June 1, 2018

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

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION OF THE QUALITY ASSURANCE PROGRAM IMPLEMENTATION FOR CLINCH RIVER NUCLEAR SITE EARLY SITE PERMIT APPLICATION, REPORT NO. 05200047/2018-201

Dear Mr. Shea:

On April 16 through April 20, 2018, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection of the quality assurance program for the Clinch River Nuclear Site (CRNS) early site permit application (ESPA) at the Tennessee Valley Authority (TVA) office facility in Chattanooga, TN. The purpose of this limited scope inspection was to assess implementation of the applicable requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," and 10 CFR Part 21, "Reporting of Defects and Noncompliance."

This inspection assessed aspects of TVA's processes, procedures and implementation of quality assurance activities used for the CRNS ESPA, which included organization, quality assurance program, quality assurance records, design control, corrective action, audits, oversight of contracted activities, and 10 CFR Part 21. The enclosed report presents the results of this inspection. This NRC inspection report does not constitute an NRC endorsement of TVA's quality assurance and 10 CFR Part 21 programs.

Within the scope of this inspection, no violations or nonconformances were identified.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of NRC's "Rules of Practice," a copy of this letter and its enclosures will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, it will not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If you request that such material be withheld from public disclosure,

you must specifically identify the portions that you seek to have withheld and provide, in detail, the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

Kerri A. Kavanagh, Chief **/RA/**
Quality Assurance Vendor Inspection Branch-2
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 05200047

Enclosure:
Inspection Report No. 05200047/2018-201
and Attachment

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION OF THE QUALITY ASSURANCE PROGRAM IMPLEMENTATION FOR CLINCH RIVER NUCLEAR SITE EARLY SITE PERMIT APPLICATION, REPORT NO. 05200047/2018-201 Dated: June 1, 2018

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NAME	GGalletti*	KKavanagh	
DATE	05/05/2018	06/01/2018	

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U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NEW REACTORS
DIVISION OF CONSTRUCTION INSPECTION AND OPERATIONAL PROGRAMS

Docket No.:	05200047
Report No.:	05200047/2018-201
Applicant:	Tennessee Valley Authority 1101 Market Street Chattanooga, TN 37402-2801
Applicant Contact:	Mr. Ray Schiele, Quality Assurance Clinch River Nuclear Small Modular Reactor Project (423) 751-8628 rjschiele@tva.gov
Nuclear Industry Activity:	Tennessee Valley Authority submitted an early site permit application for the Clinch River Nuclear Site in May 2016.
Inspection Dates:	April 16-20, 2018

Inspection Team:			
	Andrea Keim	NRO/DCIP/QVIB-2	Team Leader
	Greg Galletti	NRO/DCIP/QVIB-1	
	Philip Natividad	NRO/DCIP/QVIB-1	
	Nicholas Savwoir	NRO/DCIP/QVIB-1	
	Terry Jackson	NRO/DCIP/QVIB-1	Branch Chief
	Olivier Lareynie	ASN (French Nuclear Safety Authority)	

Approved by: Kerri A. Kavanagh, Chief
Quality Assurance Vendor Inspection Branch-2
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Enclosure

EXECUTIVE SUMMARY

Clinch River Nuclear Site
05200047/2018-201

The U.S. Nuclear Regulatory Commission (NRC) conducted this quality assurance (QA) program implementation inspection to verify that Tennessee Valley Authority (hereafter referred to as TVA), implemented an adequate QA program in compliance with the applicable requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," and 10 CFR Part 21, "Reporting of Defects and Noncompliance." The NRC inspection team conducted the inspection at the TVA facility in Chattanooga, TN.

This limited scope inspection assessed aspects of TVA's QA activities, associated with the Clinch River Nuclear Site (CRNS) early site permit application (ESPA) for multiple small modular reactors. Specifically the inspection assessed QA activities including process, procedures, and implementation, associated with design control, corrective action (including the interface with 10 CFR Part 21), and the CRNS ESPA submittal supporting activities. The NRC inspection team reviewed a sample of supporting engineering documentation associated with the CRNS ESPA submittal. Implementation was reviewed on a sampling basis, with the sample selected by considering significance and importance to nuclear safety.

The following regulations served as the bases for the NRC inspection:

- Appendix B to 10 CFR Part 50
- 10 CFR Part 21

During the planning and course of this inspection, the NRC inspection team followed Inspection Procedure (IP) 35017, "Quality Assurance Implementation Inspection" and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," as needed.

The information below summarizes the results of this inspection.

Design Control

The NRC inspection team concluded that TVA's program requirements for design control were consistent with the requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that TVA is adequately implementing their design control program in support of TVA's CRNS ESPA submittal. No findings of significance were identified.

Corrective Action and 10 CFR Part 21

The NRC inspection team concluded that TVA's program for corrective action were consistent with the requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50, and 10 CFR Part 21 "Reporting of Defects and Noncompliance." Based on the limited sample of documents reviewed, the NRC inspection team also determined that TVA is adequately implementing their corrective action program in support of TVA's CRNS ESPA submittal. No findings of significance were identified.

Oversight of Suppliers

The NRC inspection team concluded that TVA's implementation of its procurement document control program and its control of purchased material, equipment, and services program was consistent with the regulatory requirements in Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

Organization and Quality Assurance Program

The NRC inspection team found that the TVA organization conformed to the requirements in Criterion I, "Organization," of Appendix B to 10 CFR Part 50, TVA was effectively implementing its QA policies and procedures within its scope of work related to the CRNS ESPA. In addition, the NRC inspection team found that TVA's QA program requirements conformed to the requirements in Criterion II, "Quality Assurance Program," of Appendix B to 10 CFR Part 50 and that for the sample of documents reviewed, TVA was effectively implementing its policy and procedures for the QA program. No findings of significance were identified during the NRC inspection team's review of Criterion I and Criterion II of Appendix B to 10 CFR Part 50.

Quality Assurance Records

The NRC inspection team concluded that TVA's implementation of TVA's QA records program was consistent with the regulatory requirements in Criterion XVII, "Quality Assurance Records," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

Audits

The NRC inspection team concluded that TVA's implementation of the internal audit program was consistent with the regulatory requirements in Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

REPORT DETAILS

1. Design Control

a. Scope

The inspectors reviewed a sample of department procedures governing the control of design, including NEDP-2, “Design Calculation Process Control,” Revision 0022, dated December 4, 2017, and NEDP-5, “Design Document Reviews,” Revision 0012, dated July 21, 2017, to confirm safety-related design activities were implemented consistent with those described in the Nuclear Quality Assurance Plan (NQAP).

The inspectors reviewed a sample of design calculations prepared for TVA by various vendors involved with ESPA-related activities and confirmed that adequate methods of tracking and the disposition of comments on the calculations were used and documented. The inspectors also reviewed a sample of Owner Acceptance Reviews (OAR’s) for calculations performed under contract by vendors performing site characterization activities. The inspectors confirmed the reviews were conducted in accordance with TVA NEDP-5, and provided objective evidence supporting the acceptance of the product. In instances where TVA identified issues during the OAR, a Small Modular Reactor (SMR) Project Comment Resolution Form, documenting the issue and acceptable resolution was included.

The inspectors reviewed a sample of design verification plans and summary sheets provided in the calculation packages and confirmed that the documentation identified specific calculation attributes such as design input values, source references and assumptions, computer code parameters, results, and conclusions that were evaluated and verified. Ranges of parameters used in the calculations were confirmed to be bounded by the verification and validation (V&V) performed. For those cases where unverified assumptions existing in versions of calculations, those unverified assumptions were identified within the documentation, assigned tracking numbers, and dispositioned as part of future revisions to the calculations. The inspectors reviewed a sample of these unverified assumptions and confirmed that the assumptions, resolutions, and potential impact on the calculations were adequately documented within the calculation packages. The attachment to this inspection report lists the individuals interviewed and documents reviewed by the NRC inspection team.

Software Control

The inspections reviewed policies and procedures governing development and use of computer software including: NPG-SPP-12.7, “Computer Software Control,” Revision 0009, dated May 2017, TVA-NQA-PLN89-A, Revision 0035, Appendix E, “Computer Software,” and Section 13, “Computer Software and Data,” DS-E18.1.25.7, “Digital Equipment Commercial Grade Dedication,” Revision 0000, dated December 21, 2012, and TVA-SPP-09.001, “Engineering Calculations,” Revision 0003, 9-30-11, Section 3.2.2(9), “Calculation Procedure,” to confirm safety-related software was developed and implemented consistent with the those described in the NQAP.

The inspectors confirmed that these procedures identify the controls required for the development, verification and validation of application software, revision, and associated

documentation, and provide requirements to identify and validate each computer program used and determine if the results are reasonable. Relevant portions of the computer inputs and outputs are documented to allow for the checker to recreate the results. These requirements apply to both procured and developed software.

The inspectors confirmed that for software codes used to perform safety related (SR) activities, the verification packages contain adequate information to confirm the software was verified for its intended use or dedicated in accordance with the vendors programs. Specifically, the inspectors reviewed a sample of calculations from three sub-suppliers contracted to perform site characterization activities and confirmed in all cases where software was used for safety-related analyses, verification activities, including Commercial Grade Dedication of software, where applicable, were applied and documented as part of the calculation packages. In most cases V&V methods employed the use of known validation test cases or confirmed though alternative manual calculations. A part of the OAR, TVA reviewed the calculation information, including software verification activities. In addition TVA reviewed the software verification methodologies used by the vendors during the quality assurance (QA) Audits of the vendor. This included evaluation of the documented controls on software validation as well as audits performed on the implementation of those software tools. The inspectors also confirmed that error reporting was required by contract with the sub-suppliers and where confirmed by audits performed on the suppliers that they had error reporting processes in place. The attachment to this inspection report lists the individuals interviewed and documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that TVA's implementation of their policy and procedures for control of safety-related site characterization activities satisfy the regulatory requirements set forth in Criterion III, "Design Control," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

2. Corrective Action and Part 21

a. Scope

The NRC inspection team reviewed TVA's Quality Assurance manual, policies, and procedures that govern the implementation of corrective action, to ensure compliance with the requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. The NRC inspection team verified TVA's process for corrective action requires promptly identifying and correcting conditions adverse to quality and screening for Part 21 reporting. The NRC inspection team also verified that for significant conditions adverse to quality, TVA's process requires determining the cause, extent of condition, and taking action to prevent recurrence in addition to prompt identification and correction, as well as notification of management. The NRC inspection team reviewed the Condition Report (CR) list from 2015 until April 2018 and selected a sample for detailed review. Specifically, the NRC inspection team verified for the CRs reviewed,

that conditions adverse to quality were promptly identified and corrected, screened for Part 21 reporting, the disposition appeared appropriate and that none appeared to be significant conditions adverse to quality. The NRC inspection team also verified for the CRs reviewed, none required Part 21 reporting evaluation.

The NRC inspection team reviewed the schedule for board meetings (which reviews CRs) to determine if TVA is processing conditions adverse to quality in accordance with the regulation and their procedures. The NRC inspection team discussed the identification of conditions adverse to quality and the corrective action process with TVA's management and technical staff. The attachment to this inspection report lists the individuals interviewed and documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that TVA's program requirements for corrective action were consistent with the requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50, and 10 CFR Part 21 "Reporting of Defects and Noncompliance." Based on the limited sample of documents reviewed, the NRC inspection team also determined that TVA is adequately implementing their corrective action program in support of CRNS ESPA submittal.

3. Oversight of Contracted Activities

a. Scope

The NRC inspection team reviewed TVA's policies and implementing procedures that govern procurement, supplier oversight and contracted activities in compliance with the requirements of Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services" of Appendix B to 10 CFR Part 50 and Clinch River Early Site Permit Application.

The NRC inspection team reviewed a sample of procurement orders (POs) of safety-related suppliers on TVA's approved supplier's list (ASL). The NRC inspection team verified that the POs included, as appropriate: the scope of work, right of access to facilities, and extension of contractual requirements to subcontractors. In addition, the NRC inspection team verified that the documents included design specifications, testing and inspection activities, special processes requirements and invoked the requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21. The NRC inspection team reviewed a sample of external audit reports to verify audits were performed at the required frequency, used approved procedures and complied with the applicable regulatory and technical requirements.

The NRC inspection team reviewed samples of ASL requests for addition, deletion, changes or restatements that control ASL restrictions and evaluate supplier's ability to meet their scope of supply. The NRC inspection team reviewed annual evaluations of suppliers, supplier's contracts from the ASL, and third-party audit closures. In addition,

the NRC inspection team reviewed controls associated with the automated procurement engineering data system, procurement engineering group (PEG) packages and the vendor auditor service (VAS).

The NRC inspection team also discussed the supplier oversight program with TVA's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that TVA has established its oversight of contracted activities in accordance with the regulatory requirements of Criterion IV and Criterion VII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team determined that TVA is implementing its policies and procedures associated with the oversight of contracted activities.

4. Organization

a. Scope

The NRC inspection team reviewed TVA-NQA-PLN89-A, Rev. 0035, Section 4.0, "Organization," Section 4.1.8, "Clinch River Nuclear," Appendix I, "TVA NQAP Organization Chart" and Appendix L, "Clinch River Nuclear Organization" and Appendix K, "Clinch River Nuclear Early Site Permit Project," to confirm that it was consistent with Criterion I, "Organization," of 10 CFR Part 50 Appendix B requirements and adequately identified organizational roles and responsibilities and training and qualification requirements.

Training and Qualification

The NRC inspection team reviewed policies and procedures governing training and qualification for TVA Staff involved in the SMR project to confirm training and qualification activities were implemented consistent with those described in the NQAP. The NRC inspection team reviewed a sample of training and qualification records for individuals responsible for contract technical steward (CTS), quality assurance activities, and performance of site surveillance of sub-supplier activities related to site characterization (e.g., geology, seismology, geotechnical engineering, hydrology), to confirm the licensee had established technical and quality requirements consistent with the defined roles and responsibilities for those oversight activities, and had adequately implemented those requirements. In addition to their role-specific training requirements, the inspectors confirmed that the individuals had successfully completed CTS-specific training, had current certifications for CTS activities, and were all current on those training requirements. The attachment to this inspection report lists the individuals interviewed and documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that TVA's implementation of their policy and procedures governing organizational structure, and qualification and training of TVA staff engaged in the ESP and site characterization activities satisfy the regulatory requirements set forth in Criterion I of Appendix B to 10 CFR Part 50. No findings of significance were identified.

5. QA Program

a. Scope

The NRC inspection team reviewed Revision 35 of TVA's Nuclear Quality Assurance Plan, as well as a sample of implementing policies and procedures, associated with the TVA SMR project and their Clinch River Early Site Permit Application. Appendices K, L, and M of the NQAP Revision 35 are substantially new additions to the NQAP with specific descriptions of TVA's Clinch River Nuclear regulatory commitments to applicable QA requirements. The NRC inspection team verified that the policies and procedures that govern the QA program to ensure compliance with the requirements of Criterion II, "Quality Assurance Program," of Appendix B to 10 CFR Part 50. The NRC inspectors also interviewed TVA QA personnel associated with the project, and reviewed individual QA personnel training qualification records. A list of the documents reviewed and personnel interviewed by the NRC inspection team are included in the attachment to this inspection report.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that TVA's QA program requirements are consistent with Criterion II of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team determined that TVA is adequately implementing its QA program in support of their ESPA submittal.

6. QA Records

a. Scope

The NRC inspection team reviewed the current revision of implementing procedures TVA-SPP-31.05, "Record Submittal for Electronic Document Management System (EDMS)" and NPG-SPP-31.0, "Records Management and Document Control Programs", as well as the current and previous revision of NPG-SPP-31.2, "Records Management". The NRC inspection team verified that the policies and procedures that govern the QA records comply with the requirements of Criterion XVII, "Quality Assurance Records," of Appendix B to 10 CFR Part 50. NRC inspectors also interviewed personnel and directly observed electronic document control, revision control and electronic retrievability

processes for quality records such as calculations, work procedures, and procedure control form coversheets. A list of the documents reviewed and personnel interviewed by the NRC inspection team are included in the attachment to this inspection report.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that TVA's QA records requirements are consistent with Criterion XVII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspectors determined that TVA is adequately implementing their QA program for QA records in support of their ESPA submittal. No findings of significance were identified.

7. Internal Audits

a. Scope

The NRC inspection team reviewed the policies and procedures governing the implementation of TVA's audit program, to verify compliance with Criterion XVIII, "Audits", of Appendix B to 10 CFR Part 50. The NRC inspectors reviewed a sample of QA internal audits from 2015- 2017 regarding the SMR project and aspects of TVA's quality program related to it, as well as conducted interviews with associated personnel. NRC inspectors verified that the sampled audits were in accordance with procedure NPG-SPP-03.19, "Conduct of Quality Assurance Internal Audits", including personnel qualifications for performing the audit. The specified training requirements, as well as the individual training records for auditors, were reviewed. A list of the documents reviewed and personnel interviewed by the NRC inspection team are included in the attachment to this inspection report.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that TVA's QA internal audit program requirements are consistent with Criterion XVIII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspectors determined that TVA is adequately implementing their QA program for internal audits in support of their ESPA submittal. No findings of significance were identified.

8. Entrance and Exit Meetings

On April 16, 2018, the NRC inspection team discussed the scope of the inspection during an entrance meeting with Mr. Joseph Shea, Vice President, Nuclear Regulatory Affairs and Support Services and other TVA personnel. On April 20, 2018, the NRC inspection team presented the inspection results during an exit meeting with Mr. Joseph Shea and other TVA personnel involved in the CRNS ESPA.

ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES

Name	Title	Affiliation	Entrance	Exit	Interviewed
Robert Seipel	Sr. Mgr., QA Services	TVA	X	X	
Robert Krigelman	Sr. Mgr., Corporate QA	TVA	X	X	X
John Holcomb	Eng. Mgr., Corporate QA	TVA	X		
Robert Bybel	PQAM	TVA	X		
Aaron England	Consultant	TVA	X	X	
Michelle Conner	SMR, Ops, Training and Pgr, Sr. Manager	TVA	X		X
N. Lynn Mynatt	SMR QA Team	TVA	X	X	X
Doug Jaquith	SMR QA Team	TVA	X	X	
Walter M. Justice	Engineering Consultant	TVA		X	
Russell Thompson	Nuclear Regulatory Compliance	TVA	X	X	
Joe Shea	VP, Nuclear Reg. Aff. and Support Services	TVA	X		
Greg Boerschig	VP, Nuclear Oversight	TVA		X	
Dan Stout	Sr. Mgr., SMR Technology	TVA	X	X	
Roger Scott	Licensing	TVA	X	X	
Spencer Klein	SMR Assoc. PM	TVA	X	X	
Ray Schiele	Licensing Mgr.	TVA	X	X	X
Kelvin Montague	Licensing	TVA	X	X	
Jason Brown	Procurement Engineering Manager	TVA			X
Jeff Perry	Project Mgr.	TVA	X		
Ron Paul	Corrective Action Program	TVA			X
Archie Manoharan	Licensing	TVA	X		
Kevin Casey	Licensing	TVA	X	X	
Alex Young	Engineering	TVA			X

Andrea Keim	Inspection Team Leader	NRC	X	X	
Nicholas Savwoir	Reactor Operations Engineer	NRC	X	X	
Greg Galletti	Sr. Reactor Ops. Engineer	NRC	X		
Phil Natividad	Reactor Operations Engineer	NRC	X	X	
Terry Jackson	Branch Chief	NRC	X	X	
Olivier Lareynie	Foreign Assignee	NRC	X	X	

2. INSPECTION PROCEDURES USED

Inspection Procedure 35017, "Quality Assurance Implementation Inspection," dated July 29, 2008

Inspection Procedure 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 13, 2012

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

4. DOCUMENTS REVIEWED

Condition Reports (CRs)

- CR 1396952
- CR 509363
- CR 1252439
- CR 1378710
- CR 1386860
- CR 1385378
- CR 1163381
- CR 1199925
- CR 1252439
- CR 1274755
- CR 1310933
- CR 1321941
- CR 1386960
- CR 1385378
- CR 1398443
- CR 1251776
- CR 1378232
- CR 1379186
- CR 1380857
- CR 1176681
- CR 1104841
- CR 1207212
- CR 1266416
- CR 1275635
- CR 1317856
- CR 1330727
- CR 1380857
- CR 509363
- CR 1402020
- CR 1251778
- CR 1378236
- CR 1396952
- CR 1398445
- CR 1176681
- CR 1173036
- CR 1251778
- CR 1272802
- CR 1279340
- CR 1318911
- CR 1341805
- CR 1379186

CRs submitted during the NRC Inspection

- CR 1406775
- CR 1406622
- CR 1406851
- CR 1407111
- CR 1406705

Procedures and QA Manual

- TVA-NQA-PLN89-A, “Nuclear Quality Assurance Plan (NQAP) (Quality Assurance Program Description”, Revision 35, dated April 13, 2018
- NEDP-2, “Design Calculation Process Control,” Revision 0022, dated December 4, 2017
- NEDP-5, “Design Document Reviews,” Revision 0012, dated July 21, 2017
- NPG-SPP-0.1.0, “Organization and Administration”, Revision 5, dated November 15, 2016
- NPG-SPP-06.11,”Identification and Segregation of Non-Conforming Material Outside of Supply Chain Material Storerooms,” Rev. 0001, dated 02/11/2015
- NPG-SPP-22.300, “Corrective Action Program,” Revision 10, (effective) dated 01/11/2018
- NPG-SPP-01.16, “Condition Report Initiation,” Rev 0001, dated 1/11/2018
- NPG-SPP-22-600, “Issue Resolution,” Rev. 3, dated 01/11/2018
- NPG-SPP-0.1.1, “Administration of Standard Programs & Processes, Standard Department Procedures, and Business Practices”, Revision 9, dated September 28, 2017
- SMRDP-1, “Organization and Responsibilities,” Rev. 0006, dated 4/09/2018
- SMRDP-2, “Implementation Procedure Reference Documents,” Rev. 0005, dated 4/13/2018
- SMRDP-6, “Early Site Permit Application (ESPA) Request for Information,” Rev. 0002, dated 01/08/2018
- SMRDP-8, “Handling and Storage of Core Borings,” Rev. 0003, dated 01/02/2018
- NPG-SPP-12.7, “Computer Software Control,” Revision 0009, dated May 2017
- NPG-SPP-07.7, “NPG CTS Role and Oversight of Supplemental Personnel,” Revision 0006, dated December 23, 2017
- SMRDP-10, “Small Modular Reactor Training,” Revision 0002, dated December 4, 2017
- SMRDP-11, “Small Modular Reactor Conduct of Engineering,” Revision 0002, dated January 12, 2018
- DS-E18.1.25.7, “Digital Equipment Commercial Grade Dedication,” Revision 0000, dated December 21, 2012
- NPG-SPP-03.16, “Supplier Audits, Surveys, Source Surveillances and ASL Maintenance,” Revision 5, November 15, 2017
- NPG-SPP-03.23, “QA Plan Management”, Revision 2, dated March 17, 2017
- NPG-SPP-03.5, “Regulatory Reporting Requirements,” Rev. 14, dated 12/21/2017
- NPG-SPP-04.001, “Procurement of Material, Labor and Services,” Revision 7, November 17, 2017

- NPG-SPP-31.0, “Records Management and Document Control Programs”, Revision 4, dated June 9, 2017
- NPG-SPP-31.1, “Document Control,” Revision 4, September 29, 2015
- NPG-SPP-31.2, “Records Management”, Revision 6, dated October 18, 2016
- NPG-SPP-31.2, “Records Management”, Revision 7, dated August 7, 2017
- TVA-SPP-31.05, “Record Submittal for Electronic Document Management System (EDMS)”, Revision 5, dated April 28, 2014
- NPG-SPP-03.19, “Conduct of Quality Assurance Internal Audits”, Revision 6, dated October 2, 2017
- NEDP 8.0, “Evaluations for Procurement of Materials, Items, and Services,” Revision 4, March 2, 2018
- NEDP 8.2, “Technical Evaluation for Procurement of Safety Related and Quality Related Materials, Items, and Services,” Revision 2, August 15, 2016
- NEDP 8.5, “Other Evaluations,” Revision 3, February 17, 2017
- TVA SPP 09.001, “Engineering Calculations,” Revision 3, September 30, 2011
- NQAP Revision Request QAP-2017-004, dated November 6, 2017
- NQAP Revision Request QAP-2017-002, dated May 10, 2017
- NQAP Revision Request QAP-2016-006, dated July 26, 2015
- L17 170126 800, Site Audit Report CRA1701, dated January 17-20, 2017
- L17 170105 800, “Audit Notification Letter”, dated January 5, 2017
- L17 170105 801, “QA Audit Decision Worksheet CRA1701 Small Modular Reactor”
- L17 180207 800, Site Audit Report CRA1801, dated January 8-19, 2018
- L17 170315 800, “Audit Report Audit SSA1702”, dated February 6-13, 2017
- SMRDP-1 Procedure Control Form, Coversheet, search function(s) in EDMS
- B41 180126 002, “TVA Nuclear Calculation Coversheet/CTS Update”, Revision 4, dated 1/28/18)
- B41 170530 001,” TVA Nuclear Calculation Coversheet/CTS Update”, Revision 3, dated 5/30/17
- B41 160229 007, “TVA Nuclear Calculation Coversheet/CTS Update”, Revision 2, dated 2/26/16
- B41 150312 001, “NPG Calculation Coversheet/CTS Update”, Revision 1, dated 3/12/15
- B41 150307 011, “NPG Calculation Coversheet/CTS Update”, Revision 0, dated 3/7/15

Purchase Orders (PO)

- PO 518669, dated June 13, 2011
- PO 541725, Revision 7, dated July 9, 2015
- PO 629431-4, Revision 9, dated November 2, 2015
- PO 758241, Revision 5 , September 30, 2015
- PO 797863, Revision 1 , dated July 17, 2015
- PO 2153823, Revision 3, dated November 10, 2016
- PO 3242960, Revision 0, dated September 13, 2017

TVA Contracts:

- 4419, dated January 24, 2011
- 7757, dated September, 9, 2013
- 8273, dated March 17, 2014
- 11295, dated April 20, 2016
- 75578, dated March 3, 2009

Supplier Evaluation Data Sheet – Annual Evaluation

- RIMs No. W43 150729 835 June 25, 2015
- 2016N-65: W43 170731 808 August 4, 2017
- 2016V-08: W43 170731 805 August 18, 2017
- 2016N-01: W43 180223 804 March 13, 2018

Request for Addition, Deletion, Change or Reinstatement to ASL

- RIMs No. W43 100701 813
- RIMs No. W43 110920 801
- RIMs No. W43 160913 823
- RIMs No. W43 180328 804
- RIMs No. W43 160922 802

Other Procurement Documents

- TVA ASL (Four suppliers) April 20, 2018
- TVA ASL Restrictions (Two restrictions on ASL) April 20, 2018
- PEG PKG NO. 518669A0 May 31, 2012

Calculations

- TVA-050-CALC-003, Accident x/Q Calculations Using the PAVAN Model for the Clinch River Early Site Permit (ESP) Application, Revision 0, May 2015
- 25847-000-LOC-HARA-00002, “Design Basis Accident Doses,” Revision 001, dated February 2016
- CDQ0000002014000033, “Fukushima NTTF Recommendation 2.1: Wind Waves for Combined-Effects Floods,” Revision 1, May 2015
- CDQ0000002014000024, “Seismic Dam Failure Combined with Rainfall Event Simulations,” Revision 4, January 2018
- CDQ0000002014000028, “Norris Dam Sunny Day Failure Simulation,” Revision 1, February 2018
- 31797-12-05-200-001, “AECOM GMRS Calculation,” Revision 0, March 2016
- 25847-000-HOC-HKYK-00002, “Clinch River Offsite Chemical Hazards Analysis,” Revision 2, dated March 2016