UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

April 29, 2005

Tennessee Valley Authority
ATTN: Mr. K. W. Singer
Chief Nuclear Officer and
Executive Vice President
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR POWER PLANT - NRC SUPPLEMENTAL INSPECTION REPORT NO. 05000327/2005008

Dear Mr. Singer:

We indicated in our Assessment Follow-up Letter dated March 10, 2005, that we planned to conduct NRC Supplemental Inspection Procedure 95001 at your Sequoyah Unit 1 in accordance with the NRC's Action Matrix response to a White inspection finding. On March 30, 2005, the NRC completed this supplemental inspection at your Sequoyah Nuclear Power Plant. The enclosed report documents the inspection findings which were discussed on March 30, 2005, with Mr. Randy Douet and other members of your staff.

This supplemental inspection was an examination of the root cause analysis, extent of condition determination, and corrective actions associated with the White finding identified in the **Mitigating Systems** Cornerstone. The finding involved the failure to promptly identify and correct binding problems with Wyle/Siemens 6.9 kV breakers resulting in the 1A Residual Heat Removal (RHR) pump failing to start upon receipt of a demand signal during surveillance testing on July 7, 2004.

Based on this inspection, we have concluded that your root cause evaluation was thorough and effectively identified the primary and contributing causes. The completed and proposed corrective actions, including actions to prevent recurrence, appropriately addressed the results of your root cause evaluation and your implementation schedule was consistent with the overall safety significance of the problem. As such, the inspection objectives of Inspection Procedure 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area," have been satisfied. Given your acceptable performance in addressing the Wyle/Siemens breaker problems, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program."

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the public Electronic Reading Room).

Sincerely,

/RA/

Stephen J. Cahill, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos.: 50-327
License Nos.: DPR-77

Enclosure: NRC Supplemental Inspection Report 05000327/2005008
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-327
License No.:	DPR-77
Report No.:	05000327/2005008
Licensee:	Tennessee Valley Authority
Facility:	Sequoyah Nuclear Power Plant
Location:	2600 Igou Ferry Soddy Daisy, TN 37379
Dates:	March 28-30, 2005
Inspector:	Andrew T. Sabisch Resident Inspector, Catawba Nuclear Station
Approved by:	Stephen J. Cahill, Chief Reactor Projects Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000327/2005008; 03/28/2005 - 03/30/2005; Tennessee Valley Authority (TVA), Sequoyah Nuclear Power Plant. Supplemental inspection for a White finding related to the failure of the 1A Residual Heat Removal (RHR) pump breaker to close on demand during surveillance testing.

This inspection was conducted by a Resident Inspector from the Catawba Nuclear Station. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Cornerstone: Mitigating Systems

This supplemental inspection was performed by the NRC to assess Tennessee Valley Authority's evaluation and corrective actions associated with a White finding related to the failure of the 1A RHR pump circuit breaker to close upon receipt of a demand signal during surveillance testing. The performance issue for the finding was previously characterized as having low to moderate risk significance (White) in the NRC Final Significance Determination letter (IR 05000327/2005007), dated January 26, 2005.

During this supplemental inspection, which was performed in accordance with Inspection Procedure 95001, "Inspection for One or Two White Inputs In a Strategic Performance Area," the NRC concluded that the licensee's problem identification and root cause analysis was acceptable. The licensee determined that the root cause of the event was attributable to multiple programmatic weaknesses that allowed safety-related circuit breakers with design and manufacturing deficiencies to be installed in the plant. The completed and proposed corrective actions, including actions to prevent recurrence, have adequately addressed the results of the root cause evaluation.

Given the licensee's acceptable performance in addressing the problems with Wyle/Siemens circuit breakers, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." Implementation of the licensee's corrective actions will be reviewed during a future inspection.

REPORT DETAILS

01 **Inspection Scope**

This supplemental inspection was performed by the NRC to assess the Tennessee Valley Authority's evaluation and corrective actions associated with a low-to-moderate risk significant (White) finding applicable to Unit 1. The White finding was in the Mitigating Systems Cornerstone in the reactor safety strategic performance area. The performance issues associated with this finding were previously characterized in NRC Inspection Report (IR) 05000327/2004010 as preliminarily White, and later characterized as White in the NRC Final Significance Determination letter (IR 05000327/2005007), dated January 26, 2005. The inspection involved a review of the licensee's problem identification, root cause analysis and corrective actions associated with this White finding.

The inspector assessed the adequacy of the licensee's root cause analysis, determined if appropriate corrective actions were specified and scheduled commensurate with risk, and determined if the proposed actions were sufficient to prevent recurrence. This assessment included a review of the licensee's Problem Evaluation Reports (PERs); root cause analyses; completed and scheduled corrective actions; programmatic, maintenance and operational procedures; related drawings and documents; interviews with key plant personnel; and a field inspection of a representative sample of the affected 6.9 kV circuit breakers.

02 **Evaluation of Inspection Requirements**

02.01 Problem Identification

a. Determination of who identified the issue and under what conditions

On July 7, 2004, the 1A RHR pump failed to start on demand during surveillance testing when its circuit breaker failed to close due to binding of the breaker's mechanism operated cell (MOC) actuator slide assembly. Investigation by licensee and vendor personnel determined that the MOC actuator slide assembly was binding on the mounting hardware and attributed the failure to insufficient clearance between the MOC actuator slide assembly and the mounting hardware. The binding was exacerbated by bradding of the actuator slide assembly metal at the upper end of the mounting slot due to the forces resulting from breaker operation (approximately four times greater than the original design ABB breakers) which allowed the actuator slide assembly to become wedged between the circuit breaker side sheet frame and the mechanism mounting hardware.

This self-revealing issue was documented by the licensee in PER 64674 and addressed through a root cause evaluation conducted under PER 60199. The White finding associated with this failure was documented in NRC IR 05000327/2004010.

b. Determination of how long the issue existed, and prior opportunities for identification

In January 2001, TVA made the decision to replace existing 6.9 kV circuit breakers manufactured by ABB with new breakers from Wyle/Siemens. This decision was based on the increased cost to refurbish and maintain the ABB breakers and a successful breaker replacement project that had been conducted at the Browns Ferry site by the same vendors (Note: The breakers at Browns Ferry were rated for 4.16 kV versus the 6.9 kV breaker rating at Sequoyah).

Programmatic weaknesses allowed the replacement breakers to be specified and procured in a manner that did not recognize several design differences between the ABB and Wyle/Siemens circuit breakers and did not ensure that vendor testing was performed in accordance with current standards prior to installation in the plant. Receipt inspection and initial testing identified issues related to the breaker's design as early as January 2002; however, the corrective action program had not been properly utilized to ensure the root cause(s) for these issues were identified and corrected prior to replacing additional ABB breakers.

Prior to the failure of the 1A RHR pump circuit breaker to close upon receipt of a demand signal during surveillance testing on July 7, 2004, there had been 10 previous instances of Wyle/Siemens circuit breakers failing to move as required or failing to rack to desired positions during testing or inspections; however, none of these were actual demand failures. As a result, the licensee did not place sufficient significance or attention on the issue to resolve the breaker problems and relied on the vendor to identify and correct the problems.

Following the July 7, 2004 event, the licensee experienced three (3) additional failures of Wyle/Siemens circuit breakers before all of the new breakers in safety-related locations that required reclosure following a load shed during accident conditions were replaced with ABB breakers and functionally tested. This action was taken as an interim measure until the cause of the failures was understood and corrective actions implemented on the Wyle/Siemens circuit breakers.

c. Determination of the plant-specific risk consequences and compliance concerns associated with the issue

The NRC IR 05000327/2004010 dated December 17, 2004, stated that the change in core damage frequency for this finding was calculated to be approximately 1.3E-6 for a 15-day interval; i.e., the time since the 1A RHR pump had been last tested successfully on 6/23/04 and the demand failure on 7/7/04, using a Simplified Plant Analysis Risk (SPAR) Probabilistic Risk Assessment (PRA) model under a Phase III Significance Determination Process analysis. Therefore, based on the risk increase over the base case being greater than 1E-6, the finding was characterized as White. The licensee concurred with the results of the PRA risk analysis performed by the NRC's Senior Risk Analysts.

The licensee reviewed the 6.9 kV safety-related circuit breakers installed in the plant and grouped them into three categories. These included: 1) those breakers that simply fulfill a protective function and trip open; 2) circuit breakers that open on receipt of a load shed signal and remain open; and 3) those breakers that open on a load shed signal and are required to reclose in support of accident mitigation. All Wyle/Siemens breakers in 6.9 kV breaker locations that are required to open on receipt of a load shed signal and subsequently reclose were removed from service and replaced with functionally tested ABB circuit breakers.

In addition, the licensee ensured that no further installation of Wyle/Siemens 6.9 kV circuit breakers in locations associated with the first two categories will be performed until all corrective actions associated with PER 60199 have been completed. The replacement breakers will be modified to address the known design deficiencies and inspected upon receipt to verify that no manufacturing deficiencies exist in the modified breakers prior to installation.

d. Assessment

The licensee initially identified issues related to performance of the new Wyle/Siemens circuit breakers starting in late-2001. The problems were captured in the licensee's corrective action program; however, they either inappropriately combined failures dissimilar in nature or had corrective actions assigned with inordinately long due dates; i.e., one year or longer. Once the 1A RHR pump failed to start on demand during a surveillance test, the significance level of the ongoing breaker issues was elevated and the appropriate attention was focused on addressing the failures and developing effective and timely corrective actions.

02.02 Root Cause and Extent of Condition Evaluation

a. Evaluation of methods used to identify root causes and contributing causes

The inspector reviewed the methodology and results of the licensee's root cause analyses as documented in the PER 60199; "Event Critique for Repeated Siemens Breaker Failures, Revision 1" and PER 614; "Trend Associated With Vendor Technical Quality Issues." The analyses used several formal systematic processes to identify root and contributing causes of the circuit breaker issues at the station. These methodologies included Events and Causal Factors analysis, Barrier Analysis, Kepner-Tregoe and Common Cause Analysis in addition to less-formal, programmatically controlled analysis techniques. The vendor also performed Cause Investigations on the specific failures. The root cause analyses were conducted using the guidance contained in BP-250; Corrective Action Program Handbook. The analyses appropriately considered hardware, process and human performance issues that contributed to the problems associated with the 6.9 kV breaker replacement activities at the station.

The analyses contained in the two PER's identified three (3) root causes for this issue which allowed the replacement circuit breakers to be installed in the plant with unidentified design and manufacturing deficiencies. These root causes and related

contributing causes were documented in the root cause analyses performed by the licensee and corrective actions were developed addressing the causes and preventing recurrence.

b. Level of detail of the root cause evaluation

The inspector's review of the licensee's root cause analyses determined that they had been performed to a level of depth commensurate with the significance of the issue and provided reasonable assurance that the root causes and contributing causes had been identified.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience

The inspector determined that during the root cause analyses conducted under PER 60199, the licensee reviewed both industry and in-house operating experience to determine of any similar problems had been previously identified to aid in the resolution of the issues related to the replacement Siemens 6.9 kV circuit breakers. This review included not only operating experience from within TVA and other nuclear utilities but fossil utility data as well.

The investigation conducted under PER 614 assessed prior operating experience associated with vendor quality issues on a wide range of equipment issues over a several-year period. Several changes to TVA-Nuclear programs were instituted based on the results of the analysis conducted under this corrective action program document.

d. Consideration of potential common causes and extent of condition of the problem

The inspector determined that the licensee identified the common-cause hardware failure mechanisms associated with the Wyle/Siemens 6.9 kV breakers failing to close or rack into position. The confirmed failure mechanisms were foreign material in the operating mechanism of the circuit breaker, design weaknesses in the breaker racking interlocks, and binding of the MOC switch due to both manufacturing inconsistencies and a buildup of metal due to excessive forces associated with breaker operation. The corrective actions developed by the licensee included steps to address each of these hardware failure mechanisms on breakers already on-site, awaiting shipment from the vendor or on those that may be purchased in the future.

In addition, programmatic weaknesses that allowed the circuit breakers with design deficiencies and unidentified differences from the ABB breakers to be installed in the plant were evaluated as common cause contributors. Corrective actions were developed to address these weaknesses on a generic basis to ensure that similar oversights would not occur on other equipment replacement activities or plant modifications in the future and had not occurred on modifications already completed or in-progress. The Licensee appropriately addressed the extent-of-condition for the programmatic weakness by reviewing other modifications that had used the same processes.

As part of the extent-of-condition review, the licensee removed all Wyle/Siemens 6.9 kV breakers and installed refurbished ABB breakers from applications where the breakers were required to open on a load-shed signal and subsequently re-close to energize equipment associated with accident mitigation.

A detailed plan was established to correct the design deficiencies on the Wyle/Siemens breakers and conduct extensive in-plant testing prior to reintroducing the breakers into any safety-related application.

The inspector concurred that the licensee's actions properly identified and addressed common cause failures and the extent of condition at the station.

e. Assessment

The licensee's root cause analyses associated with the Wyle/Siemens 6.9 kV breaker replacement project that resulted in the White finding were adequate and identified both root and contributing causes that contributed to the event. Corrective actions have been developed to address each of these causes in the PERs containing the root cause analyses documentation.

02.03 Corrective Actions

a. Appropriateness of corrective actions

The inspector reviewed all completed and pending corrective actions associated with this finding. Corrective actions implemented at the time of this supplemental inspection included:

Breaker-Specific Corrective Actions

- **Modify the Wyle/Siemens 6.9 kV circuit breaker** design to address the deficiencies identified during the root cause investigations
- Revise Wyle/Siemens 6.9 kV circuit breaker receipt inspections to ensure all potential issues that could affect breaker operation are checked and corrected prior to installation in the plant
- Enhance operations and maintenance procedures related to 6.9 kV circuit breakers to ensure they are operated and maintained in accordance with vendor recommendations and best industry practices
- Develop a testing program to ensure the **Wyle/Siemens 6.9 kV circuit breaker**s are functioning as expected prior to placing them into wide-spread use in safety-related applications.

General Programmatic or Procedural Corrective Actions

- Revise applicable site and TVA-Nuclear procedures to ensure the appropriate level of vendor oversight and independent testing **is specified in modification packages, bid requests and purchase orders.**
- **Define roles and responsibilities for personnel involved in specifying, procuring, receiving and inspecting plant equipment.**
- **Establish specific criteria for conducting enhanced inspections or audits when vendor-supplied equipment exhibits manufacturing or design deficiencies.**
- **Enhance the corrective action program to ensure the appropriate significance level is applied to emergent issues, unrelated issues are not inadvertently grouped together and corrective actions are implemented in a timely manner.**
- **Review all Engineering Design Changes (EDCs) issued between September 2004 and April 2005 to ensure the EDC process had been properly applied and the appropriate level of technical reviews had been performed on the packages.**
- Develop and issue a Lessons Learned Training memo to all TVA-Nuclear design personnel to ensure they were aware of the factors related to the Wyle/Siemens breakers issues and what programmatic changes have been instituted to prevent recurrence.

Corrective actions being implemented in regards to the Wyle/Siemens circuit breaker design were discussed with the licensee's technical lead on the issue and a representative breaker was inspected in the electrical maintenance shop. The licensee has established a plan to overhaul all of the new Wyle/Siemens breakers to correct the design and manufacturing weaknesses and reintroduce the overhauled breakers back into their intended safety-related applications. All Wyle/Siemens breakers in "non-reclose following load shed" applications will be modified to address design deficiencies by September 2005. The expected completion date for the re-installation of the Wyle/Siemens circuit breakers into those cubicles that require reclosure following a load-shed will be established based on the results of the additional in-service testing schedule to be performed on breakers which will be initially installed in selected Essential Raw Cooling Water (ERCW) pump breaker cubicles. The licensee consciously chose these breaker locations due to the limited safety significance other breaker failure would create.

b. Prioritization of corrective actions

The inspector determined that the corrective actions associated with the physical modifications of the Wyle/Siemens 6.9 kV circuit breakers and the plan for reintroducing them into the plant have been appropriately prioritized considering the risk significance of the components powered through these breakers.

The inspector identified that some corrective actions associated with the programmatic aspects of this finding either had their due dates extended multiple times resulting in their completion being delayed or were not fully effective as implemented. Examples include due date extensions associated with revisions to the corrective action program procedure, the Engineering Design Change program, and maintenance instructions and

the over-reliance of E-mail to communicate changes to programs and expectations to TVA-Nuclear personnel. Both of these issues have been captured in the corrective action program as PER's for assessment with subsequent corrective actions developed and being implemented.

c. Establishment of schedule for implementing and completing the corrective actions

The inspector verified that the remaining corrective actions associated with this finding are captured in the electronic corrective action program system with responsible individuals, due dates and sufficient detail to ensure they are tracked and completed commensurate with their relative priority.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence

The licensee has established a formal plan to reintroduce the new Wyle/Siemens 6.9 kV circuit breakers into the plant for use in the intended safety-related applications. The plan has discrete milestones with well-defined acceptance criteria to ensure that all design and manufacturing deficiencies have been identified and corrected and that the circuit breakers perform as required. Additional steps have been added to the receipt inspection checklist associated with the Wyle/Siemens 6.9 kV breakers based on continued assessments of the breakers by station personnel to ensure defects are identified prior to installing the breakers into the plant. Periodic updates to Sequoyah management will be conducted to ensure an appropriate level of oversight is provided and maintained on this project.

e. Assessment

Corrective actions specific to the issues related to the Wyle/Siemens 6.9 kV circuit breakers have been effective in addressing the potential for common-cause failures and include modifications, enhanced testing and revisions to the Operations, Maintenance and Engineering processes and procedures associated with these breakers. The plan to re-introduce the new breakers into the plant is detailed in nature and provides for an effective methodology to ensure that safety-related equipment is not challenged through the use of replacement circuit breakers.

The corrective actions addressing the TVA-Nuclear programs and organizational aspects of the White finding are adequate to resolve the weaknesses that resulted in the event; however, some were delayed in their implementation or initially insufficiently effective to fully address the root and contributing causes identified by the licensee's corrective action program analyses. Self-assessments conducted by both station and corporate groups documented these weaknesses and have established additional corrective actions to ensure they are addressed for the Wyle/Siemens 6.9 kV breaker issue specifically as well as the engineering design and procurement processes used across the TVA-Nuclear organization.

03 **Management Meetings**

Exit Meeting Summary

The inspector presented the inspection results to Mr. R. Douet, Site Vice President, and other members of licensee management on March 30, 2005. The inspector asked the licensee whether any of the material examined during the inspection should be considered proprietary. The vendor information that was determined to be proprietary was returned to the licensee's staff prior to the exit meeting.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Bajraszewski, Licensing Engineer
G. Buchanan, Engineering
R. Douet, Site Vice President, SQN
J. Edwards, Mechanical Design
J. Hamilton, Site Support Manager
K. Jones, System Engineer Manager
K. Korth, Operations Support Superintendent
T. Niessen, Site Quality Manager
M. Palmer, O&SS Manager / Acting Plant Manager
K. Parker, Maintenance and Modifications Manager
R. Proffitt, Licensing Engineer
R. Rodgers, Site Engineering Manager
A. Smith, Maintenance Manager
J. Smith, Site Licensing Supervisor

NRC

S. Cahill, Chief, Reactor Projects Branch 6, Division of Reactor Projects, RII
S. Freeman, Senior Resident Inspector

ITEMS OPENED AND CLOSED

Opened

None

Closed

None

LIST OF DOCUMENTS REVIEWED

Procedures

BP-250; Corrective Action Program Handbook
NADP-2; Audits, Section 3.11, Source Surveillances
NEDP-8; Technical Evaluation for Procurement of Material and Services
NEDP-20; Conduct of the Engineering Organization
NEDP-22; Functional Evaluations
SPP-3.1; Corrective Action Program
SPP-4.1; Procurement of Material, Labor and Services
0-GO-10; Electrical Apparatus Operation, Section 5.1.4, 6.9 kV Siemens Breakers
DS-M18.1.3; Mechanical Design Standard, Engineering Procurement and Vendor Technical Quality
1-SI-EDC-2-2-220.a; Set point verification and calibration for time delay relays associated with automatic load sequence timers

Corrective Action Documents

PER 614; Trend associated with vendor technical quality issues
PER 18572; PER consolidates vendor material condition problems on Siemens 6.9 kV breakers
PER 19982; Failure of the 2A-A Containment Spray pump breaker to close
PER 20212; Failure of 2B-B ERCW pump breaker to close
PER 21862; MOC tab found laying on floor of cubicle following cycling of the breaker in the spare breaker cubicle as part of the receipt inspection testing
PER 24368; Misadjustment of cell switch found on 2B RHR 6.9 kV breaker
PER 26065; Manufacturing deficiencies noted during receipt inspection of Siemens 6.9 kV breakers
PER 30114; Breakers tripped free while attempting to close it in the TEST position from the MCR
PER 34116; Failure of the 2B-B ERCW pump breaker to latch
PER 60199; Failure of ERCW pump P-B 6.9 kV breaker to close
PER 64674; During performance of 1-SI-OPS-074-128.0, the 1A RHR pump failed to start
PER 65059; Failure of the 2B-B ERCW pump breaker to latch
PER 65164; Failure of spare test breaker to latch
PER 65825; Failure of the 1B-B containment spray pump breaker to close
PER 66228; 2B RHR pump breaker – failure to start
PER 67228; The station did not use the corrective action program in a timely or adequate manner to identify and correct root causes of the recurring Wylie/Siemens breaker issues
PER 68480; Assessment of the use of document-only ECD's
PER 75700; Effectiveness Review of PER 614
PER 79276; Documentation closure problems on PER 60199
PER 79306; Assessment NA-SQ-05-02 found the corrective actions for the two root causes for event critique in PER 60199 need to be strengthened to ensure they prevent recurrence
Revision Presentation to the NRC on 3/25/05 regarding revisions to PER 60199
Management Self Assessment SQN-SIT-04-005; SQN 6.9 kV Breaker Conversion from ITE/ABB to Siemens
Event Critique; Repeated Siemens Breaker Failures – PER 60199, issued 3/24/05
Event Critique; Containment Spray pump 1B-B breaker failure to close - PER 65825, issued ½4/05

Vendor Documents

Wyle Checklist No. WCL45934, Rev. J, Effective 12/10/04
Wyle Draft Outline of modified circuit breaker quality acceptability detailing 10 modifications to be made to 6.9 kV Siemens HK circuit breakers at Sequoyah Nuclear
Wyle Laboratories Root Cause Investigation Report on problems associated with Siemens type HKR circuit breakers

Maintenance Documents

0-M1-EBR-202-000.0; Siemens 6900V Vacuum Breaker Inspection

Miscellaneous Documents

Events and Causal Factors chart associated with PER 60199; Siemens breaker event critique
OE 18599; Siemens Breakers; Failure to Close (dated 6/21/04)
Functional Evaluation 40613; Operability Evaluation of installed Siemens 6.9 kV breakers
Functional Evaluation 40875; Revision to Functional Evaluation 40613
Functional Evaluation for PER T-04-050
NEDP-8 and NEDP-22 Revision Briefing Sheet; E-mail distribution and attachment

LIST OF ACRONYMS USED

EDC	-	Engineering Design Changes
MOC	-	Mechanism Operated Cell
NRC	-	Nuclear Regulatory Commission
PER	-	Problem Evaluation Reports
PRA	-	Probabilistic Risk Assessment
RHR	-	Residual Heat Removal
TVA	-	Tennessee Valley Authority