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

August 4, 2017

Mr. Joseph W. Shea
Vice President, Nuclear Regulatory Affairs
and Support Services
Tennessee Valley Authority
1101 Market Street, LP 3R-C
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT – NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000327/2017009, 05000328/2017009

Dear Mr. Shea:

On June 22, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution biennial inspection at your Sequoyah Nuclear Plant Units 1 and 2 and discussed the results of this inspection with Mr. Anthony Williams and other members of your staff. The inspection team documented the results of this inspection in the enclosed inspection report.

The NRC inspection team reviewed the plant's corrective action program and the plant's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the plant was complying with NRC regulations and licensee standards for corrective action programs. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

The team also evaluated the plant's processes for use of industry and NRC operating experience information and the effectiveness of the plant's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally, the team reviewed the plant's programs to establish and maintain a safety-conscious work environment, and interviewed plant personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews the team found no evidence of challenges to your organization's safety-conscious work environment. Your employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

The NRC inspectors did not identify any findings or violations of more than minor significance.

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 Witholding."

Sincerely,

/RA Frank Ehrhardt Acting for/

Reinaldo Rodriguez, Chief
Reactor Projects Branch 7
Division of Reactor Projects

Docket Nos.: 50-327, 50-328
License Nos.: DPR-77, DPR-79

Enclosure:
IR 05000327/2017009 and 05000328/2017009
w/Attachment: Supplemental Information

Distribution via ListServ

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NAME	FEhrhardt					
DATE	8/4/2017					

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-327, 50-328
License Nos.:	DPR-77, DPR-79
Report Nos.:	05000327/2017009 and 05000328/2017009
Licensee:	Tennessee Valley Authority (TVA)
Facility:	Sequoyah Nuclear Plant, Units 1 and 2
Location:	Sequoyah Access Road Soddy-Daisy, TN 37379
Dates:	June 5, 2017 through June 22, 2017
Inspectors:	S. Seaton, Project Engineer, Team Leader R. Taylor, Senior Project Inspector S. Ninh, Senior Project Engineer B. Bishop, Project Engineer B. Collins, Reactor Inspector
Approved by:	R. Rodriguez, Chief Reactor Projects Branch 7 Division of Reactor Projects

Enclosure

SUMMARY

IR 05000327/2017009 and 05000328/2017009; June 5, 2017 – June 22, 2017; Sequoyah Nuclear Plant Units 1 and 2; Biennial Problem Identification and Resolution report.

The inspection was conducted by a senior project inspector, a senior project engineer, two project engineers, and a reactor inspector. No findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Identification and Resolution of Problems

The inspectors concluded that, in general, problems were properly identified, evaluated, prioritized, and corrected. The licensee was effective at identifying problems and entering them into the corrective action program (CAP) for resolution, as evidenced by the relatively few number of deficiencies identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. Generally, prioritization and evaluation of issues were adequate, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective and implemented in a timely manner.

The inspectors determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and appropriate corrective actions were developed to address the issues identified. Operating experience (OE) usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work and plant operations.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors determined that personnel at the site felt free to raise safety concerns to management and use the CAP to resolve those concerns.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

.1 Assessment of the Corrective Action Program

a. Inspection Scope

The inspectors reviewed the licensee's CAP procedures which described the administrative process for initiating and resolving problems primarily through the use of the problem investigation program. To verify that problems were properly identified, appropriately characterized and entered into the CAP, the inspectors reviewed Nuclear Condition Reports (CRs) that were issued between June 2015 and June 2017, including a detailed review of selected CRs associated with the following risk-significant systems: the Control Air System, the Heating Ventilation and Air Conditioning (HVAC) System, and the Emergency Diesel Generators. Where possible, the inspectors independently verified that the corrective actions were implemented. The inspectors also reviewed selected common causes and generic concerns associated with root cause evaluations to determine if they had been appropriately addressed. To help ensure that samples were reviewed across all cornerstones of safety identified in the NRC's Reactor Oversight Process (ROP), the inspectors selected a representative number of CRs that were identified and assigned to the major plant departments, including operations, maintenance, engineering, health physics, chemistry, emergency preparedness and security. These CRs were reviewed to assess each department's threshold for identifying and documenting plant problems, thoroughness of evaluations, and adequacy of corrective actions (CAs). The inspectors reviewed selected CRs, verified corrective actions were implemented, and attended meetings where CRs were screened for significance to determine whether the licensee was identifying, accurately characterizing, and entering problems into the CAP at an appropriate threshold.

The inspectors conducted plant walkdowns within the selected systems listed above and other plant areas to assess the material condition and to identify any deficiencies that had not been previously entered into the CAP. The inspectors reviewed CRs, maintenance history, CAs, completed work orders (WOs) for the systems, and reviewed associated system health reports. These reviews were performed to verify that problems were being properly identified, appropriately characterized, and entered into the CAP. Items reviewed generally covered a two-year period; however, in accordance with the inspection procedure, a five-year review was performed for selected systems for age-dependent issues.

Control room walkdowns were also performed to assess the main control room (MCR) deficiency list and to ascertain if deficiencies were entered into the CAP and tracked to resolution. Operator workarounds and operator burden screenings were reviewed, and the inspectors verified compensatory measures for deficient equipment which were being implemented in the field.

The inspectors conducted a detailed review selected CRs to assess the adequacy of the root-cause and apparent-cause evaluations of the problems identified. The inspectors reviewed these evaluations against the descriptions of the problem described in the CRs

and the guidance in licensee procedures NPG-SPP-22.306, “Level 1 Evaluation,” Revision 0006 and NPG-SPP-22.305, “Level 2 Evaluation,” Revision 0006. The inspectors assessed if the licensee had adequately determined the cause(s) of identified problems, and had adequately addressed operability, reportability, common cause, generic concerns, extent-of-condition, and extent-of-cause. The review also assessed if the licensee had appropriately identified and prioritized corrective actions to prevent recurrence for significant conditions adverse to quality.

The inspectors reviewed selected industry OE items, including NRC generic communications, to verify that they had been appropriately evaluated for applicability and that issues identified through these reviews had been entered into the CAP.

The inspectors reviewed site trend reports, to determine if the licensee effectively trended identified issues and initiated appropriate corrective actions when adverse trends were identified.

The inspectors reviewed licensee audits and self-assessments, including those which focused on problem identification and resolution programs and processes, to verify that findings were entered into the CAP and to verify that these audits and assessments were consistent with the NRC’s assessment of the licensee’s CAP.

The inspectors attended various plant meetings to observe management oversight functions of the corrective action process. These included Plant Screening Committee meetings and Management Review Committee (MRC) meetings.

Documents reviewed are listed in the Attachment.

b. Assessment

Problem Identification

The inspectors determined that the licensee was generally effective in identifying problems and entering them into the CAP and there was an appropriately low threshold for entering issues into the CAP. This conclusion was based on a review of the requirements for initiating CRs as described in licensee procedure NPG-SPP-300, “Corrective Action Program,” Revision 0008, in addition to management’s expectation that employees were encouraged to initiate CRs for any reason. Trending was generally effective in monitoring equipment performance. Site management was actively involved in the CAP and focused appropriate attention on significant plant issues.

Based on reviews and walkdowns of accessible portions of the selected systems, the inspectors determined that system deficiencies were being identified and placed in the CAP.

Problem Prioritization and Evaluation

Based on the review of CRs sampled by the inspection team during the onsite period, the inspectors concluded that problems were generally prioritized and evaluated in accordance with the licensee’s CAP procedures as described in the CR severity level determination guidance in NPG-SPP-300. Each CR was assigned a priority level at the

MRC meeting and adequate consideration was given to system or component operability and associated plant risk.

The inspectors determined that plant personnel had conducted root cause and apparent cause analyses in compliance with the licensee's CAP procedures and assigned cause determinations were appropriate, considering the significance of the issues being evaluated. A variety of formal causal-analysis techniques were used depending on the type and complexity of the issue consistent with procedures.

Effectiveness of Corrective Actions

Based on a review of corrective action documents, interviews with licensee staff, and verification of completed corrective actions, the inspectors determined that, overall, corrective actions were timely, commensurate with the safety significance of the issues, and effective, in that conditions adverse to quality were corrected and non-recurring. For significant conditions adverse to quality, the corrective actions directly addressed the cause and effectively prevented recurrence, in that a review of performance indicators, CRs, and effectiveness reviews demonstrated that the significant conditions adverse to quality had not recurred. Effectiveness reviews for corrective actions to prevent recurrence were sufficient to ensure corrective actions were properly implemented and were effective.

c. Findings

No findings were identified.

.2 Assessment of the Use of Operating Experience

a. Inspection Scope

The inspectors examined the licensee's use of industry OE to assess the effectiveness of the plant. In addition, the inspectors selected OE documents (e.g., NRC generic communications, 10 CFR Part 21 reports, licensee event reports, vendor notifications, and plant internal OE items, etc.) which had been issued since June 2015, to verify whether the licensee had appropriately evaluated each notification for applicability to the Sequoyah Nuclear Plant, and whether issues identified through these reviews were entered into the CAP. Documents reviewed are listed in the Attachment.

b. Assessment

Based on a review of selected documentation related to operating experience issues, the inspectors determined that the licensee was generally effective in screening OE for applicability to the plant. Industry OE was evaluated at either the corporate or plant level depending on the source and type of the document. Relevant information was then forwarded to the applicable department for further action or informational purposes. Operating experience issues requiring action were entered into the CAP for tracking and closure. In addition, OE was included in all root cause evaluations in accordance with licensee procedure NPG-SPP-22.306.

c. Findings

No findings were identified.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors reviewed audit reports and self-assessment reports, including those which focused on problem identification and resolution, to assess the thoroughness and self-criticism of the licensee's audits and self-assessments, and to verify that problems identified through those activities were appropriately prioritized and entered into the CAP for resolution in accordance with licensee procedure NPG-SPP-22.102, “NPG Self-Assessment and Benchmarking Programs,” Rev. 0002.

b. Assessment

The inspectors determined that the scopes of assessments and audits were adequate. Self-assessments were generally detailed and critical, as evidenced by findings consistent with the inspector’s independent reviews. The inspectors verified that CRs were created to document all areas for improvement and findings resulting from the self-assessments, and verified that actions had been completed consistent with those recommendations. Generally, the licensee performed evaluations that were technically accurate.

c. Findings

No findings were identified.

.4 Assessment of Safety-Conscious Work Environment

a. Inspection Scope

During the course of the inspection, the inspectors assessed the plant’s safety-conscious work environment through review of the plants employee concerns program (ECP) and interviews with various departmental personnel. The inspectors reviewed a sample of ECP issues to verify that concerns were being properly reviewed and identified deficiencies were being resolved and entered into the CAP when appropriate.

b. Assessment

Based on the interviews conducted and the CRs reviewed, the inspectors determined that licensee management emphasized the need for all employees to identify and report problems using the appropriate methods established within the administrative programs, including the CAP and ECP. These methods were readily accessible to all employees. Based on discussions conducted with a sample of plant employees from various departments, the inspectors determined that employees felt free to raise issues, and that management encouraged employees to place issues into the CAP for resolution. The inspectors did not identify any reluctance on the part of the licensee staff to report safety concerns.

c. Findings

No findings were identified.

4OA6 Exit

Exit Meeting Summary

On June 22, 2017, the inspectors presented the inspection results to Mr. A. Williams and other members of the site staff. The inspectors confirmed that all proprietary information examined during the inspection had been returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:
A. Williams, Site Vice President
B. Basham, Performance Improvement Manager
M. McBrearty, Site Licensing Manager
S. Bowman, Site Licensing Engineer
P. Parashek, Operations Senior Reactor Operator
M. Randolph, Performance Improvement
L. Williams, Performance Improvement

LIST OF REPORT ITEMS

Opened and Closed
None

Closed
None

Discussed
None

Attachment

LIST OF DOCUMENTS REVIEWED

Procedures

NPG-SPP-01.16, Condition Report Initiation, Rev. 0000
NPG-SPP-03.4, Maintenance Rule Performance Indicator Monitoring, Trending and Reporting – 10CFR50.65, Rev. 0003
NPG-SPP-01.7.1, Employee Concerns Program, Rev. 0001
NPG-SPP-06.2, Preventive Maintenance, Rev. 0011
NPG-SPP-07.1.4, Work Management Prioritization – On Line, Rev. 0006
NPG-SPP-09.3, Plant Modifications and Engineering Change Control, Rev. 0024
NPG-SPP-09.20, Vendor Manual Control, Rev. 0005
NPG-SPP-09.16.1, System, Component and Program Health, Rev. 0010
NPG-SPP-22.102, NPG Self-Assessment and Benchmarking Programs, Rev. 0002
NPG-SPP-22.300, Corrective Action Program, Rev. 0008
NPG-SPP-22.302, Corrective Action Program Screening, Rev. 0010
NPG-SPP-22.303, CR Actions, Closures and Approvals, Rev. 0008
NPG-SPP-22.305, Level 2 Evaluation, Revision 0006
NPG-SPP-22.306, Level 1 Evaluation, Rev. 0006
NPG-SPP-22.500, Operating Experience Program, Rev. 0003
NEDP-8.0, Evaluations for Procurement of Materials, Items, and Services, Rev. 0002
NEDP-22, Operability Determinations and Functional Evaluations, Rev. 0017
NEDP-27, Past Operability Evaluations, Rev. 0003
OPDP-1, Conduct of Operations, Rev. 0038
OPDP-8, Operability Determination Process and Limiting Conditions for Operation Tracking, Rev. 0023
17-SBE-026-023, Engineering Work Request: Evaluate Acceptability of Debris in the Fire Protection Piping, Rev. 1
M&AI-7.1, Cable Terminations and Repairing Damaged Cables, Rev.33
0-PI-FPU-317-299.W, Fire Protection Miscellaneous Inspections, Revision 0044
TI-4, Maintenance Rule Performance Indicator Monitoring, Trending and Reporting – 10CFR50.65, Rev. 0029
OPL273C1626, Cycle 16-4 Plant Status Update (Licensed Operator Training), dated 6/13/16
OPL273C1636, Cycle 16-5 Plant Status Update (Licensed Operator Training), dated 8/1/16
OPL273C1707, Cycle 17-2 Plant Status Update (Licensed Operator Training), dated 2/27/17
OPN222C1640, Plant Status Update (OE from SQN Voltage Regulator Trips), dated 6/8/16
SO-16-008, Sequoyah Fire Operations Department Standing Order, Increased Walk-Downs for Fire Areas Potentially Impacted by Trend of Debris in HPFP Non-Draining Sections, dated 11/27/2016
SO-16-103, Sequoyah Operations Department Standing Order, Compensatory Actions for D/G Bldg Tornado Vulnerabilities, dated 05/16/2016

Condition Reports

1040168	1108257	1284205	1263606
1044251	1108270	1289625	1271796
1044255	1109158	1292997	1284668
1062507	1109400	1295662	1289929
1117466	1111730	1039485	1254101
1119661	1112088	1039545	1045080
1119663	1114858	1040168	1060847
1143804	1117470	1040619	1232494
1144342	1149169	1041370	1146638
1148228	1150202	1041787	1275616
1148543	1157650	1042155	1144824
1151352	1159677	1042919	1031280
1155763	1162711	1043817	1059536
1163235	1170545	1044831	1096404
1164452	1170721	1046074	1111677
1164446	1171143	1050108	1206882
1166927	1171265	1056760	1212994
1174405	1171811	1056796	1143804
1117456	1172955	1059220	1167448
1175834	1178891	1063266	1181710
1177144	1179126	1063399	1076179
1180402	1181710	1067941	1297498
1183201	1182472	1068000	1276635
1183350	1183093	1074991	1292256
1186385	1198163	1075135	1289349
1188774	1198170	1087006	1281609
1214460	1206136	1091218	1291042
1227479	1206142	1091675	1289328
1239449	1206145	1104481	1110460
1242395	1206148	1127022	1115030
1289543	1222814	1134056	1101732
1029296	1226511	1151732	1085879
1034503	1229204	1155285	1085848
1034504	1229213	1171371	1120225
1036980	1229221	1171811	1116316
1039545	1230505	1178891	1115221
1041093	1237160	1198155	1093348
1044530	1239748	1202710	1100725
1052611	1239849	1204345	1102444
1053615	1240993	1210565	1098901
1058327	1245204	1210595	1174406
1058754	1248045	1230951	1135308
1064736	1250669	1232336	1103389
1084292	1251829	1253437	1016839
1084294	1254414	1254414	1070076
1086421	1262587	1255707	1117468
1089802	1265577	1255800	1085005
1093946	1266643	1260873	1082712
1105025	1271866	1262322	1103382
1107364	1282928	1262323	1083349

1149872	1074347	1095026
1155352	1063258	

Condition Reports Generated

1305227, Develop and submit a licensing amendment request to NRC to remove kirk key interlock from 480 V ERCW MCC breakers
1306151, Evaluate need for more clear guidance for documenting Operations Management periodic review of operator workarounds, burdens, and challenges
1309730, SDBR chiller TCB adjustment PM performance was NA'd more than two times
1309574, Possible galvanic corrosion on drain nozzle of A-A MCR chiller condenser
1309286, Evaluate if a process for ensuring future changes to the diesel generators are evaluated for design bases tornado effects is necessary
1308624, Maximo auto populates the discovery date field when a CR is initiated and remains unless altered by the initiator
1305148, Evaluate if there is a potential vulnerability in the CR initiation process related to the timeliness of when Operations conducts their reviews
1305166, Evaluate software controls surrounding the ability to alter CR details once a CR is initiated

Work Orders

116906503	117440586	117990153	116705902
117015332	117459392	118024597	118101414
117088253	117470238	118279373	118101417
117124473	117554876	118284379	118101419
117176358	117581739	118296319	118101421
117406363	117823147	118388469	118551379
117431751	117823150	118497195	118753107
117434676	117823154	118703684	

Self-Assessments

SQN-PI-FSA-15-002, 2015 INPO Mid-Cycle Focused Self Assessment
SQN-PI-SSA-16-013, Follow-Up Assessment CAP Quality
SQN-PI-SSA-17-003, Monthly SQN Corrective Action Program Audit – November

Other Documents

AFW system health report
HVAC system health report
DCN D23085A, Corrective Action 1076179 revised 50.59
Auxiliary Building, Containment, and EDG Ventilation System Cooler Coil Replacement Project
Control Air System Diagram, OPT200.CSA SB HO-2, Rev.5
Maintenance Rule Expert Panel Meeting Minutes, May 26, March 24, and February 5, 2016
SSCs in Alert Status- 5/21/17
Plant Screening Committee Meeting Agenda, June 7, 2017
Management Review Committee Meeting Agenda, July 28, 2016
Management Review Committee Meeting Agenda, June 8, 2017
MRC Meeting Minutes, July 28, 2016
GAP Analysis for CRs 1103389 and 1016839
GAP Analysis for CR 1174406