



SERC PCS Misoperation Reporting:

General Feedback to Entities with their submittals

Revision History

Revision	Date	Comments
0	6-26-2012	Original document approved by PCS
1	3-15-2013	Items 15 and 16 added and approved at quarterly PCS meeting
2	5-16-2013	Re-grouped items to match major heading on Reporting Flowchart
3	7-26-2013	Relocated 7 h, i from 2. Updated 7i to use Other Explainable cause. Added 1e.
4	8-13-2014	Moved revision history to start of document, updated header and attached to updated flowchart
5	2-24-2017	Revised after PRC-004-4i and NERC MIDAS implementation.
6	6/7/2017	Revised after review with NERC Misoperations group and PCS

Responsible SERC Subgroup and Region Review Group

The Protection and Control Subcommittee (PCS) is the responsible SERC Subgroup for this document.

Feedback Items

In the SERC Protection & Control Subcommittee (PCS) review of submitted Misoperations, a number of recurring issues with submitted content have been observed. In an effort to enhance the quality of submitted Misoperation's data, the SERC PCS offers the following informal feedback to help entities with their submittals. We are striving to receive the correct amount of information and consistently use the reporting tool.

NOTE: Refer to [PRC-004](#), [NERC MIDAS reporting template](#) and [NERC Q&A on Consistent Protection System Misoperations](#) Reporting for requirements and further guidance. If in doubt of whether or not a Misoperation is reportable, entities should **report (err on the side of reporting.)**

1) General Entries

- a. Misoperations of protection systems that protect the Generator Zone are not reportable if the generating unit is not synchronized and is isolated from the BES **per PRC-004-4i Special Cases Example 7a.**
- b. Protection System operations due to current imbalance created by unintended unbalanced operational switching (such as unbalanced 3 phase device operation) are



not Misoperations because the Protection System correctly responded to the current imbalance.

- c. Misoperations of multiple Composite Protection Systems from a single event should be reported individually. (For example: Given a fault on a local bus, if the remote ends of two (or more) lines misoperated because the remote ends failed to block tripping properly, two (or more) Misoperations should be reported rather than reporting multiple lines with a single Misoperation.)
- d. Report incorrect Direct Transfer Trip as Misoperation at the location where the misoperation occurred. **Reference PRC-004 R2, R5.**
- e. *A BES interrupting device operation that occurs at the remote end of a line during a non-Fault condition because a direct transfer trip was initiated by system maintenance and testing activities at the local end of the line is not a Misoperation because of the maintenance exclusion in category 6 of the definition of "Misoperation."*

*The "on-site" activities at one location that initiates a trip to another location are included in this exemption. This includes operation of a Protection System when energizing equipment to facilitate measurements, such as verification of current circuits as a part of performing commissioning; however, once the maintenance, testing, inspection, construction, or commissioning activity associated with the Protection System is complete, the "on-site" Misoperation exclusion no longer applies, regardless of the presence of on-site personnel. **Per PRC-004-4i Unnecessary Trip- Other than Fault Example 6e.***

- f) *Repeated operations which occur during the same automatic reclosing sequence do not need a separate identification under Requirement R1. Repeated Misoperations which occur during the same 24-hour period do not need a separate identification under Requirement R1. **Per PRC-004-4i Application Guidelines for R1***
- g) Repeated Misoperations which occur during the same 24-hour period are to be reported as a single misoperation and counted as a single operation. **This is guidance from the ERO Misoperations team per 2/16/2017 meeting. This guidance is to be included in a future revision of the NERC Q&A on Consistent Protection System Misoperations Reporting document.** NOTE: Multiple correct operations within the same 24 hour period are to be counted as separate operations.



- h) Misoperations are reportable and operations are counted for capacitors and reactors included in an entity's BES inventory. This includes voltage or current imbalance and fault clearing operations and misoperations. This changed with the retirement of the SERC regional criteria. **Voltage or current imbalance schemes meet the definition of a Protection System per the revision to PRC-004-3.**
- i) False operation of a transformer pressure relay (SPR, FPR, Buchholz) is not considered a misoperation, but an independent operation originating in the DC control circuitry connected to the pressure relay is a misoperation. This is guidance from the ERO Misoperations team per 2/16/2017 meeting. **This guidance is to be included in a future revision of the NERC Q&A on Consistent Protection System Misoperations Reporting document.**
- j) A Bulk Electric System (BES) interrupting device operation due to a false or correct operation of a non-BES Protection System is not reportable. It is expected that the non-BES Protection System will be modified to avoid false operations. Non-BES Protection Systems are not applicable to PRC-004. **Reference: PRC-004-4i Application Guideline paragraph after example R2c. (NOTE: If, however, the BES Protection System mis-coordinated because for example it was set too fast and therefore needs to be reset, it is a reportable Misoperation.)**
- k) The Misoperation of relays on a pump storage generation unit when the unit is operating in pump mode are not reportable because the pump is not identified as a BES Element. **This guidance is to be included in a future revision of the NERC Q&A on Consistent Protection System Misoperations Reporting document.**

2) Event Description

- a) Corrective Action Plan (CAP) no longer needs to be copied to the Event Description Field. MIDAS template provides all data to NERC and FERC.
- b) The description of Misoperation and root cause should contain sufficient detail to support the Cause of Misoperation and Misoperation Category.

3) Cause of Misoperation

- a) Provide sufficient detail of the investigation to justify **Unknown / Unexplainable** Cause. These investigations are expected to be thorough because unresolved misoperations pose a risk to the reliability of the BES.
- b) If an entity has circumstantial evidence and/or knowledge that reasonably indicates a particular device, the entity can use engineering judgment in choosing a cause other than **Unknown / Unexplainable**.



4) Protection Systems/Components that Misoperated

a) *Information on the Protection Systems/Components that Misoperated. If the "Cause of Misoperation" is "Relay failures/malfunctions," "Incorrect settings," "Logic errors," or "Design errors," and the cause is associated with a relay, list relay models (types) and protection schemes. Per MIDAS template.*

b) **Per NERC Q&A on Consistent Protection System Misoperations Reporting document.**
47. Should specific info on non-relay components (bad cable, CT, etc.) be included in column O (Protection Systems/Components that Misoperated)?

Yes, we want information on non-relay components but this information does not need to be as detailed as the relay information when the Cause(s) of Misoperation is associated with a relay failure or setting. We would like at least some basic information on the non-relay component that caused the Misoperation such as "damaged CT secondary cable." Details of the cause can be provided in the Event Description. (for example if cause is AC System the Protection System component problem could be "multiple CT grounds" or "blown PT fuse," but the relay that tripped should not be listed).

- c) If the entity suspects a certain component of a Protection System that misoperated component, identify the component Protection System/Component That Misoperated field
- d) If the **Protection Systems/Component That Misoperated** is completely unknown, enter Unknown in that field.

5) Corrective Action Plan

- a) The submittal needs to have enough information for the PCS to understand what happened, what investigative steps were taken, and what **corrective actions** were taken.
- b) A certain Misoperation may trigger an entity to take **corrective actions** to avoid similar situations elsewhere on their system (i.e., start a multi-year program.) The triggering Misoperation itself is complete once the corrective actions to prevent its recurrence are complete.
- c) If a function is disabled as part of the **Corrective Actions Plan** (e.g. carrier turned off), the entity needs to explain why the function is no longer needed.



6) Corrective Action Status

- a) The status “Analysis-Completed” is not a final **Corrective Action Status**. “Corrective Action – Completed and Declaration made - No corrective actions” are the only final statuses.
- b) **Analysis – in Progress** is the correct status, while diagnostic or investigative testing is still underway.
- c) On rare occasions the entity is justifiably not taking Corrective Actions, for example, a trip for conditions beyond design basis. In such cases, submit the **Corrective Action Status** of ‘Declaration made - No corrective actions’. Reference Midas Template Report the CAP Actual Completion Date to be the same as the Misoperation Date, **Reference: ERO Misoperations team.**