



Minutes of the Protective Relay Subgroup Meeting

Hybrid: St. Paul, MN and Webex

Wednesday, December 6, 2023, 9:01 a.m. to 3:22 p.m. Central

Notice for this meeting was electronically posted to the [MRO website](#) on November 9, 2023.
A final agenda, including advanced reading materials, was also posted on November 29, 2023.

1. Call to Order and Determination of Quorum

Protective Relay Subgroup (PRS) Chair Ryan Einer called the meeting to order at 9:01 a.m. Chair Einer welcomed everyone, and roundtable introductions were made. Rebecca Schneider, Reliability Analysis Administrator, advised the chair that a quorum of the PRS was present. A complete list of attendees is included as [Exhibit A](#).

2. Standards of Conduct and Antitrust Guidelines

Pursuant to Policy and Procedure 4, MRO Manager of Reliability Performance, Jake Bernhagen, highlighted MRO's Standards of Conduct, Conflict of Interest, and Antitrust Guidelines.

3. Safety Briefing

MRO Outreach Coordinator, Shawn Keller, presented a safety video illustrating the steps to take if various emergency situations are encountered onsite at MRO.

4. Chair's Remarks

Chair Einer reviewed agenda items including upcoming presentations by American Transmission Company (ATC) and NERC. Einer also acknowledged MRO Senior Systems Protection Engineer, Sarah Wernette, who is expected to replace Jake Bernhagen as the MRO PRS liaison sometime in 2024.

5. Consent Agenda

The PRS reviewed the consent agenda, which included minutes from the September 6, 2023, meeting.

Upon a motion duly made and seconded, the PRS approved the consent agenda in its entirety.

6. NERC Activities

Update on NERC System Protection and Control Working Group (SPCWG).

John Grimm, MRO Principal Systems Protection Engineer, provided an SPCWG update on behalf of Lynn Schroeder, who was unable to attend. Notably the position paper related to FERC Order 881 has been posted for industry. The PRC-024 IBR Whitepaper draft was finalized and sent to NERC. Writing assignments are in progress for the Technical Reference related to maintenance for ethernet-based protection and control (P&C). PRC-006 standard authorization request (SAR) comments were provided to the System Planning Impacts from DER Working Group (SPIDERWG). Two face-to-face meetings are planned in 2024, one in Atlanta (April) and one in Salt Lake City (September).



SPCWG Position Paper on FERC Order 881

Grimm gave an overview of SPCWG's position on FERC Order 881 as it relates to PRC-023. SPCWG Chair and PRS member, Lynn Schroeder, provided the written presentation but was unable to attend the meeting. Discussion ensued.

NERC Misoperation Information Data Analysis System User Group (MIDASUG) Update.

Bernhagen provided an update from the November 7, 2023, meeting. Minor Section 1600 revisions will be made to the Transmission Availability Data System (TADS) and Generator Availability Data System (GADS) reporting fields. The MIDAS website will be updated, and a new spreadsheet will be posted after 2023 reporting is complete. The Misoperation Impact Score metric was also discussed. The group discussed misoperations without a fault and how they can disproportionately impact an entity's misoperation rate. However, it was decided not should not be excluded from the misoperation rate calculation and that the calculation should remain as it is for now. Discussion ensued.

Transmission Availability Data System (TADS).

John Grimm, MRO Principal Systems Protection Engineer, provided an update on TADS. Grimm reported that in person training was held in Atlanta in October 2023. The addition of technical data to TADS inventory has been put on hold. A high percentage of entities completed the TADS reporting that was due in November. Grimm noted the upcoming TADS User Group meeting.

7. PRS Business

Updates.

Bernhagen welcomed and introduced MRO Senior Systems Protection Engineer, Sarah Wernette, and noted that he plans to transition her into the role of PRS liaison sometime in 2024.

Bernhagen shared that all PRS member nominations for 2024 were approved by the OGOC, and the new terms are starting in January. He mentioned that the Chair and Vice Chair roles will be determined early in 2024 and anyone interested in leadership should reach out to him.

Action Item List Review.

Chair Einer reviewed the action item list and updates were made accordingly.

8. 2024 Meeting Dates

Chair Einer reviewed the proposed 2024 meeting dates for the PRS and the other councils and subgroups.

9. Technical Presentation

ATC 2023 Q2 Misoperation Review

Ethan Grindle, Substation Technology Technical and Compliance Engineer, ATC, gave a presentation regarding a misoperation that took place in the RF region caused by unexpected negative sequence currents in a weak area of the ATC system. The abnormal currents resulted in a Directional Comparison Blocking (DCB) scheme relay incorrectly opening a breaker. The corrective actions included performing a fault study on the line, updating the ground overcurrent time delay from one



cycle to seven cycles, and reviewing the other three terminal lines for similar coordination issues. Discussion ensued.

10. NERC Standards Update

Rich Bauer, Associate Principal Engineer, North American Electric Reliability Corporation (NERC) gave a presentation on Protection Related Standards projects. Bauer discussed the reprioritization of standards projects as a result of FERC Order 901 related to inverter-based resources (IBRs). NERC's website now categorizes the projects as high, medium, and low priority.

11. Misoperations

Q3 2023 Update, Review and Discussion

Bernhagen provided a summary of MRO's third quarter 2023 misoperations data. Overall, the misoperations rate is trending downward, getting MRO closer in line with the NERC five-year average. Incorrect Settings accounted for the highest number of misoperations by cause in the third quarter, making up almost one-third of the total number.

There was discussion around misoperation considerations when a fault occurs on a non-BES transmission line, but the line protection operates BES breakers. Bernhagen noted a need for better examples in the MIDAS data reporting instructions (DRI) to address this concern. PRS member, Cody Remboldt and Bernhagen will provide a draft illustration for the DRI to the MIDASUG for their consideration.

Review NERC Lessons Learned

Bernhagen noted two recent Lessons Learned posted on NERC's website. The topics included Loss of Communications to Transmissions Substations and Wind Turbine Generation Loss due to Unexpected and Insufficient Ride-through Performance.

12. PRS Roundtable Discussion

Chair Einer invited member participants to share other relevant industry observations. Topics discussed included Remedial Action Schemes (PRC-012-2), fiber communications, and the NERC Misoperation Reduction Workshop in Atlanta on October 25-26, 2023.

13. Q3 2023 Misoperations Review

Breakout Sessions

The PRS members reviewed the third quarter 2023 misoperations in breakout sessions both in-person and via Webex. Discussion ensued.

14. Other Business and Adjourn

Having no further business to discuss, the meeting was adjourned at 3:22 p.m.

Prepared by: Rebecca Schneider, Reliability Analysis Administrator

Reviewed and submitted by: Jake Bernhagen, Manager of Reliability Performance



Exhibit A – Meeting Attendees

PRS Members Present	
Name	Company
Ryan Einer, Chair	Oklahoma Gas & Electric
Dennis Lu, Vice Chair	Manitoba Hydro
Adam Daters	ITC Holdings
Alex Bosgoed	Saskatchewan Power Corporation
Casey Malskeit	Omaha Public Power District
Cody Remboldt	Montana-Dakota Utilities
David Weir	Western Area Power Administration
David Wheeler	Southwestern Public Services Co.
Greg Hill	Nebraska Public Power District
Greg Sessler	American Transmission Company
Josh Erdman	Xcel Energy
Rochelle Trefry	MidAmerican Energy Company
Sarah Marshall	Alliant Energy
MRO Staff Present	
Name	Title
Jake Bernhagen	Manager of Reliability Performance
Rebecca Schneider	Reliability Analysis Administrator
Shawn Keller	Outreach Coordinator
John Grimm	Principal Systems Protection Engineer
Eric Graftaas	Principal Power Systems Engineer
Sarah Wernette	Senior Systems Protection Engineer
Max Desruisseaux	Senior Power Systems Engineer
Max Vang	IT Support Analyst



Other Attendees	
Name	Company
Allen Halling	Evergy
Barbara Marion	Nextera Energy
Calin Rhymer	Dairyland Power Cooperative
Ethan Grindle	American Transmission Company
Rich Bauer	NERC
Justin Fuith	Pro Tech Power
Tyler Baxter	Corn Belt Power Cooperative
Tyler Porter	Great River Energy