



Compliance Audit Report Public Version

**The Dow Chemical Company
(Dow)
NCR09037
August 20-21, 2008**

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

October 8, 2008

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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.

The Dow Chemical Company (Dow) was audited August 20-21, 2008 for compliance with the requirements contained in the currently mandatory and enforceable Reliability Standards in the 2008 NERC Compliance Monitoring and Enforcement Program (CMEP) that are applicable to Dow's registered functions. Dow is registered with SERC Reliability Corporation (SERC) as a Generator Operator (GOP) and a Generator Owner (GO). Seventeen standards were selected and identified to Dow as subject to review during this audit. The audit focused on documents and other evidence provided to SERC by the staff of Dow, 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. Dow staff was requested to provide an informational presentation on their progress with implementation of Cyber Security Standards CIP-002-1 through CIP-009-1.

Dow staff was requested to provide valid evidence of meeting each and every applicable requirement and sub-requirement contained in each standard that had been previously identified by SERC Compliance staff to Dow as subject to this audit. Dow staff responded by providing evidence in the form of reports, procedures, studies, and other documents. Dow staff 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 Dow was judged to be compliant. Likewise, if any of the requirements or sub-requirements were not fully met, then Dow was judged to have a possible violation of the standard. A score of 100% is required for compliance. The audit team determined that Dow does not own or operate Special Protection Systems, and is not a blackstart facility; therefore, 3 of the 17 standards, EOP-009-0, PRC-016-0 and PRC -017-0, were not applicable.

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

Dow recently closed mitigation plans regarding NERC Reliability Standards FAC-009, IRO-004, PRC-004, PRC-005 and TOP-003. The audit team reviewed the mitigation plans' completion documentation to ensure compliance.

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 are:

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

- Independently review Dow compliance with the requirements of the reliability standards that are applicable to Dow based on the Dow registered functions.
- Validate compliance with applicable reliability standards from the NERC 2008 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 the Dow compliance culture.

Scope

The scope of the audit of Dow included all monitored standards that are in the NERC 2008 CMEP. Based on the confirmed registration of Dow, the 17 Reliability Standards previously indentified were the focus of the compliance audit. Of these 17 standards, 3 standards; EOP-009-0, PRC-016-0 and PRC-017-0 were not applicable. This is detailed in the Audit Results section.

Note: For the 2008 compliance program, the monitoring period for the compliance audit will generally be the past 12 months or periods specified in individual reliability standards. 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 were provided to Dow in advance of the audit. Work history and conflict of interest forms submitted by each audit team member were provided to Dow upon request. Dow 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. Dow accepted the audit team member participants with no objections.

On-site Audit

Dow was contacted by letter on February 18, 2008 by SERC staff. The letter provided Dow with their initial notification of their upcoming audit in 2008, 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 Dow both verify their currently registered functions and complete and return an attached Pre-Audit Survey within 30 days.

On May 22, 2008, SERC staff forwarded an Audit Detail Letter to Dow, again confirming the scheduled audit dates and confirming Dow's registered functions within SERC. The Audit Detail Letter also provided Dow with notice of the Standards in Audit Scope, Proposed Audit Schedule, Audit Team Roster (with industry affiliations), and requested that Dow 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, Dow was provided with a Non-Disclosure Agreement Signature Verification for audit team members, a Pre-Audit Questionnaire, a list of Documents to be Provided or Have Available, 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 of Dow. The standards were grouped and scheduled for review to make the most efficient use of Dow staff's time. The audit team moderator (Audit Team Lead) initiated dialogue on each standard requirement and requested compliance evidence. This evidence and Dow's staff response was documented. Dow staff was requested to show valid evidence of meeting each applicable requirement and sub-requirement contained in the seventeen standards that had been previously identified by SERC to Dow as subject to this audit. Dow staff responded by providing evidence in the form of reports, procedures, studies, and other documents. Dow staff would then cite specific portions of the evidence that demonstrated compliance.

This evidence and the citations were documented by the scribe on the RSAWs and evaluated by the audit team for the level of compliance and agreement with the requirement. Discrepancies between the requirement and the evidence provided were the subject of dialogue among the team members and Dow staff members until it was determined that each requirement was met by the cited evidence or other evidence offered.

Once all the evidence was presented and discussed, if Dow did not provide sufficient evidence to support a finding of compliance, then a possible violation was identified by the team and Dow staff was informed.

Audit Overview

The audit team arrived at the Dow site at 2:32 p.m., August 20, 2008. Each member of the audit team was introduced and professional affiliation identified. The staff of Dow was introduced, and general housekeeping matters explained. At 3:06 p.m., August 20, 2008, James Harrell, Senior Compliance Auditor and Audit Team Lead (ATL) began the session with an opening presentation. He reviewed the NERC compliance plan for 2008 in general, and how it applied to Dow specifically. The ATL introduced and reviewed the standards to be covered in the audit and addressed both the expectations of Dow 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. Dow staff made a brief presentation describing Dow's corporate structure, compliance program and an informational overview of progress made toward implementation of the Cyber Security Standard requirements of CIP-002-1 through CIP-009-1.

Audit

The audit started August 20, 2008 at 3:22 p.m. The audit team initially reviewed the registration status of Dow with entity staff to verify applicability of each standard. Each standard's audit began with a recitation of each requirement. Dow staff then presented evidence supporting requirement compliance, or cited evidence previously provided to the audit team. At that point, the evidence was reviewed and discussed until the team reached agreement on the evidence. By audit team consensus, a determination of compliance was reached for each of the requirements, and communicated to Dow 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 audit team left the Dow site at 4:52 p.m., August 20, 2008.

The audit team returned to the Dow site at 7:41 a.m., August 21, 2008, and the audit resumed at 8:07 a.m. The review of all applicable standards was completed at 4:58 p.m. August 21, 2008, and the audit team met to review and discuss the findings. Following these discussions, the scribe collected all notes and evidence as needed and began to finalize the RSAW.

Exit Briefing

The ATL presented an exit briefing to the assembled audit team and entity staff at 5:27 p.m., August 21, 2008. This was followed by an informal response and questions from the Dow staff. The exit briefing summarized the team's preliminary conclusions, including any items of potential noncompliance or possible violation with supporting information, areas of concern, any added information required and the expected timeline for review and issuance of the audit report.

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

After a short tour, the audit team left the Dow site at 6:11 p.m., August 21, 2008.

Company Profile

With annual sales of \$54 billion and 46,000 employees worldwide, Dow is a diversified chemical company that combines the power of science and technology with the 'Human Element' to constantly improve what is essential to human progress. The company delivers a broad range of products and services to customers in around 160 countries, connecting chemistry and innovation with the principles of sustainability to help provide everything from fresh water, food and pharmaceuticals to paints, packaging and personal care products.

Louisiana Energy Systems is a production unit consisting of the Power 1 (4 steam turbines), Power 2 (4 gas turbines) and Power 3 (4 gas turbines and 1 steam turbine) plants located in the Louisiana Operations Site of The Dow Chemical Company (near the town of Plaquemine, LA). With a total installed generating capacity of approximately 1638 MW, the Energy Systems' purpose is to provide safe, reliable and low cost power, steam and utilities to the production units located in the Louisiana Operations Site. Staffing is approximately 58 employees. The Dow Louisiana Operations Site Electrical Distribution system consists of the 230 kV, 15 kV, and 2.4 kV distribution systems.

Audit Specifics

The compliance audit was conducted August 20-21, 2008 at the Louisiana Operations Site of The Dow Chemical Company in Plaquemine, LA.

Audit Team

Audit Team Role	Name	Title	Company
Lead	James Harrell	Senior Compliance Auditor	SERC
Member	Sam Stryker	Senior Compliance Auditor	SERC
Member	Kevin Berent	Associate Compliance Auditor	SERC

Dow Audit Participants

Title	Dow Organization
Senior Business Leader	LaO Energy Systems
Senior Commercial Manager	Fuels & Energy
Production Leader	LaO Energy Systems
Improvement Leader	LaO Energy Systems
Run Plant Engineer	LaO Energy Systems

Title	Dow Organization
Operations Leader	LaO Energy Systems
Production Coordinator	LaO Energy Systems
Emergency Services & Security Leader	Louisiana Operations
Relay & Systems Studies Engineer	LaO Energy Systems
Power Distribution Production Specialist	The Dow Chemical Company
Maintenance and Reliability Engineer	LaO Energy Systems
Consultant	MLJ Energy Group

AUDIT RESULTS

The audit team found Dow 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-001-0	R1.	N/A
BAL-001-0	R2.	N/A
BAL-001-0	R3.	N/A
BAL-001-0	R4.	N/A
BAL-002-0	R1.	N/A
BAL-002-0	R2.	N/A
BAL-002-0	R3.	N/A
BAL-002-0	R4.	N/A
BAL-002-0	R5.	N/A
BAL-002-0	R6.	N/A
BAL-003-0	R1.	N/A
BAL-003-0	R2.	N/A
BAL-003-0	R3.	N/A
BAL-003-0	R4.	N/A
BAL-003-0	R5.	N/A
BAL-003-0	R6.	N/A
BAL-004-0	R1.	N/A
BAL-004-0	R2.	N/A
BAL-004-0	R3.	N/A
BAL-004-0	R4.	N/A
BAL-005-0	R1.	Compliant
BAL-005-0	R2.	N/A
BAL-005-0	R3.	N/A
BAL-005-0	R4.	N/A
BAL-005-0	R5.	N/A
BAL-005-0	R6.	N/A
BAL-005-0	R7.	N/A
BAL-005-0	R8.	N/A

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Critical Energy Infrastructure Information) – Has Been Removed

Reliability Standard	Requirement	Finding
BAL-005-0	R9.	N/A
BAL-005-0	R10.	N/A
BAL-005-0	R11.	N/A
BAL-005-0	R12.	N/A
BAL-005-0	R13.	N/A
BAL-005-0	R14.	N/A
BAL-005-0	R15.	N/A
BAL-005-0	R16.	N/A
BAL-005-0	R17.	N/A
BAL-006-1	R1.	N/A
BAL-006-1	R2.	N/A
BAL-006-1	R3.	N/A
BAL-006-1	R4.	N/A
BAL-006-1	R5.	N/A
CIP-001-1	R1.	Compliant
CIP-001-1	R2.	Compliant
CIP-001-1	R3.	Compliant
CIP-001-1	R4.	Compliant
CIP-002-1 through CIP-009-1	All	N/A
COM-001-1	R1.	N/A
COM-001-1	R2.	N/A
COM-001-1	R3.	N/A
COM-001-1	R4.	N/A
COM-001-1	R5.	N/A
COM-001-1	R6.	N/A
COM-002-2	R1.	Compliant
COM-002-2	R2.	N/A
EOP-001-0	R1.	N/A
EOP-001-0	R2.	N/A
EOP-001-0	R3.	N/A
EOP-001-0	R4.	N/A
EOP-001-0	R5.	N/A
EOP-001-0	R6.	N/A
EOP-001-0	R7.	N/A
EOP-002-2	R1.	N/A
EOP-002-2	R2.	N/A
EOP-002-2	R3.	N/A
EOP-002-2	R4.	N/A
EOP-002-2	R5.	N/A
EOP-002-2	R6.	N/A
EOP-002-2	R7.	N/A
EOP-002-2	R8.	N/A

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Reliability Standard	Requirement	Finding
EOP-002-2	R9.	N/A
EOP-003-1	R1.	N/A
EOP-003-1	R2.	N/A
EOP-003-1	R3.	N/A
EOP-003-1	R4.	N/A
EOP-003-1	R5.	N/A
EOP-003-1	R6.	N/A
EOP-003-1	R7.	N/A
EOP-003-1	R8.	N/A
EOP-004-1	R1.	N/A
EOP-004-1	R2.	Compliant
EOP-004-1	R3.	Compliant
EOP-004-1	R4.	N/A
EOP-004-1	R5.	N/A
EOP-005-1	R1.	N/A
EOP-005-1	R2.	N/A
EOP-005-1	R3.	N/A
EOP-005-1	R4.	N/A
EOP-005-1	R5.	N/A
EOP-005-1	R6.	N/A
EOP-005-1	R7.	N/A
EOP-005-1	R8.	N/A
EOP-005-1	R9.	N/A
EOP-005-1	R10.	N/A
EOP-005-1	R11.	N/A
EOP-006-1	R1.	N/A
EOP-006-1	R2.	N/A
EOP-006-1	R3.	N/A
EOP-006-1	R4.	N/A
EOP-006-1	R5.	N/A
EOP-006-1	R6.	N/A
EOP-008-0	R1.	N/A
EOP-009-0	R1.	N/A
EOP-009-0	R2.	N/A
FAC-003-1	R1.	N/A
FAC-003-1	R2.	N/A
FAC-003-1	R3.	N/A
FAC-003-1	R4.	N/A
FAC-008-1	R1.	Compliant
FAC-008-1	R2.	Compliant
FAC-008-1	R3.	Compliant
FAC-009-1	R1.	Compliant

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Reliability Standard	Requirement	Finding
FAC-009-1	R2.	Compliant
FAC-013-1	R1.	N/A
FAC-013-1	R2.	N/A
INT-001-2	R1.	N/A
INT-001-2	R2.	N/A
INT-003-2	R1.	N/A
INT-004-1	R1.	N/A
INT-004-1	R2.	N/A
IRO-001-1	R1.	N/A
IRO-001-1	R2.	N/A
IRO-001-1	R3.	Compliant
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-003-2	R1.	N/A
IRO-003-2	R2.	N/A
IRO-004-1	R1.	N/A
IRO-004-1	R2.	N/A
IRO-004-1	R3.	N/A
IRO-004-1	R4.	Compliant
IRO-004-1	R5.	N/A
IRO-004-1	R6.	N/A
IRO-004-1	R7.	N/A
IRO-005-1	R1.	N/A
IRO-005-1	R2.	N/A
IRO-005-1	R3.	N/A
IRO-005-1	R4.	N/A
IRO-005-1	R5.	N/A
IRO-005-1	R6.	N/A
IRO-005-1	R7.	N/A
IRO-005-1	R8.	N/A
IRO-005-1	R9.	Compliant
IRO-005-1	R10.	N/A
IRO-005-1	R11.	N/A
IRO-005-1	R12.	N/A
IRO-005-1	R13.	Compliant
IRO-005-1	R14.	N/A
IRO-005-1	R15.	N/A
IRO-005-1	R16.	N/A

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Reliability Standard	Requirement	Finding
IRO-005-1	R17.	N/A
IRO-006-3	R1.	N/A
IRO-006-3	R2.	N/A
IRO-006-3	R3.	N/A
IRO-006-3	R4.	N/A
IRO-006-3	R5.	N/A
IRO-006-3	R6.	N/A
IRO-014-1	R1.	N/A
IRO-014-1	R2.	N/A
IRO-014-1	R3.	N/A
IRO-014-1	R4.	N/A
IRO-015-1	R1.	N/A
IRO-015-1	R2.	N/A
IRO-015-1	R3.	N/A
IRO-016-1	R1.	N/A
IRO-016-1	R2.	N/A
PER-002-0	R1.	N/A
PER-002-0	R2.	N/A
PER-002-0	R3.	N/A
PER-002-0	R4.	N/A
PER-003-0	R1.	N/A
PER-004-1	R1.	N/A
PER-004-1	R2.	N/A
PER-004-1	R3.	N/A
PER-004-1	R4.	N/A
PER-004-1	R5.	N/A
PRC-004-1	R1.	N/A
PRC-004-1	R2.	Compliant
PRC-004-1	R3.	Compliant
PRC-005-1	R1.	Compliant
PRC-005-1	R2.	Compliant
PRC-008-0	R1.	N/A
PRC-008-0	R2.	N/A
PRC-010-0	R1.	N/A
PRC-010-0	R2.	N/A
PRC-011-0	R1.	N/A
PRC-011-0	R2.	N/A
PRC-016-0	R1.	N/A
PRC-016-0	R2.	N/A
PRC-016-0	R3.	N/A
PRC-017-0	R1.	N/A
PRC-017-0	R2.	N/A

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Reliability Standard	Requirement	Finding
PRC-021-1	R1.	N/A
PRC-021-1	R2.	N/A
TOP-002-2	R1.	N/A
TOP-002-2	R2.	N/A
TOP-002-2	R3.	Compliant
TOP-002-2	R4.	N/A
TOP-002-2	R5.	N/A
TOP-002-2	R6.	N/A
TOP-002-2	R7.	N/A
TOP-002-2	R8.	N/A
TOP-002-2	R9.	N/A
TOP-002-2	R10.	N/A
TOP-002-2	R11.	N/A
TOP-002-2	R12.	N/A
TOP-002-2	R13.	Compliant
TOP-002-2	R14.	Compliant
TOP-002-2	R15.	Compliant
TOP-002-2	R16.	N/A
TOP-002-2	R17.	N/A
TOP-002-2	R18.	Compliant
TOP-002-2	R19.	N/A
TOP-003-0	R1.	Compliant
TOP-003-0	R2.	Compliant
TOP-003-0	R3.	Compliant
TOP-003-0	R4.	N/A
TOP-004-1	R1.	N/A
TOP-004-1	R2.	N/A
TOP-004-1	R3.	N/A
TOP-004-1	R4.	N/A
TOP-004-1	R5.	N/A
TOP-004-1	R6.	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-007-0	R1.	N/A
TOP-007-0	R2.	N/A
TOP-007-0	R3.	N/A
TOP-007-0	R4.	N/A
TPL-001-0	R1.	N/A
TPL-001-0	R2.	N/A
TPL-001-0	R3.	N/A

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Reliability Standard	Requirement	Finding
TPL-002-0	R1.	N/A
TPL-002-0	R2.	N/A
TPL-002-0	R3.	N/A
TPL-003-0	R1.	N/A
TPL-003-0	R2.	N/A
TPL-003-0	R3.	N/A
TPL-004-0	R1.	N/A
TPL-004-0	R2.	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.	N/A
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-002-1	R1.	Compliant
VAR-002-1	R2.	Compliant
VAR-002-1	R3.	Compliant
VAR-002-1	R4.	Compliant
VAR-002-1	R5.	Compliant

Compliance Culture

Information regarding the compliance culture of Dow was obtained from the Pre-Audit Compliance Survey, Compliance Program Survey, and Pre-Audit Questionnaires that were completed by Dow prior to the audit.