

**Reliability Standard Audit Worksheet[[1]](#footnote-1)**

# PRC-016-1 – Remedial Action Scheme Misoperations

***This section to be completed by the Compliance Enforcement Authority.***

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| --- | --- |
| **Audit ID:** | Audit ID if available; or REG-NCRnnnnn-YYYYMMDD |
| **Registered Entity:** | Registered name of entity being audited |
| **NCR Number:** | NCRnnnnn |
| **Compliance Enforcement Authority:** | Region or NERC performing audit |
| **Compliance Assessment Date(s)[[2]](#footnote-2):** | Month DD, YYYY, to Month DD, YYYY |
| **Compliance Monitoring Method:** | [On-site Audit | Off-site Audit | Spot Check] |
| **Names of Auditors:** | Supplied by CEA |

# **Applicability of Requirements**

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|  | **BA** | **DP** | **GO** | **GOP** | **PA/PC** | **RC** | **RP** | **RSG** | **TO** | **TOP** | **TP** | **TSP** |
| **R1** |  | X | X |  |  |  |  |  | X |  |  |  |
| **R2** |  | X | X |  |  |  |  |  | X |  |  |  |
| **R3** |  | X | X |  |  |  |  |  | X |  |  |  |

**Functional Entities:**

**4.1.** Transmission Owner that owns a RAS

**4.2.** Generator Owner that owns a RAS

**4.3.** Distribution Provider that owns a RAS

**Legend:**

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| --- | --- |
| Text with blue background: | Fixed text – do not edit |
| Text entry area with Green background: | Entity-supplied information |
| Text entry area with white background: | Auditor-supplied information |

Findings

**(This section to be completed by the Compliance Enforcement Authority)**

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| **Req.** | **Finding** | **Summary and Documentation** | **Functions Monitored** |
| **R1** |  |  |  |
| **R2** |  |  |  |
| **R3** |  |  |  |

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| --- | --- |
| **Req.** | **Areas of Concern** |
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| **Req.** | **Recommendations** |
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| **Req.** | **Positive Observations** |
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Subject Matter Experts

Identify the Subject Matter Expert(s) responsible for this Reliability Standard.

**Registered Entity Response (Required; Insert additional rows if needed):**

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| --- | --- | --- | --- |
| **SME Name** | **Title** | **Organization** | **Requirement(s)** |
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R1 Supporting Evidence and Documentation

**R1.** The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall analyze its RAS operations and maintain a record of all misoperations in accordance with the Regional RAS review procedure specified in Reliability Standard PRC-012-1\_R1.

**M1.** The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall have evidence it analyzed RAS operations and maintained a record of all misoperations in accordance with the Regional RAS review procedure specified in Reliability Standard PRC-012-1\_R1.

**Registered Entity Response (Required):**

**Question:** Does your entity own a Remedial Action Scheme (RAS)?  Yes  No

If your response is yes, complete the Compliance Narrative section below.

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested[[3]](#endnote-1):

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| **Provide the following evidence, or other evidence to demonstrate compliance.** |
| Provide a list of all RAS operations and misoperations during the compliance audit period. |
| Provide documentation of the analysis completed on all, or a sample of, the RAS operations within the compliance audit period. |
| Provide your Regional RAS review procedure as specified in Reliability Standard PRC-012-1\_R1. |

Registered Entity Evidence (Required):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** | | | | | |
| **File Name** | **Document Title** | **Revision or Version** | **Document Date** | **Relevant Page(s) or Section(s)** | **Description of Applicability of Document** |
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Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

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Compliance Assessment Approach Specific to PRC-016-1, R1

***This section to be completed by the Compliance Enforcement Authority***

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|  | Verify the entity has performed an analysis of all RAS operations. |
|  | Verify the entity has maintained a record of RAS misoperations in accordance with the Regional RAS review procedure. |
| **Note to Auditor:** On 4/1/2017, there will be a revised definition for Remedial Action Scheme. Entities with newly classified “Remedial Action Scheme” (RAS) resulting from the application of the revised definition must be fully compliant with all Reliability Standards applicable RAS twenty-four (24) months from the Effective Date of the revised definition, 4/1/2019. | |

Auditor Notes:

R2 Supporting Evidence and Documentation

**R2.** The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall take corrective actions to avoid future misoperations.

**M2.** The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall have evidence it took corrective actions to avoid future misoperations.

**Registered Entity Response (Required):**

**Question:** Has your entity identified RAS misoperation(s) within the compliance audit period?  Yes  No

If your response is yes, complete the Compliance Narrative section below.

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedi:

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| **Provide the following evidence, or other evidence to demonstrate compliance.** |
| Provide a list of RAS misoperations. |
| Provide the corrective actions for all RAS misoperations. |

Registered Entity Evidence (Required):

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| --- | --- | --- | --- | --- | --- |
| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** | | | | | |
| **File Name** | **Document Title** | **Revision or Version** | **Document Date** | **Relevant Page(s) or Section(s)** | **Description of Applicability of Document** |
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Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

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Compliance Assessment Approach Specific to PRC-016-1, R2

***This section to be completed by the Compliance Enforcement Authority***

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|  | Verify the entity has taken corrective actions to avoid future RAS misoperations. |
| **Note to Auditor:** On 4/1/2017, there will be a revised definition for Remedial Action Scheme. Entities with newly classified “Remedial Action Scheme” (RAS) resulting from the application of the revised definition must be fully compliant with all Reliability Standards applicable RAS twenty-four (24) months from the Effective Date of the revised definition, 4/1/2019. | |

Auditor Notes:

R3 Supporting Evidence and Documentation

**R3.** The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall provide documentation of the misoperation analyses and the corrective action plans to its Regional Reliability Organization and NERC on request (within 90 calendar days).

**M3.** The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall have evidence it provided documentation of the misoperation analyses and the corrective action plans to the affected Regional Reliability Organization and NERC on request (within 90 calendar days).

**Registered Entity Response (Required):**

**Question:** Has your entity received a request from your RRO or NERC for RAS misoperation analyses and corrective action plans within the compliance audit period?  Yes  No

If your response is yes, complete the Compliance Narrative section below.

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedi:

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| **Provide the following evidence, or other evidence to demonstrate compliance.** |
| Provide a list of requests from the RRO or NERC for RAS misoperations analyses and the corrective action plans. |
| Provide the communication of all, or a sample of, the RAS misoperations analyses and corrective action plans made to the RRO or NERC. |

Registered Entity Evidence (Required):

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| --- | --- | --- | --- | --- | --- |
| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** | | | | | |
| **File Name** | **Document Title** | **Revision or Version** | **Document Date** | **Relevant Page(s) or Section(s)** | **Description of Applicability of Document** |
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Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

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Compliance Assessment Approach Specific to PRC-016-1, R3

***This section to be completed by the Compliance Enforcement Authority***

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|  | Determine if the entity received a request(s) from its RRO or NERC for RAS misoperations analyses and associated corrective action plans. |
|  | Verify the entity communicated the RAS misoperation analyses and corrective action plans to its RRO or NERC within 90 calendar days. |
| **Note to Auditor:** On 4/1/2017, there will be a revised definition for Remedial Action Scheme. Entities with newly classified “Remedial Action Scheme” (RAS) resulting from the application of the revised definition must be fully compliant with all Reliability Standards applicable RAS twenty-four (24) months from the Effective Date of the revised definition, 4/1/2019. | |

Auditor Notes:

Additional Information:

Reliability Standard



The full text of PRC-016-1 may be found on the NERC Web Site (www.nerc.com) under “Program Areas & Departments”, “Reliability Standards.”

In addition to the Reliability Standard, there is an applicable Implementation Plan available on the NERC Web Site.

In addition to the Reliability Standard, there is background information available on the NERC Web Site.

Capitalized terms in the Reliability Standard refer to terms in the NERC Glossary, which may be found on the NERC Web Site.

Sampling Methodology

Sampling is essential for auditing compliance with NERC Reliability Standards since it is not always possible

or practical to test 100% of either the equipment, documentation, or both, associated with the full suite of enforceable standards. The Sampling Methodology Guidelines and Criteria (see NERC website), or sample guidelines, provided by the Electric Reliability Organization help to establish a minimum sample set for monitoring and enforcement uses in audits of NERC Reliability Standards.

Regulatory Language

[***Revisions to Emergency Operations Reliability Standards; Revisions to Undervoltage Load Shedding Reliability Standards; Revisions to the Definition of “Remedial Action Scheme” and Related Reliability Standards*, Order No. 818, 153 FERC ¶ 61,228 (2015).**](http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order%20No.%20818%20approving%20revised%20reliability%20standards.pdf)

P 1. Pursuant to section 215 of the Federal Power Act (FPA), the Commission approves Reliability Standards and definitions of terms submitted in three related petitions by the North American Electric Reliability Corporation (NERC), the Commission-approved Electric Reliability Organization (ERO).

23. On February 3, 2015, NERC filed a petition seeking approval of a revised definition of Remedial Action Scheme in the NERC Glossary, as well as modified Reliability Standards that incorporate the new Remedial Action Scheme definition and eliminate use of the term Special Protection System, and the associated implementation plan.31

**31** NERC RAS Petition at 1-2. NERC requested approval of the following Reliability Standards to incorporate the proposed definition of Remedial Action Scheme and eliminate use of the term Special Protection System: EOP-004-3, PRC-005-3(ii), PRC-023-4, FAC-010-3, TPL-001-0.1(i), FAC-011-3, TPL-002-0(i)b, MOD-030-3, TPL-003-0(i)b, MOD-029-2a, PRC-015-1, TPL-004-0(i)a, PRC-004-WECC-2, PRC-016-1, PRC-001-1.1(i), PRC-005-2(ii), PRC-017-1. NERC did not propose any changes to the Violation Risk Factors or Violation Severity Levels for the modified standards.

Selected Glossary Terms

The following Glossary terms are provided for convenience only. Please refer to the NERC web site for the current enforceable terms.

**Remedial Action Scheme** (effective 4/1/2017): A scheme designed to detect predetermined System conditions and automatically take corrective actions that may include, but are not limited to, adjusting or tripping generation (MW and Mvar), tripping load, or reconfiguring a System(s). RAS accomplish objectives such as:

• Meet requirements identified in the NERC Reliability Standards;

• Maintain Bulk Electric System (BES) stability;

• Maintain acceptable BES voltages;

• Maintain acceptable BES power flows;

• Limit the impact of Cascading or extreme events.

The following do not individually constitute a RAS:

a. Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements

b. Schemes for automatic underfrequency load shedding (UFLS) and automatic undervoltage load shedding (UVLS) comprised of only distributed relays

c. Out-of-step tripping and power swing blocking

d. Automatic reclosing schemes

e. Schemes applied on an Element for non-Fault conditions, such as, but not limited to, generator loss-of-field, transformer top-oil temperature, overvoltage, or overload to protect the Element against damage by

removing it from service f. Controllers that switch or regulate one or more of the following: series or shunt reactive devices, flexible alternating current transmission system (FACTS) devices, phase-shifting transformers, variable-frequency transformers, or tap-changing transformers; and, that are located at and monitor quantities solely at the same station as the Element being switched or regulated

g. FACTS controllers that remotely switch static shunt reactive devices located at other stations to regulate the output of a single FACTS device

h. Schemes or controllers that remotely switch shunt reactors and shunt capacitors for voltage regulation that would otherwise be manually switched

i. Schemes that automatically de-energize a line for a non-Fault operation when one end of the line is open

j. Schemes that provide anti-islanding protection (e.g., protect load from effects of being isolated with

generation that may not be capable of maintaining acceptable frequency and voltage)

k. Automatic sequences that proceed when manually initiated solely by a System Operator

l. Modulation of HVdc or FACTS via supplementary controls, such as angle damping or frequency damping applied to damp local or inter-area oscillations

m. Sub-synchronous resonance (SSR) protection schemes that directly detect sub-synchronous quantities (e.g., currents or torsional oscillations)

n. Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing

Revision History for RSAW

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| --- | --- | --- | --- |
| **Version** | **Date** | **Reviewers** | **Revision Description** |
| 1 | 11/3/2016 | NERC Compliance Assurance, RSAW Task Force | New Document |
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1. NERC developed this Reliability Standard Audit Worksheet (RSAW) language in order to facilitate NERC’s and the Regional Entities’ assessment of a registered entity’s compliance with this Reliability Standard. The NERC RSAW language is written to specific versions of each NERC Reliability Standard. Entities using this RSAW should choose the version of the RSAW applicable to the Reliability Standard being assessed. While the information included in this RSAW provides some of the methodology that NERC has elected to use to assess compliance with the requirements of the Reliability Standard, this document should not be treated as a substitute for the Reliability Standard or viewed as additional Reliability Standard requirements. In all cases, the Regional Entity should rely on the language contained in the Reliability Standard itself, and not on the language contained in this RSAW, to determine compliance with the Reliability Standard. NERC’s Reliability Standards can be found on NERC’s website. Additionally, NERC Reliability Standards are updated frequently, and this RSAW may not necessarily be updated with the same frequency. Therefore, it is imperative that entities treat this RSAW as a reference document only, and not as a substitute or replacement for the Reliability Standard. It is the responsibility of the registered entity to verify its compliance with the latest approved version of the Reliability Standards, by the applicable governmental authority, relevant to its registration status.

   The NERC RSAW language contained within this document provides a non‑exclusive list, for informational purposes only, of examples of the types of evidence a registered entity may produce or may be asked to produce to demonstrate compliance with the Reliability Standard. A registered entity’s adherence to the examples contained within this RSAW does not necessarily constitute compliance with the applicable Reliability Standard, and NERC and the Regional Entity using this RSAW reserves the right to request additional evidence from the registered entity that is not included in this RSAW. Additionally, this RSAW includes excerpts from FERC Orders and other regulatory references. The FERC Order cites are provided for ease of reference only, and this document does not necessarily include all applicable Order provisions. In the event of a discrepancy between FERC Orders, and the language included in this document, FERC Orders shall prevail. [↑](#footnote-ref-1)
2. Compliance Assessment Date(s): The date(s) the actual compliance assessment (on-site audit, off-site spot check, etc.) occurs. [↑](#footnote-ref-2)
3. Items in the Evidence Requested section are suggested evidence that may, but will not necessarily, demonstrate compliance. These items are not mandatory and other forms and types of evidence may be submitted at the entity’s discretion. [↑](#endnote-ref-1)