MIDWEST RELIABILITY ORGANIZATION

2024 Virtual RAM Conference

March 20, 2024

Manager of Outreach and Stakeholder Engagement

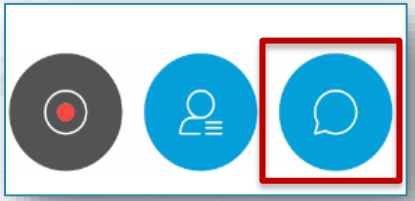
Cris Zimmerman

MRO Upcoming Events

- **2024 MRO Hybrid Reliability Conference**
  - May 15, 2024 – MRO Office St. Paul, MN
- **2024 MRO Hybrid CMEP Conference**
  - July 24, 2024 – Kansas City
- **2024 MRO Hybrid Security Conference**
  - October 1-2, 2024 – MRO Office St. Paul, MN
- **2024 GridSecCon**
  - October 22-25, 2024 – Minneapolis, MN

WebEx Chat Feature

Open the Chat Feature:



The chat feature will appear to the right of the WebEx window.

Attendees should chat their questions to: “All Panelists”.

Select All Panelists by using the drop-down arrow in the “To” field.

Please take a moment to complete the survey

https://www.surveymonkey.com/r/RAM2024

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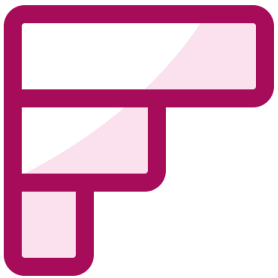

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MIDWEST RELIABILITY ORGANIZATION

EOP-012-2 Standards Update

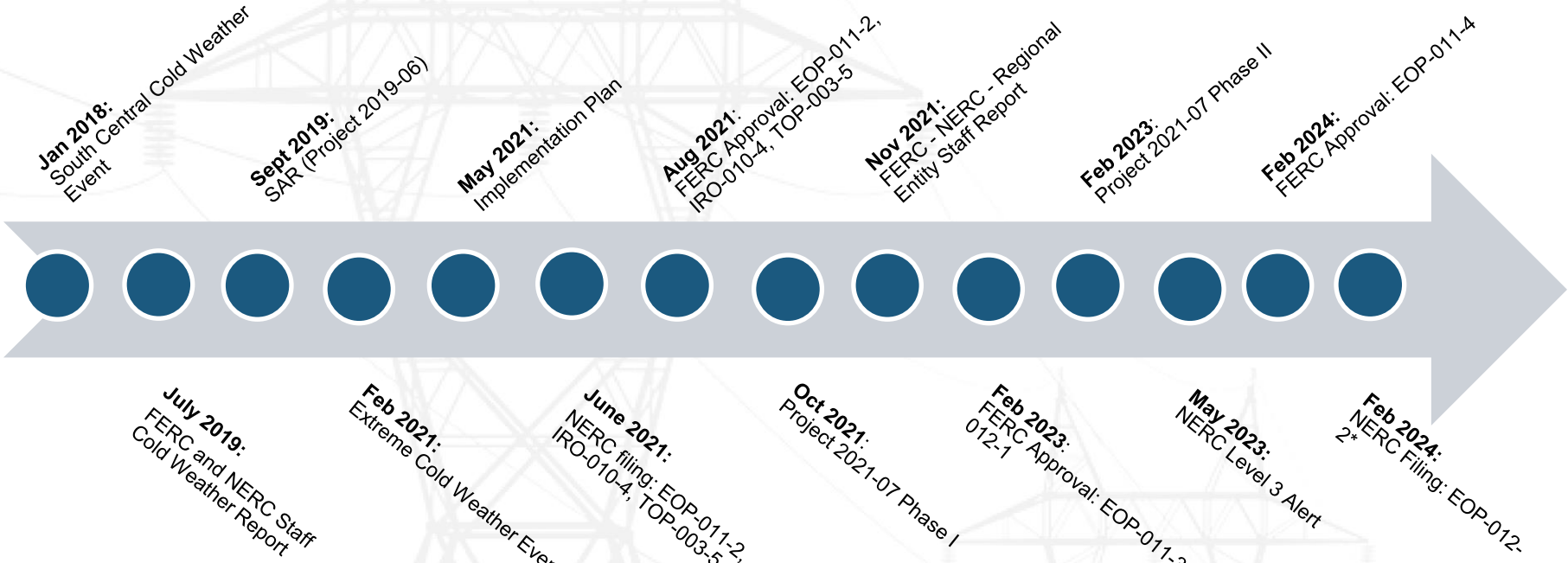
Uttam Adhikari, PhD., Sr. Risk Assessment and Mitigation Engineer (OPS)

Adam Flink, PE, Principal Risk Assessment and Mitigation Engineer (OPS)

Outline

- History
- FERC Order
- Current Status
- Details

Timeline


Jan 2018: South Central Cold Weather Event
July 2019: FERC and NERC Staff Cold Weather Report
Sept 2019: SAR (Project 2019-06)
Feb 2021: Extreme Cold Weather Event
May 2021: Implementation Plan
June 2021: NERC filing: EOP-011-2, IRO-010-4, TOP-003-5
Aug 2021: FERC Approval: EOP-011-2, IRO-010-4, TOP-003-5
Oct 2021: Project 2021-07 Phase I
Nov 2021: FERC - NERC - Regional Entity Staff Report
Feb 2023: FERC Approval: EOP-011-3, EOP-012-1
Feb 2023: Project 2021-07 Phase II
May 2023: NERC Level 3 Alert
Feb 2024: FERC Approval: EOP-011-4
Feb 2024: NERC Filing: EOP-012-2*

Project 2019-06

- **EOP-011-2**
  - Addition of R7 & R8 - effective 4/1/2023
    - GO cold weather preparedness plans
    - GO/GOP unit-specific training on preparedness plans

Project 2021-07

- **EOP-011-3**
  - Removal of R7 & R8
- **EOP-012-1 (new standard)**
- **Comprehensive approach to cold weather**
  - ECWT calculated for each generator
    - Requirement to operate at ECWT for 12 hours
    - Preparedness plan
    - Training
    - GCWRE definition and required CAP and implementation

FERC Order on EOP-012-1

- On February 16, 2023, FERC directed changes to be made to EOP-012-1.
- Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report.
- Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023.
- Expected effective date of EOP-012-2: 10/1/2024*

Detailed walk-through of EOP-012-2

- **R1:**
  - R1.1 Calculating Extreme Cold Weather Temperature (ECWT)
  - R1.2 Identify operating limitations and unit-related data
- **R2: Freeze protection measures (future units)**
- **R3: Freeze protection measures (existing units)**
- **R4: Preparedness plans**
- **R5: Training**
- **R6: Generator Cold Weather Reliability Event (GCWRE) analysis/CAP**
- **R7: CAP implementation**
- **R8: Generator Cold Weather Constraints (GCWC)**

R1: ECWT

R1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

R1: ECWT

NERC Glossary definition of Extreme Cold Weather Temperature (ECWT):

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

R1: ECWT

EOP-012-2 Technical Rationale on determining ECWT:

- "Reliable source of data from a recording location near the plant"
- Sources could include weather stations operated by:
  - National Weather Service (NWS)
  - National Oceanographic and Atmospheric Administration (NOAA)
  - Federal Aviation Administration (FAA)
  - Environment and Climate Change Canada (ECCC)
- "NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals."
- "In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit."

R1: ECWT

- **EOP-012-2 Implementation Plan**
  - ECWT must be calculated by effective date
  - 5-year clock for periodic review starts on effective date, not when initial ECWT is calculated

EOP-012-2 Question #1

Question:

“What do you do if the nearest NOAA site does not have data back to 1/1/2000?”

MRO answer:

“The definition of ECWT indicates that the data should go back to 1/1/2000 but does not specify a required proximity to the generation Facility. In the situation described, it would be acceptable to use data from multiple stations or use the nearest station that does have data back to 1/1/2000, providing that preference is given to stations with a similar climate to the generation Facility. Whatever approach is used, document the methodology for determining the ECWT.”

EOP-012-2 Question #2

Question:

“If, when calculating ECWT, there are two NOAA sites that are equal distance from the power plant, do you have to justify which site you used?”

MRO answer:

“Multiple stations can be used or a single station with a similar climate to the generation Facility. Whatever approach is used, document the methodology for determining the ECWT.”

R2 & R3: Freeze Protection

- **Applies to generating units**
  - With ECWT at or below 32 degrees
  - Self-commits or is required to operate at or below a temperature of 32 degrees
- **Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature**

R2 & R3: Freeze Protection

NERC Glossary definition of Generator Cold Weather Critical Component (GCWCC):

“Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner’s control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.”

R2 & R3: Freeze Protection

R2

- **Applies to units with COD 10/1/2027 or later**
- **Requires capability to operate at ECWT for 12 hours with 20 mph wind speed**
  - Exception for “intermittent energy resources”

R3

- **Applies to units with COD before 10/1/2027**
- **Requires capability to operate at ECWT**
- **EOP-012-2 Implementation Plan allows 12 months after effective date for R3 compliance**

R4: Preparedness Plan

- **R4 requires preparedness plans for generating units, replacing EOP-011-2 R7.**
- **Additional items required by EOP-012-2 R4:**
  - Unit's ECWT
  - Identification of GCWCCs

R5: Training

- R5 requires annual training on preparedness plans, replacing EOP-011-2 R8.
- Identical to EOP-011-2 R8:

R6: Events

NERC glossary definition of Generator Cold Weather Reliability Event (GCWRE):

One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature: (1) a forced derate of more than 10% of the total capacity of the unit and exceeding 20 MWs for longer than four hours in duration; (2) a start-up failure where the unit fails to synchronize within a specified start-up time; or (3) a Forced Outage.

R6: Events

- **R6: When GCWRE occurs, develop Corrective Action Plan (CAP), including:**
  - Identified causes
  - Applicability review
  - Identify interim operating limitations or impacts

EOP-012-2 Question #3

Question:

“If a wind farm has a blade icing event which causes a derate, is this requiring a CAP?”

MRO answer:

“According to R6 of the EOP-012-1 standard, If the blade icing event that caused the derate is considered a Generator Cold Weather Reliability Event, then a CAP is required.”

EOP-012-2 Question #4

Question:

“What temperature data source or sources can be used for determining whether a Generator Cold Weather Reliability Event has occurred?”

MRO answer:

“MRO is not aware of any official guidance that indicates, for compliance purposes, which sources of temperature data are acceptable for determining whether a Generator Cold Weather Reliability Event has occurred. Our recommendation is to consider the available temperature data sources and use the most conservative temperature data at the time that an event occurs. In this case, the more conservative temperature data source would be the one indicating the higher temperature as a Generator Cold Weather Reliability Event only exists when the temperature is above the ECWT. ”

R7: CAP Implementation

- **R7 establishes required timing of CAPs that address problems with equipment or freeze protection measures:**
  - Existing: 24 months
  - New: 48 months
  - R7.3 allows for adjustments to CAPs and timing
  - R7.4 allows for declaration of a Generator Cold Weather Constraint…

R7: CAP Implementation

Generator Cold Weather Constraint (GCWC) defined in EOP-012-2 rationale document:

Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed “unreasonable” when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

R8: Generator Cold Weather Constraints

- **Whenever a GCWC has been declared:**
  - Review declaration every five years or as needed
  - Update documented operating limitations

References

- **NERC Standards project page:**
  - https://www.nerc.com/pa/Stand/Pages/Project-2021-07-ExtremeColdWeather.aspx
- **Technical Rationale:**
  - https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Phase%202_FB%20Technical%20Rationale%20for%20EOP-012-2%20clean_Feb2024.pdf
- **2022 SDT guidance for calculating ECWT:**
  - https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07%20Calculating%20Extreme%20Cold%20Weather%20Temperature_final%20ballot.pdf
- **NERC Event Analysis:**
  - https://www.nerc.com/pa/rrm/ea/Pages/Lessons-Learned.aspx
  - https://www.nerc.com/pa/rrm/ea/Pages/Major-Event-Reports.aspx

Questions

HEROS@mro.net

MIDWEST RELIABILITY ORGANIZATION

Notable HEROS Responses

Ryan McNamara, Sr. Risk Assessment and Mitigation Engineer

CIP HEROS

What is HEROS@MRO.net?

- MRO regional resource
- Guidance
- Best practice
- Pointer for further resources
- Referrals to correct contacts
- HEROS@MRO.net

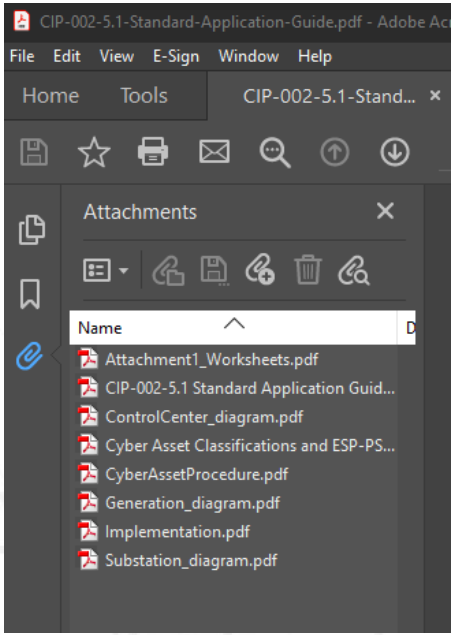
How are HEROs Questions Handled?

- RAM department is responsible for HEROs
- Typically, less than 30-day response
- May need Compliance, Enforcement, Registration, or Reliability Analysis Departments input
- May need other Regional Entity and/or NERC input
- Topics are discussed at RAM conferences through newsletters and other outreach

CIP-002-5.1 Companion Documents

From the Standard Application Guide

- **@NERC.com - no attachments**
- **@ MRO**
  - https://www.mro.net/wp-content/uploads/2022/11/CIP-002-5.1-Standard-Application-Guide.pdf
  - download or open in adobe extension
  - under attachments in the PDF



Low Impact Resources

- MRO Standard Application Guides - https://www.mro.net/organizational-groups/cmep-advisory-council/smet/smet standard-application-guides/

- MRO 2017 Low Impact conference recordings - https://vimeopro.com/midwestreliability/videos/video/208347060

Cyber Assets (CA)

- **Blinky lights: electronic device**
- **Updatable firmware: programmable**
- **Implementation guidance:**
  - Does the device have a level of cyber capability or functionality for which the cyber security controls would be applicable

Touchscreen Monitors a CA?

- **Does the touch-screen monitor have updatable firmware?**
  - If so, it should be considered programmable
- **Cyber Asset accessories, such as but not limited to keyboards, mice, and touch-screen peripheral monitors typically are considered to be an extension of the Cyber Asset to which they are connected**

BES Cyber Assets (BCA)

- **A Cyber Asset**
- **Guidelines and technical basis:**
  - If rendered unavailable, degraded, or misused would, within 15 minutes adversely impact the reliable operation of the BES – control capability matters
- **Reliability Operating Services: BROS function**
- **Attachment 1 of CIP-002-5.1a**
- **Redundancy does not impact determination**

Protected Cyber Assets (PCA)

- A Cyber Asset
- Within an ESP, but not a BCA
- E.g., file servers, ftp servers, time servers/network clocks, LAN switches, networked printers, digital fault recorders, and emission monitoring systems

Workstation BCA or PCA?

BCA

- **15-minute impact**
- **BROS functions**
  - Example Balancing Load and Generation, Monitoring & Control, etc.
- **Is it redundant to a BCA?**

PCA

- **Inside ESP but does not have 15-minute impact**
- **Performs non-BROS functions**
- **Could it be moved outside the ESP (optional)?**
- **Used for maintenance and/or testing**

Electronic Access Control or Monitoring Systems (EACMS)

- A Cyber Asset
- Electronic access control or electronic access monitoring of the Electronic Security Perimeter (ESP), BCA, and/or Intermediate Systems
- E.g., Electronic Access Points, Intermediate Systems, authentication servers (e.g., RADIUS servers, Active Directory servers, Certificate Authorities), security event monitoring systems, and intrusion detection systems

Intermediate Systems

- Is an EACMS
- Can be a collection of Cyber Assets (system)
- Can be used to access other systems such as PACS, other ESPs, and systems outside of an ESP

Physical Access Control Systems (PACS)

- A Cyber Asset
- Control, alert, or log access to the Physical Security Perimeter(s)
- E.g., authentication servers, card systems, and badge control systems

Is it a PACS?

- **Is it a Cyber Asset?**
- **Does it control, alert, or log access to a Physical Security Perimeter?**
- **Does it perform the authentication locally?**
- **Does it store BES Cyber System Information (BCSI) locally?**
  - May not make it a PACS but may need BCSI controls

BES Cyber System Information (BCSI)

- Information about the BES Cyber System that could be used to gain unauthorized access or pose a security threat to the BES Cyber System
- Physical and electronic
- IP alone may not be, but IP/hostname starts to give a picture inside the ESP
- Think from a vulnerability standpoint

Data Diode, Aggregator, and/or Data Broker

- **Is it a Cyber Asset?**
- **Is it within an ESP? PCA or BCA?**
- **If outside ESP consider BCSI:**
  - Confidentiality of data in transit as well as at rest?
  - Can these devices be accessed remotely or locally to retrieve or intercept BCSI?
  - Is there caches on these devices that could retain BCSI?

Control Centers (CC)

- Hosts operating personnel
- Monitor and control the Bulk Electric System (BES) in real-time
- Performs reliability tasks of: RC, BA, TOP of two or more locations, or GOP of two or more locations
- Including associated data centers

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CIP-007 Patches

- **Know, track, and mitigate the known software vulnerabilities -** Guidelines and Technical Basis
- **Tracking may include multiple sources**
- **35-day review period – not 35-days since release**
- **Applicability – identified vulnerabilities**
  - Incompatibilities? A patch mitigation plan would still be expected
- **Mitigate the vulnerabilities**

Uncooperative Vendors

- When a vendor cannot or will not cooperate in a Registered Entity's plan to address CIP-013-2 R1 Part 1.2, the Registered Entity should document and implement controls in lieu of these
- E.g., if the vendor cannot or will not notify of vendor-identified incidents a control could be to monitor US-CERT, ICS-CERT, E-ISAC, and/or NERC alerts

“Compute” and “storage” for virtual environment are separate systems

- **Cyber Asset definition states "…, including the hardware, software, and data in those devices”**
  - Compute system would inherit the classification of the Cyber Asset
  - If the storage system is necessary for the operation of the compute system, then it would inherit the same classification

MIDWEST RELIABILITY ORGANIZATION

Notable O&P HEROS Responses

Adam Flink, Principal Risk Assessment and Mitigation Engineer (O&P)

Question #1

EOP-004-4 R2 requires entities to report events specified in Attachment 1:

Event Type	Entity with Reporting Responsibility	Threshold for Reporting
Complete loss of off-site power to a nuclear generating plant (grid supply)	TO, TOP	Complete loss of off-site power (LOOP) affecting a nuclear generating station per the Nuclear Plant Interface Requirements
Transmission loss	TOP	Unexpected loss within its area, contrary to design, of three or more BES Facilities caused by a common disturbance (excluding successful automatic reclosing).

If three BES Facilities trip but one of them automatically recloses successfully (as designed), does that reduce the total number of BES Facilities from three to two? Or does the exclusion only apply when all three BES Facilities successfully reclose?

Answer #1

- The language used in EOP-004-4 for transmission loss (“unexpected loss within its area, contrary to design, of three or more BES Facilities caused by a common disturbance (excluding successful automatic reclosing)”) provides for the exclusion of Facilities that automatically reclose from the count used in the criteria.
- The reporting threshold for the Event Analysis Program (EAP) is treated the same way. However, an entity may still consider reporting such an event through EAP even though it doesn’t technically meet the reporting requirements, especially if there is a potential lessons learned.

Question #2

PRC-002-2

R12. Each Transmission Owner and Generator Owner shall, within 90-calendar days of the discovery of a failure of the recording capability for the SER, FR or DDR data, either: *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

- Restore the recording capability, or
- Submit a Corrective Action Plan (CAP) to the Regional Entity and implement it.

Does the mandate in PRC-002-2 R12 to submit a CAP have an accompanying process MRO expects registered entities to follow should the need arise?

Answer #2

- The submission of a Corrective Action Plan (CAP) associated with PRC-002-2 R12 is considered a Periodic Data Submittal (PDS) and can be submitted through Align.
- Note: “periodic” does not imply that this submission should be made regularly – only when required under R12. If MRO has any questions regarding a submittal, you will be contacted.

Question #3

FAC-002-4

R1. Each Transmission Planner and each Planning Coordinator shall study the reliability impact of: (i) interconnecting new generation, transmission, or electricity end-user Facilities and (ii) existing interconnections of generation, transmission, or electricity end-user Facilities seeking to make a qualified change as defined by the Planning Coordinator under Requirement R6. The following shall be studied: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

- **Regarding the terms "interconnecting" and "interconnections",**
  - Does FAC-002 apply only to the transmission Facilities that interconnect substations of different Transmission Owners? -- or --
  - Does FAC-002 apply to the transmission Facilities that interconnect substations within the same Transmission Owner?

Answer #3

“The standard does not include any language clearly limiting the applicability to transmission Facilities that interconnect one TO’s system to another’s. As such, it should be considered applicable to all transmission Facility interconnections, including those being made entirely within one TO’s footprint.”

Question #4

- Moved PRC-005 activities related to Trip Coils to Performance Based Maintenance (PBM)
- Continued to perform Time Based Maintenance (TBM) in parallel on all applicable Trip Coils during that period. Consistent with that move, the entity's PSMP was updated to reflect PBM.
- Upon further review, it appears that the entity's trip coil Components may not qualify for PBM so the PSMP will be updated to indicate TBM intervals for Trip coils will continue to be used rather than PBM.
- Entity does not believe there is a compliance violation of PRC-005-6 R1/R2 as TBM was being performed during this period, consistent with the Standard.

Answer #4

“As long as the entity has not exceeded any TBM intervals for these components, MRO does not believe this constitutes a noncompliance. Thank you for checking with us.”

Question #5

PRC-005-6

- **Is there any documented guidance from MRO or NERC regarding testing of Protection Systems that use IEC 61850?**
- **What testing timeline do Protection Systems utilizing 61850 fall under?**

Answer #5

- At this point, there is no published ERO guidance on the application of PRC-005 to IEC 61850 systems.
- Communication systems that are implemented using 61850 and are necessary for correct operation of protective functions should be considered subject to PRC-005-6 and should be maintained in accordance with PRC-005-6 Table 1-2 (Component Type - Communications Systems).

Question #6 Background

- **TPL-001-4, effective 1/1/2015, replaced legacy planning contingency categories (A-D) with a new set of "planning event" categories (P0-P7)**
- **P5: "Fault plus relay failure to operate"**
  - Included language: "non-redundant relay"
- **TPL-001-5.1, effective 7/1/2023, modified P5 by expanding "relay" to "component of a Protection System"**

Question #6 Background

TPL-001-4: (2015)

P5 Multiple Contingency *(Fault plus relay failure to operate)*	Normal System	Delayed Fault Clearing due to the failure of a non-redundant relay[13] protecting the Faulted element to operate as designed, for one of the following: 1. Generator 2. Transmission Circuit 3. Transformer [5] 4. Shunt Device [6] 5. Bus Section

TPL-001-5.1: (2023)

P5 Multiple Contingency *(Fault plus non-redundant component of a Protection System failure to operate)*	Normal System	Delayed Fault Clearing due to the failure of a non-redundant component of a Protection System[13] protecting the Faulted element to operate as designed, for one of the following: 1. Generator 2. Transmission Circuit 3. Transformer[5] 4. Shunt Device[6] 5. Bus Section

Question #6 Background

TPL-001-5.1 Footnote 13

13. For purposes of this standard, non-redundant components of a Protection System to consider are as follows:
    a. A single protective relay which responds to electrical quantities, without an alternative (which may or may not respond to electrical quantities) that provides comparable Normal Clearing times;
    b. A single communications system associated with protective functions, necessary for correct operation of a communication-aided protection scheme required for Normal Clearing (an exception is a single communications system that is both monitored and reported at a Control Center);
    c. A single station dc supply associated with protective functions required for Normal Clearing (an exception is a single station dc supply that is both monitored and reported at a Control Center for both low voltage and open circuit);
    d. A single control circuitry (including auxiliary relays and lockout relays) associated with protective functions, from the dc supply through and including the trip coil(s) of the circuit breakers or other interrupting devices, required for Normal Clearing (the trip coil may be excluded if it is both monitored and reported at a Control Center).

Question #6a

In TPL-001-5.1 Footnote 13c, does “dc supply associated with protective functions” include only batteries or chargers too?

Answer #6a

NERC Glossary of Terms
Definition of “Protection System”:

Protection System –

- Protective relays which respond to electrical quantities,
- Communications systems necessary for correct operation of protective functions
- Voltage and current sensing devices providing inputs to protective relays,
- Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply), and
- Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Answer #6a

The term “station DC supply” is included as one of the five component types in a Protection System, as defined in the NERC Glossary of Terms. The description in the glossary entry is as follows: “Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply)”

As such, non-redundant chargers would be considered “non-redundant components of a Protection System” under footnote 13.

Question #6b

In TPL-001-5.1 Footnote 13c, please clarify what is meant by “A dc supply that is monitored and reported at a control center”

Answer #6b

In order for this exception to be utilized, the reporting at the Control Center must be a real-time indication of low-voltage and open-circuit conditions. The specific station DC supply with the low-voltage or open-circuit condition must be identified by the alarming at the Control Center.

Question #7 Background

EOP-004-4 R1:

Each Responsible Entity shall have an event reporting Operating Plan in accordance with EOP-004-4 Attachment 1 that includes the protocol(s) for reporting to the Electric Reliability Organization and other organizations (e.g., the Regional Entity, company personnel, the Responsible Entity's Reliability Coordinator, law enforcement, or governmental authority).

Question #7

Regarding EOP-004-4 R1, what is expected to be in the Operating Plan for each of the items listed in Attachment 1?

Does each item need to be specifically called out in the plan?

Would a screenshot of DOE 417, listing the items, be sufficient, so long as the operators have sufficient information to perform in an emergency?

Answer #7

The Operating Plan is required to include protocols for reporting. These protocols should include sufficient detail and clarity to ensure prompt and appropriate actions by System Operators in response to each type of event described in Attachment 1. Also please note the language in measure M1:

"Each Responsible Entity will have a dated event reporting Operating Plan that includes protocol(s) and each organization identified to receive an event report for event types specified in EOP-004-4 Attachment 1 and in accordance with the entity responsible for reporting."

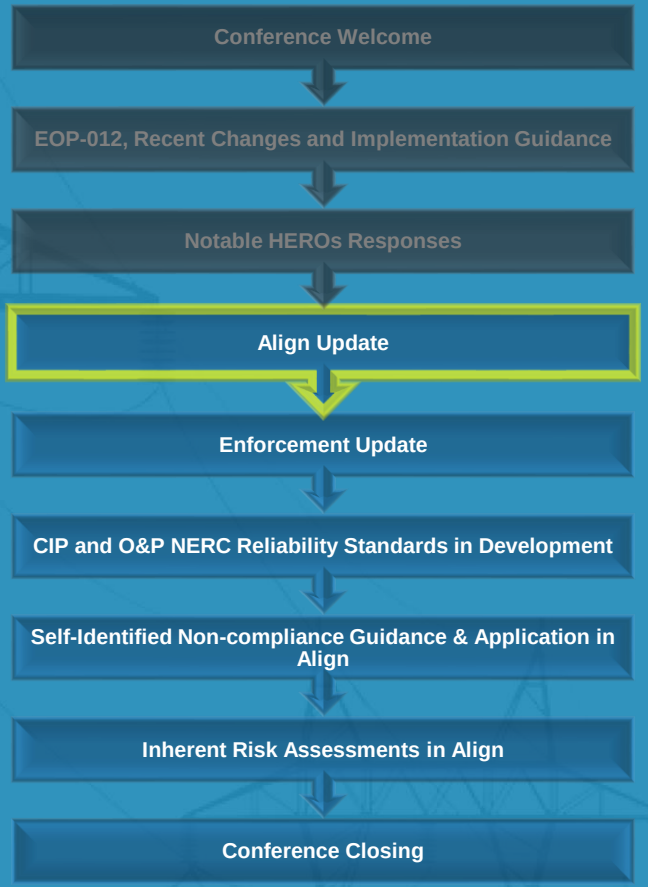
Questions

HEROS@mro.net

MIDWEST RELIABILITY ORGANIZATION

Morning Break

Up Next...



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MIDWEST RELIABILITY ORGANIZATION

Align Update

Marissa Falco, RAM Technical Coordinator

Agenda

- Legacy system retirement
- Tips and Tricks
- Permissions vs Roles
- Align User Group (AUG)
- Now What?
- Align Surge
- Resources

Legacy System Retirement

- **WebCDMS is officially retired!**
  - Thank YOU all for your support
- **Certificates are no longer needed**
- **All data has been migrated**
  - Historical history of 5 years from the closure date at the time of migration

Tips and Tricks

- **Chrome and Edge are the supported and recommended browsers**
  - Often the root cause can be the system timing out
    - Clearing cache and restarting browser
- **Responding to requests within Align in timely manner**
  - Email notifications to PCC and ACC's: noreply@bwise.net
- **May have to login and go to the specific module page to see request periodically (ie. period data submittal)**
- **Entities oversee updating their contact roles and permissions within CORES**
  - Important to update both permissions and contact roles

Permissions vs Roles

Permissions

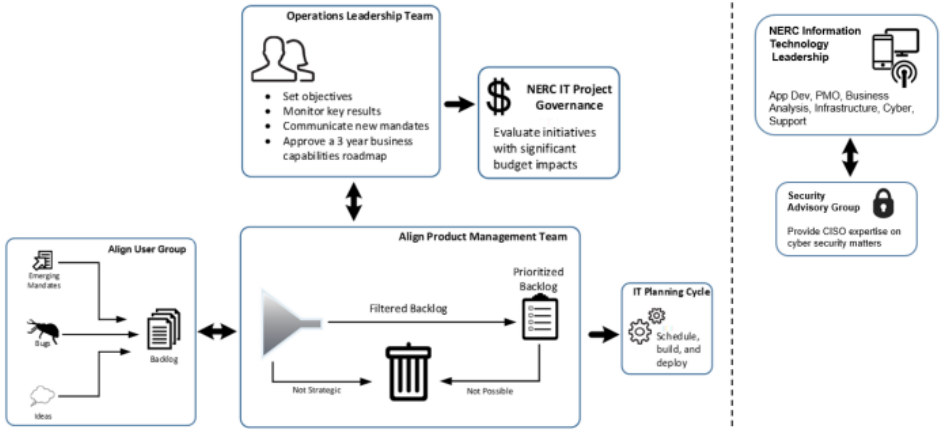
- **Gives access to the Align system**
  - Align Entity Reader, Align Entity Editor, Align Entity Submitter
- **Granted by PCC or Entity Admin**
- **Only the PCC gets automatic Align Submitter permissions when given the PCC role**

Contact Roles

- **Receives Align email notifications based off role assigned (typically PCC and ACC)**
  - PCC/PCO/ACC/Entity Admin
  - Contact for their entity for areas outside of Align as well
- **Does not give Align permissions**
- **Recommended to have at least one entity admin as a backup**

Align User Group (AUG)

- **Representatives from each region, NERC, and CCC**
  - MRO's representatives are Brock Bigalke, Marissa Falco, Kendra Buesgens, and Janice Anderson
- **Provide recommendations**
- **Monthly meetings**



Now What?

- **How do we implement backlog fixes?**
  - We want to ensure the solutions work for everyone
- **Review of Backlog Meetings**
  - Multiple groups focusing on separate modules consisting of SME's throughout the ERO
  - Eg. Mitigation and Enforcement
    - Portlet
    - Required fields
    - Visibility on workflow
    - Field explanations

Align Surge Schedule

- **Five production releases in 2024 focusing on priority items**
  - One release has concluded
  - Weekend outages
    - Updates on planned outages to be communicated through My Align Page and NERC webpage
- **MRO staff will participate in User Acceptance Testing (UAT)**
- **AUG CCC representatives will be contacted for items specific to entity role testing**

Release Date	AUG UAT Window
March 2, 2024	February 12 – February 23, 2024
May 11, 2024	April 22 – April 26, 2024
July 13, 2024	June 17 – June 21, 2024
September 7, 2024	August 19 – August 23, 2024
November 16, 2024	October 28 – November 1, 2024

*Dates subject to change

Align Surge

- **Priority Items and Surge work include:**
  - Audits and Spot Checks
  - Audit Reports
  - Working Papers
  - Compliance Oversight Plans (COP)
  - Coordinated Oversight
  - Improved email notifications
  - Inherent Risk Assessments (IRA)
  - PDS, Self-Certifications, Attestations
  - Permissions and roles to access CMEP work
  - Requests for Information (RFI)
  - Other policy considerations

Resources

- **NERC Align and SEL Project Page: https://www.nerc.com/ResourceCenter/Pages/Align-SEL.aspx**
  - Posted Align release notes
- **NERC Help Desk Support: https://support.nerc.net**
  - Align and SEL Category get routed to MRO first
- **Training website: http://training.nerc.net**
  - Align *
  - CORES*
  - GADS
  - TADS
  - TEAMS
- **User Access Guide: https://trn.nerc.com/User%20Guide/RE_TTT_User_Access.pdf**

*Utilized in correlation with MRO CMEP departments

Questions

HEROS@mro.net

MIDWEST RELIABILITY ORGANIZATION

Enforcement Update

Tasha Ward, *Director of Enforcement and External Affairs*

Sara Smith, *Enforcement Attorney*

Janice Anderson, *Enforcement Paralegal*

Today's Topics

- Enforcement Team
- Lifecycle of a Violation in Enforcement
- Align

Enforcement Team

Tasha Ward, Director of Enforcement and External Affairs

Tasha Ward joined the Midwest Reliability Organization in October 2019 and holds the position of Director of Enforcement and External Affairs. In May, Tasha will celebrate 15 years of industry experience working within the Electric Reliability Organization (ERO) and is a licensed attorney in both Arkansas and Texas. Tasha is currently the Co-Chair of the ERO Enforcement Collaboration Group.

Sara Smith, Enforcement Attorney

Sara Smith joined the Midwest Reliability Organization in April 2023 and holds the position of Enforcement Attorney. Sara has over 15 years of regulatory experience in a variety of areas, including administrative law, and has worked for large non-profit organizations and federal and state agencies. Sara is licensed in Minnesota.

Janice Anderson, Enforcement and Legal Paralegal

Janice Anderson joined the Midwest Reliability Organization in February of 2009 and holds the position Enforcement and Legal Paralegal. She has a Bachelor's Degree in Organizational Development and a Paralegal Certificate from the American Bar Association. In addition to working within the Enforcement Team, she works with the other MRO departments to ensure noncompliance data and information is accurate and up to date.

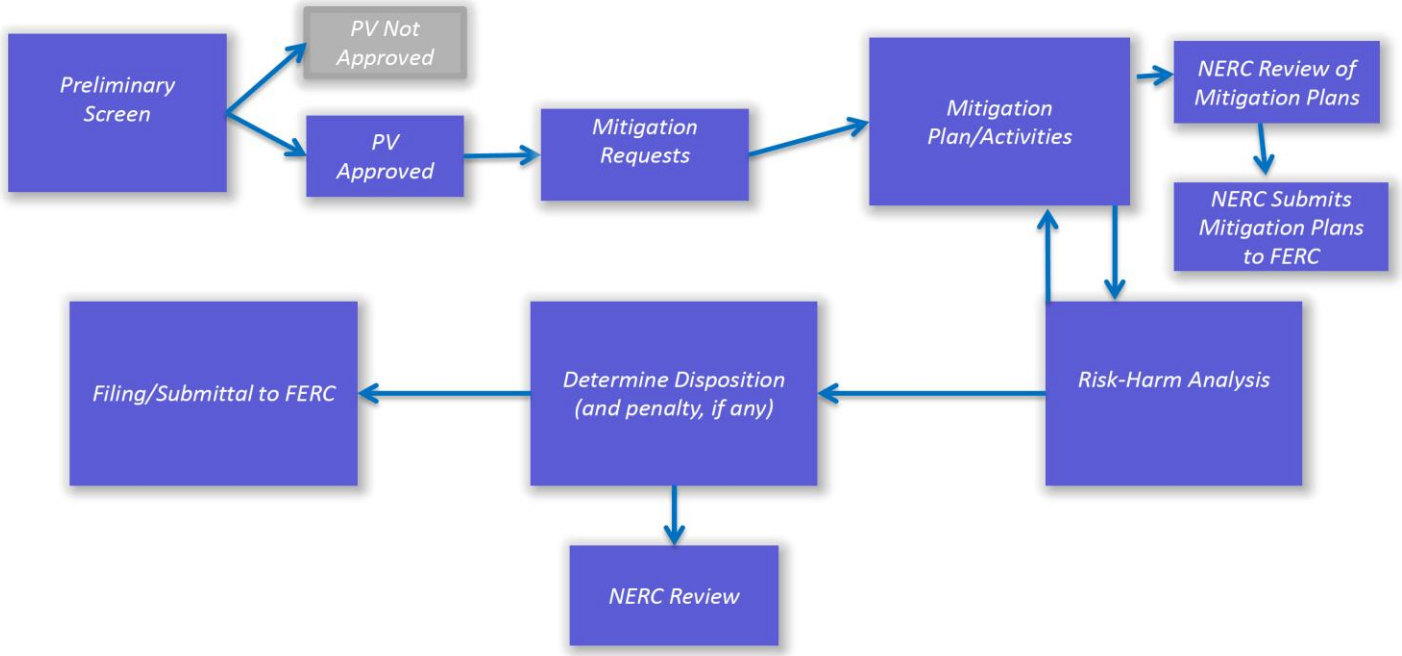
Anna Martinson, RAM and Enforcement/External Affairs Administrator

Anna Martinson joined Midwest Reliability Organization as a contract employee in October 2023 and officially joined our team in December 2023. Her role at MRO is the RAM and Enforcement/External Affairs Administrator. Anna has her bachelor's degree in psychology and has worked in an administrative role for four years.

Lifecycle of a Violation

- Processing noncompliance requires engagement with registered entities to ensure facts are accurate, mitigation will be effective, and that a penalty (if appropriate) bears a reasonable relationship to the seriousness of the violation and other relevant factors.

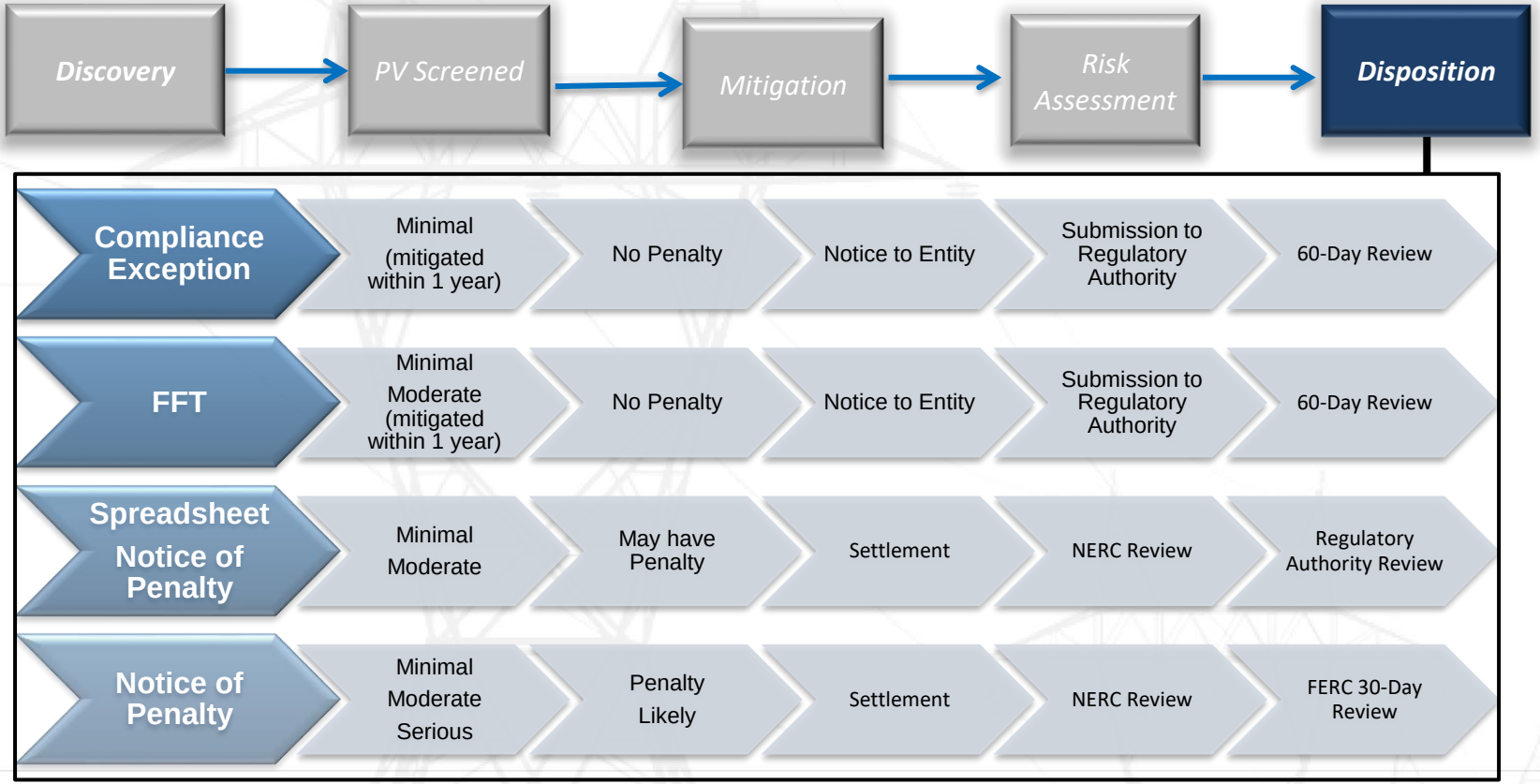
Lifecycle of a Violation



Lifecycle of a Violation in Enforcement

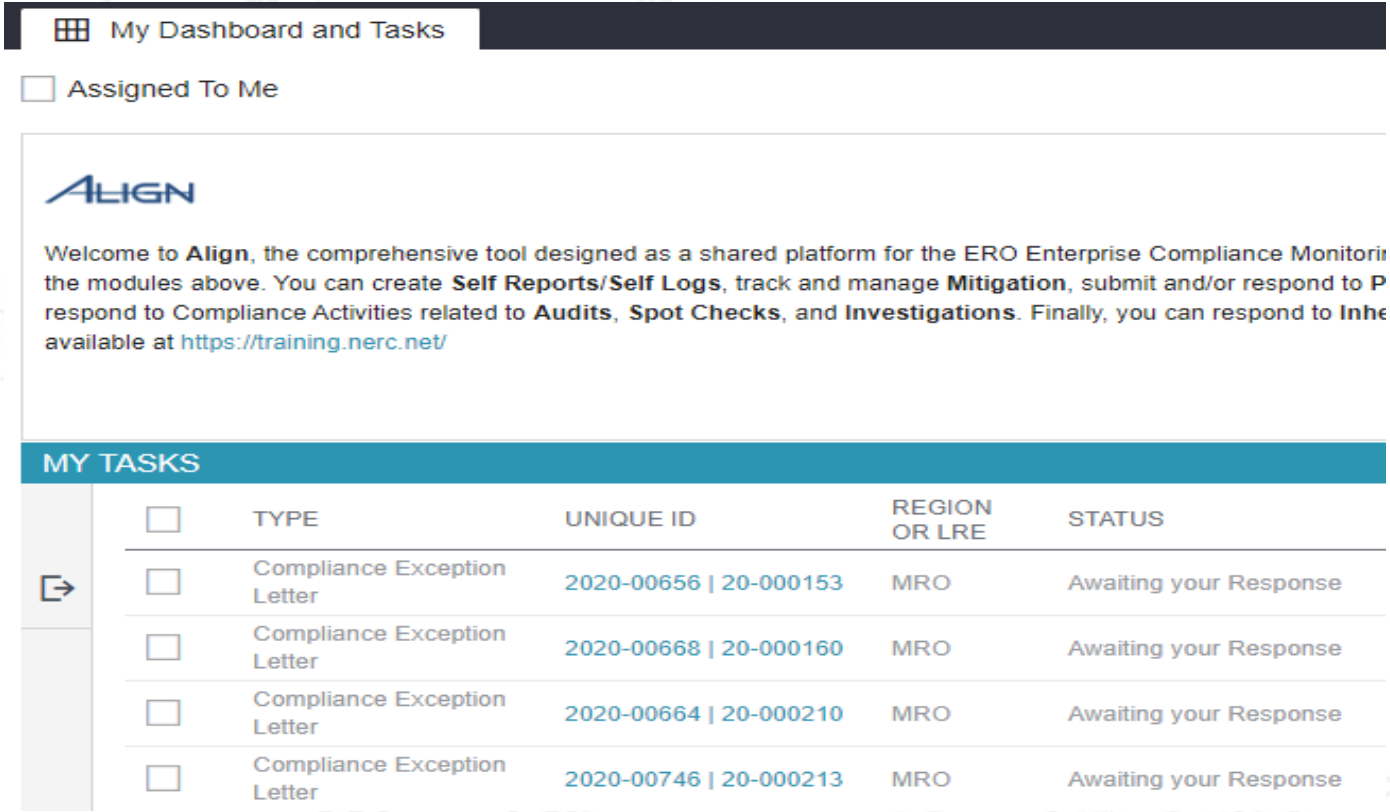
- Disposition method based on appropriate factors (e.g., risk, duration, mitigation completion, compliance history, penalty, etc.)
- Settlement negotiations, if appropriate

Disposition Methods

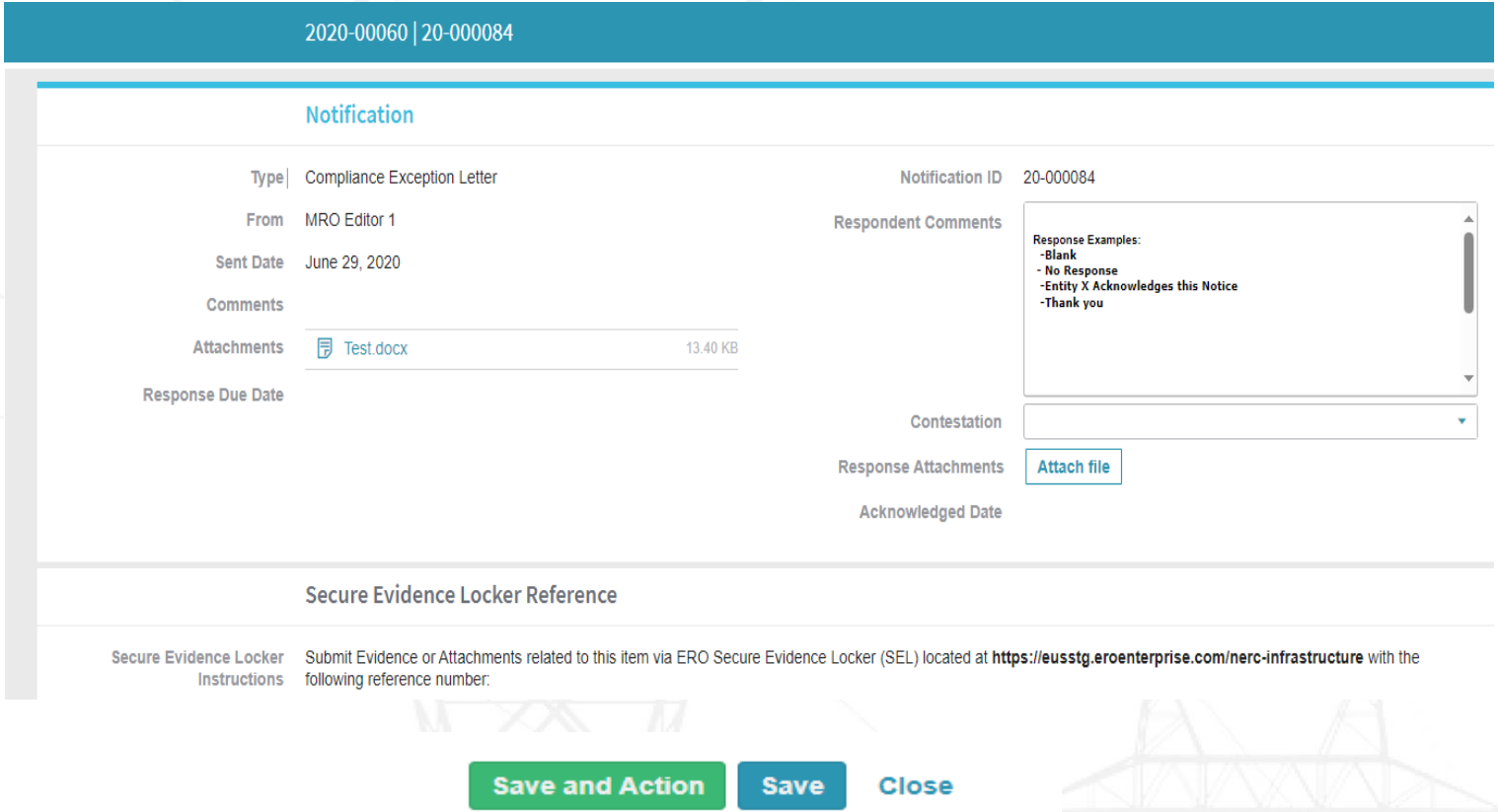


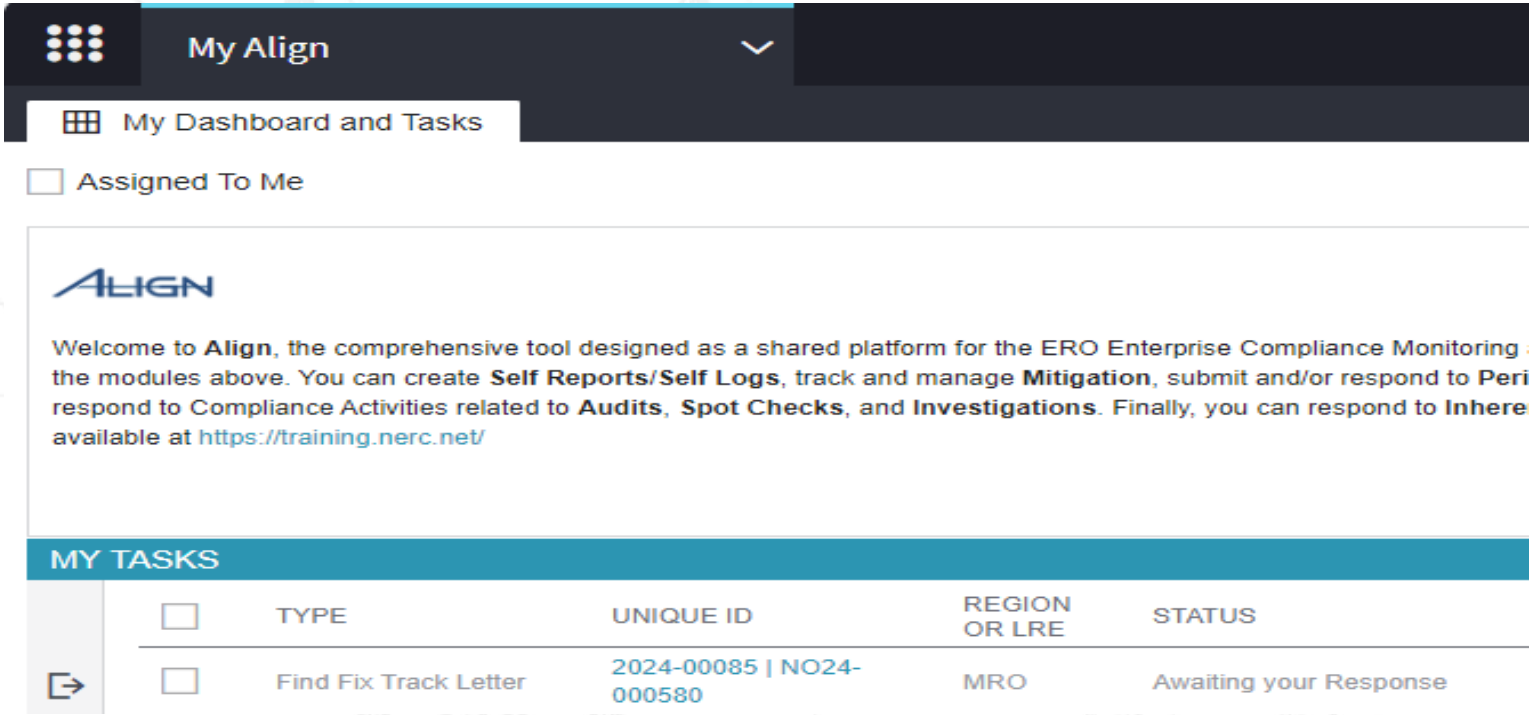
Align

- Acknowledging Dashboard Entries (Enforcement Notices)
- Notice of Find, Fix, Track, and Report (FFT) Affidavits
- Enforcement utilizing the Request for Information (RFI) feature for questions and Notices (Invoices/Closures)


My Dashboard and Tasks
Assigned To Me
ALIGN
Welcome to Align, the comprehensive tool designed as a shared platform for the ERO Enterprise Compliance Monitori
the modules above. You can create Self Reports/Self Logs, track and manage Mitigation, submit and/or respond to P
respond to Compliance Activities related to Audits, Spot Checks, and Investigations. Finally, you can respond to Inhe
available at https://training.nerc.net/
MY TASKS
TYPE
UNIQUE ID
REGION OR LRE
STATUS
Compliance Exception Letter
2020-00656 | 20-000153
MRO
Awaiting your Response
Compliance Exception Letter
2020-00668 | 20-000160
MRO
Awaiting your Response
Compliance Exception Letter
2020-00664 | 20-000210
MRO
Awaiting your Response
Compliance Exception Letter
2020-00746 | 20-000213
MRO
Awaiting your Response


WHAT
DO
I DO
NOW?


2020-00060 | 20-000084
Notification
Type
Compliance Exception Letter
From
MRO Editor 1
Sent Date
June 29, 2020
Comments
Attachments
Test.docx
13.40 KB
Response Due Date
Notification ID
20-000084
Respondent Comments
Response Examples:
-Blank
- No Response
-Entity X Acknowledges this Notice
-Thank you
Contestation
Response Attachments
Attach file
Acknowledged Date
Secure Evidence Locker Reference
Secure Evidence Locker Instructions
Submit Evidence or Attachments related to this item via ERO Secure Evidence Locker (SEL) located at https://eusstg.eroenterprise.com/nerc-infrastructure with the following reference number:
Save and Action
Save
Close


My Align
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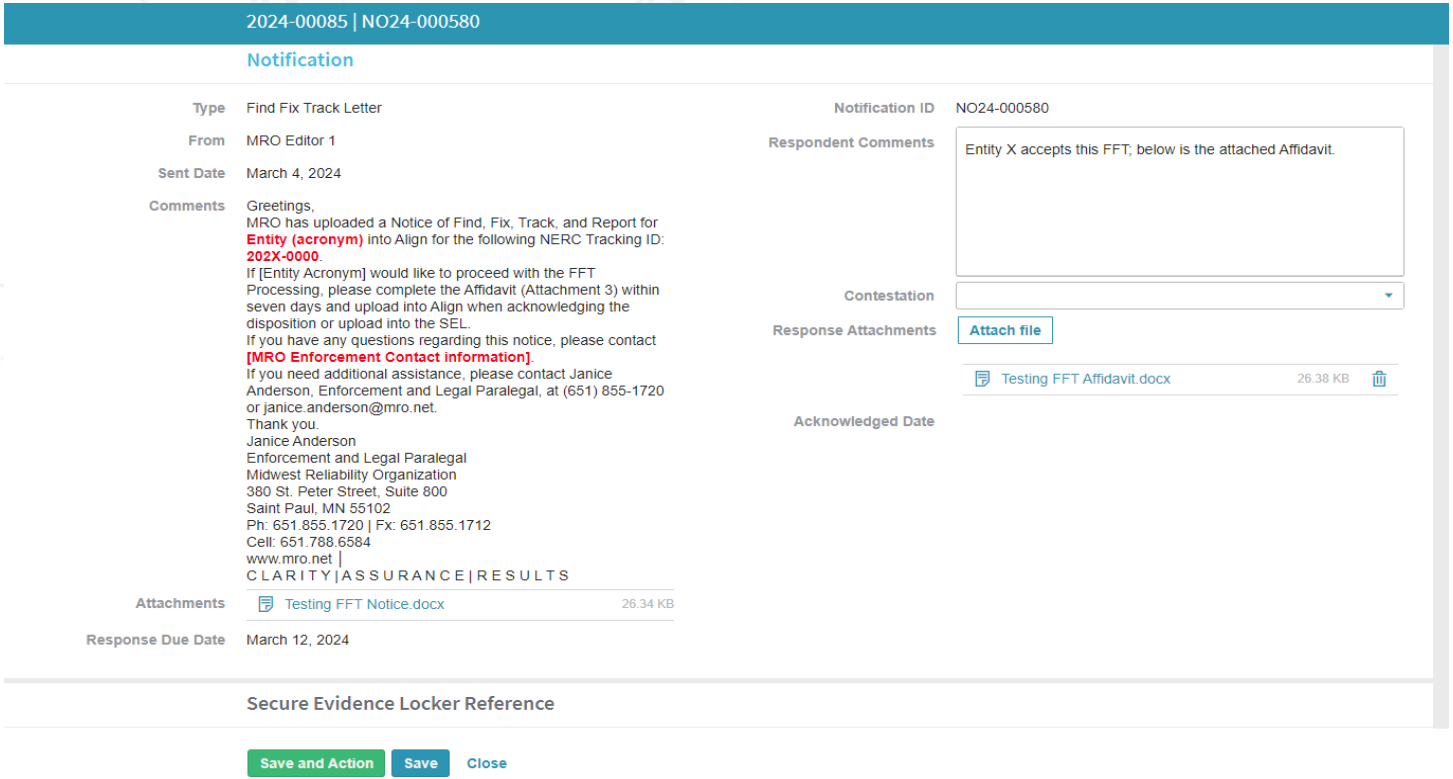
available at https://training.nerc.net/
MY TASKS
TYPE
UNIQUE ID
REGION OR LRE
STATUS
Find Fix Track Letter
2024-00085 | NO24-000580
MRO
Awaiting your Response


WHAT AM I
SUPPOSED TO DO NOW?


2024-00085 | NO24-000580
Notification
Type
Find Fix Track Letter
From
MRO Editor 1
Sent Date
March 4, 2024
Comments
Greetings,
MRO has uploaded a Notice of Find, Fix, Track, and Report for Entity (acronym) into Align for the following NERC Tracking ID: 202X-0000.
If [Entity Acronym] would like to proceed with the FFT Processing, please complete the Affidavit (Attachment 3) within seven days and upload into Align when acknowledging the disposition or upload into the SEL.
If you have any questions regarding this notice, please contact [MRO Enforcement Contact information].
If you need additional assistance, please contact Janice Anderson, Enforcement and Legal Paralegal, at (651) 855-1720 or janice.anderson@mro.net.
Thank you.
Janice Anderson
Enforcement and Legal Paralegal
Midwest Reliability Organization
380 St. Peter Street, Suite 800
Saint Paul, MN 55102
Ph: 651.855.1720 | Fx: 651.855.1712
Cell: 651.788.6584
www.mro.net
CLARITY|ASSURANCE|RESULTS
Attachments
Testing FFT Notice.docx
26.34 KB
Response Due Date
March 12, 2024
Notification ID
NO24-000580
Respondent Comments
Entity X accepts this FFT; below is the attached Affidavit.
Contestation
Response Attachments
Attach file
Testing FFT Affidavit.docx
26.38 KB
Acknowledged Date
Secure Evidence Locker Reference
Save and Action
Save
Close


What's new?
News +++ Information +++ News +++ Information +++ News +++ Information +++ News

2024-00039-E | RF24-000770

Requestor MRO Editor 1

Requestor Comments

Greetings Entity Contacts,
In accordance with the rules, regulations and orders of the Federal Energy Regulatory Commission (Commission or FERC) and the North American Electric Reliability Corporation (NERC) Rules of Procedure including Appendix 4C (NERC Compliance Monitoring and Enforcement Program (CMEP)), Midwest Reliability Organization (MRO) hereby notifies Entity Name (Acronym) that payment is due for the penalty assessed pursuant to the Spreadsheet Notice of Penalty (SNOP) filed with and approved by the Commission FERC Docket No: NP2x-x-000 (NERC Tracking ID xxx).
Utilizing this RFI notification to send the Notice and Invoice that provides the details of this request.
If you have any questions regarding the Notice or process, please contact Tasha Ward, Director of Enforcement and External Affairs at (651) 256-5188 or tasha.ward@mro.net.
If you need additional assistance, please contact Janice Anderson, Enforcement and Legal Paralegal, at (651) 855-1720 or janice.anderson@mro.net.
Thank you.
-Janice
Janice Anderson
Enforcement and Legal Paralegal
Midwest Reliability Organization
380 St. Peter Street, Suite 800
Saint Paul, MN 55102
Desk Ph: 651.855.1720 | Cell Ph: 612.394.9805/ Fx: 651.855.1712
www.mro.net
C L A R I T Y | A S S U R A N C E | R E S U L T S

Requestor Attachments Testing-Notice of Penalty Payment Due.pdf 75.47 KB

Request Sent On March 8, 2024

Response Due By April 20, 2024

Note: You cannot proceed in the workflow until the Respondent Comments are filled in. If evidence is submitted to the SEL, please check the box for Upload to SEL.

Upload to SEL ☐

Save and Action | Save | Close

Questions

enforcement@mro.net

slido

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slido

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MIDWEST RELIABILITY ORGANIZATION

Lunch Break

Up Next...

MIDWEST RELIABILITY ORGANIZATION

MRO Hero Award

Outreach Coordinator

Shawn Keller

MRO's Mission Supports the Vision

To identify, prioritize and assure effective and efficient mitigation of risks to the reliability and security of the North American bulk power system by promoting Highly Effective Reliability Organizations™ (HEROs).

HERO

HIGHLY EFFECTIVE RELIABILITY ORGANIZATION

- **MRO's HERO Award recognizes individuals from industry that have shown exemplary commitment to reliability and security of the regional bulk power system.**
- **The qualifications are based on the theory and principles of High Reliability Organizations: https://www.mro.net/about/hero/annual-hero-award/**

Annual HERO Award

Nominate Someone Today!

MIDWEST RELIABILITY ORGANIZATION

www.mro.net/about/hero/

HERO
HIGHLY EFFECTIVE RELIABILITY ORGANIZATION

MIDWEST RELIABILITY ORGANIZATION

NERC Reliability Standards Pending Enforcement and in Development

Michael Taube, Principal Risk Assessment and Mitigation Engineer (CIP)

Uttam Adhikari, PhD., Sr. Risk Assessment and Mitigation Engineer (OPS)

MIDWEST RELIABILITY ORGANIZATION

CIP

MIDWEST RELIABILITY ORGANIZATION

Pending Enforcement

Supply Chain Low Impact Revisions (Project 2020-03)

- **CIP-003-9 Security Management Controls**
  - Allowing vendor electronic remote access:
    - Method(s) for determining vendor electronic remote access
    - Method(s) for disabling vendor electronic remote access
    - Method(s) for detecting known or suspected inbound and outbound malicious communications for vendor electronic remote access
  - Implementation plan – 36 months

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
	11/4/2022	11/16/2022	3/16/2023	4/1/2026

MIDWEST RELIABILITY ORGANIZATION

High Priority: Complete by end of 2024

Internal Network Security Monitoring (INSM)

- **FERC Order 887**
  - INSM for high impact BCS and medium impact BCS with External Routable Connectivity (ERC)
    - Baseline network traffic for security purposes
    - Monitor and detect unauthorized activity inside CIP-networked environment
    - Identify anomalous activity

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Internal Network Security Monitoring (INSM)

- **FERC Order 887**
  - 15 month timeline – due to FERC by 7/9/2024
  - Study INSM for low impact BCS and medium impact without ERC
    - Risks, implementation challenges, and potential solutions
    - Submitted to FERC 1/18/2024

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Internal Network Security Monitoring (INSM) (Project 2023-03)

- **CIP-015-1**
  - New Standard, CIP-007-X R6 → CIP-015-1 R1-R3
  - Monitoring between applicable BES Cyber Assets within ESP – Focus is network activity of BCAs
    - Removal of explicit applicability to EACMS, PACS, PCA
  - Anomaly detection, protection, and retention of collected network data

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Internal Network Security Monitoring (INSM) (Project 2023-03)

- **Timeline**
  - Effective 36 months after approval for CCs / BCCs
  - Medium w/ERC 24 months after effective date
  - Fast-tracked, waiver granted reducing ballot / comment periods, etc.
  - Initial ballot failed
    - Second Initial Ballot for CIP-015-1 3/12 – 3/18

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

CIP-014 Risk Assessment Refinement (Project 2023-06)

- **Risk Assessment Clarifications**
  - Methods (including dynamic studies)
  - Timing (study period, frequency, base cases)
  - Adequacy and supporting documentation
  - Scenarios (including not relying on local system protection)
  - Proximity (differing ownership; line-of-sight)

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

CIP-014 Risk Assessment Refinement (Project 2023-06)

- **Timeline**
  - Revised SAR accepted in January
  - Targeting initial ballot in May

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

CIP-002 (Project 2021-03, "CIP-002 TOCC")

- **SARs**
  - Current focus:
    - SAR 1 - Transmission Owner Control Center IRC 2.12
      - Inclusion of TO Control Centers (not just CCs used to perform the functional obligations of a TOP)
      - Weighting criteria to determine applicability based on transmission monitored and controlled by the CC
      - Modifications to Control Center definition

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

CIP-002 (Project 2021-03, "CIP-002 TOCC")

- **SARs**
  - Future:
    - SAR 2 - Update IROL language relating to RCs, PCs, and TPs
    - SAR 3 - Consider whether protocol converter meets the definition of BCA (serial to IP converter)
    - SAR 4 - Require identification of EACMs, PACS, PCAs

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

CIP-002 (Project 2021-03, "CIP-002 TOCC")

- **Ballots – CIP-002-Y**
  - 33% approval initial ballot (11/9/23)
  - Posting 2nd draft for formal comment period and additional ballot currently planned for 4/3 – 5/17

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

CIP-002 (Project 2021-03, "CIP-002 TOCC")

- **Implementation Plan**
  - 1st day of 1st calendar quarter that is 3 months after approval
  - Phased-in and initial performance dates as well (max 24 months)

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Virtualization (Project 2016-02)

- **Impacts most CIP standards**
- **Enabling new options, not replacing**
  - New and updated definitions
    - Shared Cyber Infrastructure, Virtual Cyber Asset, etc.
  - CIP-010 baseline and baseline tracking eliminated (shift to change detection)
  - Early adoption included in 24 month IP (6, 12, 18 mo.)

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Virtualization (Project 2016-02)

- **Most recent ballot (11/29/2023) approved the remaining standards: CIP-005 and CIP-010**
- **Final Ballot planned for April**
  - Addressing remaining comments
  - Will include the full scope of standards (CIP-002 through CIP-013)
- **Targeting NERC BOT May, FERC Filing in June**

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Modifications to CIP-003 (Project 2023-04)

- **NERC Low Impact Criteria Review Team Report Outcome**
  - Standard update to mitigate the aggregate risk of coordinated attack on low impact BES Cyber Systems

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Modifications to CIP-003 (Project 2023-04)

- **Updating Attachment 1, Section 3, to include more controls for low impact BCS:**
  - Malicious communications detection
    - Expansion of CIP-003-9 Attachment 1 Section 6
  - User authentication for each user-initiated instance of electronic access to networks

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Modifications to CIP-003 (Project 2023-04)

- **Updating Attachment 1, Section 3, to include more controls for low impact BCS:**
  - Protecting credentials in transit between non-applicable Cyber Assets and applicable Cyber Assets
  - Vendor electronic access discovery and disabling
    - Retained from CIP-003-9

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Modifications to CIP-003 (Project 2023-04)

- **Ballots**
  - Initial on 12/7/2023 – 35% approval
  - Additional 3/5 – 3/14 – 60% approval
- **36 month implementation plan**

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

MIDWEST RELIABILITY ORGANIZATION

Medium Priority: Complete by end of 2025+

CIP-012-2 Control Center Communications (Project 2020-04)

- **Ensure availability of real-time data transmitted between Control Centers, including recovery**
- **Final language:**
  - "loss of availability, of data used in" or "loss of the ability to communicate" RTA and Real-time monitoring
- **24 month implementation plan**
- **NERC filed for FERC approval on 1/31/2024**

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X	12/7/2023	12/12/2023		

MIDWEST RELIABILITY ORGANIZATION

Low Priority

CIP-008 Reporting Threshold (Project 2022-05)

- **NERC CIP-008-6 effectiveness study**
- **SAR goals:**
  - Establish a minimum expectation for thresholds to support the definition of “attempt to compromise”
    - Modifications to CIP-008-6
    - Modifications to Cyber Security Incident
- **SAR accepted on 7/19/2023**

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

MIDWEST RELIABILITY ORGANIZATION

O&P

OPS Standards Retired (to Retire) June 2023 - March 2024

31-DEC-23	01-FEB-24	31-Mar-2024
• FAC-001-3 • FAC-002-3	• MOD-001-1a • MOD-004-1 • MOD-008-1 • MOD-028-2 • MOD-029-2a • MOD-030-3	• FAC-003-4 • FAC-010-3 • FAC-011-3 • FAC-014-2 • IRO-008-2 • PRC-002-2 • PRC-023-4 • PRC-026-1 • TOP-001-5

OPS Standards Subject to (Future) Enforcement

1–JAN-2024	1-APR-24	1-OCT-24	1-Jul-25
• FAC-001-4 • FAC-002-4 • TPL-007-4 Parts	• FAC-003-5 • FAC-011-4 • FAC-014-3 • IRO-008-3 • PRC-002-4 • PRC-023-6 • PRC-026-2 • TOP-001-6	• EOP-012-1	• IRO-010-5 • TOP-003-6.1

OPS Standards Subject to Enforcement

- **TPL-007-4: Transmission System Planned Performance for Geomagnetic Disturbance Events**
  - 1/1/2024
    - R7, 7.1–7.3, 7.3.1–7.3.2, 7.4, 7.4.1–7.4.3, 7.5, 7.5.1., R11, 11.1–11.3, 11.3.1–11.3.2, 11.4, 11.4.1–11.4.3, 11.5, and 11.5.1)

NERC High Priority Projects

- **11 high priority projects after reprioritization**
  - 6 OPS and 5 CIP projects
- **2024 Board adoption dates**
  - Feb 2024 – Cold Weather
  - Oct 2024 – IBR performance and disturbance monitoring projects related to FERC Order 901
  - Dec 2024 – Extreme Weather and any remaining high priority projects

High Priority O&P Projects

Completed By the End of 2024	
2020-02 Modifications to PRC-024 (generator ride-through)	2022-03 Energy Assurance (Operations)
2021-04 Modifications to PRC-002 (data sharing)	2023-02 Performance of IBRs
2021-07 Extreme Cold Weather	2023-07 TPL-001 Extreme Weather

NERC Medium and Low Priority O&P Projects

- **14 medium and low priority projects**
  - 9 OPS medium and 3 OPS low priority projects
- **Will not post for formal comment/ballot in first half of 2024**
  - Only informal postings to solicit feedback during this time
  - Allow industry to focus on postings for high priority projects
- **Projects to be reevaluated following conclusion of high priority projects**
- **Anticipated 2025 Board Adoption Dates AND Beyond**

Project 2020-02 Modifications to PRC-024 (Generator Ride-through)

- Modify PRC-024-3 or replace it with a performance-based ride-through standard that ensures generators remain connected to the BPS during system disturbances.
- The SC accepted the revised SAR and authorized drafting revisions to the Reliability Standards identified in the SAR on April 19, 2023.
- FERC Order 901 was issued under Docket No. RM22-12-000 on October 19, 2023.
- Standard(s) Affected – PRC-024
- Status: The drafting team is developing the initial draft for setting performance ride-through criteria for inverter-based resources (IBR) during grid disturbances in a new standard (PRC-029) and is modifying PRC-024-3 for synchronous machines.

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Project 2021-04 Modifications to PRC-002 - Phase II

- **Address gaps the Inverter-Based Resource Performance Task Force (IRPTF) identified within the PRC-002.**
- **Modify the requirements to ensure adequate data is available and periodically assessed to facilitate the analysis of BES disturbances, including in areas of the Bulk Power System (BPS) that may not be covered by the existing requirements.**
- **Standard affected – PRC-002-3**
- **Status: the formal comment period, initial ballots, and non-binding polls for Project 2021-04 Modifications to PRC-002 – Phase II concluded at 8 p.m. Eastern, Thursday, September 14, 2023, for the following standards and implementation plan:**
  - PRC-002-5 – Disturbance Monitoring and Reporting Requirements
  - PRC-028-1 – Disturbance Monitoring and Reporting Requirements for Inverter-Based Resources
  - Implementation Plan

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

- **Address nine recommendations for new or enhanced NERC Reliability Standards proposed by the FERC, NERC and Regional Entity Staff Report (Inquiry into the February 2021 Cold Weather Grid Operations)**
- **Staged Timeline:**
  - New and revised Reliability Standards to be submitted for regulatory approval before Winter 2022/2023: development completed by September 30, 2022 for the Board's consideration in October 2022;
  - New and revised Reliability Standards to be submitted for regulatory approval before Winter 2023/2024: development completed by September 30, 2023, for the Board's consideration in October 2023
- **Standard(s) Affected – BAL, EOP, IRO, TOP, or Other Standards as Identified in the SAR**
- **Phase I:**
  - Resulted in EOP-011-3 and EOP-012-1
    - EOP-012-1 is a new standard drafted by the Project 2021-07 SDT. Requirements R1, R2, R4, R6 and R7 are new requirements. Requirements R3 and R5 are carried over from EOP-011-2, which was revised under Project 2019-06 Cold Weather. These requirements have had minor revisions.

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
	9/30/2022	10/1/2022	2/16/2023	10/1/2024*

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

- **Phase II:**
  - Final ballot 10/06/2023, for:
    - EOP-011-4 – Emergency Operations
    - TOP-002-5 – Operations Planning
    - Implementation Plan

In Draft	Final Ballot	NERC Filing	FERC Approval	US Effective
X	10/06/2023	10/30/2023	02/15/2024	

  - EOP-012-2
    - On February 16, 2023, FERC issued an Order Approving Extreme Cold Weather Reliability Standards EOP-011-3 and EOP-012-1 and Directing Modification of Reliability Standard EOP-012-1.

In Draft	Final Ballot	NERC Filing	FERC Approval	US Effective
X	02/09/2024	2/16/2024		

Project 2022-03 Energy Assurance with Energy-Constrained Resources

- **Enhance reliability by requiring entities to perform energy reliability assessments to evaluate energy assurance and develop Corrective Action Plan(s) to address identified risks.**
- **Standard(s) Affected: TPL-001-5.1, EOP, and TOP**
- **Status: A 45-day formal comment period for draft one of BAL-007-1 – Energy Reliability Assessments is open through 8 p.m. Eastern, Monday, March 11, 2024.**
  - This project has two assigned Standard Authorization Requests (SARs) that seek to enhance reliability by requiring entities to perform Energy Reliability Assessments (ERAs) to evaluate energy assurance and develop Corrective Action Plan(s), Operating Plan(s), or other mitigating actions to address identified risks to each respective time horizons:
    - Operations/operational planning time horizon (Operations SAR)
    - Planning time horizon (Planning SAR)

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Project 2023-02 Analysis and Mitigation of BES Inverter-Based Resource Performance Issues

- Addresses the reliability-related need and benefit by requiring analysis and mitigation of unexpected or unwarranted protection and control operations from IBR following the identification of such a performance issue.
- Status: The comment and nomination period for the Project 2023-02 Performance of IBRs Standard Authorization Request (SAR) concluded at 8 p.m. Eastern, Thursday, March 23, 2023.
- Standard Affected: PRC-004-6

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Project 2023-07 Transmission System Planning Performance Requirements for Extreme Weather

- Address the reliability gap pertaining to the consideration of extreme heat and cold weather events that exist in current transmission planning standards (e.g., NERC Reliability Standard TPL-001-5.1 – Transmission System Planning Performance Requirements).
- Consistent with FERC Order No. 896.
- Standard affected: TPL-001-5.1
- Status: The comment period for the Transmission System Planning Performance Requirements for Extreme Weather Standard Authorization Request (SAR) concluded 8 p.m. Eastern, Wednesday, September 27, 2023

In Draft	Final Ballot	NERC Adoption	FERC Approval	US Effective
X				

Questions

HEROS@mro.net

MIDWEST RELIABILITY ORGANIZATION

Guidance for Self-Identified Noncompliances

Andrew Wu – RAM Engineer III, CIP
David Gadberry – Principal RAM Engineer, O&P

Discussion Topics

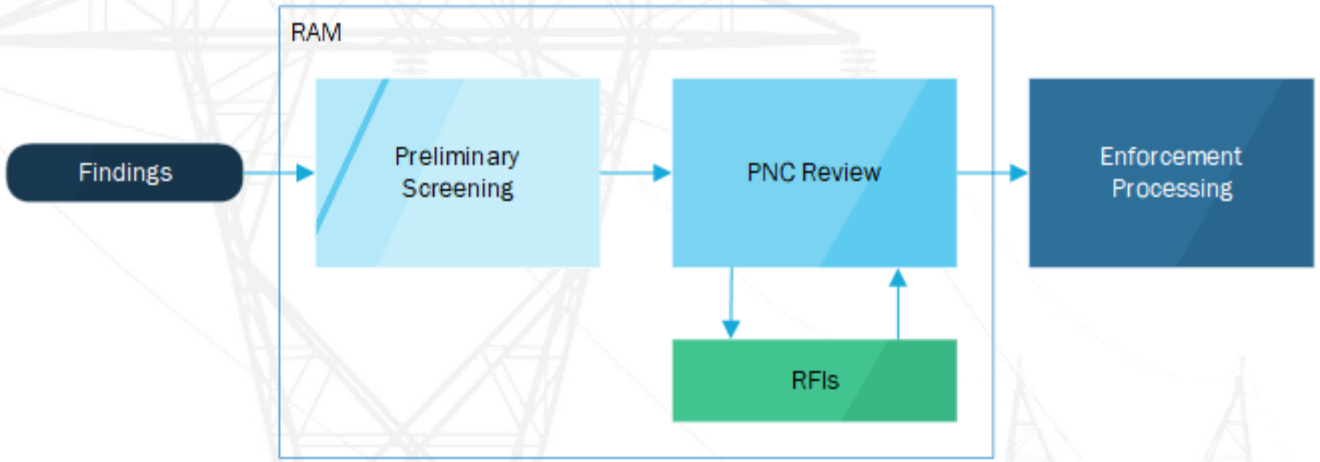
- **RAM Noncompliance Workflow**

- **Guidance for Self-Logs and Self-Reports**
  - Discovery and Description
  - Extent of Condition
  - Root Cause and Mitigation
  - Risk Analysis

MIDWEST RELIABILITY ORGANIZATION

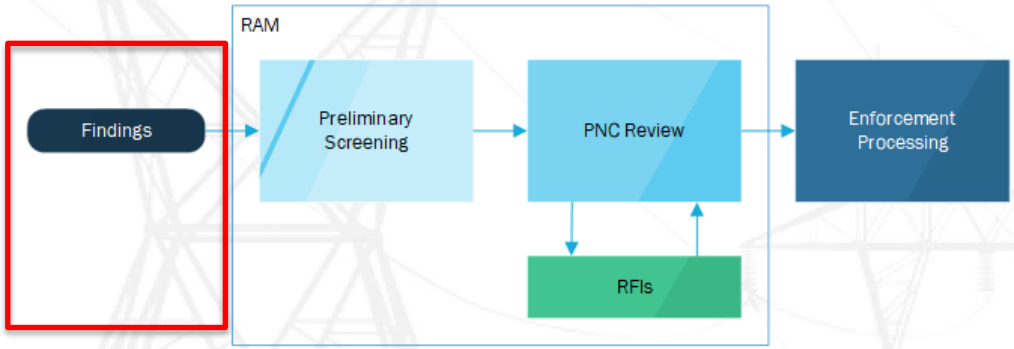
RAM Noncompliance Workflow

PNC Processing Overview



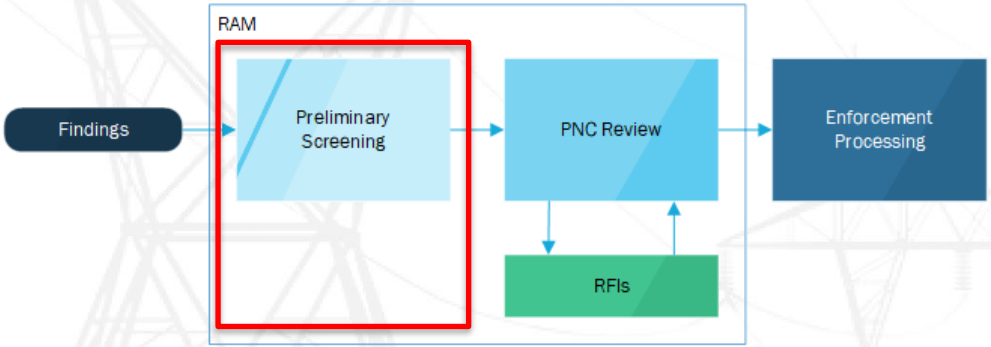
New Findings

- **Sources**
  - Compliance Monitoring activities
  - Self-identified



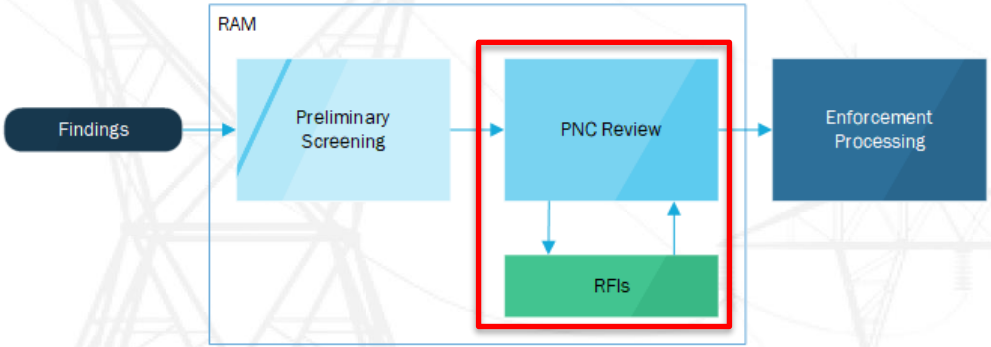
Preliminary Screening

- Conducted by RAM Administrator
- Validation of submission



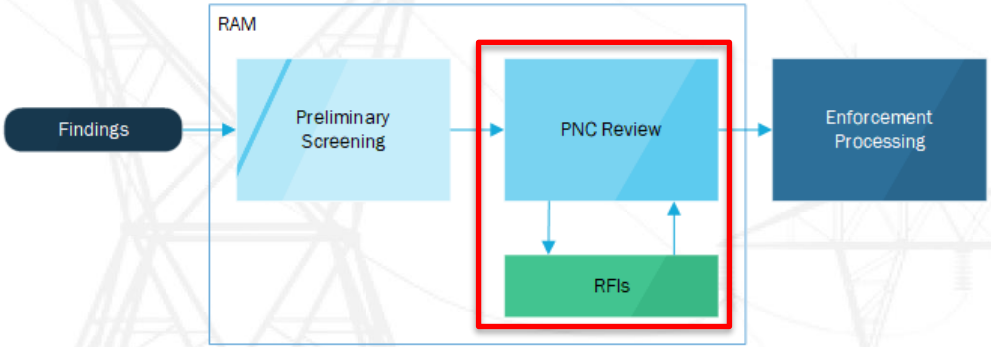
Preliminary PNC Review

- Conducted by RAM Technical Coordinator
- Establishes contact
- Executed via an RFI



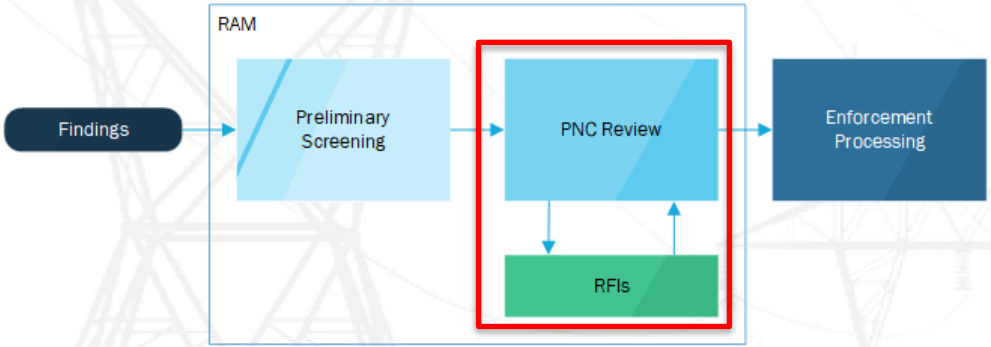
Preliminary PNC Review *(cont.)*

- **Review RFI contains a PDF document with the following information:**
  - Checklist populated with RAM's initial evaluation of:
    - Mitigation
    - Prioritization
  - Summary of relevant compliance history for the same standard and requirement
  - Primary contact information



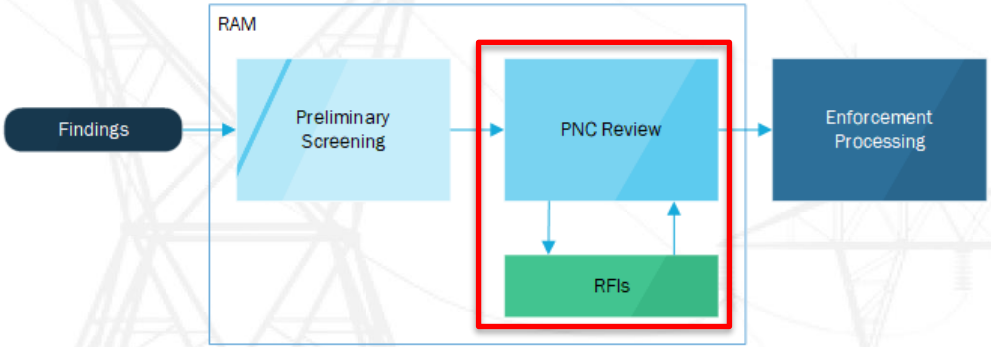
PNC Review

- **Conducted by RAM Case Manager**
- **Reviews and assesses finding**
  - RFI requests / SME discussions
  - Evaluates mitigation
- **Completes risk assessment**



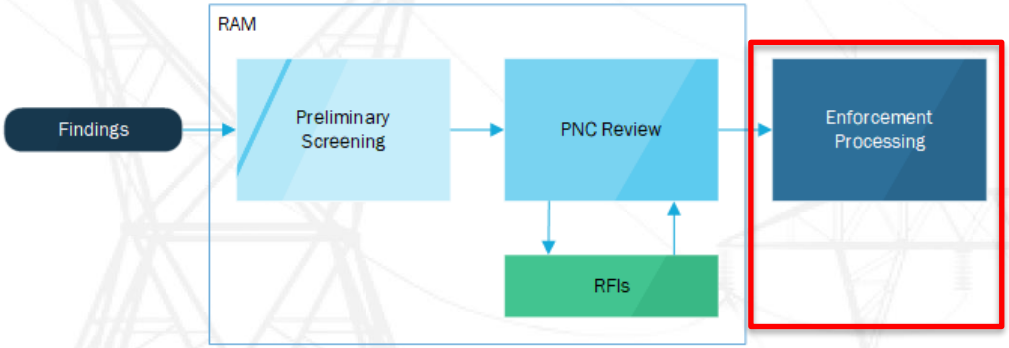
PNC Review *(cont.)*

- **Case Manager**
  - Submits case for peer verification
  - Accepts mitigation
- **Case Manager**
  - Submits case for Manager/Director review
  - Verifies mitigation



Hand-off to Enforcement

- **RAM deliverables to Enforcement**
  - Executive summary
  - Recommended disposition
  - Potential impact



MIDWEST RELIABILITY ORGANIZATION

Guidance for Self-Logs and Self-Reports

Overview

- **Potential Noncompliance Submission**
  - Discovery and Description
  - Extent of Condition
  - Root Cause and Mitigation
  - Risk Analysis

Objective

- **A complete and well documented Self-Report will:**
  - Show that the issue is well understood and managed
  - Help in reducing number of RFIs and SME discussions
  - Help increase efficiency and expediate processing time
  - Help focus on mitigating activities

Timeliness of Self-Reporting

- **Balance between speed and completeness of the self-report**

- **After submission**
  - Finding Updates
  - RFIs

Discovery

- **When was the noncompliance discovered?**

- **How was it discovered?**
  - Ad-hoc, by a required activity, or by an Internal Control?
  - Through an event or other operational occurrence?
  - As part of an EOC or mitigation activity of another noncompliance?

***Note for issues discovered in preparation for, or during a Compliance Monitoring engagement**

Discovery *(cont.)*

- **Examples**

On February 18, 2017, during a routine review of the system, a system administrator discovered a contractor's access in a PACS (security management software) was incorrect.

On August 1, 2017, the entity conducted a review of its battery maintenance and testing records and discovered it failed to have evidence of the four-month maintenance and testing for 15% of its total Valve Regulated Lead-Acid batteries.

Description

- **What happened?**
  - Describe how the Standard and Requirement was violated
- **How did it happen?**
  - Describe the facts and circumstances
  - Describe any processes, procedures, or controls that did not operate as intended
  - Describe system conditions at the time

Description *(cont.)*

- **Where did it happen / what was involved?**
  - O&P Issues
    - Details of facilities, elements, components or procedures in scope
    - Inherent properties (MW, MVA, Voltage, fuel type, capacity factors, etc.)
  - CIP Issues
    - Details of Cyber Assets, PSPs, individuals, accounts, or BES CSI storage locations in scope
    - Impact level of associated BES Cyber Systems
    - Function and CIP Classification of the Cyber Assets

Description *(cont.)*

- **What was the duration of the noncompliance?**
  - Start and end dates
    - Explain how the start date was determined
    - End date should correspond with the remediation of the noncompliance
- **Is the noncompliance still occurring?**
    - Additional Comments field in Align

Description *(cont.)*

- **Examples**
  - NERC Registered Entity Self-Report and Mitigation Plan User Guide

Reliability Standard - CIP-004-6 R4	Lacking	Acceptable
Description and Scope	The entity submitted a Self-Report indicating it was in violation of CIP-004-6 R4. A contractor needed access to a Physical Access Control System (PACS) to perform new responsibilities as they were moving systems from one security management software to another. The system administrator noted that the contractor had full access to the old system, so the system administrator granted access privileges to the new system.	On March 24, 2018, the entity submitted a Self-Report indicating that as a Generator Owner and Generator Operator, it was in violation of CIP-004-6 R4. On February 18, 2017, during a routine review of the system, a system administrator discovered a contractor's access in a PACS (security management software) was incorrect. Specifically, on February 2, 2017, the system administrator changed a physical security contractor's access privileges for a security management software tool without having documentation of proper authorization. At the time of the noncompliance, the entity was in the process of migrating from one security management software tool (Tool A) to another (Tool B). The contractor already had read-only access to the Tool A security management software tool, and had authorized NERC CIP electronic access to the Tool B security management software. The contractor was working with entity staff who were testing Physical Security Perimeter (PSP) access points and needed the Tool A security management software access that would allow him to monitor badge activity at the PSP doors. The contractor was not aware that the change in access privileges for the Tool A security management software would require additional authorization, so the contractor went directly to a system administrator to request access to the screens that would allow the contractor to view the badge activity. The system administrator was aware that the contractor had full access in the Tool B security management software, but was not aware that the contractor did not have documented authorization for the same type of access in the Tool A security management software. The system administrator granted full access to the Tool A security management software tool when the contractor only was authorized for read-only access on the Tool A security management software tool. The issue began on February 2, 2017, when the system administrator granted full access to the Tool A security management software tool for a contractor without proper authorization, and ended on September 20, 2017, when the entity removed the unauthorized access privileges.

Extent of Condition

- Provides reasonable assurance that all effects of a noncompliance has been identified
- Essential for successful mitigation and preventing reoccurrence
- Document the method and the results

Extent of Condition *(cont.)*

- **Considerations when determining extent:**
  - Other affiliate companies
  - Procedures, assets, facilities or personnel
  - Other Reliability Standards
  - Prior compliance history

Extent of Condition *(cont.)*

- **Examples**

  If a process was used to meet compliance, and later it was discovered that a critical step was missing, then everything associated with that process (devices, facilities, etc.) may be noncompliant.

  If the noncompliance centers on a Microsoft patch, the extent of condition may be all BCS that include Windows Cyber Assets.

  If the entity can show noncompliance occurred with a brand of relay only used in one substation, there may be no need to consider all other facilities.

Extent of Condition *(cont.)*

- **Extended EOC**
  - Include as a mitigating activity
  - Submit via a Finding Update

- **If an EOC was not performed**
  - How was it determined that an EOC was not needed?
    - Additional Comments field in Align

Root Cause

- **Majority of Root Causes determined to be**
  - Incomplete/Lacking program, process, or controls
    - Where/How were the program, processes, or controls insufficient?
    - Why did it fail to prevent or correct the noncompliance?
  - Failure to apply the program or process
    - How/Why did personnel fail to apply the program or process?
    - Caution: human performance error is often insufficient

Root Cause *(cont.)*

- **How far do you investigate and ask questions?**
  - Mitigation
  - 5 Why's
- **EOC and Root Cause relationship**

Root Cause Examples

- CIP-010-4 R1

Root Cause Examples *(cont.)*

- CIP-004-6 R5

Root Cause *(cont.)*

- **Additional considerations**
  - Logical sequence of events connecting the cause and noncompliance?
  - Symptom of a larger problem?
  - What controls existed, and why were they ineffective?

Mitigation

- **Mitigation Purpose and Milestone Types:**
  - Remediating Actions ends the noncompliance
  - Preventative, Detective, and Corrective Controls mitigate risk of reoccurrence
- **Mitigations should address Root Cause and risk of reoccurrence, not just symptoms**
- **MRO expects to see at minimum: Remediate the noncompliance and mitigate the risk of reoccurrence**

Mitigation Examples

- **Less Effective**
  - “Entity personnel re-takes existing training on employee termination program.”
- **Effective**
  - “Update the employee termination program and training to highlight the risk associated with employee terminations. Communicate changes to responsible personnel, responsible personnel takes the updated training, and ensure they understand the updated employee termination program changes and the significance of employee terminations.”

Potential Risk

- **Potential Risk to Bulk Power System**
  - Worst case scenario
  - Does not include controls or mitigations
  - Potential Risk = Potential Impact * Likelihood of Impact

Actual Risk

- **Actual Risk to the reliability of the BPS**
  - Implemented controls
  - Size (number), criticality, function and location of facilities and assets associated with condition
  - Adverse system or personnel conditions
  - Actual impact to systems and BPS

Actual Risk *(cont.)*

- **Reducing Factors**
  - Would generally like to see controls and procedures that exceed Reliability Standards and Requirements
  - Controls that exist before and during the noncompliance
  - Controls that limit the scope, duration, and assets
- **Aggravating Factors**
  - Adverse system or personnel conditions

Reducing Risk Examples

- **Effective:**
  - The noncompliance condition was only applicable to PCA test workstations, due to the phased approach in the change management program, during the software upgrade.
  - The duration of noncompliance was less than one day, as the Entity's detective controls immediately identified the new commercially available software on the PCA test workstations.

Reducing Risk Examples *(cont.)*

- **Less Effective:**
  - The PCA test workstations associated with a high impact BCS are protected behind firewalls in an ESP and in a PSP.
  - The retired employee left their access badge at their desk on their last day, but did not notify anyone. The access badge wasn't discovered until further investigation into the noncompliance.

Compliance History

- Consider reviewing your Compliance History when determining Actual Risk

Additional Guidance

- **Registered Entity Self-Report and Mitigation Plan User Guide:**
  - https://www.nerc.com/pa/comp/CE/Enforcement%20Actions%20DL/Registered%20Entity%20Self-Report%20and%20Mitigation%20Plan.pdf
- **Self Logging Program User Guide**
  - https://www.nerc.com/pa/comp/CE/Enforcement%20Actions%20DL/Self-Logging%20Program%20User%20Guide.pdf
- **Cause Analysis Methods for NERC, Regional Entities, and Registered Entities**
  - https://www.nerc.com/pa/rrm/ea/EA%20Program%20Document%20Library/Cause%20Analysis%20Methods%20for%20NERC,%20Regional%20Entities,%20and%20Registered%20Entities_09202011_rev1.pdf
- **Mitigation Milestone MRO Newsletter**
  - https://www.mro.net/assigning-mitigation-milestones-in-the-ero-enterprise-align-system/

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Questions

HEROS@mro.net

MIDWEST RELIABILITY ORGANIZATION

Inherent Risk Assessments in Align

Adam Flink, Principal Risk Assessment and Mitigation Engineer (O&P)

Main Topics

- **Inherent Risk Assessment (IRA) Overview**
  - Purpose
  - History
- **Transition to Align**
  - Current hybrid IRA process
  - Ongoing work toward full transition

IRA Fundamentals

- What is inherent risk?
- Why assess inherent risk?
- How do we assess inherent risk?

IRA History

- **IRA Brief History**
  - 2013: MRO Entity Risk Assessments (ERA)
  - 2014: ERO Inherent Risk Assessment (IRA) Guide published
  - 2014: MRO begins performing IRAs
  - 2015: ERO begins alignment work
  - 2016: ERO develops common IRA Risk Factors
  - 2021-22: ERO updates IRA Risk Factors

Risk Factor Evolution

IRA Risk Factors (changes since 2021)

- UFLS Equipment
- UFLS Development and Coordination
- UVLS
- Load
- Transmission Portfolio
- Voltage Control
- Largest Generator Facility
- Variable Generation
- Total Generation Capacity
- Planned Facilities
- CIP - Impact Rating Criteria
- ~~ICCP Connectivity~~
- CIP – External Electronic Communication
- CIP – Monitor and Control Capability
- Critical Transmission
- BA Coordination
- RAS/SPS
- Workforce Capability
- ~~Situational Awareness and Monitoring Tools~~
- System Restoration

Transition to Align

- **Milestones**
  - 11/4/2022: Align release 4.5 deployed
  - Q1, 2023: First MRO pilot IRA in Align
  - Q2, 2023: Second MRO pilot IRA
  - Q3, 2023: MRO implemented hybrid Align IRA process for all IRAs going forward

Hybrid IRAs

- **Future state: IRA data request replaced by questionnaires in Align**
  - Risk Factor Questionnaire (RFQ)
  - Entity Risk Profile Questionnaire (ERPQ)
- **Present state: MRO's hybrid IRA process**
  - MS Word version of RFQ+ERPQ emailed to entities, collected through MRO EFT or ERO Secure Evidence Locker (SEL)
  - Asset Verification forms handled exclusively through MRO Registration group
  - IRA is performed by MRO staff using Align

Hybrid IRA Challenges

- **Questionnaires (RFQ & ERPQ)**
  - O&P vs. CIP clarity
  - Hesitancy to upload sensitive documentation
  - Applicability of questionnaire to entities within a Coordinated Oversight group

Hybrid IRA Challenges

- **SEL**
  - Reference ID
  - “In progress” message
  - SEL outages
  - SEL access, wait times for help desk tickets
  - Other error messages

Full Transition to Align

- **What are the current challenges?**
  - ERO work to improve ERPQ and RFQ
    - ERPQ changes implemented in Align recently
    - RFQ changes upcoming
  - Align bug fixes
    - Many issues have been fixed since 2023 Q3
    - Outstanding issues are being tracked and prioritized
  - Coordinated Oversight IRAs – questionnaire functionality

Full Transition to Align

- **When will IRA questionnaires fully transition to Align from the MRO hybrid process?**
  - Non-coordinated-oversight: 2024 Q2
  - Coordinated oversight: possibly later in 2024

IRA Timing

- **IRAs can be initiated by MRO at any time, but generally will be associated with the following:**
  - Audit
  - Compliance Oversight Plan Change
  - Registration change
  - BES Facility change
  - Coordinated Oversight change

Questions

HEROS@mro.net

MIDWEST RELIABILITY ORGANIZATION

THANK YOU!

Please take a moment to complete the survey

https://www.surveymonkey.com/r/RAM2024