New webCDMS Misoperations Module  
3-22-13  
See the accompanying webinar PowerPoint for more information

**General**

1. **What is RAPA?**  
   RAPA is the NERC “Reliability Assessment Performance Analysis” working group. This working group conducts periodic, independent assessments of the reliability and adequacy of the North American bulk power system. RAPA identifies and tracks key reliability measurements, conducts analysis of risk trends, and works with industry on strategic and tactical approaches to address existing and emerging risks to bulk power system reliability.

2. **When should Entities start submitting Misoperation reports through the new webCDMS section?**  
   Entities are required to submit Misoperation data starting with first quarter 2013 data.

3. **If an Entity does not own a Transmission Protection System must the Entity submit a response via webCDMS?**  
   Yes, Entities registered as a Distribution Provider (DP), Generator Owner (GO), or Transmission Owner (TO) must submit a response via webCDMS every quarter no later than 60 days after the end of the previous quarter. The process to indicate that the Entity does not own a Transmission Protection System is conducted through the Attestation Form and Checklist.

**Security Roles**

4. **Which types of Security Roles are required for the webCDMS Misoperation Submittals?**  
   There are two types of Security Roles for the webCDMS RAPA Misoperation module: “RAPA Entity Admin User” and “RAPA Read Only User”. The RAPA Entity Admin User has access to save and submit data. The RAPA Read Only User has access to view the data.

5. **How can users gain access to the webCDMS Misoperation Information?**  
   You must be both a Registered Entity Admin and a RAPA Admin User to grant RAPA Security Roles for your organization. To update the security roles in webCDMS follow the steps below:  
   1. Log into webCDMS  
   2. Select the “Administration” tab  
   3. Select “User Management”  
   4. Select “Users”  
   5. Click on the “Edit” link next to the appropriate user (this link is located under the Action column).
6. The User Entry Page will appear. Under the Security Roles Section, select the appropriate security role (located in the Available Area) and move the role to the Selected Area
7. Specify a Reason for Change
8. Click "Save"

**Attestation Form**

6. **How often must an Entity complete the Attestation Form?**
   Entities will need to complete the Attestation Form and the Checklist each quarter no later than 60 days after the end of the previous quarter. One Attestation Form and one Checklist must be completed each quarter, even if more than one Misoperation is reported during the quarter.

7. **Do Entities need to report total number of Protection System Operations within the table located in the Attestation form?**
   Yes, Entities need to report total Protection System Operations within the Attestation Form on the RAPA tab. NERC has defined a Protection System Operation as follows:

   1. The correct operation of protection systems associated with isolating a faulted system element.

   2. The correct operation of protection systems associated with isolating equipment for non-fault conditions such as power swings, over excitation, or loss of field (excluding control functions performed by a protective relay; e.g., when a reverse power relay is used to trip a breaker during generator shutdown).

   3. The unintended operation of protection systems for a fault outside the zone it is designed to protect.

   4. The unintended operation of protection systems for a non-fault condition.

   5. Any failure of a Protection System to operate for its intended function such as clearing a fault within the zone it is designed to protect.

   **Notes:**
   1. When reclosing is applied (automatic or manual), a sequence of reclosing and tripping associated with isolating a faulted system element is counted as a single operation. Multiple unintended operations of an element due to this sequence of reclosing and tripping would also be counted as a single operation.
   2. Transformer operations are reported by the high-side voltage. Generator operations are reported by the generator step-up transformer high-side voltage.

   **Examples**
   1. A permanent fault occurs on Line A and all line breakers operate and go through a complete reclose sequence (trip, close, trip, close, and trip). This event is considered one operation. Analysis would indicate that this was a correct operation.
2. Line B faults and all line breakers operate correctly but, at the same time, a breaker on Line C operates. This event is considered two operations, since two transmission elements were involved. Analysis would identify that the Line B operation was correct and that the Line C operation was a misoperation.

3. A breaker(s) on Line D opens under a non-fault condition due to a failed relay. This event is considered one operation. Analysis would identify the Line D operation as a misoperation.

4. Line faults with one breaker failure.

   a. No breaker failure relaying: There would be one operation associated with the line fault, and one additional operation for each required remote backup clearing operation.

   b. Breaker failure relaying with local tripping and no transfer tripping of remote ends: There would be one operation for the fault with the breaker failure, one operation for the breaker failure local clearing, and an additional operation for each required remote back up clearing. For example, if the line fault occurred and the breaker between two lines on a breaker and a half bus failed, there would be three operations. One operation associated with the fault, one operation for the breaker failure local clearing, and one operation for the remote end trip of the second line connected to the failed breaker.

   c. Breaker failure with transfer tripping of remote ends: For the scenario in 4b, there would be two operations. One for the fault, and a second for the breaker failure protection clearing.

5. Operations which are initiated by control systems (not by Protection Systems), such as those associated with generator controls, turbine/boiler controls, Static VAR Compensators (SVCs), Flexible AC Transmission Systems (FACTS), High-Voltage DC (HVDC) transmission systems, circuit breaker mechanisms, or other facility control systems, are not reported as operations of a protection system.

Entities also need to specify whether or not a Misoperation occurred or indicate that the Entity does not own a Transmission Protection System and complete the corresponding Misoperation form(s) and F in webCDMS.

8. Must Senior Management submit the Attestation Form via webCDMS?
No, Senior Management is not required to submit the Attestation Form via webCDMS. Although the paragraph on the Attestation form refers to Senior Management, any user that has a digital certificate and has the proper permissions (RAPA Entity Admin User) may submit data via webCDMS.

9. Can you enter zero in the table found in the Attestation Form?
Yes. If you have had no Protection System Operations at that voltage level for that month, please enter a zero in the appropriate field.
10. If I have submitted the attestation form and realize I have a mistake, can I correct the information?
If the reporting period is still open you can. Here are the steps:
1. Log into webCDMS
2. Select the “RAPA” tab
3. Select “Misoperations”
4. Select “Checklist”
5. Use the Filtering Option to navigate to the appropriate reporting period
6. Click on the “Update Checklist of Completion Status” button
7. Uncheck the Completed box next to the Attestation reference AND
8. Click “Modify”
9. The Checklist should now say the attestation is not complete and awaiting information
10. Click the Attestation link (the blue lettering)
11. Update the Attestation with the correct information and resubmit
12. Update the checklist to say the Attestation in complete.

11. If an Entity marks “Entity has NOT experienced a Misoperation during this quarter” on the Attestation Form, does that complete the reporting process?
No, if you report that no Misoperations occurred during the quarter on the Attestation Form, you will need to complete the Misoperation Checklist to complete the process. To access and complete the Checklist for no Misoperations:

1. Log into webCDMS
2. Select the “RAPA” tab
3. Select “Misoperations”
4. Select “Checklist”
5. Use the Filtering Option to navigate to the appropriate reporting period
6. Click on the “Update Checklist of Completion Status” button
7. Mark Completed next to the Attestation reference AND
8. Mark Exempt next to the Misoperations reference
9. Provide reason for the Exempt selection
10. Click “Modify”

12. Are the events listed in Attestation Form table for operations or Misoperations?
The events listed in the table are for total Protection System Operation events.
Misoperation Form

13. Do Entities need to complete a separate Misoperation form for each Misoperation that occurred?
Yes, Entities need to complete a Misoperation form for each Misoperation that occurs; however, Entities only need to complete one Attestation Form and one Checklist for each quarter.

14. Do Entities need to wait until the next quarter to update a Misoperation Form from a previous quarter?
No, Entities can update a misoperation at any time. When a Misoperation is updated the Regional Entity will get a notification that a Misoperation was updated.

15. Are the fields in the Misoperation Form consistent with the fields in the NERC Misoperation Spreadsheet?
Yes, the fields should be consistent with the latest NERC Misoperation Spreadsheet. These fields will be reviewed annually by NERC and may be modified at that time.

16. Are the GADS and TADS fields required?
Yes. If the Misoperation is related to an outage that is reportable in GADS or TADS, enter a “Yes” in the box. Once a “Yes” is entered, a box asking for the GADS or TADS event ID will pop up.

17. If an Entity completes the Misoperation form, should it immediately complete the Checklist?
Entities should complete the Checklist no sooner than the day after the quarter ends and no later than 60 days after the previous quarter has ended.

18. Is there a way to upload the Misoperations in a batch upload?
At this time there is no way to upload all the Misoperations at once. You need to fill out a Misoperation Form for each misoperation.

19. What are the dropdown selections for the “Equipment Type”
The dropdown selections for the “Equipment Type” field in the Misoperation Form:

Please select one...
BES UFLS
BES UVLS
Breaker
Bus
Dynamic Var Systems
Generator
HVdc
Line
Other
SPS/RAS
Series Capacitor
Series Reactor/Inductor
Shunt Capacitor
Shunt Reactor/Inductor
Transformer
20. What are the dropdown selections for the “Facility Voltage” field?  
The dropdown selections for the “Facility Voltage” field in the Misoperation form:

- <100 kV
- 100 kV
- 115 kV
- 120 kV
- 138 kV
- 161 kV
- 230 kV
- 345 kV
- 500 kV
- 735 kV
- 765 kV
- HVdc

21. What are the dropdown selections for the “Misoperation Category” field?  
The dropdown selections for the “Misoperation Category” field listed on the Misoperation form:

- Failure to Trip
- Slow Trip
- Unnecessary Trip during fault
- Unnecessary Trip other than fault
- Failure to Reclose
- SPS-Failure to Operate
- SPS-Failure to Arm
- SPS- Unnecessary Operation
- SPS-Unnecesary Arming
- SPS-Failure to Reset
- Still Under Review

22. Can you define each Misoperation Category Option?

<table>
<thead>
<tr>
<th>Misoperation Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to Trip</td>
<td>Any failure of a Protection System element to operate when a fault or abnormal condition occurs within a zone of protection (Note: Lack of targeting, such as when a high-speed pilot system is beat out by a high-speed zone, is not a reportable Misoperation. If a fault or abnormal condition is cleared in the time normally expected with proper functioning of at least one Protection System, failure of a Protection System element is not a reportable Misoperation.)</td>
</tr>
<tr>
<td>Slow Trip</td>
<td>Any failure of a Protection System element that is slower than planned to operate when a fault or abnormal condition occurs within the zone of protection. (Note: Delayed Fault Clearing, where a high-speed system is employed but is not essential for transmission system performance, is not a reportable Misoperation.)</td>
</tr>
<tr>
<td>Unnecessary Trip</td>
<td>Any unnecessary Protection System operation for a fault not within the zone of protection. An example of this type of</td>
</tr>
</tbody>
</table>
Misoperation is an over-trip due to lack of coordination between Protection Systems (Note: Operation as properly coordinated backup protection for a fault in an adjacent zone that is not cleared within the specified time for the protection for that adjacent zone is not a reportable Misoperation.)

Unnecessary Trip other than fault
Any unnecessary Protection System operation when no fault or other abnormal condition has occurred (Note that an operation that occurs during on-site maintenance, testing, construction and/or commissioning activities is not a reportable Misoperation.)

SPS-Failure to Operate
Any failure of a SPS to perform its intended function within the designed time when system conditions intended to trigger the SPS occur

SPS-Failure to Arm
Any failure of a SPS to automatically arm itself for system conditions that are intended to result in the SPS being automatically armed

SPS-Unnecessary Operation
Any operation of a SPS that occurs without the occurrence of the intended system trigger condition(s)

SPS-Unnecessary Arming
Any automatic arming of a SPS that occurs without the occurrence of the intended arming system condition(s)

SPS-Failure to Reset
Any failure of a SPS to automatically reset following a return of normal system conditions if that is the design intent

Still Under Review
Still under review

### 23. What are the dropdown selections for the “Cause Category” field?
The dropdown selections for the “Cause Category” field listed on the Misoperation form:

<table>
<thead>
<tr>
<th>Please select one...</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC system</td>
</tr>
<tr>
<td>As-left personnel error</td>
</tr>
<tr>
<td>Communication failures</td>
</tr>
<tr>
<td>DC system</td>
</tr>
<tr>
<td>Incorrect setting/logic/design errors</td>
</tr>
<tr>
<td>Relay failures/malfunctions</td>
</tr>
<tr>
<td>Unknown/unexplainable</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

### 24. Can you define each Cause Category Option?

<table>
<thead>
<tr>
<th>Cause Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC System</td>
<td>This category includes Misoperations due to problems in the ac inputs to the protection system. Examples would include Misoperations associated with CT saturation, loss of potential, or rodent damaged wiring in voltage or current circuit.</td>
</tr>
<tr>
<td>As-Left Personnel error</td>
<td>This category includes Misoperations due to the as-left condition of the protection system following maintenance or construction procedures. These include test switches left open, wiring errors not associated with incorrect drawings, carrier grounds left in place, or</td>
</tr>
</tbody>
</table>
settings placed in the wrong relay, or incorrect field settings left in
the relay that do not match engineering approved settings.

<table>
<thead>
<tr>
<th>Communication Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>This category includes Misoperations due to failures in the communication systems associated with protection schemes inclusive of transmitters and receivers. Examples would include Misoperations caused by loss of carrier, spurious transfer trips associated with noise, Telco errors resulting in malperformance of communications over leased lines, loss of fiber optic communication equipment, or microwave problems associated with weather conditions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DC System</th>
</tr>
</thead>
<tbody>
<tr>
<td>This category includes Misoperations due to problems in the DC control circuits. These include problems in the battery or charging systems, trip wiring to breakers, or loss of dc power to a relay or communication device.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incorrect setting/Logic/Design Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>This category includes Misoperations due to &quot;engineering&quot; errors by the protection system owner. These include setting errors, errors in documentation, and errors in application. Examples would include uncoordinated settings, incorrect schematics, or multiple CT grounds in the design.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relay Failures/Malfunctions</th>
</tr>
</thead>
<tbody>
<tr>
<td>This category includes Misoperations due to improper operation of the relays themselves. These may be due to component failures, physical damage to a device, firmware problems, or manufacturer errors. Examples would include Misoperations caused by changes in relay characteristic due to capacitor aging, misfiring thyristors, damage due to water from a leaking roof, relay power supply failure, or internal wiring/logic error. Failures of auxiliary tripping relays fall under this category.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unknown/Unexplainable</th>
</tr>
</thead>
<tbody>
<tr>
<td>This category includes Misoperations where no clear cause can be determined. Requires extensive documentation of investigative actions if this cause code is utilized.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explainable Misoperations not addressed by other cause codes. Examples may include unique fault characteristics, temporary abnormal changes in network topology, etc.</td>
</tr>
</tbody>
</table>

**Checklist**

25. When is the best time to complete the Checklist? After the Entity has reported a Misoperation or after the quarter has passed?

SPP RE recommends you complete the Checklist no sooner than the day after the quarter ends and no later than 60 days after the previous quarter has passed.
**Color Coding**

26. I see that Misoperations are different colors depending on their status. What are the different color codes and what do they stand for?

The color codes are

- green (Submitted)
- gray (Pending)
- gold (Resubmitted)
- yellow (Resubmission Pending)

**Reporting Period**

27. What are the upcoming reporting periods?

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Start Date</th>
<th>End Date</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2 2013</td>
<td>April 1, 2013</td>
<td>June 30, 2013</td>
<td>August 30, 2013</td>
</tr>
<tr>
<td>Q4 2013</td>
<td>October 1, 2013</td>
<td>December 31, 2013</td>
<td>February 28, 2014</td>
</tr>
</tbody>
</table>

28. How do users view different reporting periods in webCDMS?

To navigate to different reporting periods in webCDMS, use the Filtering Options Icon (near the right-side of the screen). Click the Filtering Options Icon and select the Reporting Period you wish to view.

**Generating Reports**

29. Once I enter all the Misoperations in the system, can I generate a report in webCDMS that list all the misoperations?

Yes.

1. Log into webCDMS
2. Select the “RAPA” tab
3. Select “Misoperations”
4. Select “Misoperation Summary”
5. Use the Filtering Option to navigate to the appropriate reporting period
6. Click on the “Export button” the can be found in the upper side of the screen. This button looks like a sheet of paper with an “X” in it. The “X” stands for excel.
Quarterly Updates

30. What happens if the implementation date for corrective action goes beyond the planned date?
There are two date fields for the Corrective Action & Analysis: “Plan Target Completion Date” and “Plan Actual Completion Date.” Entities are requested to specify both dates.

31. How should Entities provide a quarterly update for past quarters?
If you need to provide a Quarterly Update for data reported in 2012, use the appropriate reporting period and update the existing Misoperation. If you do not see the Misoperation you need in the reporting period, call Thomas Teafatiller at 501-688-2514 or Mike Hughes at 501-688-1712.

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Editor</th>
<th>Revision Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>February 8, 2013</td>
<td>Thomas Teafatiller</td>
<td>Initial Version</td>
</tr>
<tr>
<td>2</td>
<td>March 25, 2013</td>
<td>Thomas Teafatiller</td>
<td>Updated after Webinar</td>
</tr>
</tbody>
</table>

Help

Please contact SPP RE’s Thomas Teafatiller (tteafatiller.re@spp.org or 501-688-2514) or Andrea Doucette (adoucette.re@spp.org or 501-688-8207). You may also contact OATI customer support at 763-201-2020.