

March 31, 2022

**VIA ELECTRONIC FILING**

Ms. Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, DC 20426

Re: **NERC Full Notice of Penalty regarding Southwest Power Pool, Inc.,  
FERC Docket No. NP22-\_-000**

Dear Ms. Bose:

The North American Electric Reliability Corporation (NERC) hereby provides this Notice of Penalty<sup>1</sup> regarding Southwest Power Pool, Inc. (SPP), and referred to herein as the Entity, NERC Registry ID# NCR01143,<sup>2</sup> in accordance with the Federal Energy Regulatory Commission's (Commission or FERC) rules, regulations, and orders, as well as NERC's Rules of Procedure including Appendix 4C (NERC Compliance Monitoring and Enforcement Program (CMEP)).<sup>3</sup>

NERC is filing this Notice of Penalty, with information and details regarding the nature and resolution of the violations,<sup>4</sup> with the Commission because NERC as Compliance Enforcement Authority (NCEA) and the Entity have entered into a Settlement Agreement (Attachment A) to resolve all outstanding issues arising from NCEA's determination and findings of the violation of the Reliability Standard listed below.

According to the Settlement Agreement, the Entity admits the violation, and has agreed to the assessed penalty of two hundred eighty thousand dollars (\$280,000), in addition to other remedies and actions to

<sup>1</sup> *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards, Order No. 672, 114 FERC ¶ 61,104, order on reh'g, Order No. 672-A, 114 FERC ¶ 61,328 (2006); Notice of New Docket Prefix "NP" for Notices of Penalty Filed by the N. Am. Elec. Reliability Corp., Docket No. RM05-30-000 (February 7, 2008); Mandatory Reliability Standards for the Bulk-Power System, Order No. 693, 118 FERC ¶ 61,218, order on reh'g, Order No. 693-A, 120 FERC ¶ 61,053 (2007).*

<sup>2</sup> The Entity was included on the NERC Compliance Registry as a Balancing Authority (BA) on March 1, 2014, Planning Authority/Planning Coordinator (PA/PC), Reliability Coordinator (RC), Reserve Sharing Group (RSG), and Transmission Service Provider (TSP), each on May 31, 2017.

<sup>3</sup> See 18 C.F.R § 39.7(c)(2) and 18 C.F.R § 39.7(d).

<sup>4</sup> For purposes of this document, each violation at issue is described as a "violation," regardless of its procedural posture and whether it was a possible, alleged, or confirmed violation.

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mitigate the instant violation and facilitate future compliance under the terms and conditions of the Settlement Agreement.

### Statement of Findings Underlying the Violation

This Notice of Penalty incorporates the findings and justifications set forth in the Settlement Agreement, by and between NCEA and the Entity. The details of the findings and basis for the penalty are set forth in the Settlement Agreement and herein.

In accordance with Section 39.7 of the Commission's regulations, 18 C.F.R. § 39.7 (2021), NERC provides the following summary table identifying each violation of a Reliability Standard resolved by the Settlement Agreement. Further information on the subject violation is set forth in the Settlement Agreement and herein.

Violation(s) Determined and Discovery Method								
*SR = Self-Report / SC = Self-Certification / CA = Compliance Audit / SPC = Spot Check / CI = Compliance Investigation								
NERC Violation ID	Standard	Req.	VRF/VSL	Applicable Function(s)	Discovery Method* & Date	Violation Start-End Date	Risk	Penalty Amount
SERC2017018896	IRO-002-2	R4	High/ Severe	RC	SR 12/22/17	1/1/16 to 5/15/17	Serious	\$280k

### Information about the Entity

SPP is a Regional Transmission Organization (RTO) that is mandated by the Commission with ensuring reliable supplies of power, adequate transmission infrastructure, and competitive wholesale prices of electricity. Based in Little Rock, Arkansas, SPP has members in 14 states and a service territory spanning approximately 552,882 square miles and serving 18 million people. The SPP service territory includes more than 70,000 miles of high voltage transmission lines, approximately 6,140 substations, and more than 1,162 generation plants. The SPP service territory has reached a coincident peak load of approximately 51 GW and has approximately 94 GW of generating nameplate capacity.

### IRO-002-2 R4

NCEA determined that the Entity did not have sufficient alarm management in its Real-time Contingency Assessment (RTCA) system, resulting in disabled alarm flags for certain 345 kV and 500 kV Facilities. In total, the disabled alarm flags affected 1% of the total lines monitored by SPP (3% of the electrical capacity) and 8% of the total number of transformers (12% of transformer capacity). Attachment A includes additional facts regarding the violation.

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The cause of this violation was a database software issue and insufficient controls in process steps before the Entity put the model into the production EMS environment.

NCEA determined that this violation posed a serious and substantial risk to the reliability of the bulk power system (BPS). Attachment A includes the facts regarding the violation that NCEA considered in its risk assessment.

The Entity submitted its mitigation activities to address the referenced violation. Attachment A includes a description of the mitigation activities the Entity took to address this violation.

The Entity certified that it had completed all mitigation activities. NCEA verified that the Entity had completed all mitigation activities. The attached Settlement Agreement (Attachment A) and Attachment 3 to the Settlement Agreement provide specific information on NCEA's verification of the Entity's completion of the activities.

#### NCEA's Basis for Penalty

According to the Settlement Agreement, NCEA has assessed a penalty of two hundred eighty thousand dollars (\$280,000) for the referenced violation. In reaching this determination, NCEA considered the following factors:

1. The violation posed a serious or substantial risk to the reliability of the BPS, as discussed in Attachment A;
2. The Entity self-reported the violation;
3. The Entity admitted to and agreed to settle the violation;
4. The Entity was cooperative throughout the compliance enforcement process;
5. The instant violation constituted the Entity's first occurrence of violation of the subject NERC Reliability Standard;
6. The Entity had an internal compliance program at the time of the violation, which NCEA did not consider a mitigating factor, as discussed in Attachment A; and
7. There were no other mitigating or aggravating factors or extenuating circumstances that would affect the assessed penalty/disposition method.

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After consideration of the above factors, NCEA determined that, in this instance, the penalty amount of two hundred eighty thousand dollars (\$280,000) is appropriate and bears a reasonable relationship to the seriousness of the violation.

### **Statement Describing the Assessed Penalty, Sanction, or Enforcement Action Imposed<sup>5</sup>**

#### **Basis for Determination**

Taking into consideration the Commission's direction in Order No. 693, the NERC Sanction Guidelines and the Commission's July 3, 2008, October 26, 2009 and August 27, 2010 Guidance Orders,<sup>6</sup> NERC Enforcement staff reviewed the applicable requirements of the violation at issue, and considered the factors listed above.

For the foregoing reasons, NERC Enforcement staff approved the resolution between NCEA and the Entity and believes that the assessed penalty of two hundred eighty thousand dollars (\$280,000) is appropriate for the violation and circumstances at issue, and is consistent with NERC's goal to promote and ensure reliability of the BPS.

Pursuant to 18 C.F.R. § 39.7(e), the penalty will be effective upon expiration of the 30-day period following the filing of this Notice of Penalty with FERC, or, if FERC decides to review the penalty, upon final determination by FERC.

### **Attachments to be Included as Part of this Notice of Penalty**

The attachments to be included as part of this Notice of Penalty are the following documents:

1. Settlement Agreement by and between NCEA and the Entity executed February 15, 2022, included as Attachment A;
2. The Entity's Self-Report dated December 22, 2017, included as Attachment 1 to the Settlement Agreement;
3. The Entity's Certification of Mitigation Activities Completion submitted March 20, 2018, included as Attachment 2 to the Settlement Agreement; and

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<sup>5</sup> See 18 C.F.R. § 39.7(d)(4).

<sup>6</sup> N. Am. Elec. Reliability Corp., "Guidance Order on Reliability Notices of Penalty," 124 FERC ¶ 61,015 (2008); N. Am. Elec. Reliability Corp., "Further Guidance Order on Reliability Notices of Penalty," 129 FERC ¶ 61,069 (2009); N. Am. Elec. Reliability Corp., "Notice of No Further Review and Guidance Order," 132 FERC ¶ 61,182 (2010).

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4. SERC's Verification of Mitigation Activities Completion dated March 21, 2018, included as Attachment 3 to the Settlement Agreement.

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**Notices and Communications:** Notices and communications with respect to this filing may be addressed to the following:

<p>*Persons to be included on the Commission’s service list are indicated with an asterisk. NERC requests waiver of the Commission’s rules and regulations to permit the inclusion of more than two people on the service list.</p> <p>Paul Suskie* Executive Vice President, Regulatory/Legal Southwest Power Pool 201 Worthen Drive Little Rock, AR 72223 psuskie@spp.org 501-688-2535</p> <p>Michael Riley* Associate General Counsel Southwest Power Pool 201 Worthen Drive Little Rock, AR 72223 Michael.b.riley@spp.org 501-614-3372</p> <p>Michael Desselle* Vice President, Process Integrity and Chief Compliance and Administrative Officer Southwest Power Pool 201 Worthen Drive Little Rock, AR 72223 mdesselle@spp.org 501-614-3206</p>	<p>Teresina Stasko* Assistant General Counsel and Director of Enforcement North American Electric Reliability Corporation 1325 G Street NW, Suite 600 Washington, DC 20005 (202) 400-3000 (202) 644-8099 – facsimile teresina.stasko@nerc.net</p> <p>James McGrane* Senior Counsel North American Electric Reliability Corporation 1325 G Street NW, Suite 600 Washington, DC 20005 (202) 400-3000 (202) 644-8099 – facsimile james.mcgrane@nerc.net</p> <p>Caelyn Palmer* Associate Counsel North American Electric Reliability Corporation 1325 G Street NW, Suite 600 Washington, DC 20005 (202) 400-3000 (202) 644-8099 – facsimile caelyn.palmer@nerc.net</p>
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## Conclusion

NERC respectfully requests that the Commission accept this Notice of Penalty as compliant with its rules, regulations, and orders.

Respectfully submitted,

/s/ Caelyn Palmer

Teresina A. Stasko

Assistant General Counsel and Director of  
Enforcement

Caelyn Palmer

Associate Counsel

North American Electric Reliability  
Corporation

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teresina.stasko@nerc.net

caelyn.palme@nerc.net

cc: Southwest Power Pool, Inc.  
NERC as Compliance Enforcement Authority

Attachments

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**SETTLEMENT AGREEMENT**

**OF**

**NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION,  
AS COMPLIANCE ENFORCEMENT AUTHORITY,**

**AND**

**SOUTHWEST POWER POOL, INC.**

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**A. INTRODUCTION**

1. Pursuant to an order from the Federal Energy Regulatory Commission (“FERC” or “the Commission”), the North American Electric Reliability Corporation (“NERC”) became the Compliance Enforcement Authority (“CEA”) for Southwest Power Pool, Inc. (“SPP”) on July 1, 2018.<sup>1</sup> At that time, NERC, as the CEA (“NCEA”), also assumed responsibility for a number of violations<sup>2</sup> that had previously been reported by SPP to SERC Reliability Corporation.<sup>3</sup>
2. NCEA and SPP (collectively, the “Parties”) enter into this Settlement Agreement (Agreement) to resolve all outstanding issues arising from a preliminary and non-public assessment resulting in NCEA’s determination and findings, pursuant to the NERC Rules of Procedure, of one violation by SPP of the Reliability Standard and Requirement referenced in the table below.

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<sup>1</sup> *Order Granting Approvals in Connection with the Dissolution of the Southwest Power Pool Regional Entity*, 163 FERC ¶ 61,094 (2018) at P 18. NERC, as the Electric Reliability Organization, retains authority under section 215(e) of the Federal Power Act to act as the Compliance Enforcement Authority over any user, owner, or operator of the Bulk-Power System. *See, e.g., Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval and Enforcement of Electric Reliability Standards*, Order No. 672, FERC Stats. & Regs. ¶ 31,204 at P 654 (2006).

<sup>2</sup> For the purposes of this document and attachments hereto, each violation at issue is described as a “violation,” regardless of its procedural posture and whether it was a Possible, Alleged, or Confirmed Violation.

<sup>3</sup> Prior to NERC assuming the role of CEA for SPP, SERC served as the CEA for SPP’s registered entity functions pursuant to a Commission-approved agreement between SERC and SPP. *See Order on Renewals of Compliance Monitoring and Enforcement Agreements and Related Amendments to Delegation Agreements*, available at <https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order%20on%20Renewals%20of%20CMEP%20Agreements.pdf>; and *Agreement Between SERC Reliability Corporation and Southwest Power Pool Regional Entity Concerning Compliance Monitoring and Enforcement of Southwest Power Pool, Inc. Registered Functions*, available at [https://www.nerc.com/FilingsOrders/us/Regional%20Delegation%20Agreements%20DL/SERC\\_SPP-RE\\_Agreement\\_20130101.pdf](https://www.nerc.com/FilingsOrders/us/Regional%20Delegation%20Agreements%20DL/SERC_SPP-RE_Agreement_20130101.pdf).



<b>Reliability Standard</b>	<b>Requirement</b>	<b>NERC Tracking Number</b>	<b>Discovery Method</b>
IRO-002-2	R4	SERC2017018896	Self-Report

3. SPP admits the violation referenced above. SPP has agreed to the proposed penalty of **\$280,000**, in addition to other remedies and actions to mitigate the instant violation and to ensure future compliance under the terms and conditions of this Agreement.

#### **B. STIPULATION**

4. The facts stipulated herein are stipulated solely for the purpose of resolving, between NCEA and SPP, the matters discussed herein and do not constitute stipulations or admissions for any other purpose. The description of the violation in Attachment A is incorporated herein in its entirety. NCEA and SPP hereby stipulate and agree to the following:

#### **C. OVERVIEW OF THE ENTITY**

5. SPP is a Regional Transmission Organization (RTO) that is mandated by the Commission with ensuring reliable supplies of power, adequate transmission infrastructure, and competitive wholesale prices of electricity. Based in Little Rock, Arkansas, SPP has members in 14 states and a service territory spanning approximately 552,882 square miles and serving 18 million people. The SPP service territory includes more than 70,000 miles of high voltage transmission lines, approximately 6,140 substations, and more than 1,162 generation plants. The SPP service territory has reached a coincident peak load of approximately 51 GW and has approximately 94 GW of generating nameplate capacity.
6. SPP is registered on the NERC Compliance Registry as a Balancing Authority, Planning Authority/Planning Coordinator, Reliability Coordinator, Reserve Sharing Group, and Transmission Service Provider under NCR01143. SPP, in its capacity as a Reliability Coordinator, is subject to compliance with IRO-002-2 and subsequent versions of the Standard.

#### **D. PARTIES' SEPARATE REPRESENTATIONS**

##### **STATEMENT OF NERC**

7. NCEA agrees that this Agreement is in the best interest of the parties and in the best interest of bulk power system reliability.

## **STATEMENT OF THE ENTITY**

8. SPP admits that these facts set forth and agreed to by the parties for the purposes of this Agreement constitute a violation of the above-referenced Reliability Standard Requirement
9. SPP has agreed to enter into this Settlement with NCEA to avoid extended litigation with respect to matters described herein, to avoid uncertainty, and to effectuate a complete and final resolution of the issues set forth herein. SPP agrees that this Agreement is in the best interest of the parties and in the best interest of bulk power system reliability.
10. Pursuant to Section 5.6 of the NERC Rules of Procedure, SPP has chosen not to provide an explanatory statement to be included in the Agreement.

## **E. MITIGATING ACTIONS**

11. The Parties agree that SPP has completed the mitigating actions and NCEA has verified the completion of the mitigating actions set forth in Attachment A.

## **F. ADJUSTMENT FACTORS**

12. In addition to the facts and circumstances stated above, NCEA considered the following factors in its penalty determination.

### *Aggravating Factors*

13. NCEA determined that there were no factors that were appropriate to consider as an aggravating factor in the penalty determination. SPP had no relevant compliance history. There were no other facts or conduct that NCEA considered an aggravating factor in the penalty determination.

### *Mitigating Factors*

14. NCEA determined that several factors were appropriate to consider as mitigating factors in the penalty determination.
15. While SPP self-reported the violation, it took nearly six months to do so after discovering and correcting the violation, resulting in reduced self-reporting credit.
16. SPP was highly cooperative throughout the entire enforcement process and voluntarily provided NCEA with information regarding the violation in a manner that was detailed, thorough, organized, and timely. SPP has been open with NCEA regarding its violations, processes, systems, and organization, and this insight has allowed NCEA to better analyze the violations. NCEA provided SPP with mitigating credit in the penalty determination as a result of this cooperation.

17. SPP had an internal compliance program at the time of the violation. Due to the serious risk of the violation and the lack of internal controls to catch the violation earlier, NCEA provided no mitigating credit in the penalty determination as a result of the internal compliance program.

*Extenuating Circumstances*

18. NCEA determined that there were no extenuating circumstances that justified the reduction or elimination of the penalty otherwise determined.

*Settlement and Admission Credit*

19. NCEA provided mitigating credit in the penalty determination for SPP's agreement to settle the violations. In addition, NCEA provided additional mitigating credit in the penalty determination for SPP's admission and acceptance of responsibility for the violations.

**G. PENALTY AND SANCTION**

20. NCEA considered the specific facts and circumstances of the violation and SPP's actions in response to the violation in determining a proposed penalty that meets the requirement in Section 215 of the Federal Power Act that "[a]ny penalty imposed under this section shall bear a reasonable relation to the seriousness of the violation and shall take into consideration the efforts of an entity to remedy the violation in a timely manner."<sup>4</sup>
21. Based on the foregoing, SPP shall pay a monetary penalty of **\$280,000** to NCEA.
22. SPP acknowledges that the monetary penalty is due and owing upon execution of this Agreement, and that payment will be made by SPP in accordance with the outcome of the FERC regulatory proceedings under the process directed by SPP's Tariff in a Section 205 filing, or as otherwise directed by FERC.
23. NCEA acknowledges that SPP is required to execute regulatory filings at FERC as a necessary step to satisfy SPP's Tariff obligations. As soon as practical after SPP is authorized by its Board of Directors and the Agreement is approved by the Commission or by operation of law, SPP will initiate a Tariff filing under Federal Power Act Section 205 to recover the penalty amount under this Agreement, and SPP will use reasonable efforts to obtain FERC approval of the filing, which will request FERC's approval of SPP's allocation/recovery of the monetary penalty.
24. In the event FERC rejects or does not accept SPP's request for recovery of the Recoverable Penalty in the Section 205 proceeding, SPP will in a timely manner continue to execute the regulatory process prescribed by FERC to satisfy SPP's

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<sup>4</sup> 16 U.S.C. § 824o(c)(6).

Tariff obligations or take other appropriate action to pursue a regulatory or legal process to complete any related proceedings (collectively the “Proceedings”).

25. If SPP fails to timely remit the monetary payment to NCEA, interest will commence to accrue on the outstanding balance, pursuant to 18 C.F.R. § 35.19a(a)(2)(iii), on the 31st day after the date on the invoice issued by NCEA to SPP for the monetary penalty payment. NCEA agrees that no invoice will be issued until the completion of the Proceedings.

## **H. ADDITIONAL TERMS**

26. The Parties agree that this Agreement is in the best interest of Bulk Electric System reliability. The terms and conditions of the Agreement are consistent with the regulations and orders of the Commission and the NERC Rules of Procedure.
27. NCEA shall report the terms of all settlements of compliance matters to NERC. NERC will review the Agreement for the purpose of evaluating its consistency with other settlements entered into for similar violations or under similar circumstances. Based on this review, NERC will either approve or reject this Agreement. If NERC rejects the Agreement, NERC will provide specific written reasons for such rejection and NCEA will attempt to negotiate with SPP a revised settlement agreement that addresses NERC's concerns. If a settlement cannot be reached, the enforcement process will continue to conclusion. If NERC approves the Agreement, NERC will (a) report the approved settlement to the Commission for review and approval by order or operation of law and (b) publicly post the Alleged Violation and the terms provided for in this Agreement.
28. This Agreement binds the Parties upon execution, and may only be altered or amended by written agreement executed by the Parties. SPP expressly waives its right to any hearing or appeal concerning any matter set forth herein, unless and only to the extent that SPP contends that any NERC or Commission action constitutes a material modification to this Agreement.
29. NCEA reserves all rights to initiate enforcement action against SPP in accordance with the NERC Rules of Procedure in the event that SPP fails to comply with any of the terms or conditions of this Agreement. SPP retains all rights to defend against such action in accordance with the NERC Rules of Procedure.
30. SPP consents to the future use of this Agreement by NCEA, or any Regional Entity designated as CEA for SPP in the future, for the purpose of assessing the factors within the NERC Sanction Guidelines and applicable Commission orders and policy statements, including, but not limited to, the factor evaluating SPP's violation history. Such use may be in any enforcement action or compliance proceeding undertaken by NCEA or any Regional Entity or both, provided however that SPP does not consent to the use of the conclusions, determinations, and findings set forth in this Agreement as the sole basis for any other action or

proceeding brought by NCEA or any Regional Entity or both, nor does SPP consent to the use of this Agreement by any other party in any other action or proceeding.

31. SPP affirms that all of the matters set forth in this Agreement are true and correct to the best of its knowledge, information, and belief, and that it understands that NCEA enters into this Agreement in express reliance on the representations contained herein, as well as any other representations or information provided by SPP to NCEA during any SPP interaction with NCEA relating to the subject matter of this Agreement.
32. Upon execution of this Agreement, the Parties stipulate that the Possible Violation addressed herein constitutes an Alleged Violation. The Parties further stipulate that all required, applicable information listed in Section 5.3 of the CMEP is included within this Agreement.
33. Each of the undersigned agreeing to and accepting this Agreement warrants that he or she is an authorized representative of the party designated below, is authorized to bind such party, and accepts the Agreement on the party's behalf.
34. The undersigned agreeing to and accepting this Agreement warrant that they enter into this Agreement voluntarily and that, other than the recitations set forth herein, no tender, offer, or promise of any kind by any member, employee, officer, director, agent, or representative of the Parties has been made to induce the signatories or any other party to enter into this Agreement.
35. The Agreement may be signed in counterparts.
36. This Agreement is executed in duplicate, each of which so executed shall be deemed to be an original.<sup>5</sup>

**SIGNATURE PAGE TO FOLLOW**

**REMAINDER OF PAGE INTENTIONALLY LEFT BLANK**

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<sup>5</sup> An electronic version of this executed document shall have the same force and effect as the original.

**Agreed to and accepted by:**



Barbara Sugg  
President and Chief Executive Officer  
**SOUTHWEST POWER POOL, INC.**

February 14, 2022  
Date

Sonia Mendonca  Digitally signed by Sonia  
Mendonca  
Date: 2022.02.15 08:59:40 -05'00'

Sonia Mendonca  
Senior Vice President, General Counsel,  
and Corporate Secretary  
**NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION**

\_\_\_\_\_  
Date

**A. IRO-002-2 R4 (NERC Violation ID SERC2017018896)**

1. The purpose of IRO-002 is to provide System Operators with the capabilities necessary to monitor and analyze data needed to perform their reliability functions.
2. IRO-002-2 R4 states in pertinent part:
  - R4. Each Reliability Coordinator shall have detailed real-time monitoring capability of its Reliability Coordinator Area and sufficient monitoring capability of its surrounding Reliability Coordinator Areas to ensure that potential or actual System Operating Limit or Interconnection Reliability Operating Limit violations are identified. Each Reliability Coordinator shall have monitoring systems that provide information that can be easily understood and interpreted by the Reliability Coordinator's operating personnel, giving particular emphasis to alarm management and awareness systems, automated data transfers, and synchronized information systems, over a redundant and highly reliable infrastructure.

*Description of Violation*

3. On December 22, 2017, SPP submitted a Self-Report to SERC Reliability Corporation stating that, as a Reliability Coordinator, it was in violation of IRO-002-4 R4.<sup>6</sup> See Self-Report, Attachment 1. SPP did not have sufficient alarm management in its Real-time Contingency Assessment (RTCA) system, such that alarms flags were disabled for certain 345 kV and 500 kV Facilities.
4. On January 1, 2016, a computer program used to verify SPP's RTCA database began to disable alarm flags for certain 345 kV and 500 kV facilities. When the flag is disabled, the program does not report any real-time or potential post-contingent thermal overloads of that facility to the Energy Management System (EMS), creating a potential lack of operator awareness. At that time, SPP already used multiple validation steps to ensure that EMS alarm functions including RTCA alarms functioned properly, however this condition went undetected.
5. On May 15, 2017, while applying a new database validation, SPP Operations Engineering staff discovered some of the alarm flags in the RTCA function were not set properly. After investigation, they determined that an earlier automated verification was disabling flags that affected alarming of some of an individual registered entity's 345 kV and 500 kV facilities. SPP used data archives to reconstruct the events leading up to the discovery and perform an extent of condition review, starting with January 1, 2016, when the issue first presented itself. SPP staff determined that the disabled flags affected

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<sup>6</sup> Based on the January 1, 2016 start date of the violation, NERC determined that the violation spanned the effective dates of IRO-002-2 R4 and IRO-002-4 R4.

alarms of 1% of the total lines monitored by SPP (3% of the electrical capacity) and 8% of the total number of transformers (12% of transformer capacity). More specifically, the problem affected 39 of 244 345 kV lines (16% of the lines and 11% of the total entity's capacity on the 345 kV lines); 35 of 214 345 kV transformers (16% of the transformers and 24% of the total capacity on the 345 kV transformers) and one of two 500 kV transformers (50% of the entity's 500 kV transformers and approximately 50% of the total capacity of the 500 kV transformers). In addition, SPP's review demonstrated that it properly monitored facilities in other voltage levels and in other areas of its footprint and adjacent RC footprints. SPP's problem did not affect alarming of the affected entity's EMS.

6. SPP staff investigated the reason that the automated verification was corrupting the database and corrected the alarm flags. In doing so, SPP created a work-around in the production EMS environment to ensure it actively monitored and alarmed the affected Facilities. On May 15, 2017, the same day that it identified the issue, SPP restored the appropriate settings and resolved the alerting issue. SPP contacted the vendor to obtain a patch as a permanent fix.

7. The root cause of this violation was a database software issue and insufficient controls in process steps before SPP put the model into the production EMS environment.

8. This violation started on January 1, 2016, when the alarm flags were first disabled in the SPP RTCA system, and ended on May 15, 2017, when SPP restored the expected alarming functions in the SPP RTCA system.

### *Risk Assessment*

9. NCEA determined that the violation posed a serious and substantial risk to the reliability of the Bulk Power System (BPS).<sup>7</sup> SPP did not have adequate alarming on more than 70 345 kV and 500 kV Facilities for more than 16 months. This failure could have resulted in SPP missing potential real-time or post-contingent thermal or voltage contingencies or missing the identification of System Operating Limit exceedances. Since 2014, SPP's RTCA has identified four affected transmission lines and one transformer that required monitoring in the affected area, and contingencies have existed in the affected area over the three year period analyzed by SPP. However, the software issue did not affect modeling of 10 permanent Flowgates, which provided alarming for six of the 39 affected 345 kV transmission lines in this area. In addition, SPP was able to effectively monitor an additional 11 lines and five transformers throughout the period due to redundant monitoring of other lines and transformers that were both in series and had lower ratings than the equipment identified in the violation. The software problem did

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<sup>7</sup> IRO-002-2 and IRO-002-4 have a VRF of "High" pursuant to the VRF Matrix. According to the VSL Matrix, this violation warranted a "Lower" VSL under IRO-002-2 R4 and a "Severe" VSL under IRO-002-4 R4. The Violation Time Horizon for IRO-002-4 R4 is "Real-time Operations."



not affect the Transmission Operator's (TOP) EMS system. The TOP notifies SPP when its contingency analysis results indicate warnings and overloads. This communication would have increased the likelihood of the TOP alerting SPP operations staff to any issues during this time period, and lessened the likelihood that any RTCA concerns would have gone unnoticed. The TOP reported no such conditions during the violation.

### *Mitigating Activities*

10. On December 22, 2017, SPP submitted mitigating activities to SERC, addressing the violation of IRO-002-2 R4 via its Self-Report.<sup>8</sup>

11. To mitigate the violation, SPP:

- a. investigated the behavior in RTNET, RTCA, and QKNET and created a work-around in the production EMS to ensure the equipment was being monitored and alarming. The issue was corrected on the same day it was discovered;
- b. updated its processes to run the validations that identified this issue with each model upload in order to catch this error if it occurs again;
- c. verified that the appropriate monitoring was in place through manual intervention, following the automated validation step;
- d. logged into the vendor's defect reporting system the issue and reported it's criticality;
- e. received an initial patch provided by the vendor to fix the software issue that ultimately caused the disabling of the flags;
- f. installed the vendor patch; and
- g. completed the process and controls changes to describe how to utilize EMS and Flowgate data to run Python code to capture errors and provided associated training.

12. On March 20, 2018, SPP certified to SERC that it completed the mitigating activities as of January 25, 2018. *See Certification of Mitigating Activities Completion for NERC Violation ID SERC2017018896, Attachment 2.*

13. On March 21, 2018, SERC verified that SPP completed the mitigating activities as of January 25, 2018. *See SERC Verification of Mitigation Completion for NERC Violation ID SERC2017018896, Attachment 3.*

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<sup>8</sup> The mitigating activities also return SPP to compliance with the current version of the IRO-002 Standard.

 This item was submitted by Melissa Rinehart (mrinehart@spp.org) on 12/22/2017

 Please note that the circumstances under which an Entity would submit a Scope Expansion form are different from what would require a new Self-Report. Please review the material in [this link](#) to see clarifying information and examples of these differences before continuing with this form.

## FORM INFORMATION

Registered Entity: Southwest Power Pool

NERC Registry ID: NCR01143

JRO ID:

CFR ID:

Entity Contact Information: Erin Cullum Marcussen

## REPORTING INFORMATION

Applicable Standard: IRO-002-4

Applicable Requirement: R4.

Applicable Sub Requirement(s):

Applicable Functions: RC

Has a Possible violation of this standard and requirement previously been reported or discovered: No

Has this Possible Violation previously been reported to other Regions: No

Date Possible Violation was discovered: 5/15/2017

Beginning Date of Possible Violation: 4/1/2017

End or Expected End Date of Possible Violation: 5/15/2017

Is the violation still occurring? No

Provide detailed description and cause of Possible Violation:

IRO-002-4, R4 requires that each RC have monitoring systems that provide information utilized by the RC's operating personnel, giving particular emphasis to alarm management and awareness systems, automated data transfers, and synchronized information systems, over a redundant infrastructure.

On May 15, 2017, as part of an ongoing effort to improve model build validations, an SPP Operations Engineering staff discovered the Network Monitored Element Definition (NETMOM component) database validation was disabling flags that affected an individual entity's 345 kV and 500 kV facilities (lines and transformers). When the flag is disabled any real-time or potential post-contingent overloads of that device is not reported to the EMS user by applications (i.e., RTNET, QKNET, or RTCA) creating a potential lack of alerting to the Operators.

This was discovered due to the staff's ongoing effort to increase the depth to which the monthly model validations were exercised. In the latest effort identified in this timeframe, additional validation checked the "Active" status of each piece of equipment in the network model and created a report. While creating the validation, a staff member noticed that some elements assigned to the specific entity's 345 kV and 500 kV group were not active alerting in the production EMS model.

Previously, the SPP validation controls included verifications prior to the step in which the NETMOM automated validation takes place. It was this automated validation step that included a software issue creating the disabled flags after the staff's manual validations had completed. In other model validation exercises, prior to this deeper validation, though, all appearances seemed to indicate the proper monitoring parameter was correctly being set and alerting.

SPP staff investigated the behavior and corrected the flags in NETMOM, creating a work-around in the production EMS environment to ensure the equipment was being actively monitored and alarming. As of May 15, 2017, the day the issue was identified, the monitoring of the affected equipment was restored to the appropriate settings and the alerting issue was resolved. Using data archives to reconstruct the events, it was determined that the issue described in this event began on January 1, 2016.

In an extent of condition review, SPP staff reviewed the setting of that flag to reveal which lines were monitored and which were not monitored. The issued was confined to one entity's 345 kV lines and transformers and their one 500 kV transformer (added during the timeframe this issue was in place). In addition, SPP reviewed the results of the real-time contingency analysis (RTCA) to verify that the results demonstrated that facilities in other voltage levels and in other areas were being monitored.

The root cause of this issue was identified as a database software issue and a lack of validation controls after the automated validation necessary to have identified the issue as a discrepancy before the model was put into the production EMS environment.

Are Mitigating Activities in progress or completed? Yes

 An informal Mitigation Plan will be created upon submittal of this Self-Report with mitigating activities. If you would like to formalize that Mitigation Plan, please contact the Region.

If Yes, Provide description of Mitiga ing Activities:

Upon discovery on May 15, 2017, SPP staff quickly investigated the behavior in RTNET, RTCA, and QKNET and created a work-around in production EMS to ensure the equipment was being monitored and alarming. The issue was corrected on the same day it was discovered.

The validations that identified this issue are now run with each model upload and will catch this error if it occurs again. On June 1, 2017, SPP staff verified that the appropriate monitoring was in place through manual intervention, following the automated validation step.

On June 6, 2017, SPP logged into the vendor's defect reporting system the issue and it's criticality.

On August 3, 2017 the vendor provided an initial patch to fix the software issue that ultimately caused the disabling of the flags.

On October, 24, 2017, the vendor patch was installed.

On or before January 31, 2018 the process and controls changes will be completed and associated training will also be completed.

Provide details to prevent recurrence:

The validations that identified this issue and helped correct the issue on May 15, 2017 are now run with each model upload and will catch this error if it occurs again.

On June 1, 2017, SPP staff verified that the appropriate monitoring was in place through manual intervention, following the regular monthly model upload and will be included in each model upload subsequently.

On June 6, 2017, SPP logged into the vendor's defect reporting system the issue and it's criticality.

On August 3, 2017 GE provided an initial patch to fix the software issue that ultimately caused the disabling of he flags.

On October 24, 2017 the GE patch was installed.

On or before January 31, 2018 the process and controls changes will be completed and associated training will also be completed.

Date Mitigating Activi ies (including activities to prevent recurrence) are expected to be completed or were completed:

1/31/2018

MITIGATING ACTIVITIES			
Title	Due Date	Description	Prevents Recurrence
No data available in table			

Potential Impact to the Bulk Power System: Moderate

Actual Impact to the Bulk Power System: Severe

Provide detailed description of Potential Risk to Bulk Power System:

SPP has determined the potential risk for this issue as severe due to the inability to have operations staff alerted on several 345 kV and lines and transformers and a single 500 kV transformer within the RC area. While the flow on the equipment was always visible and available to the operations staff, alerting was not functioning due to this issue and staff could have missed potential real-time or post-contingent thermal or voltage issues.

In the SPP RC area, this equipment consisted of the following:

Only 1% of the total number of lines monitored by the SPP RC - 3% of total line capacity  
Only 8% of the total number of transformers monitored by the SPP RC - 12% of total transformer capacity

Further broken down by voltage level is as follows:

39 of 244 345 kV lines (16%) - this represented 11% of the total capacity on the 345 kV lines  
35 of 214 345 kV transformers (16%) - this represented 24% of the total capacity on the 345 kV transformers

1 of 2 500 kV transformers (50%) - approximately 50% of the total capacity of the 500 kV transformers

Provide detailed description of Actual Risk to Bulk Power System:

SPP has determined the Actual Risk to be Moderate due to the nature of SPP RC's additional mechanisms in place during the identified timeframe.

SPP models SCADA limits that were not compromised by this issue. These limits would have helped mitigate the real-time risk.

SPP monitored all of the 345 kV and 500 kV lines and transformers in neighboring area's systems. Therefore every line in and out of the affected part of the RC area was effectively monitored including those neighboring 345 kV and 500 kV systems outside of the SPP RC footprint. This would have helped mitigate the lack of alerting on the affected part of the system.

The risk was further minimized by monitoring of all underlying voltage level lines. 345 and 500 kV elements typically load up subsequent to lower voltage facilities in the SPP RC area. Since 2014, SPP's real-time contingency analysis has only identified four (4) transmission lines and one (1) transformer that required monitoring in this area. Collectively, these five elements comprise less than 0.3% of all real-time contingency analysis results over the course of the three years analyzed (2014-2017).

The risk was also minimized by the presence of ten (10) permanent flowgates whose monitoring was not affected by the software issue. Six (6) of the thirty-nine (39) 345 kV transmission lines in this area were monitored by these flowgates despite the issue.

Of the totals described above, 11 of the lines and 5 of the transformers were sympathetically monitored throughout the period due to redundant monitoring of other lines and transformers that were both in series and had lower ratings than the equipment identified in the issue. While these 11 lines and 5 transformers were not specifically monitored, the monitoring was redundant and therefore staff had full visibility. This reduces the full impact of the issue to 28 lines and 30 transformers.

In addition, the Transmission Operator works in concert with the SPP RC and notifies the RC when their contingency analysis results indicate warnings and overloads. This would have increased the likelihood of SPP operations staff being alerted to any issues during this time period, and lessened the likelihood it would have gone unnoticed.

Finally, SPP operators could always see the flow on these facilities in EMS displays and data historian queries, and reliability studies performed for the current and the next day, using static cases, were not affected by the issue.

Additional Comments:

NOTE: While submittal of a mitigation plan is not required until after a determination of a violation is confirmed, early submittal of a mitigation plan to address and remedy an identified deficiency is encouraged. Submittal of a mitigation plan shall not be deemed an admission of a violation. (See NERC Rules of Procedure, Appendix 4C, Section 6.4 )

 This item was signed by Carl Stelly (cstelly@spp.org) on 3/20/2018



#### MEMBER MITIGATION PLAN CLOSURE

All Mitigation Plan Completion Certification submittals shall include data or information sufficient for SERC to verify completion of the Mitigation Plan. SERC may request such additional data or information and conduct follow-up assessments, on-site or other Spot Checking, or Compliance Audits as it deems necessary to verify that all required actions in the Mitigation Plan have been completed and the Registered Entity is in compliance with the subject Reliability Standard. (CMEP Section 6.6) Data or information submitted may become part of a public record upon final disposition of the possible violation, therefore any confidential information contained therein should be marked as such in accordance with the provisions of Section 1500 of the NERC Rules of Procedure.

Name of Registered Entity submitting certification:

Southwest Power Pool

Name of Standard of mitigation violation(s):

IRO-002-2

Requirement	Tracking Number	NERC Violation ID
R4.	SERC2017-402937	SERC2017018896

Date of completion of the Mitigation Plan:

1/25/2018

No Milestones Defined

Summary of all actions described in Part D of the relevant mitigation plan:

The summary of actions reflect the steps identified in the Self-Report and are included in the attached Citation Page along with the evidence to support the completion of each step.

Description of the information provided to SERC for their evaluation \*

Packet includes evidence for completion of each step, along with a Citation Page summarizing the artifacts.

I certify that the Mitigation Plan for the above-named violation has been completed on the date shown above. In doing so, I certify that all required Mitigation Plan actions described in Part D of the relevant Mitigation Plan have been completed, compliance has been restored, the above-named entity is currently compliant with all of the requirements of the referenced standard, and that all information submitted is complete, true and correct to the best of my knowledge.

**17-2937 MA Verification**  
**Southwest Power Pool**  
IRO-002-4 R4  
SERC ID: SERC2017-402937  
NERC ID: SERC2017018896

To correct the noncompliance and prevent its recurrence, SPP agreed to perform each of the following actions. Each action is followed by a description of the evidence SPP submitted and SERC reviewed to verify completion of each step:

**Step 1:** Upon discovery on May 15, 2017, SPP staff quickly investigated the behavior in RTNET, RTCA, and QKNET and created a work-around in production EMS to ensure the equipment was being monitored and alarming. The issue was corrected on the same day it was discovered.

**Evidence:**

‘Step 1\_CSWS\_Monitored\_Elements\_May15\_2017’; May 15, 2017; Page 1 of 2 includes the list of elements at 9:01am on May 15, 2017 that were not monitored by SPP; page 2 of 2 verifies the elements were correctly monitored by SPP by 6:27pm on May 15, 2017. The table shows the correction made to SPP’s production EMS to ensure the CSWS high voltage elements were correctly flagged to be monitored.

**Step 2:** On June 1, 2017, SPP staff verified the appropriate monitoring is in place, and the validations identifying this issue are now performed with each model upload.

**Evidence:**

‘Step 2\_CSWS\_Monitored\_Elements\_June1\_2017’; June 1, 2017; This evidence demonstrates the program ran slightly after the June 1, 2017 EMS model push, and the 345kv elements were correctly flagged as monitored elements. The second screenshot shows that the two 500kv elements not being monitored are now monitored.

**Step 3a:** On June 6, 2017, SPP logged into the vendor's defect reporting system and noted the issue and its criticality.

**Evidence:**

‘Step 3a\_DEVTRAK’; This highlighted screenshot of the DEVTRAK tool showing that SPP logged into the DEVTRAK system on 6/6/2017 reported the discovered the issue, put in place a manual repair work around, and submitted a remedy ticket.

**Step 3b:** On July 1, 2017, SPP performed the July 2017 EMS model push.

**Evidence:**

‘Step 3b\_CSWS\_Monitored\_Elements\_July1\_2017’; This screenshot dated 7/1/2017 shows the model result including the fact that the CSWS high voltage elements were correctly flagged as monitored elements.

**Step 3c:** On August 1, 2017, SPP performed the August 2017 EMS model push.

**Evidence:**

‘Step 3c\_ CSWS\_Monitored\_Elements\_Aug1\_2017’; this screenshot dated 8/1/2017 again demonstrates that the program was performed during the August 1, 2017 EMS model push, and the CSWS high voltage elements were correctly flagged as monitored elements.

**Step 4:** On August 3, 2017 the vendor provided an initial patch to fix the software issue that ultimately caused the disabling of the flags.

**Evidence:**

‘Step 4a\_ DEVTRAK’; this evidence demonstrates SPP logged into the DEVTRAK system and verified the patch was received, and changed the wording under the status event column from “Analyze” to “Fixed Awaiting Cust Test”.

‘Step 4b\_ CSWS\_Monitored\_Elements\_Sept1\_2017’; this screenshot demonstrates the program was performed during the September 1, 2017 EMS model push, and the CSWS high voltage elements were correctly flagged as monitored elements.

‘Step 4c\_ CSWS\_Monitored\_Elements\_Oct1\_2017’; this screenshot demonstrates the program was performed during the October 1, 2017 EMS model push, and the CSWS high voltage elements were correctly flagged as monitored elements.

**Step 5:** On October 24, 2017, the vendor patch was installed.

**Evidence:**

‘Step 5\_Patch\_Install\_RemediTICKET\_Oct24\_2017’; this screenshot within Remedy demonstrates SPP installed the vendor patch on October 24, 2017.

**Step 6:** On January 25, 2018, the process and controls changes and associated training were completed.

**Evidence:**

‘Step 6a Users Guide EMS and Flowgate Data’; January 25, 2018; this document describes how to utilize EMS and Flowgate data to run python code to report errors and other useful information.

‘Step 6b Monitored Elements Training minutes Jan25\_2018’; this document includes training meeting minutes from January 25, 2018.

‘Step 6c Org chart and attestation’; This attestation and organization chart provides further details attesting the proper personnel within the Modeling and Data Integrity Department were trained on January 25, 2018.

On March 21, 2018, SERC staff completed its verification that SPP completed all mitigating actions by 1/25/2018.

Verified by:

John C. Wolfmeyer

SERC Sr. Compliance Engineer.