



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-15-143

July 31, 2015

10 CFR 50.4

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Browns Ferry Nuclear Plant, Units 1, 2, and 3  
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68  
NRC Docket Nos. 50-259, 50-260, and 50-296

Sequoyah Nuclear Plant, Units 1 and 2  
Facility Operating License Nos. DPR-77 and DPR-79  
NRC Docket Nos. 50-327 and 50-328

Watts Bar Nuclear Plant, Unit 1  
Facility Operating License No. NPF-90  
NRC Docket No. 50-390

Subject: **The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - Closure Report**

Reference:

1. TVA letter to NRC, "Additional Information Regarding March 28, 2013, Public Meeting With NRC Regarding The Tennessee Valley Authority's (TVA) Commercial Grade Dedication Recovery Project," dated April 30, 2013 (ML13123A163)
2. TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project Plan - July 2013 Status Report," dated July 31, 2013 (ML13220A102)
3. TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - October 2013 Status Report," dated October 31, 2013 (ML13309A747)

4. TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - January 2014 Status Report," dated January 31, 2014 (ML14038A139)
5. TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2014 Status Report," dated April 30, 2014 (ML14126A843)
6. TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - July 2014 Status Report," dated July 31, 2014 (ML14212A748)
7. TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - October 2014 Status Report," dated October 31, 2014 (ML14304A724)
8. TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - January 2015 Status Report," dated January 30, 2015 (ML15030A485)
9. TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report," dated April 30, 2015 (ML151210A264)

The purpose of this letter is to provide the Nuclear Regulatory Commission (NRC) staff with the Commercial Grade Dedication (CGD) Recovery Project Closure Report.

In Enclosure 2 of the Reference 1 letter, Tennessee Valley Authority (TVA) provided the NRC with a TVA Nuclear Power Group CGD Recovery Project Action Plan Summary that included two commitments. In Commitment 1, TVA committed to complete a comprehensive evaluation of CGD items installed between September 1995 and November 2011 for the operating fleet, and correct any identified deficiencies by December 31, 2014. As discussed with the NRC during a teleconference on December 15, 2014, and documented in Reference 8, TVA revised the completion date for the CGD Recovery Project from December 31, 2014, to May 31, 2015. As of May 28, 2015, TVA had completed all of the evaluations described in the TVA Nuclear Power Group CGD Recovery Project Action Plan Summary. A summary of the results are documented in the enclosure to this letter.

In Commitment 2, TVA committed to provide the NRC with periodic written updates regarding progress of the project by the last day of July, October, January, and April of each year until the project is completed, beginning with the first written report to be submitted by July 31, 2013. The quarterly status update letters are provided in References 2 through 9. Based on the completion of Commitment 1, above, this letter is the final quarterly status update.

No issues or testing failures were identified that resulted in declaring plant equipment to be inoperable or required replacement of a basic component.

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On May 29, 2015, TVA notified the NRC Region II Branch Chief that TVA had completed all of the evaluations described in the TVA Nuclear Power Group CGD Recovery Project Action Plan Summary. Additionally, TVA committed to provide a final closure report by July 31, 2015.

The enclosure to this letter provides the TVA Nuclear CGD Recovery Project - Closure Report.

There are no new regulatory commitments contained in this letter. Should you have any questions, please contact Tom Hess at (423) 751-3487.

Respectfully,

**J. W. Shea**  
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J. W. Shea  
Vice President, Nuclear Licensing

Enclosure: Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade  
Dedication Recovery Project - Closure Report

cc (Enclosure):

NRC Regional Administrator - Region II  
NRC Senior Resident Inspector - Browns Ferry Nuclear Plant  
NRC Senior Resident Inspector - Sequoyah Nuclear Plant  
NRC Senior Resident Inspector - Watts Bar Nuclear Plant  
NRR Project Manager - Browns Ferry Nuclear Plant  
NRR Project Manager - Sequoyah Nuclear Plant  
NRR Project Manager - Watts Bar Nuclear Plant

## ENCLOSURE

### Tennessee Valley Authority Nuclear Power Group Commercial Grade Dedication Recovery Project - Closure Report

#### BACKGROUND:

During a public meeting with the Nuclear Regulatory Commission (NRC) staff on March 28, 2013, Tennessee Valley Authority (TVA) described a broad set of actions being taken by the TVA Nuclear Power Group to address commercial grade dedication (CGD) program issues identified by the NRC in Watts Bar Unit 2 construction-related Integrated Inspection Report 05000391/2011607, dated September 30, 2011, and Integrated Inspection Report 05000391/2011610, dated February 3, 2012. To further address commercial grade dedication program issues, TVA made a commitment to complete a comprehensive evaluation of commercial grade dedication items installed between September 1995 and November 2011 for the operating fleet, and correct any identified deficiencies.

In a letter to the NRC dated July 1, 2013,<sup>1</sup> TVA informed the staff that TVA Nuclear Power Group Commercial Grade Dedication Recovery Project Plan was approved for implementation and briefly described the plan. The CGD Recovery Project Plan describes the evaluation process being used to determine whether an adequate basis exists, is documented, and provides reasonable assurance that a commercial grade item to be used as a basic component will perform its intended safety function. The plan establishes the scope of the project, identifies the number of specific items that must be evaluated, and describes the grouping of items for evaluation by type, supplier, and time frame of procurement. The plan also describes documentation that TVA will generate during the evaluation process for items that are installed and/or currently in inventory; for items that are obsolete and through regular preventive maintenance are no longer installed in safety related applications; and for inventory items that have not been purchased or installed since Part 21, Reporting of Defects and Noncompliance, of Title 10 of the *Code of Federal Regulations* (CFR) was amended in 1995.

From April 2013 to April 2014, the CGD Recovery Project Team identified 22,340 unique Catalog Identifiers (CATIDs) that had been generated for CGD items across the TVA Nuclear Power Group Fleet since September 1995. Of this population, 17,343 unique CATIDs had been identified to be either not purchased or not installed. The remaining 4,997 unique CATIDs were evaluated, as described in the CGD Recovery Project Plan, and all 4,997 CATIDs were found to be acceptable as detailed below.

#### COMPLETION SUMMARY:

TVA followed the CGD Recovery Project Plan and completed all document revisions, testing and item evaluations. Items were grouped to closely match physical characteristics, evaluation criteria and testing/verification methods. Completion of the recovery plan scope did not result in any operability challenges or replacement of installed items. Document revisions of previously dedicated items resulted in re-testing items to verify additional critical characteristics. Test failures were entered into the corrective action process for disposition and evaluated for operability. No operability issues were identified and no installed items required replacement due to failure characteristics. Final disposition of test failures did not result in any items failing to perform their safety related functions or 10CFR21 reportability submittals.

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<sup>1</sup> TVA letter to NRC, "The Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project Plan," dated July 1, 2013 (ML13189A133)

## ENCLOSURE

### Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

As of May 28, 2015, from a population of 4,997 CATIDs that were purchased and are either in inventory or installed, all 4,997 CATIDs have been assessed against project plan review criteria, including the critical characteristics for acceptance (CCA). All 4,997 CATIDs were found to be acceptable.

During the effort to evaluate commercially dedicated parts against the applicable CCA, an additional gap was identified where critical characteristics to confirm seismic qualification/suitability were not adequately documented. This gap can be characterized as failing to adequately document the equipment seismic/structural qualification of the replacement items in accordance with TVA Nuclear Engineering Department seismic procedures and design standards. The assessment of seismic CCA information for seismic sensitive CATIDs has been completed. A total of 431 seismic CATIDS were evaluated and found to be acceptable.

The TVA Nuclear Power Group Commercial Grade Dedication Recovery Project was completed prior to the extended May 31, 2015, commitment date for project completion. During the final review and validation to support the CGD Recovery Project closure report, additional documentation was added to applicable packages to enhance the critical thinking used to support conclusions.

The status of all identified testing failures is summarized in the Table below.

| PREVIOUSLY IDENTIFIED TESTING FAILURES |                           |         |                             |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |
|----------------------------------------|---------------------------|---------|-----------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number             | CATID   | Item Description            | Failure Description                                         | Disposition                                                                                                                                                                                                                                                                                                                                                                                                             | Status (Open/Closed) |
| July 31, 2013                          | SR 755044<br>(PER 762570) | CAE345C | Overload Heaters            | Failed current carrying due to incorrect test current       | Purchased new heaters for testing to revised criteria. All items passed testing.                                                                                                                                                                                                                                                                                                                                        | Closed               |
| July 31, 2013                          | SR 755092<br>(PER 762593) | BKG441M | 1-1/4 Inch Copper Couplings | Failed dimensional test - use of single measurement point   | Used three point measurement technique & additional analyses to accept Items.                                                                                                                                                                                                                                                                                                                                           | Closed               |
| October 31, 2013                       | PER 793398<br>PER 826788  | BDH517E | Fuses 20A, 250V Time Delay  | Failed current clearing testing by 25% longer than criteria | Based on EPRI TR-017218, Revision 1, <i>Guideline for Sampling in the Commercial-Grade Item Acceptance Process</i> , the remaining inventory was scrapped. No record of safety-related application was identified. However, if installed in SR application, the 25% longer clearing time would not degrade the component function during accident scenarios. PER 885910 to address additional 10 CFR 21 considerations. | Closed               |

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## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |                                        |         |                           |                                                                                             |                                                                                                                                                                                                                                                                                    |                      |
|----------------------------------------|----------------------------------------|---------|---------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number                          | CATID   | Item Description          | Failure Description                                                                         | Disposition                                                                                                                                                                                                                                                                        | Status (Open/Closed) |
| October 31, 2013                       | PER 794799<br>PER 821184               | BXA282G | Pressure Switch           | Failed acceptance criteria for configuration, operating response, repeatability, and weight | Defective pressure switch was scrapped. PER 885910 to address additional 10 CFR 21 considerations.                                                                                                                                                                                 | Closed               |
| October 31, 2013                       | PER 793399<br>PER 821992               | CKA398K | Brass Tubing Tee Fittings | Failed threading testing                                                                    | Installed fitting acceptable based on completed conditional dedication. PER 885910 to address additional 10 CFR 21 considerations.                                                                                                                                                 | Closed               |
| October 31, 2013                       | PER 784385<br>PER 793529<br>PER 828658 | CKJ806N | Hydraulic Fluid           | Failed flash point test                                                                     | Revised flash point criteria to lower value. Material acceptable for end use applications.                                                                                                                                                                                         | Closed               |
| January 31, 2014                       | PER 827195                             | CRE543B | Breather Caps             | Failed testing criteria for material type                                                   | Material dispositioned as acceptable with no effect on operability.                                                                                                                                                                                                                | Closed               |
| January 31, 2014                       | PER 827194                             | CRF195B | Vent Caps                 | Failed testing criteria for material and dimension                                          | Material dispositioned as acceptable with no effect on operability. Additional dimensional inspection designated for this item.                                                                                                                                                    | Closed               |
| January 31, 2014                       | PER 821151                             | BJV743J | Overload Heaters          | Failed testing criteria for resistance and dimensions                                       | Failed criteria inconsequential to overload heater operation. Pre-installation testing verifies proper operation. PER 885910 to address additional 10 CFR 21 considerations.                                                                                                       | Closed               |
| January 31, 2014                       | PER 826067                             | BVT390J | Cable Splices             | Failed testing criteria for wire size dimensions                                            | Deficient parts would have been self-revealing during installation. Material will be scrapped. PER 887333 to address additional 10 CFR 21 considerations.                                                                                                                          | Closed               |
| January 31, 2014                       | PER 826791                             | AWT096Y | Fuses 0.125A              | Failed testing criteria for current carrying capacity                                       | 1 of 30 fuses tested did not meet current carrying capability - fuse opened before thermal stability was reached. If installed, this fuse would have likely failed during normal operation and/or surveillance testing. PER 885910 to address additional 10 CFR 21 considerations. | Closed               |

# ENCLOSURE

## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |         |                     |                                                   |                                                                                                                                                                                                                                                                                                                                                                  |                      |
|----------------------------------------|---------------|---------|---------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID   | Item Description    | Failure Description                               | Disposition                                                                                                                                                                                                                                                                                                                                                      | Status (Open/Closed) |
| January 31, 2014                       | PER 828735    | BAG502L | Fuses 1.6A          | Failed testing criteria for current clearing time | Test results reviewed and accurate. No record of safety-related application was identified. Work orders initiated to replace non safety-related applications. Remaining inventory scrapped per EPRI TR-017218, Revision 1, guidance. PER 932364 to address additional 10 CFR 21 considerations.                                                                  | Closed               |
| January 31, 2014                       | PER 830725    | BVC946R | Terminal Lugs       | Failed testing criteria for material type         | Based on new information, item meets manufacturer's specifications. Manufacturing process involves copper barrel material and brass spade material. Mixed material manufacturing was not apparent based on initial review of product data sheets. New PER 905272 was generated to review test results and revise procurement documents to correct material type. | Closed               |
| January 31, 2014                       | PER 830726    | BYB188W | Terminal Lugs       | Failed testing criteria for material type         | Test method revised based on manufacturer's specifications. Material retested and verified to meet criteria. Material acceptable to revised package.                                                                                                                                                                                                             | Closed               |
| January 31, 2014                       | PER 823813    | BYM865Q | Terminal Lugs       | Failed testing criteria for material type         | Revised material attributes for copper concentration and item found acceptable.                                                                                                                                                                                                                                                                                  | Closed               |
| January 31, 2014                       | PER 825115    | CFF597C | Polyethylene Tubing | Failed testing criteria for pressure integrity    | Retested tubing to proper test pressure and found acceptable.                                                                                                                                                                                                                                                                                                    | Closed               |
| January 31, 2014                       | PER 826424    | BYL296B | Insulating Tape     | Failed testing criteria for tensile strength      | Initial criteria not critical. Revised criteria and retested for tape thickness and di-electric strength. Item found acceptable.                                                                                                                                                                                                                                 | Closed               |
| January 31, 2014                       | PER 820855    | CCA611R | Pulley Bushings     | Failed testing criteria for material type         | Incorrect material specified based on current manufacturing. Material acceptable to originally supplied material type.                                                                                                                                                                                                                                           | Closed               |



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## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |         |                     |                                           |                                                                                                                                                                                                                      |                      |
|----------------------------------------|---------------|---------|---------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID   | Item Description    | Failure Description                       | Disposition                                                                                                                                                                                                          | Status (Open/Closed) |
| January 31, 2014                       | PER 825131    | BQX704E | Mandrel Pop Rivets  | Failed testing criteria for material type | Incorrect material specified for mandrel. Revised material type and tested additional samples for acceptance.                                                                                                        | Closed               |
| January 31, 2014                       | PER 823816    | CPV360D | Cable Splices       | Failed testing criteria for material type | Package revised to test material to the applicable ASTM standard versus providing minimum copper content for material type. Material tested to more specific criteria and found acceptable.                          | Closed               |
| January 31, 2014                       | PER 828659    | CEH294T | Pressure Switch     | Failed testing criteria for weight        | Incorrect data sheet in package. Revised package to include correct data sheet.                                                                                                                                      | Closed               |
| January 31, 2014                       | PER 823818    | BRN013X | Resistors           | Failed testing criteria for dimensions    | Incorrect dimensional tolerances applied. Revised CGD package and amended dimensional test report for acceptance.                                                                                                    | Closed               |
| January 31, 2014                       | PER 824184    | CFP436V | Brass Tubing Unions | Failed testing criteria for material type | Revised criteria to brass alloy. A brass alloy plus pressure testing supported acceptance.                                                                                                                           | Closed               |
| January 31, 2014                       | PER 821083    | CGX850P | Brass Tubing Unions | Failed testing criteria for material type | Revised criteria to brass alloy. A brass alloy plus pressure testing supported acceptance.                                                                                                                           | Closed               |
| April 30, 2014                         | PER 845971    | CFB485C | HFA Relay           | Failed seismic criteria                   | Evaluate and document resolution of the non-conformance of 18 HFA relays. An additional relay from the lot tested to application specific criteria and passed seismic criteria, resolving the non-conformance issue. | Closed               |
| April 30, 2014                         | PER 842727    | BVT503M | Resistor            | Failed dimensional criteria               | Error occurred when selecting the critical characteristic dimension for resistor length and lead length. Resistors passed revised criteria.                                                                          | Closed               |
| April 30, 2014                         | PER 842713    | BLA352D | 30 Amp Fuse         | Failed current clearing time              | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                      | Closed               |
| April 30, 2014                         | PER 842712    | BLA345A | 200 Amp Fuse        | Failed current clearing time.             | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                      | Closed               |



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## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |         |                           |                                                                                                                                      |                                                                                                                                                                                                                                                            |                      |
|----------------------------------------|---------------|---------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID   | Item Description          | Failure Description                                                                                                                  | Disposition                                                                                                                                                                                                                                                | Status (Open/Closed) |
| April 30, 2014                         | PER 842728    | CFD755Y | 35 Amp fuse               | Failed current clearing time                                                                                                         | Incorrect criteria initially specified. PEG Package revised. Additional testing provided acceptable results.                                                                                                                                               | Closed               |
| April 30, 2014                         | PER 842703    | BWA522W | 1.8 microfarad Capacitor  | Failed leakage current and working voltage                                                                                           | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the capacitor lot.                                                                                                                                                       | Closed               |
| April 30, 2014                         | PER 853916    | CAC064M | Resistor                  | Failed dimensional criteria                                                                                                          | Incorrect tolerance revised. Test report amended resulting in acceptance of the resistor lot.                                                                                                                                                              | Closed               |
| April 30, 2014                         | PER 842702    | APD135T | Access Valve              | Failed dimensional criteria                                                                                                          | Dimensional criteria revised based on end use considerations. Re-inspection of entire lot to revised criteria resulted in acceptance of the lot.                                                                                                           | Closed               |
| April 30, 2014                         | PER 860042    | ADM954A | 35 Amp Fuses              | Failed current clearing time                                                                                                         | No material installed. Remaining material scrapped to prevent issue to the plant. PER 887333 to address additional 10 CFR 21 considerations.                                                                                                               | Closed               |
| April 30, 2014                         | PER 845579    | BLN398N | #22 AWG to #14 AWG Splice | Failed measurement indicating a mixed bin (reducing 22 AWG to 14 AWG splice and non-reducing 14 AWG to 14 AWG splice mixed together) | Inspection verified a mixed bin of material. 100% inspection performed to remove deficient material and scrap. Remaining material sent to lab for physical inspection. PER 885910 to address additional 10 CFR 21 considerations.                          | Closed               |
| April 30, 2014                         | PER 842128    | CVD369R | Exhaust Valves            | Failed volumetric flow rate criteria                                                                                                 | 10CFR21 Failure Reportability was evaluated and determined that conditions identified in PER 887333 are not reportable. No operability impact exists for the four valves (1-FCV-001-0004, -0011, -0022, and -0029) since CATID CVD369R was never installed | Closed               |

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## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |                          |         |                  |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |
|----------------------------------------|--------------------------|---------|------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number            | CATID   | Item Description | Failure Description                      | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                | Status (Open/Closed) |
| April 30, 2014                         | PER 862599               | CFM395R | Sleeve Fitting   | Failed dimensional criteria              | Incorrect dimensional tolerances specified and dimensions recorded beyond significant digits. Material re-inspected to correct dimensional tolerances and accepted. PER 932364 to address additional 10 CFR 21 considerations.                                                                                                                                                                                             | Closed               |
| April 30, 2014                         | PER 844628               | CAA979N | Overload Relay   | Failed contact resistance – open circuit | The failure occurred during testing and failed as “open” contact, therefore, the relay is no longer viable for use. This condition would be self revealing during the installation and testing process. Initially, a quantity of 10 relays from the lot of 19 were tested, with one resulting failure. Based on the one failure, the entire lot will be tested. PER 932364 to address additional 10 CFR 21 considerations. | Closed               |
| April 30, 2014                         | PER 841713<br>PER 892013 | CGJ609B | Resistor         | Failed dimensional criteria              | The resistor length and lead length dimensional deficiencies were found acceptable.                                                                                                                                                                                                                                                                                                                                        | Closed               |
| April 30, 2014                         | PER 848255               | BYL400P | 8 Amp Fuse       | Failed dimensional criteria              | Material found acceptable based on new tolerance information. CGD documents revised and material accepted. PER 885910 to address additional 10 CFR 21 considerations.                                                                                                                                                                                                                                                      | Closed               |
| April 30, 2014                         | PER 845243               | CBB278A | Resistor         | Failed power rating of resistor          | The resistors are normally used in panel light indicators, where the resistors drop the circuit voltage to a value appropriate for the indicating lamp. Failed lots were scrapped and one lot found acceptable. Procurement documents found acceptable for future purchases. PER 887333 to address additional 10 CFR 21 considerations.                                                                                    | Closed               |

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## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |         |                  |                                    |                                                                                                                                                                                                                                                                                                                                                                   |                      |
|----------------------------------------|---------------|---------|------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID   | Item Description | Failure Description                | Disposition                                                                                                                                                                                                                                                                                                                                                       | Status (Open/Closed) |
| April 30, 2014                         | PER 867205    | BVA247Y | 7.5 Amp Fuse     | Failed current clearing time       | Expanded sample testing, per EPRI TR-017218-R1, resulted in an additional fuse failing acceptance criteria. PER 891992 was issued to document and evaluate issue. Issue history evaluated for installed applications. Inventory material not acceptable and scrapped. Testing criteria and procurement documents determined to be acceptable for new procurement. | Closed               |
| April 30, 2014                         | PER 867221    | BDL448P | 700 Amp Fuse     | Failed current clearing time       | New acceptance criteria established based on UL 248-1. Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                                                                                                            | Closed               |
| April 30, 2014                         | PER 867220    | BYF689H | 15 Amp Fuse      | Failed current clearing time       | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                                                                                                                                                                   | Closed               |
| April 30, 2014                         | PER 863778    | BYV699G | 0.5 Amp Fuse     | Failed current clearing time       | Inventory material not acceptable and scrapped. Testing criteria and procurement documents determined to be acceptable for new procurement. PER 885910 to address additional 10 CFR 21 considerations.                                                                                                                                                            | Closed               |
| July 31, 2014                          | PER 842729    | CHB326L | Check Valve      | Failed material type               | Host component determined to be QA-3 and material downgraded and scrapped.                                                                                                                                                                                                                                                                                        | Closed               |
| July 31, 2014                          | PER 882147    | BLR987K | 4 Amp Fuse       | Failed current clearing time       | Initial failure due to incorrect criteria. Additional sample testing to revised criteria resulted in acceptable results.                                                                                                                                                                                                                                          | Closed               |
| July 31, 2014                          | PER 899140    | ARB566W | 200 Amp Fuse     | Failed current carrying capacity   | Material not acceptable for plant use. History search identified no material installed in safety-related components.                                                                                                                                                                                                                                              | Closed               |
| July 31, 2014                          | PER 896388    | CGJ885H | Resistor         | Failed resistance and power rating | Material not acceptable for plant use and scrapped. No changes identified for procurement documents.                                                                                                                                                                                                                                                              | Closed               |

# ENCLOSURE

## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |                          |                       |                  |                                                       |                                                                                                                                                                                                                |                      |
|----------------------------------------|--------------------------|-----------------------|------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number            | CATID                 | Item Description | Failure Description                                   | Disposition                                                                                                                                                                                                    | Status (Open/Closed) |
| July 31, 2014                          | PER 882153<br>PER 901153 | CFJ418P               | 10 Amp Fuse      | Failed dimensional criteria                           | Fuse diameter measuring 0.001" too small requires final review and material disposition.                                                                                                                       | Closed               |
| July 31, 2014                          | PER 882164<br>PER 899964 | CBT088Q               | 1 Amp Fuse       | Failed dimensional criteria                           | History search identified no material installed in safety-related components. No changes required to procurement documents.                                                                                    | Closed               |
| July 31, 2014                          | PER 882141<br>PER 899965 | ADM954A<br>(SQN Site) | 35 Amp Fuse      | Failed current clearing time                          | PER 932364 addressed 10 CFR 21 considerations and determined to NOT be reportable. History search identified no material installed in safety-related components. No changes required to procurement documents. | Closed               |
| July 31, 2014                          | PER 880803               | CDC572Q               | 50 Amp Fuse      | Failed voltage rating                                 | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                | Closed               |
| July 31, 2014                          | PER 880819               | BLA425C               | 1 Amp Fuse       | Failed current carrying capacity and cracked ferrules | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot. Material with cracked ferrules dispositioned to be scrapped.                                                   | Closed               |
| July 31, 2014                          | PER 882129<br>PER 898433 | BLA414H               | 1.25 Amp Fuse    | Failed current clearing time                          | Expanded sample resulted in additional material failure. Material has been scrapped. Procurement documents have been cancelled and Item is designated as obsolete.                                             | Closed               |
| July 31, 2014                          | PER 900197               | BYL598T<br>(BFN Site) | 30 Amp Fuse      | Failed dimensional criteria                           | Fuse diameter measuring 0.001" too large requires final review and material disposition. Based on review and application of revised tolerance, the material is acceptable                                      | Closed               |
| July 31, 2014                          | PER 885235<br>PER 896391 | BKY581W               | 1 Amp Fuse       | Failed current clearing time                          | Expanded sample resulted in additional material failure. Material not acceptable for plant use and scrapped. No changes identified for procurement documents.                                                  | Closed               |

# ENCLOSURE

## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |                          |         |                  |                                                         |                                                                                                                                                                                                                          |                      |
|----------------------------------------|--------------------------|---------|------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number            | CATID   | Item Description | Failure Description                                     | Disposition                                                                                                                                                                                                              | Status (Open/Closed) |
| July 31, 2014                          | PER 895583               | AEY065C | 1.25 Amp Fuse    | Failed current clearing time                            | History search identified no material installed in safety-related components. No changes required to procurement documents.                                                                                              | Closed               |
| July 31, 2014                          | PER 882169               | BHQ577Y | 0.25 Amp Fuse    | Failed current clearing time                            | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                          | Closed               |
| July 31, 2014                          | PER 882149               | BRE028R | 20 Amp Fuse      | Failed current clearing time                            | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                          | Closed               |
| July 31, 2014                          | PER 882150               | CET176J | 1.6 Amp Fuse     | Failed current clearing time                            | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                          | Closed               |
| July 31, 2014                          | PER 882168               | BBR516K | 5 Amp Fuse       | Failed current carrying capacity                        | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                          | Closed               |
| July 31, 2014                          | PER 885242<br>PER 900219 | CJD815L | 60 Amp Fuse      | Failed current carrying capacity and commercial failure | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot. Remaining PER actions to review procurement requirements and dispositions failed material from a commercial perspective. | Closed               |
| July 31, 2014                          | PER 895584               | CHQ955H | 1100 Amp Fuse    | Failed current clearing time                            | History search identified no material installed in safety-related components. PER 956198 identifies CGD testing and procurement documents acceptable.                                                                    | Closed               |
| July 31, 2014                          | PER 885244<br>PER 896395 | BKY793D | 60 Amp Fuse      | Failed current clearing time                            | Material not acceptable for plant use and scrapped. No changes identified for procurement documents.                                                                                                                     | Closed               |
| July 31, 2014                          | PER 880809               | BTT498Q | 50 Amp Fuse      | Failed voltage rating                                   | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                          | Closed               |
| July 31, 2014                          | PER 888324<br>PER 912990 | BEE283N | 30 Amp Fuse      | Failed current carrying capacity                        | Material not acceptable for plant use. History search identified no material installed in safety-related components. No changes required to procurement documents.                                                       | Closed               |

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| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |                    |                         |                                                           |                                                                                                                                                                                                                                  |                      |
|----------------------------------------|---------------|--------------------|-------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID              | Item Description        | Failure Description                                       | Disposition                                                                                                                                                                                                                      | Status (Open/Closed) |
| July 31, 2014                          | PER 899963    | BYL598T (SQN Site) | 30 Amp Fuse             | Failed current carrying capacity and dimensional criteria | PER 932364 addressed 10 CFR 21 considerations and determined to NOT be reportable. History search identified no material installed in safety-related components. PER 966136 for Procurement Engineering to enhance CGD criteria. | Closed               |
| July 31, 2014                          | PER 886874    | CEP098J            | 30 Amp Fuse             | Failed current carrying capacity                          | Expanded sample testing per EPRI TR-017218, Revision 1, resulted in acceptance of the fuse lot.                                                                                                                                  | Closed               |
| October 31, 2014                       | PER 920903    | ADM954A (BFN Site) | 35 Amp Fuses            | Failed current carrying capacity                          | Material not acceptable for plant use and scrapped. No material installed in safety-related applications.                                                                                                                        | Closed               |
| October 31, 2014                       | PER 920910    | CME546X            | 2.25 Amp Fuses          | Failed current carrying capacity                          | Material not acceptable for plant use in safety-related applications and scrapped. No material installed in safety-related applications.                                                                                         | Closed               |
| October 31, 2014                       | PER 924650    | CEN006Q            | 1.6 Amp Fuses           | Failed current carrying capacity                          | Material not acceptable for plant use in safety-related applications and scrapped. No material installed in safety-related applications.                                                                                         | Closed               |
| October 31, 2014                       | PER 924138    | BLA422J            | 12 Amp Fuses            | Failed current carrying capacity                          | History search identified no material installed in safety-related components. Re-test of inventory material prior to acceptance and release from Hold status as a conservative measure.                                          | Closed               |
| October 31, 2014                       | PER 925152    | CFN093V            | 7 Amp Fuses             | Failed current carrying capacity                          | Material not acceptable for plant use in safety-related applications and scrapped. No material installed in safety-related applications.                                                                                         | Closed               |
| October 31, 2014                       | PER 918351    | BLD150M            | 10 amp fuses            | Failed current carrying capacity                          | Passing material lots accepted. Failed lots scrapped. Fuses installed in safety-related applications evaluated as acceptable.                                                                                                    | Closed               |
| October 31, 2014                       | PER 924148    | CPA432M            | 3600 $\mu$ F Capacitors | Incorrect dimensional criteria                            | Items re-inspected to revised criteria. One of 10 Items failed and Scrapped. All remaining items acceptable. Installed safety-related applications acceptable.                                                                   | Closed               |

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| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |         |                         |                                  |                                                                                                                                                                                                                                                                                                                       |                      |
|----------------------------------------|---------------|---------|-------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID   | Item Description        | Failure Description              | Disposition                                                                                                                                                                                                                                                                                                           | Status (Open/Closed) |
| October 31, 2014                       | PER 926791    | BPQ794H | 8 Amp Fuses             | Failed current carrying capacity | Material not acceptable for plant use and recommended to be scrapped. No material installed in safety-related applications.                                                                                                                                                                                           | Closed               |
| October 31, 2014                       | PER 926998    | CAA223F | 6.25 Amp Fuses          | Failed current carrying capacity | Material not acceptable for plant use and scrapped. No material installed in safety-related applications. Procurement documents in Cancelled status.                                                                                                                                                                  | Closed               |
| October 31, 2014                       | PER 937329    | BLD276K | 8 Amp Fuses             | Failed current carrying capacity | Material not acceptable for plant use in safety related applications and scrapped. No material installed in safety-related applications. Procurement documents acceptable.                                                                                                                                            | Closed               |
| October 31, 2014                       | PER 940584    | BAV418F | 2.5 Amp Fuses           | Failed current carrying capacity | Material not acceptable for plant use in safety related applications and recommended to be scrapped. Issued material not installed in safety-related applications.                                                                                                                                                    | Closed               |
| October 31, 2014                       | PER 937330    | CAA069M | 4 Amp Fuses             | Failed current carrying capacity | Material from failed lot sent for additional testing. Material in passed lot found acceptable. No material installed in safety-related applications.                                                                                                                                                                  | Closed               |
| October 31, 2014                       | PER 922302    | CBD738P | 0.10 $\mu$ F Capacitors | Failed capacitance criteria      | Material identified as failed. No material installed in safety-related systems. Enhancement PER 977758 written to test remaining material before releasing item from Hold status to determine if failure is within normal sampling failure rate. Additional enhancement PER 991884 written to enhance testing method. | Closed               |
| October 31, 2014                       | PER 922301    | AFM357G | 10 amp fuse             | Failed Current Carrying Capacity | Material identified as failed. No material installed in safety-related systems and system would be adequately protected, if installed. No enhancements to the test method identified.                                                                                                                                 | Closed               |



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| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |         |                  |                              |                                                                                                                                                                                                                                                                                                       |                      |
|----------------------------------------|---------------|---------|------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID   | Item Description | Failure Description          | Disposition                                                                                                                                                                                                                                                                                           | Status (Open/Closed) |
| October 31, 2014                       | PER 937305    | ACM855J | 2 Amp Fuses      | Failed Current Clearing Time | Material identified as failed, as a result of initial and supplemental testing. No material installed in safety-related applications. Remaining material scrapped to prevent issue to the plant.                                                                                                      | Closed               |
| October 31, 2014                       | PER 940682    | BYE634G | 25 Amp Fuses     | Failed Current Clearing Time | Material identified as failed. No material installed in safety-related applications. Remaining material scrapped to prevent issue to the plant.                                                                                                                                                       | Closed               |
| October 31, 2014                       | PER 940658    | BVN393M | 15 Amp Fuses     | Failed Current Clearing Time | Material identified as failed. Material installed in safety-related applications evaluated and operability is maintained. Material from the failed lot scrapped to prevent issue to the plant. Remaining lots designated for additional testing before acceptance.                                    | Closed               |
| January 31, 2015                       | PER 953283    | AEM751J | 40 Amp Fuses     | Failed Current Clearing Time | Material installed in safety-related applications evaluated and components remain operable. Item was not reportable and all material was scrapped to prevent issue to the plant.                                                                                                                      | Closed               |
| January 31, 2015                       | PER 953270    | BBN835J | 2 Amp Fuses      | Failed Current Clearing Time | Material installed in safety-related applications and evaluation concluded that operability is maintained and fuses are both functional and not degraded/non-conforming. Material from the failed lot has been scrapped and remaining tested lots were found acceptable and removed from Hold status. | Closed               |
| January 31, 2015                       | PER 959240    | BKY962G | 45 Amp Fuses     | Failed Current Clearing Time | Material identified as failed. No material installed in safety-related applications. Material from the failed lot designated to be scrapped. Material from passed lots found acceptable and released from Hold status.                                                                                | Closed               |

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| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |                                          |                                                                    |                                                 |                                                                                                                                                                                                                                                                                                                                                                                   |                      |
|----------------------------------------|---------------|------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID                                    | Item Description                                                   | Failure Description                             | Disposition                                                                                                                                                                                                                                                                                                                                                                       | Status (Open/Closed) |
| January 31, 2015                       | PER 963444    | BFJ723R                                  | 60 Amp Fuses                                                       | Failed Current Clearing Time                    | Material identified as failed. No material installed in safety-related applications. Test criteria was determined to be adequate. All previous material was destructively tested; therefore, no additional disposition required.                                                                                                                                                  | Closed               |
| January 31, 2015                       | PER 963436    | BVA249T                                  | 4 Amp Fuses                                                        | Failed Current Carrying Capacity                | Material identified as failed. No material installed in safety-related applications. All remaining fuses were designated to be tested for current carrying capacity, with any failed items to be scrapped. Material Hold status will be removed from fuses passing the test.                                                                                                      | Closed               |
| January 31, 2015                       | PER 956205    | BBJ158P                                  | 15 Amp Fuses                                                       | Failed Current Clearing Time                    | Material identified as failed. No material installed in safety-related applications. Item failure was identified as not reportable.                                                                                                                                                                                                                                               | Closed               |
| January 31, 2015                       | PER 968055    | CAE073A<br>CHG399Y<br>CGT041L<br>CGT119J | 1600 Amp<br>1200 Amp<br>2000 Amp<br>2500 Amp<br>High Current Fuses | Failed Current Clearing Time and Voltage Rating | Test equipment limitations and restraints generated predictable test failures due to either low energy clearing, resulting in failure of voltage rating, or failure to clear due to overheating equipment at higher currents. An alternate testing methodology was established and material sent to a qualified vendor for testing. All material was dispositioned as acceptable. | Closed               |
| January 31, 2015                       | PER 965252    | CQH798A<br>CJN746Y                       | 1 Amp<br>450 Amp<br>High Voltage Fuses                             | Failed Voltage Rating                           | Test equipment limitations and restraints generated predictable test failures due to low energy clearing, resulting in failure of voltage rating. An alternate testing methodology was established and material sent to a qualified vendor for testing. All material was dispositioned as acceptable.                                                                             | Closed               |

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## Tennessee Valley Authority (TVA) Nuclear Power Group Commercial Grade Dedication Recovery Project - April 2015 Status Report

| PREVIOUSLY IDENTIFIED TESTING FAILURES |               |          |                            |                                 |                                                                                                                                                                                                                                              |                      |
|----------------------------------------|---------------|----------|----------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Initial Status Report Date             | SR/PER Number | CATID    | Item Description           | Failure Description             | Disposition                                                                                                                                                                                                                                  | Status (Open/Closed) |
| January 31, 2015                       | PER 963720    | AXM024C  | Fitting Nut                | Failed Dimensions Configuration | Material installed in safety-related applications evaluated and operability is maintained. Material configuration received evaluated as acceptable and procurement documents revised to accept both potential configurations and dimensions. | Closed               |
| January 31, 2015                       | PER 965852    | CQM152 W | 700 Amp High Current Fuses | Failed Current Clearing Time    | Material identified as failed. No material installed in safety-related applications. Test criterion was determined to be adequate. Any remaining material was designated to be scrapped.                                                     | Closed               |