietary information reviewed during the inspection was returned and that none of the potential report input discussed was considered proprietary.

## LIST OF ACRONYMS

ADAMS	Agency Document Access and Management System
AEA	Adverse Employment Action
AUO	Auxiliary Unit Operator
AV	Apparent Violation
BFN	Browns Ferry Nuclear
CAP	Corrective Action Program
CEL	Chilling Effect Letter
CFR	Code of Federal Regulations
CNO	Chief Nuclear Officer
CO	Confirmatory Order
CR	Condition Report
CRP	Concerns Resolution Program
CWE	Chilled Work Environment
CWEL	Chilled Work Environment Letter
CY	Calendar Year
EA	Enforcement Action
ECFC	Event and Causal Factor Charting
ECP	Employee Concerns Program
ERB	Employee Review Board
EST	Eastern Standard Time
FSAR	Final Safety Analysis Report
GL	Generic Letter
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IP	Inspection Procedure
IR	Inspection Report
MRC	Management Review Committee
NEI	Nuclear Energy Institute
NPF	Nuclear Power Facility
NPG	Nuclear Power Group
NRC	Nuclear Regulatory Commission
NSC	Nuclear Safety Culture
NSCPT	Nuclear Safety Culture Peer Team
NUREG	Nuclear Regulatory
ORAU	Oak Ridge Associated Universities
OSI	Organizational Stressor Index
PARS	Publicly Available Records System
PI&R	Problem Identification and Resolution
PMT	Post-Maintenance Testing
PSC	Plant Screening Committee
QRT	Quality Review Team
RCA	Root Cause Analysis
REV.	Revision
RUG	Regulating Utility Group
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
SLIV	Severity Level IV



SLT	Site Leadership Team
SQN	Sequoyah Nuclear Station
TS	Technical Specification
TVA	Tennessee Valley Authority
UFSAR	Updated Final Safety Analysis Report
WANO	World Association of Nuclear Operators
WBN	Watts Bar Nuclear Plant
WO	Work Order

## LIST OF DOCUMENTS REVIEWED

### **40A5.A Other Activities: Follow-up of Confirmatory Order EA-17-022 (IP 92702)**

#### **40A5.A.2: Training (Commitment V.1.b)**

Training material, Management Actions to Promote a Safety Conscious Work Environment, January 25, 2018.

#### **40A5.A.4: Independent Oversight (Commitment V.1.d)**

First Independent Auditor's Report of the TVA Adverse Employment Action Process for the Quarter Ending 9/30/2017

Second Independent Auditor's Report of the TVA Adverse Employment Action Process for the Quarter Ending 12/31/2017

NPG-SPP-11.10, "Adverse Employment Action," Rev. 7

NPG-SPP-01.7.4, "Adverse Employment Action and the Executive Review Board," Rev. 0

NPG-SPP--01.7.4, "Adverse Employment Action and the Executive Review Board," Rev. 1

Misc. ERB Packages

Misc. Adverse Action Pulse Surveys

CR 1380707

CR 1380749

CR 1381117

CR 1239195

#### **40A5.A.5: Assess and Monitor Nuclear Safety Culture and Safety Conscious Work Environment (Commitment V.1.e)**

Summary and Results for the Phase 2 Tasks for the TVA Watts Bar Nuclear Plant Safety Culture Evaluation, November 17, 2017.

Watts Bar Nuclear (WBN) Nuclear Safety Culture Evaluation, September 2017.

Training material, TVA Nuclear Safety Culture Monitoring Panel, November 2017.

Nuclear Safety Culture Monitoring Panel Minutes from December 8, 2016, January 19, 2017, April 19, 2017, August 17, 2017, September 21, 2017, October 19, 2017, and November 16, 2017.

NPG-SPP-01.7.2, Nuclear Safety Culture Monitoring, Revision 10, November 21, 2017.

CR 1346431

#### **40A5.A.6: Other (Commitment V.1.f)**

NRC Letter to TVA, EA-17-022, "Confirmatory Order (Nuclear Regulatory Commission Inspection Report 05000390/2016013, 05000391/2016013)," dated 7/27/2017

TVA Letter to NRC, "Results of the Review of Previous TVA Confirmatory Orders as Required by NRC Confirmatory Order EA-17-022," dated 12/27/2017

CR 1362399, "Issues identified with Confirmatory order review – 1322419-036," date reported 11/27/2017

Confirmatory Order (Effective Immediately) (Office of Investigation Report Nos. 2-2006-025 & 2-2009-003), EA-09-009 and EA-09-203, dated 12/22/2009 (ML093510121)

- NPG-BP-135, "Adverse Employment Action," Revision 0000, dated 3/23/2010
- NPG-SPP-11.10, "Adverse Employment Action," Revision 0003, dated 12/19/2013
- NPG-SPP-01.7.4, "Adverse Employment Action," Revision 0000, dated 10/20/2017
- TVA Nuclear Power Group Fleet Focus, "Alternative Dispute Resolution (ADR), NRC Issues Confirmatory Order to TVA," dated 12/23/2009

- TVA Letter to NRC, Tennessee Valley Authority Nuclear Safety Culture Assessment, dated 4/25/2012
- TVA Letter to NRC, Tennessee Valley Authority Nuclear Safety Culture Assessment, dated 1/14/2013
- TVA Letter to NRC, Tennessee Valley Authority Nuclear Safety Culture Assessment, dated 4/11/2014
- TVA Letter to NRC, Tennessee Valley Authority Nuclear Safety Culture Assessment, dated 5/16/2014
- TVA Nuclear Power Group (NPG) Corporate and Fleet – Concerns Resolution Program (CRP) – Calendar Year (CY) 2010 First Quarter Report, dated 5/12/2010
- TVA Nuclear Power Group (NPG) Corporate and Fleet – Employee Concerns Program (ECP) – Calendar Year (CY) 2010 Fourth Quarter Report and Year End Review, dated 2/14/2011
- TVA Nuclear Power Group (NPG) Corporate and Fleet – Employee Concerns Program (ECP) – Calendar Year (CY) 2011 Third Quarter Report, dated 11/17/2011
- TVA Nuclear Power Group (NPG) Corporate and Fleet – Employee Concerns Program (ECP) – Calendar Year (CY) 2012 Second Quarter Report, dated 8/31/2012
- TVA Nuclear Power Group (NPG) Corporate and Fleet – Employee Concerns Program (ECP) – Calendar Year (CY) 2013 First Quarter Report, dated 5/10/2013
- TVA Nuclear Power Group (NPG) Corporate and Fleet – Employee Concerns Program (ECP) – Calendar Year (CY) 2013 Fourth Quarter Report & Year-End Summary, dated 1/27/2014
- BFN Town Hall Meeting Presentation 2011, dated 10/06/2011
- TVA Corporate Town Hall Meeting Presentation 2012, dated 11/02/2012
- SQN Town Hall Meeting Presentation 2010, dated 5/19/2010 – 5/20/2010
- WBN Town Hall Meeting Presentation 2013, dated 11/19/2013
- TVA Nuclear Power Group (NPG) Business Practice (BP), BP-108, “Nuclear Plant Site Check-In Check-Out Process,” Revision 16, dated 3/23/2010
- NANTeL, Generic Awareness Content Document, dated 11/16/2016
- TVA Nuclear Power Group (NPG) Training Procedure, TRN-41, “Required Management Training,” Revision 0003, dated 3/23/2010
- TVA Nuclear Power Group (NPG) Training Program Description (TPD), “Nuclear Supervisor Program,” TPD-NSP, Revision 2, dated 12/01/2017
- Course material (slides), “TVA Nuclear Power Group’s Commitment to Nuclear Safety Culture and Overall Safety Culture,” ATIS No. 00073226
- CR 1380913, “PCR NPG-SPP-01.7.4,” date reported 1/25/2018

Confirmatory Order (Effective Immediately) [NRC Office of Investigation Report No. 2-2011-003], EA-12-021, dated 6/18/2012 (ML12170A923)

TVA’s letter to NRC (dated 8/29/2013), “Watts Bar Nuclear Plant (WBN) Unit 2 – Confirmatory Order [NRC Office of Investigation Report No. 2-2011-003] – EA-12-021 – Confirmation Action Status Update

- Watts Bar Nuclear Plant Unit 2 Construction – NRC Integrated Inspection Report 05000391/2014602 (dated 3/27/2014)
- TVA’s letter to NRC (dated 12/19/2016), “Watts Bar Nuclear Plant (WBN) Unit 2 – Confirmatory Order [NRC Office of Investigation Report No. 2-2011-003] – EA-12-021 – Corrective Action Status Update
- Watts Bar Nuclear Plant Unit 2 Construction – NRC Integrated Inspection Report 05000391/2013604 (dated 6/27/2013)

- PER Number 533342, “PER to Address NRC Apparent Violation” (date reported 4/09/2012)
- “Completeness and Accuracy in Describing our Work is Essential and Required,” communication letter dated 6/19/2012 from the Chief Nuclear Officer and Senior Vice President of Nuclear Construction sent to Nuclear Power Group and Nuclear Construction employees, contractors and subcontractors
- NPG-SPP-01.2, “Administration of Site Technical Procedures,” Rev. 8 (effective date 4/20/2013)
- NPG-SPP-01.2, “Administration of Site Technical Procedures,” Rev. 15 (effective date 7/14/2017)
- NC PP-1, “Watts Bar Nuclear Plant Unit 2 Procedure Control,” Rev. 8 (effective date 3/14/2014)
- NPG-SPP-01.2.1, “Interim Administration of Site Technical Programs and Procedures for Watts Bar 1 and 2,” Rev. 2 (effective date 10/27/2015)
- CR 1292108, “Non-compliance with 2012 WBN Confirmatory Order EA-12-021” (date reported 5/04/2017)
- NPG-SPP-22.207, “Procedure Use and Adherence,” Rev. 4 (effective date 6/01/2017)
- PAT000, “Plant Access Training,” Rev. 20 (effective date 11/16/2012)
- CR 1280168, “Fleet in noncompliance with NRC confirmatory order” (date reported 4/03/2017)
- Learning Management System (LMS) computer based training module Item 50005715 Regarding 10 CFR 50.9 Requirements

Order Confirming Licensee Commitments on Emergency Response Capability for Browns Ferry Nuclear Plant Unit 1 (Docket No. 50-259), dated 6/12/1984

Order Confirming Licensee Commitments on Emergency Response Capability for Browns Ferry Nuclear Plant Unit 2 (Docket No. 50-260), dated 6/12/1984

Order Confirming Licensee Commitments on Emergency Response Capability for Browns Ferry Nuclear Plant Unit 3 (Docket No. 50-296), dated 6/12/1984

Order Confirming Licensee Commitments on Emergency Response Capability for Sequoyah Nuclear Station Unit 1 (Docket No. 50-327), dated 6/15/1984

Order Confirming Licensee Commitments on Emergency Response Capability for Sequoyah Nuclear Station Unit 2 (Docket No. 50-328), dated 6/15/1984

- GL 82-33, NUREG-0737, Supplement 1, “Requirements for Emergency Response Capability,” dated 12/17/1982
- NUREG-1342, “A Status Report Regarding Industry Implementation of Safety Parameter Display Systems,” dated April 1989
- TVA letter to NRC, “SQN Response to Generic Letter 82-33, Supplement 1 to NUREG-0737,” dated 4/15/1983
- TVA Letter to NRC, “SQN DCRDR Submittal,” dated 11/26/1986
- TVA Letter to NRC, “BFN DCRDR Submittal,” dated 12/30/1986
- NUREG-132, Vol. 1, “Safety Evaluation Report on TVA Revised Corporate Performance Plan,” dated July 1987
- NUREG-1232, Vol. 2, “Safety Evaluation Report on TVA Sequoyah Nuclear Performance Plan,” dated May 1988
- NUREG-1232, Vol. 2, “Supplement 1,” dated January 1989
- SQN Letter to NRC, “Update of Safety Issues Management System (SIMS),” dated 8/04/1987

- SQN Letter to NRC, "Evaluation of SPDS," dated 2/22/1989
- NUREG-1232, Vol. 3, "Safety Evaluation Report on TVA Nuclear Browns Ferry Performance Plan," dated April 1989
- NUREG-1232, Vol. 3, "Supplement 1 – Browns Ferry Unit 2 Restart," dated October 1989
- NUREG-1232, Vol. 3, "Supplement 2 – Browns Ferry Unit 2 Restart," dated January 1991
- TVA Response to GL 89-06, dated 7/11/1989
- TVA Letter to NRC, "Completion of DCRDR for BFN Unit 2," dated 6/14/1993
- TVA Letter to NRC, "Completion of SPDS for BFN Unit 2," dated 10/19/1993
- TVA Letter to NRC, "DCRDR Program Implementation for SQN Unit 2," dated 11/09/1994
- TVA Letter to NRC, "Completion of BFN Unit 3 Restart Issues," dated 2/08/1996
- TVA Letter to NRC, "Completion of DCRDR Reviews for BFN Unit 3," dated 2/09/1996
- NRC Letter to TVA, "BFN Unit 1 Recovery – NRC Integrated Inspection Report 05000259/2006007," dated 8/10/2006
- TVA Letter to NRC, "Completion of BFN Unit 1 Restart Issues," dated 5/12/2007
- Generic Radiological Emergency Procedure (Generic-REP), "Radiological Emergency Plan," Rev. 107, effective date 7/19/2017
- NPG-SPP-09.3, "Plant Modifications and Engineering Change Control," Rev. 26, effective date 9/22/2017
- DS-E18.1.24, "Human Factors Engineering," Rev. 3, effective date 7/28/2017
- BFN FSAR Section 7.16.5, "Process Computer System (ICS)"
- 0-OI-48, "Integrated Computer System Operating Instruction," Rev. 47, effective date 10/12/2014
- EOIPM Section 0-VII-A, "Implementing and Maintaining EOIs and SAMGs," Rev. 7, effective date 10/28/2014
- NP-REP Appendix A, "Browns Ferry Nuclear Plant Radiological Emergency Plan," Rev. 108
- BFN-50-774, "Technical Support Center Design Criteria," Rev. 5, dated 12/08/2015
- BFN-50-775, "Technical Support Center Habitability and Environmental Control System," Rev. 1, dated 1/14/2005
- BFN-50-7307, "Post Accident Monitoring," Rev. 15, dated 12/12/2013
- SQN FSAR Section 7.1.4.2, "Safety Parameter Display System (SPDS)"
- SQN-DC-V-9.8, "Safety Parameter Display System," Rev. 6, dated 8/03/2001
- SQN-DC-V-18.0, "Technical Support Center," Rev. 6, dated 8/21/2015
- SQN-DC-V-18.1, "Technical Support Center Habitability and Environmental Control System," Rev. 1, dated 6/06/01
- SQN-DC-V-18.2, "Integrated Computer System," Rev. 2, dated 3/30/2013
- SQN-DC-V-19.0, "Post Accident Monitoring," Rev. 8, dated 3/28/2013
- EPM-7-1, "EOI Administrative Controls," Rev. 20, effective date 10/10/2017
- NP-REP Appendix B, "Sequoyah Nuclear Plant Radiological Emergency Plan," Rev. 105

NRC Letter to TVA with enclosed Confirmatory Orders for Sequoyah Unit 1 and Browns Ferry Units 1, 2, and 3, dated 4/04/1980

Confirmatory Order for Sequoyah Unit 1 (Docket No. 50-327), dated 4/04/1980

Confirmatory Order for Browns Ferry Unit 1 (Docket No. 50-259), dated 4/04/1980

Confirmatory Order for Browns Ferry Unit 2 (Docket No. 50-260), dated 4/04/1980

Confirmatory Order for Browns Ferry Unit 3 (Docket No. 50-296), dated 4/04/1980

- NRC IE Bulletin No. 79-27, “Loss of Non-Class-1-E Instrumentation and Control Power System Bus During Operation,” dated 11/30/1979
- TVA Letter to NRC, “Office of Inspection and Enforcement Bulletin 79-27 – RII:JPO 50-259, -260, -296 – Browns Ferry Nuclear Plant Units 1, 2, and 3,” dated 6/26/1980
- TVA Letter to NRC, “Sequoyah Nuclear Plant Unit 1 – Bulletin IEB 79-27 – Loss of Non-Class 1E Instrumentation and Control Power System Bus During Operation,” dated 7/15/1980

NRC Letter to TVA, EA-08-211, “Confirmatory Order (Effective Immediately) [NRC Office of Investigation Report No. 2-2007-025],” dated 1/05/2009 (ML090050244)

- TVA Letter to NRC, “Follow-up Response to NRC Confirmatory Order (NRC Office of Investigation Report No. 2-2007-025),” dated 6/30/2010
- TVA NRC Commitment Management Package, Commitment Tracking Number NCO 090002001 (RIMS Accession Number S10 091001 800)
- TVA NRC Commitment Management Package, Commitment Tracking Number NCO 090002002 (RIMS Accession Number S10 091001 801)
- TVA NRC Commitment Management Package, Commitment Tracking Number NCO 090002003 (RIMS Accession Number S10 091001 802)
- TVA NRC Commitment Management Package, Commitment Tracking Number NCO 090002004 (RIMS Accession Number S10 090813 800)
- TVA NRC Commitment Management Package, Commitment Tracking Number NCO 090002005 (RIMS Accession Number S10 091001 803)
- TVA NRC Commitment Management Package, Commitment Tracking Number NCO 090002006 (RIMS Accession Number S10 100702 800)

NRC Letter to TVA, EA-14-005, “Confirmatory Order (NRC Inspection Report

05000259/2013005, 05000260/2013005, and 05000296/2013005),” dated 5/01/2014

- NPG-SPP-03.10, “Managing TVA’s Interface with NRC,” Rev. 4, effective date 7/18/2014
- NPG-SPP-03.10, “Managing TVA’s Interface with NRC,” Rev. 9, effective date 8/03/2017
- Change Assessment Form, “NPG-SPP-03.10, Managing TVA’s Interface with NRC,” dated 7/15/2014
- BFN Site Licensing Desktop Instruction, “Expectations and Guidance for Licensing Department Activities,” Rev. 7, dated April 14, 2016
- TVA Corporate Integrated Completeness and Accuracy Review Board (ICAREB) Meeting Minutes from 4/14/2016
- CR 1292532, “Implementation of 2014 BFN Confirmatory Order EA-14-005,” date reported 5/05/2017
- TVA Nuclear Power Group Benchmarking Report CRP-LIS-F-14-BM03, approval date 6/30/2014
- NRC Inspection Report, “Browns Ferry Nuclear Plant – NRC Inspection Procedures 95001 Supplemental Inspection and 92702 Follow-up – Inspection Report 05000259/2014012; 05000260/2014012; 05000296/2014012 and Assessment Follow-up Letter,” dated 10/16/2014
- CR 907411, “Learning Opportunity from Benchmarking of License Basis,” date reported 7/08/2014
- NPG-SPP-03.14, “Licensing Compliance Review,” Rev. 0, effective date 8/01/2014
- NPG-SPP-03.14, “Licensing Compliance Review,” Rev. 3, effective date 9/22/2017
- TVA Nuclear Power Group Training Presentation Slides, “NPG-SPP-03.14, Licensing Compliance Review,” and Training Roster from 7/10/14 Training at BFN

- NPG-SPP-01.1, "Administration of Standard Programs & Processes (SPPs); Standard Department Procedures (SDPs); and Business Practices (BPs)," Rev. 5, effective date 8/01/2014
- NPG-SPP-01.2, "Administration of Site Technical Procedures," Rev. 11, effective date 8/01/2014
- NPG-SPP-01.1, "Administration of Standard Programs & Processes, Standard Department Procedures, and Business Practices," Rev. 9, effective date 9/28/2017
- NPG-SPP-01.2, "Administration of Site Technical Procedures," Rev. 15, effective date 7/14/2017
- NPG-SPP-03.15, "FSAR Management," Rev. 0, effective date 7/01/2014
- NPG-SPP-03.15, "FSAR Management," Rev. 2, effective date 5/25/2017
- Talisman International Letter to TVA, "Applicability of Talisman Independent Review of 10 CFR 50.9 and 10 CFR 50.90 Root Cause Analysis Reports," and Attached "Independent Assessment of Readiness for IP 95001 Inspection" Report, dated 5/05/2014
- CR 896301, "NRC Confirmatory Order actions not in CAP," date reported 6/09/2014
- Dominion Generation and Absolute Consulting Effectiveness Review of PERs 838972 and 838977, approved 6/10/2015
- CR 1041257, "Confirmatory Order Effectiveness Review Recommendations for Improvement," date reported 6/18/2015
- TVA Nuclear Power Group Snapshot Self -Assessment Report Number BFN-LIC-S-14-003, approved 3/25/2014
- CR 863323, "Potential Inappropriate Closure of Commitment NCO940213006," date reported 3/25/2014
- Commitment Completion Form for Commitment Tracking Number 115864926, commitment completion date 4/08/2014
- Interim Licensing Compliance Review Checklist
- TVA Corporate Training Presentation Slides, "Interim Action, PER Action 838977-006," dated April 2014
- PF028 – Procedures Issued Report, dated 5/12/2014
- Commitment Completion Form for Commitment Tracking Number 115864896, commitment completion date 10/01/2014
- PER Number 838977, "Proposed Traditional Enforcement Violation for not receiving prior NRC approval," reported date 1/29/2014
- CR 988162, "Licensing Provided Peer Review for Commitment Change Evaluations," date reported 2/12/2015
- Browns Ferry Nuclear Plant Training Presentation Slides, "Site Licensing Briefing, PER 838977, Interim Actions," dated 2/24/2014
- TVA Letter to NRC, "Sampling Plan for NRC Confirmatory Order EA-14-005," dated 7/15/2014
- CR 935471, "BFN Temporary Diesels not Incorporated into the FSAR," date reported 9/19/2014
- Regulating Utility Group (RUG) II Meeting Presentation, "Browns Ferry Nuclear Plant Emergency Planning White Finding and Associated 50.9 and 50.90 Violations," dated 8/12/2014 and associated training attendance sheet
- Regulatory Issues Working Group Meeting Presentation, "Browns Ferry Nuclear Plant Emergency Planning White Finding and Associated 50.9 and 50.90 Violations," dated 10/28/2014 and associated training attendance sheet
- OPDP-1, "Conduct of Operations," Rev. 33, effective date 7/14/2014

- TVA Browns Ferry Nuclear Plant (BFN), “ERO On-shift Staffing Analysis Report,” Rev. 1, dated 7/10/2014
- TVA Letter to NRC, “NRC Confirmatory Order EA-14-005 – Completion of Actions,” dated 1/05/2016
- Commitment Completion Form for Commitment Tracking Number 115849804, commitment completion date 12/31/2014
- CR 1362399, “Issues identified with Confirmatory order review- 1322419-036,” date reported 11/27/2017

NRC Letter to TVA, EA-84-54, “Confirmatory Order: EA-84-54 (Reference Report Nos. 50-259/84-02, 50-260/84-02, 50-296/84-02, 50-259/83-60, 50-260/83-60, and 50-296/83-60),” dated 7/13/1984

- TVA Letter to NRC, dated 7/30/1984 (TVA Response to Confirmatory Order EA-84-54)
- NRC Letter to TVA, “Confirmatory Order EA 84-54 for Browns Ferry Units 1, 2, and 3 (Docket Nos. 50-259, 50-260, and 50-296),” dated 8/22/1984
- TVA Letter to NRC, dated 9/27/1984 (Regarding TVA Proposed Technical Specification Revisions for Browns Ferry Nuclear Plant Units 1, 2, and 3)
- NRC Letter to NRC, “Closure of Confirmatory Order EA 84-54 – Browns Ferry Nuclear Plant, Units 1, 2, and 3,” dated 6/12/1991
- NRC Letter to TVA, “Regulatory Performance Improvement Program (RPIP) for Browns Ferry (Docket Numbers 50-259, 50-260, and 50-296),” dated 10/09/1984
- Browns Ferry RPIP Implementation Review Table, “I - Short-term Actions”
- Browns Ferry RPIP Implementation Review Table, “II - Long-term Actions”
- TVA Letter to NRC, dated 7/17/1984 (Submitting Rev. 8 to the RPIP)
- TVA Letter to NRC, dated 8/02/1984 (Submitting Rev. 9 and Rev. 10 to the RPIP)
- TVA Letter to NRC, dated 8/09/1984 (Submitting Rev. 11 to the RPIP)
- TVA Letter to NRC, dated 9/14/1984 (Submitting Rev. 12 to the RPIP)
- TVA Letter to NRC, dated 10/19/1984 (Submitting Rev. 13 to the RPIP)
- TVA Letter to NRC, dated 2/01/1985 (Submitting Rev. 14 to the RPIP)
- TVA Letter to NRC, dated 5/17/1985 (Submitting Rev. 15 to the RPIP)
- TVA Letter to NRC, dated 7/30/1985 (Submitting Rev. 16 to the RPIP)
- TVA Letter to NRC, dated 7/30/1984 (TVA Response Addressing Section III, Items 1 and 2 of the Confirmatory Order)
- TVA Memo (Meeting Minutes), “Browns Ferry Nuclear Plant (BFN) – Regulatory Performance Improvement Plan (RPIP) – Quarterly Status Meeting with the Nuclear Regulatory Commission (NRC),” dated 12/11/1984
- TVA Memo, “Browns Ferry Nuclear Plant (BFN) – Regulatory Performance Improvement Plan (RPIP) – Oversight Committee Meeting Minutes,” dated 1/31/1985
- TVA Memo (Meeting Minutes), “Browns Ferry Nuclear Plant (BFN) – Regulatory Performance Improvement Plan (RPIP) – Quarterly Status Meeting with the Nuclear Regulatory Commission (NRC) – 85-05,” dated 6/10/1985
- TVA Memo, “Browns Ferry Nuclear Plant (BFN) Regulatory Performance Improvement Plan (RPIP) Manual – Revision 11,” dated 8/03/1984
- TVA Letter to NRC, dated 2/24/1984 (Submittal of Browns Ferry Regulatory Performance Improvement Program Manual)
- Browns Ferry Nuclear Plant, “Regulatory Performance Improvement Plan,” Rev. 0, approved 2/23/1984
- Browns Ferry Nuclear Plant, “Regulatory Performance Improvement Program Manual,” Rev. 1, approved 3/21/1984



- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 2, approved 4/03/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 3, approved 4/18/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 4, approved 4/27/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 5, approved 5/11/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 6, approved 5/29/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 7, approved 6/13/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 8, approved 6/26/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 9, approved 7/10/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 10, approved 7/26/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 11, memo sent to NRC on 8/03/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 12, approved 9/13/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 13, memo sent to NRC on 10/16/1984
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 14, approved 1/25/1985
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 15, approved 5/08/1985
- Browns Ferry Nuclear Plant, "Regulatory Performance Improvement Program Manual," Rev. 16, memo sent to NRC on 7/24/1985
- NANTeL Generic Plant Access Training Content Document, effective date 11/19/2016
- NPG-SPP-22.201, "Oversight of the Human Performance Program," Rev. 4, effective date 5/12/2017
- NPG-SPP-01.9, "Health Accountability Model," Rev. 2, effective date 10/13/2017
- NPG-SPP-11.20, "Performance Management," Rev. 1, effective date 3/02/2015
- TVA-SPP-11.316, "Employee Discipline," Rev. 5, effective date 7/03/2017
- NPG-SPP-10.5, "Plant Operations Review Committee," Rev. 9, effective date 10/20/2017
- NPG-SPP-22.000, "Performance Improvement Program," Rev. 6, effective date 10/28/2016
- TVA-NPOD89-A, "Organization Topical Report," Rev. 22, dated January 2017
- NPG-SPP-07.6, "NPG Work Management Planning Procedure," Rev. 14, effective date 7/08/2016
- NPG-SPP-09.3, "Plant Modifications and Engineering Change Control," Rev. 26, effective date 9/22/2017
- IP-ENG-001, "Standard Design Process," Rev. 0, dated 2/10/2017
- NPG-SPP-07.1, "On Line Work Management," Rev. 18, effective date 2/21/2017
- NPG-SPP-07.2, "Outage Management," Rev. 7, effective date 7/28/2017
- NPG-SPP-07.2.12, "Long Range Outage Planning," Rev. 1, effective date 7/14/2017

- NPG-SPP-06.1, "Work Order Process," Rev. 6, effective date 7/15/2016
- MMDP-1, "Maintenance Management System," Rev. 35, effective date 9/18/2017
- NPG-SPP-06.6, "Inspection Program," Rev. 8, effective date 3/17/2017
- NPG-SPP-01.1, "Administration of Standard Programs & Processes, Standard Department Procedures, and Business Practices," Rev. 9, effective date 9/28/2017
- NPG-SPP-01.2, "Administration of Site Technical Procedures," Rev. 15, effective date 7/14/2017
- NPG-SPP-19.6, "Nuclear Power Group Project Management Process," Rev. 7, effective date 1/27/2016
- NPG-SPP-01.4, "Governance, Oversight, Execution and Support Program," Rev. 16, effective date 5/26/2017
- TVA, Nuclear Operating Model, effective date 8/28/2017
- NPG-SPP-17.0, "Training," Rev. 8, effective date 9/06/2017
- NPG-SPP-09.0.1, "Conduct of Systems Engineering and Equipment Reliability," Rev. 5, effective date 7/10/2017
- TVA NPG Fleet Engineering Support Personnel Training, TDP-ESP, "Training Program Description," Rev. 10, approved 3/17/2017
- NPG-SPP-09.4, "10 CFR 50.59 Evaluations of Changes, Tests, and Experiments," Rev. 12, effective date 10/30/2017
- TVA Memo, "Browns Ferry Nuclear Plant – Assurance of RPIP Reaching Plant Personnel – Plant Instruction Overhaul," dated 9/14/1984
- TVA Letter to NRC, dated 8/28/1986 (Regarding TVA's Revised Corporate Nuclear Performance Plan – submittal to the NRC)
- TVA Letter to NRC, "Independent Safety Engineering Group (ISEG) – Browns Ferry Nuclear Plant," dated 6/06/1988
- NUREG-1232, Vol. 3, Supp.1, "NRC Safety Evaluation Report on Tennessee Valley Authority: Browns Ferry Nuclear Performance Plan, Browns Ferry Unit 2 Restart," dated October 1989
- TVA Letter to NRC, "Nuclear Regulatory Commission (NRC) – Browns Ferry Nuclear (BFN), Watts Bar Nuclear (WBN), and Sequoyah Nuclear (SQN) Plants – Elimination of Independent Safety Engineering Group (ISEG) – Nuclear Quality Assurance (WQA) Plan (TVA-NQA-PLN89-A) – SQN Units 1 and 2 Technical Specification (TS) No. 98-05," dated 3/02/1999
- NPG-SPP-17.6.2, "Accreditation Renewal Activities," Rev. 5, effective date 9/13/2017
- NPG-SPP-09.16, "Plant Health Committee and Plant Health Sub-Committee," Rev. 8, effective date 7/21/2017
- TVA Memo, "Browns Ferry Regulatory Improvement Item 5.2," dated 8/01/1984
- TVA-NQA-PLN89-A, "Nuclear Quality Assurance Plan (NQAP) (Quality Assurance Program Description)," Rev. 33, effective date 12/02/2016
- NPG-SPP-03.18, "Conduct of Quality Assurance Assessments," Rev. 6, effective date 3/17/2017
- NPG-SPP-03.19, "Conduct of Quality Assurance Internal Audits," Rev. 6, effective date 10/02/2017
- NPG-SPP-07.2.14, "Outage Cost Management," Rev. 5, effective date 10/20/2017
- NPG-SPP-10.1, "System Status Control," Rev. 9, effective date 9/14/2017
- NPG-SPP-10.2, "Clearance Procedure to Safely Control Energy," Rev. 20, effective date 6/29/2017
- NPG-SPP-06.13, "Line Verification," Rev. 1, effective date 6/09/2016
- NPG-SPP-22.206, "Verification Program," Rev. 4, effective date 5/12/2015

- NPG-SPP-22.501, "INPO Consolidated Event System (ICES) Reporting," Rev. 0, effective date 5/12/2016
- ICES Reporting Metrics, Rev. 9, dated 12/09/2016
- ICES Overall Reporting (Overall Reporting Metric)
- NPG-SPP-01.16, "Condition Report Initiation," Rev. 0, effective date 10/28/2016
- NPG-SPP-06.2, "Preventive Maintenance," Rev. 12, effective date 10/31/2017
- General Electric Company Recommendations, Rev. 2
- SAI Corporation Recommendations, Rev. 2
- NUREG-1232, Vol. 3, Supp. 2, Appendix D, "Contractor Recommendations"

NPG-SPP-06.9.2, "Surveillance Test Program," Rev. 6, effective date 12/05/2016

#### **40A5.B Other Activities: SCWE Follow-up (IP 93100)**

##### **40A5.B.1: Safety Over Production**

Site Leadership Forum Slides, 2/8/2017  
Site Leadership Forum Slides, 3/1/2017  
Leadership Forum Slides, 3/15/2017  
NSCMP Minutes, 2/16/2017  
U1R14 NSC Attributes  
U1R14 NSC Observation Attributes  
U1R14 NSC Attribute Slides  
6 Month NSC Observation Trend Report  
U1R14 NSC Observation Trend Report  
U2 Forced Outage NSC Observation Trend report  
Site Leadership Forum Slides, 5/3/2017  
All Hands Meeting Slides, 6/14/2017  
Workforce Observation/Feedback

##### **40A5.B.2: Effectiveness of Corrective Action Program**

Snapshot Self-Assessment Report #WBN-DSS-SSA-17-001, "Corrective Action Program Effectiveness (Specifically MRC and PSC)"  
NPG-SPP-22.300, "Corrective Action Program," Rev. 9, effective date 6/02/2017  
CR 1313478, "WBN-DSS-SSA-17-001 – Learning Opportunity #01" (date reported 7/03/2017)  
CR 1314090, "WBN-DSS-SSA-17-001 – Learning Opportunity #2" (date reported 7/05/2017)  
CR 1318672, "PSC Misclassification Trend – Plant Support DPA May/June 2017" (date reported 7/18/2017)  
WBN Plant Screening Committee (PSC) Meeting Package from 1/24/2018  
WBN Management Review Committee (MRC) Meeting Package from 1/24/2018  
WBN Plant Screening Committee (PSC) Meeting Package from 1/29/2018  
WBN Management Review Committee (MRC) Meeting Package from 1/29/2018  
"WBN Operations Departments CR Closures and Details" report sent on 1/22/2018 at 5:00 PM  
Automatic e-mail from COGNOS sent out on 11/01/2017 at 5:00 PM with the attached "WBN Operations Departments CR Closures and Details" report  
COGNOS Screenshot from 1/22/2018 (showing how automatic report is set up)  
Quality Review Team Charter for Quality Reviews for Level 1, 2, and 3 CRs, effective date 10/02/2017  
NPG "PI Health Monitor – Metrics Tables" Desk Guide, Rev. 2, dated 7/01/2017  
WBN Monthly Performance Improvement Metrics from October, November, and December 2017  
TVA Monthly Performance Improvement Metrics (comparison between all TVA sites) from December 2017  
Action Closure Quality QRT Meeting Minutes for 10/25/2017 Meeting  
NPG-SPP-22.300, "Corrective Action Program," Rev. 9, effective date 6/02/2017  
WBN Middle Managers Leadership Meeting Agenda, dated 7/12/16  
"WBN Leadership GAP Assessment" Presentation Slides, Superintendent Group Presentation to Senior Leadership on 7/19/2016  
Superintendent Meeting Agenda and Minutes, dated 7/21/2016  
Superintendent Meeting Agenda and Minutes, dated 7/26/2016  
Superintendent Meeting Agenda and Minutes, dated 7/28/2016  
Superintendent Offsite Meeting Agenda and Minutes, dated 7/29/3016  
Superintendent Leadership Assessment Team, Offsite Working Meeting Agenda and Minutes, dated 7/29/2016

Superintendent Meeting Agenda and Minutes, dated 10/04/2016  
Superintendent Meeting Agenda and Minutes, dated 11/03/2016  
Superintendent Meeting Agenda and Minutes, dated 10/27/2016  
Superintendent Meeting Agenda and Minutes, dated 11/10/2016  
Superintendent Meeting Agenda and Minutes, dated 12/01/2016  
Superintendent Meeting Agenda and Minutes, dated 12/08/2016  
Superintendent Meeting Agenda and Minutes, dated 12/16/2016  
Superintendent Meeting Agenda and Minutes, dated 1/12/2017  
Superintendent Meeting Agenda and Minutes, dated 2/02/2017  
Superintendent Meeting Agenda and Minutes, dated 3/02/2017  
Superintendent Meeting Agenda and Minutes, dated 5/25/2017  
Superintendent Meeting Agenda and Minutes, dated 7/20/2017  
Superintendent Meeting Agenda and Minutes, dated 2/01/2018

**40A5.B.3: Management and Employee Mutual Respect**

COC CR 1271309, "WBN Failure to Implement Adverse Employment Action Process," Rev. 0, 5/12/2017

CR 1258384, Action 004 Attachment, Revised Pulsing Schedule, January 13, 2017

Organizational Stressor Index for 2017 - Quarters 1, 2, & 3

T-16 Meeting Standing Agenda

NPG-SPP-01.7.1, "Employee Concerns Program," Rev. 3, 10/20/2017

Conduct of Operations, Employee Concerns, 1/29/2016

WBN ECP Pulsing Survey Summary Results, January 2017-December 2017.

CR 1382810

CR 1258384

CR 1322419

**40A5.B.4: Nuclear Safety Culture is Understood and Reinforced**

Watts Bar Nuclear Plant Senior Leadership Team Behavior Reinforcement" Workshop Guide and Workshop presentation dated June 28, 2016

"What Are people waiting to see?" presentation dated February 24, 2017

Watts Bar Site Priorities-FY 2017" presentations dated July 19, 2017, August 9, 2017, and September 6, 2017

"Watts Bar Nuclear Station" presentation dated December 16, 2016

**Table 1  
Summary and Status of Requirements Associated with  
Confirmatory Order EA-17-022**

<b>Commitment Number (a)</b>	<b>NRC Report 2017009 Section (b)</b>	<b>Licensee Status of Action Item (c)</b>	<b>NRC Inspection Status (d)</b>
V.1.a.1.a	4OA5.A.1.a.1	Completed	No further inspection at this time
V.1.a.1.b	4OA5.A.1.a.2	Completed	No further inspection at this time
V.1.a.1.c	4OA5.A.1.a.3	Completed	No further inspection at this time
V.1.a.1.d	4OA5.A.1.a.4	Completed	No further inspection at this time
V.1.a.2	4OA5.A.1.a.5	Completed	No further inspection at this time
V.1.a.3	4OA5.A.1.a.6	Completed	No further inspection at this time
V.1.b.1.a	4OA5.A.2.a.1	Completed	No further inspection at this time
V.1.b.1.b	4OA5.A.2.a.1	Completed	No further inspection at this time
V.1.b.1.c	4OA5.A.2.a.1	<i>On track</i>	<i>Inspection and review of training records may be performed at a later date</i>
V.1.b.2	4OA5.A.1.2.a.2	<i>On track</i>	<i>Additional inspection of training may be performed at a later date</i>
V.1.b.3	4OA5.A.2.a.3	<i>On track</i>	<i>Additional inspection of training may be performed at a later date</i>
V.1.b.4	4OA5.A.2.a.4	<i>On track</i>	<i>Additional inspection of training may be performed at a later date</i>
V.1.c.1	4OA5.A.3.a.1	Completed	No further inspection at this time
V.1.c.2	4OA5.A.3.a.2	Completed	No further inspection at this time
V.1.c.3	4OA5.A.3.a.3	<i>On track</i>	<i>Inspection and review of benchmarking results may be performed at later date</i>
V.1.c.4	4OA5.A.3.a.4	Completed	No further inspection at this time
V.1.c.5	4OA5.A.3.a.5	Completed	No further inspection at this time
V.1.c.6	4OA5.A.3.a.6	Completed	No further inspection at this time
V.1.c.7.a thru c	4OA5.A.3.a.7	Completed	No further inspection at this time
V.1.d.1	4OA5.A.4.a.1	Completed	No further inspection at this time
V.1.d.2	4OA5.A.4.a.2	Completed	No further inspection at this time
V.1.e.1	4OA5.A.5.a.1	<i>On Track</i>	<i>Inspection of future safety culture assessments and corrective actions may be performed at a later date</i>
V.1.e.2	4OA5.A.5.a.2	Completed	No further inspection at this time
V.1.e.3	4OA5.A.5.a.3	Completed	No further inspection at this time
V.1.f.1.a	4OA5.A.6.a.1	Completed	No further inspection at this time
V.1.f.1.b	4OA5.A.6.a.2	Completed	No further inspection at this time
V.1.f.1.c	N/A	<i>On track</i>	<i>Inspection and review of assessment may be performed at a later date</i>
V.1.f.2	N/A	<i>On track</i>	<i>Review of TVA's letter to NRC discussing its basis for concluding that the Order has been satisfied may be performed at a later date</i>

V.1.f.3	N/A	<i>No action required on behalf of the licensee</i>	<i>No inspection action required; the Regional Administrator, NRC Region II, may relax or rescind, in writing, any of the above conditions upon a showing by TVA of good cause.</i>
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- (a) Action Item corresponds to the requirements in Section V of Confirmatory Order EA-17-022 dated July 27, 2017 (ML17208A647)
- (b) NRC Report 2017009 Section corresponds to the section(s) of this report where the action item is discussed in further detail
- (c) Licensee Status of Action Item reflects the licensee's latest status for each requirement or corrective action as of February 2, 2018
- (d) NRC Inspection Status summarizes the status of NRC's inspection and review efforts captured in this report or future actions by the NRC

**Table 2**  
**Summary and Status of Corrective Actions Associated with**  
**Chilled Work Environment Letter EA-16-061**

<b>Corrective Action (a)</b>	<b>NRC Report 2017009 Section (b)</b>	<b>Licensee Status of Action Item (c)</b>	<b>NRC Inspection Status (d)</b>
S.1	4OA5.B.1.a.1	Completed	No further inspection at this time
S.2	4OA5.B.1.a.2	Completed	No further inspection at this time
S.3	4OA5.B.1.a.3	Completed	No further inspection at this time
CAP.1	4OA5.B.2.a.1	Completed	No further inspection at this time
CAP.2	4OA5.B.2.a.2	Completed	No further inspection at this time
CAP.3	4OA5.B.2.a.3	Completed	No further inspection at this time
CAP.4	4OA5.B.2.a.4	Completed	No further inspection at this time
CAP.5	4OA5.B.2.a.5	Completed	No further inspection at this time
ME.1	4OA5.B.3.a.1	Completed	No further inspection at this time
ME.2	4OA5.B.3.a.2	Completed	No further inspection at this time
ME.3	4OA5.B.3.a.3	Completed	No further inspection at this time
ME.4	4OA5.B.3.a.4	Completed	No further inspection at this time
ME.5	4OA5.B.3.a.5	Completed	No further inspection at this time
ME.6	4OA5.B.3.a.6	Completed	No further inspection at this time
ME.7	4OA5.B.3.a.7	Completed	No further inspection at this time
ME.8	4OA5.B.3.a.8	Completed	No further inspection at this time
ME.9	4OA5.B.3.a.9	Completed	No further inspection at this time
NSC.1	4OA5.B.4.a.1	Completed	No further inspection at this time
NSC.2	4OA5.B.4.a.2	Completed	No further inspection at this time
NSC.3	4OA5.B.4.a.3	Completed	No further inspection at this time
NSC.4	4OA5.B.4.a.4	Completed	No further inspection at this time
NSC.5	4OA5.B.4.a.5	Completed	No further inspection at this time
NSC.6	4OA5.B.4.a.6	Completed	No further inspection at this time
NSC.7	4OA5.B.4.a.7	Completed	No further inspection at this time
NSC.8	4OA5.B.4.a.8	Completed	No further inspection at this time
NSC.9	4OA5.B.4.a.9	Completed	No further inspection at this time
NSC.10	4OA5.B.4.a.10	Completed	No further inspection at this time

- (a) Action Item corresponds to the corrective actions from Attachment 1 of TVA's Chilled Work Environment Letter response dated April 12, 2017 (ML17102B658)
- (b) NRC Report 2017009 Section corresponds to the section(s) of this report where the action item is discussed in further detail
- (c) Licensee Status of Action Item reflects the licensee's latest status for each requirement or corrective action as of February 2, 2018
- (d) NRC Inspection Status summarizes the status of NRC's inspection and review efforts captured in this report or future actions by the NRC