



Compliance Audit Report Public Version

**Tennessee Valley Authority - TVAM
NCR01341
March 4-5, 2009**

**Confidential Information (including
Privileged and Critical Energy Infrastructure
Information) – Has Been Removed**

April 2, 2009

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EXECUTIVE SUMMARY

This final compliance audit report is the public version. Confidential information (including privileged and critical energy infrastructure information) has been redacted from this report. The full final compliance audit report was submitted to the audited entity and NERC.

Tennessee Valley Authority – TVAM (TVAM) was audited March 4-5, 2009 for compliance with the requirements contained in the currently mandatory and enforceable reliability standards in the 2009 NERC Compliance Monitoring and Enforcement Program (CMEP) that are applicable to TVAM's registered functions. TVAM is registered with SERC Reliability Corporation (SERC) as a Purchasing-Selling Entity (PSE). Three standards were selected and identified to TVAM as subject to review during this audit. The audit focused on documents and other evidence provided to SERC by the staff of TVAM, and did not include any evidence obtained through system observation or inspection. The findings of the audit are based on the state of compliance and current mitigation activity at the time of the audit, and do not reflect past compliance activities or activities that will be completed in the future.

TVAM staff was requested to provide valid evidence of meeting each applicable requirement and sub-requirement contained in the standards that had been previously identified by SERC Compliance staff as subject to this audit. TVAM staff responded by providing evidence in the form of reports, procedures, studies, and other documents, and then cited specific portions of the evidence that demonstrated compliance. This evidence and the citations were documented and evaluated by the audit team to assess the level of compliance. If all of the requirements and sub-requirements of an audited standard were met, then TVAM was judged to be compliant. Likewise, if any of the requirements or sub-requirements were not fully met, then TVAM was judged to have a possible violation of the standard. A score of 100% is required for compliance.

The audit team found TVAM to be in compliance with all of the NERC Reliability Standards in the audit scope.

AUDIT PROCESS

The compliance audit process steps are detailed in the NERC CMEP. The NERC CMEP generally conforms to the United States Government Accountability Office Government Auditing Standards and other generally accepted audit practices.

Objectives

All registered entities are subject to audit for compliance with all reliability standards applicable to the functions for which the registered entity is registered.¹ The audit objectives were to:

- Independently review TVAM's compliance with the requirements of the reliability standards that are applicable based on TVAM's registered functions.
- Validate compliance with applicable reliability standards from the NERC 2009 Implementation Plan list of actively monitored standards.
- Validate evidence of self-reported violations and previous self-certifications, confirm compliance with other requirements of the reliability standard, and review the status of associated mitigation plans.
- Document TVAM's compliance culture.

¹ North American Electric Reliability Corporation CMEP, paragraph 3.1, Compliance Audits

Scope

The scope of the audit included all monitored standards that are in the NERC 2009 CMEP. Based on the confirmed registration of TVAM, only three reliability standards were the focus of the compliance audit.

Note: For the 2009 compliance program, the monitoring period for the compliance audit will generally be the lesser of: 1) Date of registration to current date; 2) Date of last audit to current date; or, 3) June 18, 2007 to current date. The monitoring period is not limited to the time period for which penalties and sanctions are assessed.

Confidentiality and Conflict of Interest

Code of conduct documentation for the regional entity staff was provided to TVAM in advance of the audit. Work history and conflict of interest forms submitted by each audit team member were provided upon request. TVAM was given an opportunity to object to an audit team member on the basis of a possible conflict of interest or the existence of other circumstances that could interfere with the audit team member's impartial performance of duties. TVAM accepted the audit team member participants with no objections.

On-site Audit

TVAM was contacted by letter on September 16, 2008 by SERC staff. The letter provided TVAM with their initial notification of their upcoming audit in 2009, and the desire to schedule audit dates that would be acceptable to both parties. SERC staff then provided formal acknowledgement of the scheduled audit dates and requested that TVAM both verify their currently registered functions and complete and return an attached Pre-Audit Survey within 30 days.

On December 12, 2008, SERC staff forwarded an Audit Detail Letter to TVAM, again confirming the scheduled audit dates and confirming TVAM's registered functions within SERC. The Audit Detail Letter also provided notice of the Standards in Audit Scope, Proposed Audit Schedule, Audit Team Roster (with industry affiliations), and requested that TVAM Subject Matter Experts (SMEs) responsible for and knowledgeable of compliance submittals be available for interview during the audit. In addition to the Audit Detail Letter, TVAM was provided with a Non-Disclosure Agreement Signature Verification for audit team members, a list of Documentation and Evidence Requirements, a Pre-Audit Questionnaire, and Reliability Standard Auditor Worksheets (RSAWs) for each standard to be audited.

Interviews with SMEs were requested, in conjunction with documented evidence, to provide the audit team with additional information or clarification as a basis for professional judgment when validating compliance with reliability standards.

Methodology

A team of auditors was identified and conducted the audit. The standards were grouped and scheduled for review to make the most efficient use of TVAM staff's time. The Audit Team Leader (ATL) or designee initiated dialogue on each standard requirement and requested compliance evidence. TVAM staff responded by providing evidence in the form of reports, procedures, studies, and other documents. TVAM staff would then cite specific portions of the evidence that demonstrated compliance.

This evidence and the citations were documented by the audit team scribe on the RSAWs and evaluated by the audit team for the level of compliance and agreement with the requirement.

Any deficiencies between the requirement and the evidence provided were the subject of dialogue among the team members and TVAM staff members until a determination was reached whether each requirement was met by the evidence provided. Once all the evidence was presented and discussed, if TVAM did not provide sufficient evidence to support a finding of compliance, then a possible violation would have been identified by the team and the TVAM staff would have been notified.

Audit Overview

This was an “off-site” audit, which means that the SERC audit team was not at the TVAM location. The auditors conducted the audit from the SERC office in Charlotte, NC, and communicated with TVAM personnel via phone, email, and web-based applications.

The audit began at 9:00 AM, March 4, 2009 with an opening presentation by James Harrell, Senior Compliance Auditor and ATL, via WebEx. He reviewed the NERC compliance plan for 2009 in general, and how it applied to TVAM specifically. The ATL introduced and reviewed the standards to be covered in the audit, and addressed both the expectations of TVAM staff and the quality of evidence to be presented. The ATL also covered the basic procedure for the audit, and the bounding rules of conduct. Each member of the audit team was introduced and professional affiliation identified. TVAM staff made a brief presentation describing TVAM's corporate structure and compliance program. The staff of TVAM was introduced and general administrative matters were discussed.

Audit

The audit team initially reviewed the registration status of TVAM with entity staff to verify applicability of each standard. After the opening presentation, the audit team independently reviewed the evidence and other material that TVAM had provided. Audit interviews and discussions were then conducted with TVAM staff by WebEx. Each standard's audit began with a recitation of each requirement. TVAM staff then presented evidence supporting requirement compliance, or cited evidence previously provided to the audit team. By audit team consensus, a determination of compliance was reached for each of the requirements and was communicated to TVAM staff before proceeding to the next requirement. At that point, the team scribe would record the evidence presented to satisfy the requirement and the team's recommendation on that requirement using the RSAW.

The review of all applicable standards was completed at 4:00 PM, March 4, 2009, at which time the audit team met to review and discuss the findings.

Exit Briefing

The ATL presented an exit briefing to the assembled audit team and entity staff at 11:01 AM, March 5, 2009. This was followed by an informal response and questions from the TVAM staff. The exit briefing summarized the team's preliminary conclusions, including any items of potential noncompliance or possible violation along with supporting information, areas of concern, and the expected timeline for review and issuance of the audit report.

The ATL solicited both informal comments from TVAM staff, along with requesting that they fill out formal feedback forms for submission to NERC and SERC.

The ATL thanked TVAM staff for their cooperation and support of the audit process. TVAM staff expressed their appreciation of the professional manner in which the audit was conducted.

The audit was concluded at 11:16 AM, March 5, 2009.

Company Profile

The Tennessee Valley Authority was formed through Congressional action in May 1933 as part of the "New Deal". Today, TVA is a federally owned corporation with a primary mission to serve the Tennessee Valley area through energy, environment, and economic development. TVA is a not-for-profit agency and does not receive federal funding.

The company's corporate structure consists of a nine-member board of directors appointed by the President of the United States. TVAM reports to an Executive Vice President, who in turn reports to the Chief Operating Officer. TVAM is the Purchase-Selling Entity for the Tennessee Valley Authority.

TVA service area spans 80,000 square miles, encompassing parts of seven states, and includes 8.8 million people. TVA has a net summer dependable capacity of 35,792 MW, which includes hydro (30 plants with 113 units), coal (11 plants with 59 units), nuclear (3 plants with 6 units), combustion turbines (9 plants and 87 units), and other sources, such as Army Corps diesels, green power, and firm purchases.

The TVA transmission system consists of approximately 15,850 circuit miles of transmission lines; 487 substations, switchyards, and switching stations; and 1,070 interchange and connection points. TVA is connected to 12 neighboring utilities, and interchange is delivered to neighboring systems at 56 points.

Audit Specifics

The compliance audit was conducted from the SERC Reliability Corporation's Charlotte, NC office March 4-5, 2009.

Audit Team

Audit Team Role	Title	Company
Lead	Senior Compliance Auditor	SERC
Member	Compliance Auditor	SERC
Member	Associate Compliance Auditor (observer only)	SERC

TVAM Audit Participants Title and Organization

Title	TVA Organization
Senior Manager, Contracts & Commercial Support	PS&F
Senior Attorney	OGC
GM, Energy Trading	PS&F
Compliance Specialist	PS&F
Manager, Mid-Term Trading	PS&F
Compliance Specialist	TRO
Manager, MTP&A	PS&F
Project Manager, Compliance	PS&F
Senior BA System Operator	TRO-BA
Manager, Power Trading	PS&F
Project Manager	TRO

AUDIT RESULTS

The audit team found TVAM to be in compliance with all of the NERC Reliability Standards in the audit scope. Please see Findings Table below.

Findings

Reliability Standard	Requirement	Finding
BAL-001-0a	All	N/A
BAL-002-0	All	N/A
BAL-003-0a	All	N/A
BAL-004-0	All	N/A
BAL-005-0b	All	N/A
BAL-006-1	All	N/A
CIP-001-1	All	N/A
CIP-002-1 through CIP-009-1	All	N/A
COM-001-1	All	N/A
COM-002-2	All	N/A
EOP-001-0	All	N/A
EOP-002-2	All	N/A
EOP-003-1	All	N/A
EOP-004-1	All	N/A
EOP-005-1	All	N/A
EOP-006-1	All	N/A
EOP-008-0	All	N/A
EOP-009-0	All	N/A
FAC-001-0	All	N/A
FAC-002-0	All	N/A
FAC-003-1	All	N/A
FAC-008-1	All	N/A
FAC-009-1	All	N/A
FAC-010-1	All	N/A
FAC-011-1	All	N/A
FAC-013-1	All	N/A
FAC-014-1	All	N/A
INT-001-3	R1.	N/A
INT-001-3	R2.	N/A
INT-003-2	R1.	N/A
INT-004-2	R1.	N/A
INT-004-2	R2.	N/A
INT-005-2	R1.	N/A
INT-006-2	R1.	N/A
INT-007-1	R1.	N/A

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Reliability Standard	Requirement	Finding
INT-008-2	R1.	N/A
INT-009-1	R1.	N/A
INT-010-1	All	N/A
IRO-001-1	R1.	N/A
IRO-001-1	R2.	N/A
IRO-001-1	R3.	N/A
IRO-001-1	R4.	N/A
IRO-001-1	R5.	N/A
IRO-001-1	R6.	N/A
IRO-001-1	R7.	N/A
IRO-001-1	R8.	Compliant
IRO-001-1	R9.	N/A
IRO-002-1	All	N/A
IRO-003-2	All	N/A
IRO-004-1	All	N/A
IRO-005-2	R1.	N/A
IRO-005-2	R2.	N/A
IRO-005-2	R3.	N/A
IRO-005-2	R4.	N/A
IRO-005-2	R5.	N/A
IRO-005-2	R6.	N/A
IRO-005-2	R7.	N/A
IRO-005-2	R8.	N/A
IRO-005-2	R9.	N/A
IRO-005-2	R10.	N/A
IRO-005-2	R11.	N/A
IRO-005-2	R12.	N/A
IRO-005-2	R13.	Compliant
IRO-005-2	R14.	N/A
IRO-005-2	R15.	N/A
IRO-005-2	R16.	N/A
IRO-005-2	R17.	N/A
IRO-006-3	All	N/A
IRO-014-1	All	N/A
IRO-015-1	All	N/A
IRO-016-1	All	N/A
MOD-006-0	All	N/A
MOD-007-0	All	N/A
MOD-010-0	All	N/A
MOD-012-0	All	N/A
MOD-016-1	All	N/A
MOD-017-0	R1.	N/A

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Reliability Standard	Requirement	Finding
MOD-018-0	All	N/A
MOD-019-0	R1.	N/A
MOD-020-0	R1.	N/A
MOD-021-0	R1.	N/A
NUC-001-1	R1.	N/A
NUC-001-1	R2.	N/A
NUC-001-1	R3.	N/A
NUC-001-1	R4.	N/A
NUC-001-1	R5.	N/A
NUC-001-1	R6.	N/A
NUC-001-1	R7.	N/A
NUC-001-1	R8.	N/A
NUC-001-1	R9.	N/A
PER-001-0	All	N/A
PER-002-0	All	N/A
PER-004-1	All	N/A
PRC-001-1	All	N/A
PRC-004-1	All	N/A
PRC-005-1	All	N/A
PRC-007-0	All	N/A
PRC-008-0	All	N/A
PRC-009-0	All	N/A
PRC-010-0	All	N/A
PRC-011-0	All	N/A
PRC-015-0	All	N/A
PRC-016-0	All	N/A
PRC-017-0	All	N/A
PRC-018-1	All	N/A
PRC-021-1	All	N/A
PRC-022-1	All	N/A
TOP-001-1	All	N/A
TOP-002-2	All	N/A
TOP-003-0	All	N/A
TOP-004-2	All	N/A
TOP-005-1	R1.	N/A
TOP-005-1	R2.	N/A
TOP-005-1	R3.	N/A
TOP-005-1	R4.	N/A
TOP-006-1	All	N/A
TOP-007-0	All	N/A
TOP-008-1	All	N/A
TPL-001-0	All	N/A

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Reliability Standard	Requirement	Finding
TPL-002-0	All	N/A
TPL-003-0	All	N/A
TPL-004-0	All	N/A
VAR-001-1	R1.	N/A
VAR-001-1	R2.	N/A
VAR-001-1	R3.	N/A
VAR-001-1	R4.	N/A
VAR-001-1	R5.	Compliant
VAR-001-1	R6.	N/A
VAR-001-1	R7.	N/A
VAR-001-1	R8.	N/A
VAR-001-1	R9.	N/A
VAR-001-1	R10.	N/A
VAR-001-1	R11.	N/A
VAR-001-1	R12.	N/A
VAR-002-1a	All	N/A

Compliance Culture

The audit team assessed TVAM's Internal Compliance Program in conjunction with the audit. Evidence reviewed in assessing the program included: TVAM's Compliance Pre-Audit Survey, Business Practice 32 (program document), compliance staff organizational charts, interviews with TVAM staff, and observation of staff responses in preparation for and during the audit.

Four factors that characterize a vigorous and effective compliance program are: active engagement and leadership by a company's senior management; preventive measures appropriate to the individual circumstances of the company; promptly detecting, stopping, and reporting a violation; and, ultimately fixing the problem and working to avoid future possible violations.

SERC recognizes that there isn't one standard formula for an effective compliance program, and that there will be variations in each company's program and culture based on countless factors, including the size and age of the company, as well as the nature and extent of its business. Ultimately what matters are the results, and whether the compliance program worked as it should.

The audit team determined that TVAM's Internal Compliance Program documents and their staff's demonstrated compliance culture indicate an effective compliance program.