Introduction

The purpose of the misoperations webinar series is to align entity understanding of how misoperations and operations are defined. The scenarios used in the webinar are vetted by the Electric Reliability Organization (ERO) Enterprise¹ Misoperations Information Data Analysis System (MIDAS) Group. In keeping with this process, the questions specific to how misoperations and operations are defined must also be vetted by the ERO Enterprise MIDAS Group.

The questions are separated into two sections:

1) ERO Consensus Answers to Misoperation Webinar Questions and
2) Questions Still Under Review

Additionally, this will be a living document and will be updated with new questions as they occur.

Current Version of the Protection and Control (PRC) Standard—As of April 2018 webinar:

PRC-004-5(i)


Section 1600 of the NERC Rules of Procedure: Request for Information and Data—Protection System Misoperations

Link: https://www.nerc.com/pa/RAPA/ProctectionSystemMisoperations/PRC-004-3%20Section%201600%20Data%20Request_20140729.pdf

ERO Consensus Answers to Misoperation Webinar Questions

• What if a generator breaker opens due to a failed relay and the generator is off line at the time? Is it still a misoperation if there was no impact on the Bulk Electric System (BES)?
  o As long as the generator was not online or trying to connect, this would not be a reportable misoperation

¹ As used here, “ERO Enterprise” refers to the informal affiliation of NERC and the eight Regional Entities for the purpose of coordinating goals, objectives, metrics, methods and practices across statutory activities. The ERO Enterprise does not supplant obligations of each organization through statutes, regulations, and delegation agreements, but rather enhances coordination through collaborative decision-making and communications. Source: https://www.nerc.com/AboutNERC/keyplayers/Documents/ERO_Enterprise_Operating_Model_Feb2014.pdf
• If line D trips correctly but no evidence can be found on the line as to the cause of the trip, but the relay records show the fault current. Is this an op or misop?
  o If investigation yields no evidence of a protection system misoperation, this would be reported as an operation, but no misoperation

• If breaker fails during a fault, is it considered as misoperations?
  o If Circuit Breaker (CB) fails to trip due to a trip coil issue, it is a reportable misoperation. If the failure is due to a mechanical issue, it is not a protection system misoperation.

• Reporting instructions state “All misoperations due to the same equipment and cause within a 24-hour period are to be reported as one misoperation. How are operations to be reported for these scenarios?
  o These scenarios should be reported as one operation, one misoperation

• If a protection system on a critical 480-volt bus in a power plant misoperates and the loss of the critical power causes the unit to trip, is this reportable?
  o The 480 Volt bus is not in the scope of the BES and does not require reporting

• Can you have a misoperation without an operation?
  o No, there is always an operation to report with a misoperation

• Is an operation due to an induced voltage on a control cable a misoperation since the DC circuitry is included as part of the protection system?
  o Yes, DC circuitry is included in Protection System

• With Line D out of service due to the permanent fault and Line B misoperates de-energizing Line C in the process. Does the tripping of Line C that doesn't interrupt flow get counted as a misoperation?
  o If the protection systems did not operate to de-energize line C, then it would not be counted as an operation/misoperation

• Is a sensing device failure considered a misop?
  o If the sensing device is responding to electrical quantities and a trip occurred when it shouldn’t or it didn’t trip when it should, then it would be misoperation. A sensing device failure alone is not a misoperation.

• A line relay includes an undervoltage element that trips for complete loss of transmission voltage (e.g. line goes dead for an out-of-zone trip); the intent is to aid in sectionalizing / system restoration. Is this considered a protection system or a controls system for counting Operations.
• If, due to a boiler problem, a Generator Operator (GOP) manually brings a unit offline, and there is no Protection System Operation, would reporting be necessary?
  o No reporting necessary
Questions Still Under Review

- If a generator unit trips due to its excitation system, would this be a reportable operation? (Feb 2018)
- I thought the excitation system is part of the control system, and therefore wouldn't be an operation of the Protection System? (Feb 2018)
- If there were no targets from relays associated with a line breaker operation, is it a misoperation? (Feb 2018)
- Would an operation on a 34.5 kV feeder tied to a 25 MW solar farm be a reportable misoperation? (April 2018)
- If a local distribution company has a non-BES transformer protection that misoperates causing a ground switch to operate causing a fault on the BES, would this be reportable? (April 2018)
- Are thermal transducers considered "electrical pin"? (April 2018)
- If one of two breaker trip coils (in the same breaker) were to fail, and the breaker still trips, is it a misoperation? (April 2018)
- Operation/misoperation reporting associated with power swing blocking on the system? (April 2018)