

# Reliability Standard Audit Worksheet<sup>1</sup>

## IRO-002-4 – Reliability Coordination – Monitoring and Analysis

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

**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)<sup>2</sup>:** 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

	BA	DP	GO	GOP	IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
R1									X						
R2									X						
R3									X						
R4									X						
R5									X						

<sup>1</sup> 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.

<sup>2</sup> Compliance Assessment Date(s): The date(s) the actual compliance assessment (on-site audit, off-site spot check, etc.) occurs.

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**Legend:**

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

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**Findings**

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

Req.	Finding	Summary and Documentation	Functions Monitored
R1			
R2			
R3			
R4			
R5			

Req.	Areas of Concern

Req.	Recommendations

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):

SME Name	Title	Organization	Requirement(s)

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### **R1 Supporting Evidence and Documentation**

- R1.** Each Reliability Coordinator shall have voice communications facilities with Transmission Operators, Balancing Authorities, and Generator Operators within its Reliability Coordinator Area and with neighboring Reliability Coordinators.
  
- M1.** Each Reliability Coordinator shall have and provide upon request, evidence that could include, but is not limited to, a document that lists its voice communications facilities with Transmission Operators, Balancing Authorities, and Generator Operators within its Reliability Coordinator Area and with neighboring Reliability Coordinators.

#### **Compliance Narrative(Required):**

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:**

Provide the following evidence, or other evidence to demonstrate compliance.
Provide a list(s) of voice communications facilities with Transmission Operators, Balancing Authorities, and Generator Operators.
Documentation may include appropriate communication system diagrams and or facilities with notations showin specific voice communications facilities with Transmission Operators, Balance Authorities and Generation Operators.

#### **Registered Entity Evidence (Required):**

The following information is requested for each document submitted as evidence. 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

#### **Evidence Reviewed by Audit Team (This section to be completed by the Compliance Enforcement Authority):**


#### **Compliance Assessment Approach Specific to IRO-002-4, R1**

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Audit ID: Audit ID if available; or NCRnnnnn-YYYYMMDD

RSAW Version: RSAW\_IRO-002-4\_2014\_v1 Revision Date: June, 2014 RSAW Template: RSAW2014R1.0

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

	Review the lists of Transmission Operators, Balancing Authorities, and Generator Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators and ensure that all voice communication facilities and relationships are formalized in the document provided by the entity.
<b>Note to auditor:</b> List(s) and documentation which is not adequately annotated to clearly show proof of compliance may require an interview with Subject Matter Experts.	

**Auditor Notes:**

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**R2 Supporting Evidence and Documentation**

- R2.** Each Reliability Coordinator shall have data links with Balancing Authorities, Planning Coordinators, Transmission Planners, Generator Owners, Generator Operators, Load-Serving Entities, Transmission Operators, Transmission Owners, and Distribution Providers within its Reliability Coordinator Area and with neighboring Reliability Coordinators.
- M2.** Each Reliability Coordinator shall have and provide upon request, evidence that could include, but is not limited to, a document that lists its data links with Balancing Authorities, Planning Coordinators, Transmission Planners, Generator Owners, Generator Operators, Load-Serving Entities, Transmission Operators, Transmission Owners, and Distribution Providers within its Reliability Coordinator Area and with neighboring Reliability Coordinators.

**Compliance Narrative(Required):**

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:**

Provide the following evidence, or other evidence to demonstrate compliance.
Lists of all data links with Balancing Authorities, Planning Coordinators, Transmission Planners, Generator Owners, Generator Operators, Load-Serving Entities, Transmission Operators, Transmission Owners, and Distribution Providers within its Reliability Coordinator Area and with neighboring Reliability Coordinators. Documentation may include appropriate data link or data link system diagrams and facilities with notations clearly identifying connections to registered entities within the Reliability Coordinator’s Area and with neighboring Reliability Coordinators.

**Registered Entity Evidence (Required):**

The following information is requested for each document submitted as evidence. 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

**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**


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**Compliance Assessment Approach Specific to IRO-002-4, R2**

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

	Review evidence to determine if the RC has documentary evidence that it has data links with all BAs, PCs, TPs, GOs, GOPs, LSEs, TOPs, TOs, and DPs within its RC Area and with neighboring RCs.
	As appropriate, Interview entity representative(s) to understand data links.
<b>Note to auditor:</b>	

**Auditor Notes:**

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**R3 Supporting Evidence and Documentation**

- R3.** Each Reliability Coordinator shall provide its System Operators with the authority to approve planned outages and maintenance of its monitoring and analysis capabilities.
  
- M3.** Each Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, a documented procedure or equivalent evidence that will be used to confirm that the Reliability Coordinator has provided its System Operators with the authority to approve planned outages and maintenance of its monitoring and analysis capabilities.

**Compliance Narrative(Required):**

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.

**Requested:**

Provide the following evidence, or other evidence to demonstrate compliance.
Provide documented procedure(s) or equivalent evidence that confirms that the RC has provided its System Operator staff with the authority to approve planned outages and maintenance of its monitoring and analysis capabilities.

**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

**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**


**Compliance Assessment Approach Specific to IRO-002-4, R3**

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

	Ensure documented procedure or equivalent evidence and confirm that the RC has provided its System Operator staff with the authority to approve planned outages and maintenance of its monitoring and
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	analysis capabilities.
<b>Note to Auditor:</b> This can be verified through Operator interview questions.	

**Auditor Notes:**

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**R4 Supporting Evidence and Documentation**

- R4.** Each Reliability Coordinator shall monitor Facilities within its Reliability Coordinator Area and neighboring Reliability Coordinator Areas to determine any potential System Operating Limit and Interconnection Reliability Operating Limit exceedances within its Reliability Coordinator Area, including sub-100 kV facilities needed to make this determination and the status of Special Protection Systems in its Reliability Coordinator Area.
  
- M4.** Each Reliability Coordinator shall have, and provide upon request, evidence that could include, but is not limited to, Energy Management System description documents, computer printouts, SCADA data collection, or other equivalent evidence that will be used to confirm that it has monitored Facilities within its Reliability Coordinator Area and neighboring Reliability Coordinator Areas to determine any potential System Operating Limit and Interconnection Reliability Operating Limit exceedances within its Reliability Coordinator Area, including sub-100 kV facilities needed to make this determination and the status of Special Protection Systems in its Reliability Coordinator Area.

**Compliance Narrative(Required):**

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:**

Provide the following evidence, or other evidence to demonstrate compliance.
Energy Management System (EMS) description documents, computer printouts, EMS summary SCADA collections of real time monitoring telemetry, or other equivalent evidence that will be used to confirm that it has monitored Facilities within its RC Area and neighboring RC Areas.
Provide list(s) of monitored Special Protection Systems with the RC's area.
Provide list(s) of identified or monitored sub-100 kV facilities which were needed to make determination(s) of potential System Operating Limit or Interconnection Reliability Operating Limit exceedances within the RC's Area.

**Registered Entity Evidence (Required):**

The following information is requested for each document submitted as evidence. 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

**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

**DRAFT NERC Reliability Standard Audit Worksheet**


**Compliance Assessment Approach Specific to IRO-002-4, R4**

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

	Review Energy Management System (EMS) description documents, computer printouts, SCADA telemetry data collection, and determine if the entity has monitored Facilities within its Area and neighboring RC Areas and determined any potential System Operating Limit and Interconnection Reliability Operating Limit exceedances within its RC Area., including sub-100 kV facilities needed to make this determination and the status of Special Protection Systems in its RC Area.
	Determine during the assessment period, did the entity identify any sub-100 kV facilities as necessary to to determine potential System Operating Limit and or Interconnection Reliability Operating exceedances within its RC Area?
	Determine during the assessment period did the entity identify, through facility monitoring, any potential System Operating Limit and or Interconnection Reliability Operating Limit exceedances within its RC area?
	Determine if the entity provided evidence that it monitors Facilities within its RC Area and neighboring RC Areas to determine any potential System Operating Limit and Interconnection Reliability Operating Limit exceedances within its RC Area.
	If sub-100kV facilities were identified, Determine if the entity provide evidence that it monitored them to determine any potential System Operating Limit and Interconnection Reliability Operating Limit exceedances within its RC Area?.
	Determine if the entity provide evidence that it monitored the status of all Special Protection Systems in its RC Area.

**Note to Auditor:**

**Auditor Notes:**

**DRAFT NERC Reliability Standard Audit Worksheet**

**R5 Supporting Evidence and Documentation**

- R5.** Each Reliability Coordinator shall have monitoring systems that provide information utilized by the Reliability Coordinator’s operating personnel, giving particular emphasis to alarm management and awareness systems, automated data transfers, and synchronized information systems, over a redundant and highly reliable infrastructure.
  
- M5.** The Reliability Coordinator shall have, and provide upon request, evidence that could include, but is not limited to, Energy Management System description documents, computer printouts, SCADA data collection, or other equivalent evidence that will be used to confirm that it has monitoring systems consistent with the requirement.

**Compliance Narrative(Required):**

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:**

<b>Provide the following evidence, or other evidence to demonstrate compliance.</b>
Reliability Coordinator Energy Management System description documents, computer printouts, SCADA data collection, or other equivalent evidence that will be used to confirm that it has monitoring systems consistent with the requirement. Evidence must be specific to alarm management and awareness systems, automated data transfers, synchronized information systems. Documentation should be specific and detailed showing how infrastructure is provisioned to operate in a redundant and reliable manner.

**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

**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**


**Compliance Assessment Approach Specific to IRO-002-4, R5**

**DRAFT NERC Reliability Standard Audit Worksheet**

This section to be completed by the Compliance Enforcement Authority

	Determine if the entity provided evidence that it had monitoring systems that:
	<ul style="list-style-type: none"><li>• provide information utilized by the RC's operating personnel.</li></ul>
	<ul style="list-style-type: none"><li>• emphasize alarm management and awareness systems.</li></ul>
	<ul style="list-style-type: none"><li>• emphasize automated data transfers.</li></ul>
	<ul style="list-style-type: none"><li>• emphasize synchronized information systems over a redundant and highly reliable infrastructure.</li></ul>
<b>Note to Auditor:</b> Potential non-compliance with this requirement may indicate a need for supplemental compliance monitoring to assure the RC is in compliance with the COM-001-X requirement to have adequate and reliable telecommunications facilities for the exchange of Interconnection and operating information.	

**Auditor Notes:**

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**Additional Information:**

**Reliability Standard**

The full text of IRO-002-4 may be found on the NERC Web Site ([www.nerc.com](http://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.

**Selected Glossary Terms**

Please refer to the NERC web site for the current enforceable terms.

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**Revision History for RSAW**

Version	Date	Reviewers	Revision Description
1	06/20/2014	Posted for Industry Review	New Document

<sup>1</sup> 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.

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