



NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

April 29, 2011

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

**Re: NERC Abbreviated Notice of Penalty regarding American Electric Power Service Corporation,  
FERC Docket No. NP11-\_\_-000**

Dear Ms. Bose:

The North American Electric Reliability Corporation (NERC) hereby provides this Abbreviated Notice of Penalty (NOP) regarding American Electric Power Service Corporation as agent for Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company (AEP), with information and details regarding the nature and resolution of the violations<sup>1</sup> discussed in detail in the Settlement Agreement (Attachment a) and the Disposition Documents (Attachments d), in accordance with the Federal Energy Regulatory Commission's (Commission or FERC) rules, regulations and orders, as well as NERC Rules of Procedure including Appendix 4C (NERC Compliance Monitoring and Enforcement Program (CMEP)).<sup>2</sup>

This NOP is being filed with the Commission because ReliabilityFirst Corporation (ReliabilityFirst) and AEP have entered into a Settlement Agreement to resolve all outstanding issues arising from ReliabilityFirst's determination and findings of the enforceable violations of PRC-005-1 Requirement (R) 2.1, PRC-015-0 R1 and R2, PRC-016-0 R1 and R3, and PRC-017-0 R1. According to the Settlement Agreement, AEP neither admits nor denies the violations, but

<sup>1</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.

<sup>2</sup> *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards* (Order No. 672), III FERC Stats. & Regs. ¶ 31,204 (2006); *Notice of New Docket Prefix "NP" for Notices of Penalty Filed by the North American Electric Reliability Corporation*, Docket No. RM05-30-000 (February 7, 2008). See also 18 C.F.R. Part 39 (2010). *Mandatory Reliability Standards for the Bulk-Power System*, FERC Stats. & Regs. ¶ 31,242 (2007) (Order No. 693), *reh'g denied*, 120 FERC ¶ 61,053 (2007) (Order No. 693-A). See 18 C.F.R. § 39.7(c)(2).

has agreed to the assessed penalty of thirty-five thousand dollars (\$35,000), in addition to other remedies and actions to mitigate the instant violations and facilitate future compliance under the terms and conditions of the Settlement Agreement. Accordingly, the violations identified as NERC Violation Tracking Identification Numbers RFC200900182, RFC200900258, RFC200900259, RFC200900260, RFC200900261, and RFC200900262 are being filed in accordance with the NERC Rules of Procedure and the CMEP.

### Statement of Findings Underlying the Violations

This NOP incorporates the findings and justifications set forth in the Settlement Agreement executed on March 9, 2011, by and between ReliabilityFirst and AEP. The details of the findings and the basis for the penalty are set forth in the Disposition Documents. This NOP filing contains the basis for approval of the Settlement Agreement by the NERC Board of Trustees Compliance Committee (NERC BOTCC). In accordance with Section 39.7 of the Commission’s regulations, 18 C.F.R. § 39.7, NERC provides the following summary table identifying each violation of a Reliability Standard resolved by the Settlement Agreement, as discussed in greater detail below.

NOC ID	NERC Violation ID	Reliability Std.	Req. (R)	VRF	Duration	Total Penalty (\$)
NOC-727	RFC200900182	PRC-005-1	2.1	High <sup>3</sup>	6/18/07 – 12/30/09	35,000
	RFC200900258	PRC-015-0	1	Medium	6/18/07 – 6/30/11 <sup>4</sup>	
	RFC200900259	PRC-015-0	2	Medium	6/18/07 – 6/30/11 <sup>5</sup>	
	RFC200900260	PRC-016-0 <sup>6</sup>	1	Medium	6/18/07 – 6/30/11 <sup>7</sup>	
	RFC200900261	PRC-016-0 <sup>8</sup>	3	Lower	6/18/07 – 6/30/11 <sup>9</sup>	
	RFC200900262	PRC-017-0	1	High	6/18/07 – 6/30/11 <sup>10</sup>	

<sup>3</sup> PRC-005-1 R2 has a “Lower” Violation Risk Factor (VRF); R2.1 and R2.2 each have a “High” VRF. During a final review of the standards subsequent to the March 23, 2007 filing of the Version 1 VRFs, NERC identified that some standards requirements were missing VRFs; one of these include PRC-005-1 R2.1. On May 4, 2007, NERC assigned PRC-005 R2.1 a “High” VRF. In the Commission’s June 26, 2007 Order on Violation Risk Factors, the Commission approved the PRC-005-1 R2.1 “High” VRF as filed. Therefore, the “High” VRF was in effect from June 26, 2007. In the context of this case, ReliabilityFirst determined that the violation related to R2.1, and therefore a “High” VRF is appropriate.

<sup>4</sup> This violation is expected to be mitigated by June 30, 2011.

<sup>5</sup> *Id.*

<sup>6</sup> PRC-016-0 was enforceable from June 18, 2007 through May 13, 2009. PRC-016-0.1 was approved by the Commission and is enforceable from since May 13, 2009.

<sup>7</sup> See n.5 *supra*.

<sup>8</sup> *Id.*

<sup>9</sup> See n.5 *supra*.

<sup>10</sup> *Id.*

The text of the Reliability Standards at issue and further information on the subject violations are set forth in the Disposition Documents.

PRC-005-1 R2.1 - OVERVIEW

Due to a self-report issued on October 5, 2009, ReliabilityFirst determined that AEP, as a Transmission Owner (TO), did not keep complete maintenance and testing records for transmission protection system devices or indicate that maintenance and testing of these devices occurred within the defined intervals of AEP's Protection System Maintenance and Testing Program (Program).

PRC-015-0 R1 - OVERVIEW

After completing a Compliance Violation Investigation (CVI) from July 2, 2008 to November 9, 2009 (CVI), ReliabilityFirst determined that AEP, as a Generation Owner (GO) and TO, did not maintain a list of and provide data for the Rockport Special Protection System (SPS) as specified in PRC-013-0 R1, or provide data for the modifications to the Rockport area protection scheme to address coordination failures cited in the NERC Event Analysis Report.

PRC-015-0 R2 - OVERVIEW

In the CVI, ReliabilityFirst determined that AEP, as a GO and TO, did not provide evidence that it reviewed the Rockport area protection scheme in accordance with ReliabilityFirst's<sup>11</sup> procedures prior to being placed in service.

PRC-016-0 R1 - OVERVIEW

In the CVI, ReliabilityFirst determined that AEP, as a GO and TO, did not provide evidence that they analyzed its SPS operations and maintained a record of all misoperations in accordance with the Regional SPS review procedure specified in Reliability Standard PRC-012-0 R1 for the generation fast valving scheme misoperation (that is part of an SPS) that occurred on 8/4/2007.

PRC-016-0 R3 - OVERVIEW

In the CVI, ReliabilityFirst determined that AEP, as a GO and TO, did not provide documentation of the generation fast valving scheme (that is part of an SPS) misoperations analyses and corrective action plans for the fast valving misoperation that occurred on 8/4/2007 to ReliabilityFirst, as requested.

PRC-017-0 R1 - OVERVIEW

In the CVI, ReliabilityFirst determined that AEP, as a GO and TO, did not have documentation in place to show they had a maintenance and test program in place prior to the August 4, 2007 event to check the entire Rockport protection scheme including unit runback.

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<sup>11</sup>ReliabilityFirst is the Regional Reliability Organization in the context of these Standards.

## Statement Describing the Assessed Penalty, Sanction or Enforcement Action Imposed<sup>12</sup>

### Basis for Determination

Taking into consideration the Commission's direction in Order No. 693, the NERC Sanction Guidelines, the Commission's July 3, 2008, October 26, 2009 and August 27, 2010 Guidance Orders,<sup>13</sup> the NERC BOTCC reviewed the Settlement Agreement and supporting documentation on April 11, 2011. The NERC BOTCC approved the Settlement Agreement, including ReliabilityFirst's assessment of a thirty-five thousand dollar (\$35,000) financial penalty against AEP and other actions to facilitate future compliance required under the terms and conditions of the Settlement Agreement. In approving the Settlement Agreement, the NERC BOTCC reviewed the applicable requirements of the Commission-approved Reliability Standards and the underlying facts and circumstances of the violations at issue.

In reaching this determination, the NERC BOTCC considered the following factors:

1. AEP self-reported the violation of PRC-005-1 R2.1;
2. ReliabilityFirst reported that AEP was cooperative throughout the compliance enforcement process;
3. AEP had a compliance program at the time of the violation which ReliabilityFirst considered a mitigating factor, as discussed in the Disposition Documents;
4. there was no evidence of any attempt to conceal a violation nor evidence of intent to do so;
5. ReliabilityFirst determined that the violations did not pose a serious or substantial risk to the reliability of the bulk power system (BPS), as discussed in the Disposition Documents; and
6. ReliabilityFirst reported that there were no other mitigating or aggravating factors or extenuating circumstances that would affect the assessed penalty.

For the foregoing reasons, the NERC BOTCC approves the Settlement Agreement and believes that the assessed penalty of thirty-five thousand dollars (\$35,000) is appropriate for the violations 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 NOP with FERC, or, if FERC decides to review the penalty, upon final determination by FERC.

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<sup>12</sup> See 18 C.F.R. § 39.7(d)(4).

<sup>13</sup> *North American Electric Reliability Corporation*, "Guidance Order on Reliability Notices of Penalty," 124 FERC ¶ 61,015 (2008); *North American Electric Reliability Corporation*, "Further Guidance Order on Reliability Notices of Penalty," 129 FERC ¶ 61,069 (2009); *North American Electric Reliability Corporation*, "Notice of No Further Review and Guidance Order," 132 FERC ¶ 61,182 (2010).

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

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

- a) Settlement Agreement by and between ReliabilityFirst and AEP executed March 9, 2011, included as Attachment a;<sup>14</sup>
  - i. AEP's Mitigation Plan MIT-07-3037 for PRC-015-0 R1, PRC-015-0 R2, PRC-016-0 R1, PRC-016-0 R3 and PRC-017-0 submitted October 5, 2010, included as Attachment a to the Settlement Agreement;
  - ii. AEP's Mitigation Plan MIT-07-2451 for PRC-005-1 R2.1 submitted March 26, 2010, included as Attachment b to the Settlement Agreement;
  - iii. AEP's Certification of Mitigation Plan Completion for PRC-005-1 R2.1 dated July 30, 2010, included as Attachment c to the Settlement Agreement;
  - iv. ReliabilityFirst's Verification of Mitigation Plan Completion for PRC-005-1 R2.1 dated August 31, 2010, included as Attachment d to the Settlement Agreement;
- b) AEP's Self-Report for PRC-005-1 R2.1 dated October 5, 2009, included as Attachment b;
- c) ReliabilityFirst's Summary of Possible Alleged Violations, included as Attachment c;
- d) Disposition Document for Common Information, included as Attachment d;
  - i. Disposition Document for PRC-005-1 R2.1, included as Attachment d-1;
  - ii. Disposition Document for PRC-015-0 R1 and R2, included as Attachment d-2;
  - iii. Disposition Document for PRC-016-0 R1 and R3, included as Attachment d-3;
  - iv. Disposition Document for PRC-017-0 R1, included as Attachment d-4.

### **A Form of Notice Suitable for Publication<sup>15</sup>**

A copy of a notice suitable for publication is included in Attachment e.

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<sup>14</sup> The Settlement Agreement states that AEP also committed a series of future mitigating activities in its Mitigation Plan, which are described in Paragraphs 76 through 85; the paragraph references should be Paragraphs 66 through 85.

<sup>15</sup> See 18 C.F.R. § 39.7(d)(6).

## Notices and Communications

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

<p>Gerald W. Cauley President and Chief Executive Officer David N. Cook* Sr. Vice President and General Counsel North American Electric Reliability Corporation 116-390 Village Boulevard Princeton, NJ 08540-5721 (609) 452-8060 (609) 452-9550 – facsimile david.cook@nerc.net</p> <p>Thad Ness* Reliability Standards Compliance Manager American Electric Power Service Corporation 1 Riverside Plaza Columbus, Ohio 43215 (614) 716-2053 (614) 716-2372– facsimile tkness@aep.com</p> <p>Raj Rana* Director RTO Policy and NERC Compliance American Electric Power Service Corporation 1 Riverside Plaza Columbus, Ohio 43215 (614) 716-2359 (614) 716-2372– facsimile rdrana@aep.com</p> <p>Richard Munczinski* SVP Regulatory Services American Electric Power Service Corporation 1 Riverside Plaza Columbus, Ohio 43215 (614) 716-2810 remunczinski@aep.com</p> <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>Rebecca J. Michael* Associate General Counsel for Corporate and Regulatory Matters North American Electric Reliability Corporation 1120 G Street, N.W. Suite 990 Washington, DC 20005-3801 (202) 393-3998 (202) 393-3955 – facsimile rebecca.michael@nerc.net</p> <p>Robert K. Wargo* Director of Enforcement and Regulatory Affairs ReliabilityFirst Corporation 320 Springside Drive, Suite 300 Akron, OH 44333 (330) 456-2488 bob.wargo@rfirst.org</p> <p>L. Jason Blake* Managing Enforcement Attorney ReliabilityFirst Corporation 320 Springside Drive, Suite 300 Akron, OH 44333 (330) 456-2488 jason.blake@rfirst.org</p> <p>Megan E. Gambrel* Associate Attorney 320 Springside Drive, Suite 300 Akron, OH 44333 (330) 456-2488 megan.gambrel@rfirst.org</p> <p>Monique Rowtham-Kennedy* Senior Counsel American Electric Power 801 Pennsylvania Avenue, N.W., Suite 320 Washington, DC 20004 2684 (202) 383-3436 mrowtham-kennedy@aep.com</p>
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**Conclusion**

Accordingly, NERC respectfully requests that the Commission accept this Abbreviated NOP as compliant with its rules, regulations and orders.

Respectfully submitted,

Gerald W. Cauley  
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David N. Cook  
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/s/ Rebecca J. Michael  
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cc: American Electric Power Service Corporation  
ReliabilityFirst Corporation

Attachments

## **Attachment a**

### **Settlement Agreement by and between ReliabilityFirst and AEP executed March 9, 2011**





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*In re:* AMERICAN ELECTRIC POWER )     Docket Nos. RFC200900182;  
SERVICE CORPORATION AS )     RFC200900258;  
AGENT FOR APPALACHIAN )     RFC200900259;  
POWER COMPANY, COLUMBUS )     RFC200900260;  
SOUTHERN POWER COMPANY, )     RFC200900261; and  
INDIANA MICHIGAN POWER )     RFC200900262  
COMPANY, KENTUCKY POWER )  
COMPANY, KINGSFORT POWER )  
COMPANY, OHIO POWER )  
COMPANY, AND WHEELING )  
POWER COMPANY )  
)  
)  
NERC Registry ID No. NCR00682 )

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**SETTLEMENT AGREEMENT  
BETWEEN  
RELIABILITYFIRST CORPORATION  
AND  
AMERICAN ELECTRIC POWER SERVICE CORPORATION  
AS AGENT FOR APPALACHIAN POWER COMPANY,  
COLUMBUS SOUTHERN POWER COMPANY, INDIANA MICHIGAN  
POWER COMPANY, KENTUCKY POWER COMPANY, KINGSFORT POWER  
COMPANY, OHIO POWER COMPANY, AND WHEELING POWER COMPANY**

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**I. INTRODUCTION**

1. ReliabilityFirst Corporation (“ReliabilityFirst”) and American Electric Power Service Corporation as agent for Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company (“AEP”) enter into this Settlement Agreement (“Agreement”) to resolve alleged violations by AEP of the following NERC Reliability Standards:

<b>Violation ID Number</b>	<b>Standard and Requirement</b>
RFC200900182	PRC-005-1, Requirement 2.1
RFC200900258	PRC-015-0, Requirement 1
RFC200900259	PRC-015-0, Requirement 2
RFC200900260	PRC-016-0, Requirement 1

RFC200900261	PRC-016-0, Requirement 3
RFC200900262	PRC-017-0, Requirement 1

2. AEP is engaged in the generation and transmission of electricity throughout the United States. AEP is one of the nation's largest generators of electricity, owning nearly 38,000 megawatts of generating capacity in the United States. AEP also owns the nation's largest electricity transmission system, a nearly 39,000 mile network that includes more 765 kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP's transmission system directly or indirectly serves about ten percent of the electricity demand in the Eastern Interconnection, the interconnected transmission system that covers 38 eastern and central U.S. states and eastern Canada, and approximately 11 percent of the electricity demand in ERCOT, the transmission system that covers much of Texas.
3. AEP's utility units operate as Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company and Wheeling Power Company (collectively, the "AEP East Companies"); Public Service Company of Oklahoma, and Southwestern Electric Power Company (collectively, the "AEP West Companies"); and AEP Texas Central Company and AEP Texas North Company (collectively, "AEP Texas").
4. ReliabilityFirst confirmed that AEP is registered on the NERC Compliance Registry as a Distribution Provider, Generator Owner, Generator Operator, Purchasing-Selling Entity, Load Serving Entity, Resource Planner, Transmission Owner, and Transmission Operator in the ReliabilityFirst region with the NERC Registry Identification Number NCR00682. Therefore, AEP is subject to compliance with the NERC Reliability Standards and Requirements set forth in Paragraph 1 of this Agreement.
5. AEP and ReliabilityFirst agree and stipulate to this Agreement in its entirety. The facts stipulated herein are stipulated solely for the purpose of resolving between AEP and ReliabilityFirst the subject matter of this Agreement and do not constitute admissions or stipulations for any purpose. AEP neither admits nor denies that the facts set forth herein and agreed to by the parties for purposes of this Agreement constitute a violation of the standards described herein. AEP has agreed to enter into this Settlement Agreement with ReliabilityFirst to avoid extended litigation with respect to the matters described or referred to herein, to avoid uncertainty, and to effectuate a complete and final resolution of the issues set forth herein. AEP agrees that this settlement is in the best interest of maintaining a reliable electric infrastructure.
6. This Settlement Agreement addresses alleged violations that ReliabilityFirst identified during a Compliance Violation Investigation and an unrelated alleged violation that AEP subsequently self reported to ReliabilityFirst.

## II. ALLEGED VIOLATIONS IDENTIFIED DURING CVI

7. A system disturbance and frequency excursion occurred in the Eastern Interconnection on August 4, 2007 (the “Event”). The Event resulted in the loss of significant high voltage transmission facilities and 4,457 MW of output from several generating units. System frequency in the Eastern Interconnection declined from 60.003 Hz to 59.863 Hz. A NERC Event Analysis team led a review of the Event to gain an understanding of what transpired on August 4, 2007.
8. ReliabilityFirst initiated and led a CVI as a result of the Event, and the CVI team investigated AEP as part of the CVI. In addition to ReliabilityFirst, the CVI team included Midwest Reliability Organization, the SERC Reliability Corporation, and independent industry experts. Representatives from the North American Electric Reliability Corporation (“NERC”) and the Federal Energy Regulatory Commission (“the Commission”) observed the CVI team activities.
9. The alleged violations identified in the CVI were unrelated to the occurrence or severity of the Event.

### *The AEP Rockport Area Protection Scheme*

10. The alleged violations discussed within Section C of this Agreement are tied to AEP’s failure to designate its Rockport area protection scheme as a Special Protection System (“SPS”). In applying the NERC SPS definition, AEP focused on what it understood to be the intent of an SPS and the fact that the NERC SPS definition focuses on “maintaining system reliability, stability, acceptable voltage and power flows.” As a result, at the time of the alleged violations, AEP did not classify any of the stability controls at the area protection scheme for its Rockport Plant, including the fast valving portion, as an SPS.
11. AEP designed the fast valving portion of the Rockport area protection scheme to protect the integrity of the Rockport Plant, and did not design the fast valving specifically for bulk power system reliability purposes. AEP recognized the need for fast valving in the transmission planning studies conducted during the late 1970s and early 1980s. AEP designed the fast valving portion of the Rockport area protection scheme to improve the stability performance of the Rockport Plant, thereby (a) reducing operator-directed plant curtailments in anticipation of certain transmission contingencies, and (b) providing direct economic benefits as well as improved plant reliability and availability.
12. AEP analyzed TPL-004-0 Standard: Category D Contingency, which sets forth the criteria for the evaluation of the loss of a station. AEP’s operating experience and analyses do not indicate that a loss of 2,600 MW of generation from the Rockport Plant would adversely impact system reliability, adversely impact

system stability performance, cause unacceptable voltages and power flows, or cause cascading outages.

13. AEP represents that prior to August 2007, there was uncertainty in the industry regarding the appropriate application of the SPS definition. AEP, as well as other ECAR<sup>1</sup> member companies, worked with ECAR to gain clarity and specificity on the SPS definition. AEP participated in extensive efforts by ECAR to develop a succinct definition of an SPS. AEP represents that when it did not receive its requested guidance from ECAR regarding the definition of an SPS, AEP followed what it believed to be the appropriate definition of SPS, which was consistent with its subsequent interpretation of the NERC definition of SPS. That is, an SPS is a system that focuses on “maintaining system reliability, stability, acceptable voltage and power flows.”
14. In April and December of 2008, AEP presented to the Reliability*First* SPS Review Task Force the Rockport SPS, which was designed to address the NERC August 4, 2007 Event Analysis Team’s recommendations. AEP described the SPS as a unit tripping scheme, which is always enabled and acts as a backup to the fast valving. During these presentations, AEP stated that fast valving exists at the Rockport Station, but that AEP did not classify it as an SPS.
15. As part of this Agreement and AEP’s mitigation plan for RFC200900258-RFC200900262, AEP accepts that the fast valving at the Rockport Station is an SPS. AEP will modify the necessary documentation to classify the fast valving as an SPS.

**A. Alleged Violation of PRC-015-0, R1(RFC200900258).**

16. In pertinent part, PRC-015-0, R1 states:

**R1.** The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall maintain a list of and provide data for existing and proposed SPSs as specified in Reliability Standard PRC-013-0, R1.<sup>2</sup>

17. During the CVI, AEP asserted that the Rockport area protection scheme as it existed on August 4, 2007 for transmission system contingencies was not an SPS because the scheme’s sole function was to protect the Rockport generators from

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<sup>1</sup> Reliability*First* is the successor to three other reliability organizations: The Mid-Atlantic Area Council (MAAC), the East Central Area Reliability Coordination Agreement (ECAR), and the Mid-American Interconnected Network (MAIN).

<sup>2</sup> PRC-013-0, R1 states that the Regional Reliability Organization that has a Transmission Owner, Generator Owner, or Distribution Provider with an SPS installed shall maintain an SPS database, which shall include specific information on design objectives, operation, and modeling.

potential damage. For this reason as well as those set forth above in Section II (B) of this Agreement, AEP concluded that the Rockport area protection scheme was not an SPS and, consequently, believed that no reporting was necessary to ReliabilityFirst under PRC-015-0, R1.

18. The CVI team, however, disagreed and concluded that the Rockport area protection scheme, as it existed on August 4, 2007, was an SPS. Once armed,<sup>3</sup> the Rockport area protection scheme operates automatically for various transmission system contingencies and ultimately maintains area power system stability.
19. ReliabilityFirst alleges that AEP violated PRC-015-0, R1 by failing to maintain a list of and provide data for the Rockport SPS as specified in PRC-013-0, R1. ReliabilityFirst also alleges that AEP violated PRC-015-0, R1 by failing to provide data as specified in PRC-013-0, R1 for the modifications that AEP made to the Rockport area protection scheme to address coordination failures cited in the NERC Event Analysis Report.

*Risk Considerations and Violation Duration*

20. PRC-015-0, R1 has a VRF of "Medium," consistent with the VRF Matrix promulgated by NERC.
21. This alleged violation did not pose a substantial risk to the BES because although AEP did not consider the Rockport area protection scheme to be an SPS, AEP had documentation addressing design, operations, and modeling available in the form of an operating guide.
22. Although the Event leading to the CVI posed a serious risk to reliability of the BES, the alleged violations found during the CVI concerning AEP's failure to designate the Rockport area protection scheme as an SPS were unrelated to the Event. Therefore, it is not appropriate to import the seriousness of the Event to the potential risk created by the SPS related alleged violations.
23. The duration of this alleged violation is from June 18, 2007 to June 30, 2011, the date AEP will complete its mitigation plan.

**B. Alleged Violation of PRC-015-0, R2 (RFC200900259).**

24. PRC-015-0, R2 states:

**R2.** The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall have evidence it reviewed new or

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<sup>3</sup> The Rockport area protection scheme is normally armed.

functionally modified SPSs in accordance with the Regional Reliability Organization's procedures as defined in Reliability Standard PRC-012-0, R1<sup>4</sup> prior to being placed in service.

25. Given that AEP believed that the Rockport area protection scheme was not an SPS, it did not review the Rockport area protection scheme in accordance with ReliabilityFirst's procedures as defined in PRC-012-0, R1 prior to being placed in service.
26. ReliabilityFirst alleges that AEP violated PRC-015-0, R2 by failing to provide evidence that it reviewed the Rockport area protection scheme in accordance with the Regional Reliability Organization's procedures as defined in Reliability Standard PRC-012-0, R1 prior to being placed in service.

*Risk Considerations and Violation Duration*

27. PRC-015-0, R2 has a VRF of "Medium," consistent with the VRF Matrix promulgated by NERC.
28. This alleged violation did not pose a substantial risk to the BES because although AEP did not provide documentation of the Rockport area protection scheme design objectives, operation, and modeling to ReliabilityFirst to be included in the SPS database, AEP internally maintained this documentation at all relevant times.
29. Although the Event leading to the CVI posed a serious risk to reliability of the BES, the alleged violations found during the CVI concerning AEP's failure to designate the Rockport area protection scheme as an SPS were unrelated to the Event. Therefore, it is not appropriate to import the seriousness of the Event to the potential risk created by the SPS related alleged violations.
30. The duration of this alleged violation is from June 18, 2007 to June 30, 2011, the date AEP will complete its mitigation plan.

**C. Alleged Violation of PRC-016-0, R1 (RFC200900260).**

31. PRC-016-0, R1 states:

**R1.** The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall analyze its SPS operations and maintain a

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<sup>4</sup> PRC-012-0, R1 states that each Regional Reliability Organization with a Transmission Owner, Generator Owner, or Distribution Provider that uses or is planning to use an SPS shall have a documented Regional Reliability Organization SPS review procedure to ensure that SPSs comply with Regional criteria and NERC Reliability Standards.

record of all misoperations in accordance with the Regional SPS review procedure specified in Reliability Standard PRC-012-0, R1.

32. Given that AEP believed that the Rockport area protection scheme was not an SPS, AEP did not report to ReliabilityFirst that misoperations occurred on the Rockport area protection scheme on August 4, 2007 to ReliabilityFirst.
33. AEP did, however, report transmission system misoperations to ReliabilityFirst using the ReliabilityFirst Misoperation Reporting Form.
34. ReliabilityFirst alleges that AEP violated PRC-016-0, R1 by failing to provide evidence that it analyzed SPS operations and maintained a record of all misoperations in accordance with the Regional SPS review procedure specified in Reliability Standard PRC-012-0, R1 for the Rockport area protection scheme.

*Risk Considerations and Violation Duration*

35. PRC-016-0, R1 has a VRF of “Medium,” consistent with the VRF Matrix promulgated by NERC.
36. This alleged violation did not pose a substantial risk to the BES because although AEP did not report to ReliabilityFirst that misoperations occurred on the Rockport area protection scheme on August 4, 2007 because it believed the Rockport area protection scheme was not an SPS, AEP immediately informed PJM of the misoperations. AEP participated fully with NERC in conducting the analysis of this Event and provided all necessary information to complete the analysis.
37. Although the Event leading to the CVI posed a serious risk to reliability of the BES, the alleged violations found during the CVI concerning AEP’s failure to designate the Rockport area protection scheme as an SPS were unrelated to the Event. Therefore, it is not appropriate to import the seriousness of the Event to the potential risk created by the SPS related alleged violations.
38. The duration of this alleged violation is from June 18, 2007 to June 30, 2011, the date AEP will complete its mitigation plan.

**D. Alleged Violation of PRC-016-0, R3 (RFC200900261).**

39. In pertinent part, PRC-016-0, R3 states:

**R3.** The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall provide documentation of the misoperation analyses and the corrective action plans to its Regional Reliability Organization and NERC on request (within 90 calendar days).

40. Given that AEP believed that the Rockport area protection scheme was not an SPS, AEP did not report to ReliabilityFirst that misoperations occurred on the Rockport area protection scheme on August 4, 2007 to ReliabilityFirst.
41. ReliabilityFirst alleges that AEP violated PRC-016-0, R3 by failing to provide documentation of the misoperations analysis and corrective action plans for the Rockport area protection scheme misoperation that occurred on August 4, 2007 to ReliabilityFirst and NERC.

*Risk Considerations and Violation Duration*

42. PRC-016-0, R3 has a VRF of “Lower,” consistent with the VRF Matrix promulgated by NERC.
43. This alleged violation did not pose a substantial risk to the BES because AEP failed to provide documentation to ReliabilityFirst of the misoperations analysis and corrective action plans for the Rockport area protection scheme misoperation that occurred on August 4, 2007 because it believed the Rockport area protection scheme was not an SPS. However, AEP participated fully with NERC in conducting the analysis of this Event and provided all necessary information to complete the analysis.
44. Although the Event leading to the CVI posed a serious risk to reliability of the BES, the alleged violations found during the CVI concerning AEP’s failure to designate the Rockport area protection scheme as an SPS were unrelated to the Event. Therefore, it is not appropriate to import the seriousness of the Event to the potential risk created by the SPS related alleged violations.
45. The duration of this alleged violation is from June 18, 2007 to June 30, 2011, the date AEP will complete its mitigation plan.

**E. Alleged Violation of PRC-017-0, R1 (RFC200900262).**

46. In pertinent part, PRC-017-0, R1 states:

**R1.** The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall have a system maintenance and testing program(s) in place. The program(s) shall include:

**R1.2.** Documentation of maintenance and testing intervals and their basis.

**R1.3.** Summary of testing procedure.

**R1.4.** Schedule for system testing.



**R1.5. Schedule for system maintenance.**

**R1.6. Date last tested/maintained.**

47. Given that AEP believed that the Rockport area protection scheme was not an SPS, AEP did not have a documented SPS maintenance and testing program in place for the entire Rockport area protection scheme.
48. AEP stated that it tests the fast valving portion of the Rockport area protection scheme based upon the recommendations provided in AEP's memo titled Checkouts of Fast Valving Equipment at Rockport Plant, dated May 16, 1989. AEP tests unit tripping via turbine interlock checks. AEP stated that it tests the fast valving and unit tripping portions of the Rockport area protection scheme during General Boiler Inspection and Repair ("GBIR") outages, which occur approximately every two years. AEP provided the CVI team with graphical plots of Rockport fast valving tests conducted on October 25, 2005 and June 13, 2007, but stated that it has no specific procedure for testing the unit runback portion of the Rockport area protection scheme.
49. Reliability *First* alleges that AEP violated PRC-017-0, R1 by failing to provide documentation to show that it had an SPS maintenance and testing program in place for the entire Rockport area protection scheme, including unit runback, prior to the Event.

*Risk Considerations and Violation Duration*

50. PRC-017-0, R1 has a VRF of "High," consistent with the VRF Matrix promulgated by NERC.
51. This alleged violation did not pose a substantial risk to the BES because although AEP did not have an SPS maintenance and testing program in place for the Rockport area protection scheme, AEP successfully tested the fast valving portion of the Rockport area protection scheme during general boiler inspection and repair outages on October 25, 2005 and June 13, 2007.
52. Although the Event leading to the CVI posed a serious risk to reliability of the BES, the alleged violations found during the CVI concerning AEP's failure to designate the Rockport area protection scheme as an SPS were unrelated to the Event. Therefore, it is not appropriate to import the seriousness of the Event to the potential risk created by the SPS related alleged violations.
53. The duration of this alleged violation is from June 18, 2007 to June 30, 2011, the date AEP will complete its mitigation plan.

**F. Mitigating Actions for Alleged Violations Identified During CVI.**

54. On October 5, 2010, AEP submitted to ReliabilityFirst a mitigation plan to address the alleged violations of PRC-015-0, R1, PRC-015-0, R2, PRC-016-0, R1, PRC-016-0, R3, and PRC-017-0, R1 set forth in this Agreement.<sup>5</sup> See, Mitigation Plan ID No. MIT-07-3037, (attached as **Attachment A**). ReliabilityFirst accepted this mitigation plan on November 5, 2010, and submitted the accepted mitigation plan to NERC for approval on November 5, 2010.
55. In this mitigation plan, AEP outlined actions necessary to mitigate the alleged violations. The NERC Event Analysis Team issued nine recommendations to AEP as a result of its review of the Event, and AEP addressed each of the nine recommendations. AEP's mitigation plan includes actions taken by AEP in response to the nine recommendations, as well as additional actions to be taken by AEP.
56. AEP investigated and corrected reclosing problems with its Greentown S1 and S2 circuit breakers. AEP determined that the shock absorbers on the circuit breakers were out of specification. AEP adjusted the equipment to be within specification in August 2007. All test operations on the circuit breakers after this adjustment were normal. (NERC Event Analysis Team Recommendation #9)
57. AEP verified spark gap settings and line relaying schemes. AEP replaced the non-adjustable sealed spark gaps that protect the line's capacitive voltage transformers ("CVTs") with adjustable open air spark gaps. AEP adjusted the CVT spark gaps and line tuner spark gaps to improve the coordination between the spark gap flashing and the line relaying. AEP completed this work on October 4, 2007. (NERC Event Analysis Team Recommendation #7)
58. AEP investigated power line carrier equipment on the Rockport-Jefferson 765kV line. AEP then replaced with spark gaps and repaired the missing link on the A phase matching transformer. AEP completed this work in October 2007. (NERC Event Analysis Team Recommendation #8)
59. AEP added a loss of signal delay timer to the power line carrier logic for the POTT scheme to improve relay security. AEP completed this work on both the Rockport-Jefferson and Rockport-Sullivan lines in October 2007. (NERC Event Analysis Team Recommendation #3)
60. AEP reviewed and modified its outage coordination process. AEP implemented a new process for the AEP Protection and Measurement Asset Engineering Department/ Regional Operations Group to prioritize planned upgrades in the Fort

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<sup>5</sup> The mitigation plan also references an alleged violation of PRC-001-1, R3.1 (RFC200900257), which ReliabilityFirst later dismissed.

Wayne Transmission Region Operations Group on November 9, 2007. AEP refined and implemented this process across the entire AEP system by March 31, 2008. (NERC Event Analysis Team Recommendation #6)

61. AEP incorporated breaker operations limiter (“BOL”) and flashover functions on the Rockport Line Terminals. AEP installed relaying on the Rockport line terminals to provide BOL functionality and to provide current transformer protection for column current transformers that cause a lockout during a flashover fault. AEP completed this work in March 2008. AEP will incorporate BOL functionality in all future 765 kV projects. (NERC Event Analysis Team Recommendations #1 and #2)
62. AEP modified the time delay reclosing on the Rockport line terminals in March 2008.
63. AEP enhanced the Rockport area protection scheme to allow, under certain conditions, the tripping of one Rockport unit and fast valving of the second Rockport unit. AEP completed this enhancement in March 2008, and installed full redundancy of the system in March 2009. (NERC Event Analysis Team Recommendations #4 and #5)
64. AEP upgraded the station protection system equipment associated with the Rockport fast valving. AEP replaced the existing station protection system equipment that provides inputs to the Rockport fast valving logic with new equipment to provide additional redundancy. AEP completed these upgrades at a cost of approximately \$1.3 million. AEP completed the upgrades in two phases, and completed all upgrades by March 2009.
65. AEP also committed to a series of future mitigating activities in its mitigation plan, which are described in Paragraphs 76 through 85 of this Agreement.
66. AEP will update the Rockport Operating Guide to include both the fast valving and the emergency unit trip portions of the Rockport area protection scheme within the scope of the Rockport SPS.
67. AEP will revise the Commercial Operations training and the Transmission Operations training and the training for Rockport production personnel to include both the fast valving and the emergency unit trip portions of the Rockport area protection scheme within the scope of the Rockport SPS.
68. AEP will revise the Rockport Plant Supplemental Operating Procedure, which provides plant production personnel with special guidance on the operation of the Rockport SPS, to include both the fast valving and the emergency unit trip portions of the Rockport area protection scheme within the scope of the Rockport SPS.

69. AEP will update the transmission 765kV station logic and elementary diagrams, and the generation SPS logic and elementary diagrams to clearly identify the portion of the protection schemes that are within the new scope of the Rockport SPS. AEP will also update the station panel labeling to clearly identify equipment that is associated with the SPS, which includes the fast valving and emergency unit trip. AEP will update the transmission Rockport SPS maintenance and testing procedure to include the transmission equipment that is related to the fast valving and emergency unit trip.
70. AEP will revise training documents for Rockport production personnel to include both the fast valving and the emergency unit trip portions of the Rockport area protection scheme within the scope of the Rockport SPS.
71. Because the original SPS design AEP submitted to ReliabilityFirst and PJM did not include fast valving or emergency unit trip within its scope, AEP will provide revised Rockport area protection scheme SPS documentation to ReliabilityFirst to comply with PRC-015-0. AEP will provide revised Rockport SPS documentation to PJM in accordance with PJM's defined process.
72. AEP will update the existing AEP Transmission Rockport SPS maintenance and testing procedure to include the transmission equipment that is related to the fast valving and emergency unit trip portions of the Rockport area protection scheme.
73. AEP Generation will revise Circular Letter EL-M-CL-024, which it uses to comply with PRC-016-0 and PRC-017-0, to include misoperation analysis and maintenance and testing of the fast valving and the emergency unit trip portions of the Rockport area protection scheme
74. AEP Generation's current documentation for maintenance and testing of protection systems focuses solely on those elements listed in the NERC Glossary of Terms definition of protection system, and the Rockport fast valving and emergency unit trip portions of the Rockport area protection scheme are implemented using Distributed Control System ("DCS") logic, which is not included in the definition of protection system. AEP will issue a document that specifically addresses the maintenance and testing intervals and their basis for the Rockport fast valving and emergency unit trip DCS logic.
75. AEP will revise the DCS logic sheets that contain the fast valving logic and the emergency unit trip logic to include text that clearly designates these logic sheets as part of an SPS. AEP will revise the description text on existing fast valving, emergency unit trip, and SPS alarms, and will install new alarms on the DCS logic. AEP will modify the transmission station alarming to properly alarm for equipment associated with the SPS, which includes the fast valving and emergency unit trip portions of the Rockport area protection scheme. AEP will provide PJM with the revised Rockport SPS alarms.

76. Pursuant to Section 6.6 of the *ReliabilityFirst* CMEP, AEP is required to certify completion of this mitigation plan and provide evidence of completion to *ReliabilityFirst*. *ReliabilityFirst* will verify AEP's completion of this mitigation plan and promptly report its successful completion to NERC.

### III. SELF-REPORTED ALLEGED VIOLATION

#### A. Alleged Violation of PRC-005-1, R2.1 (RFC200900182).

77. PRC-005-1, R2.1 states:

**R2.** Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30 calendar days). The documentation of the program implementation shall include:

**R2.1.** Evidence Protection System devices were maintained and tested within the defined intervals.

78. Unrelated to the CVI, on October 5, 2009, AEP self-reported noncompliance to PRC-005-1, R2.1 concerning its Transmission Owner function. While preparing for its October 2009 on-site compliance audit, AEP discovered that maintenance and testing records for transmission protection system devices were missing or indicated that maintenance and testing did not always occur within the defined intervals of AEP's Protection System Maintenance and Testing Program ("Program"). AEP missed maintenance and testing intervals on relays and on station batteries. AEP stated that the number of missed maintenance and testing intervals constitutes less than 3% of AEP's overall Program in the *ReliabilityFirst* footprint subject to PRC-005-1.
79. AEP provided a table describing the missed maintenance and testing intervals on the relays. Missed maintenance and testing intervals included relay calibration, functional trip testing and power line carrier maintenance. AEP missed 42<sup>6</sup> maintenance and testing intervals on Bulk Electric System ("BES") relays. Specifically, AEP missed 35 relay functional trip tests, six communication equipment calibrations, and one relay calibration.<sup>7</sup> AEP performed all deficient relay maintenance and testing by December 31, 2009.

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<sup>6</sup> AEP originally self-reported that it missed 43 maintenance intervals, but *ReliabilityFirst* later determined that AEP self-reported one of the missed intervals in error because it did not fall within the definition of the BES.

<sup>7</sup> The missed relay calibration affected eight relays.

80. AEP also missed maintenance and testing intervals on station batteries. AEP's Program requires AEP to inspect each station battery and to record the inspection in AEP's database within 90 days from the battery's last inspection. This requirement is called the "monthly inspection." AEP's Program also requires AEP to perform a more detailed testing and inspection procedure on each station battery twice a year and to record this inspection in AEP's database within 215 days of the previous inspection. This requirement is called the "semi-annual inspection." In the present case, AEP did not miss any monthly station battery inspection intervals, but AEP did miss 55 semi-annual inspection intervals. AEP performed all deficient station battery maintenance and testing by December 23, 2009.
81. ReliabilityFirst alleges that AEP failed to maintain and test protection system devices within the defined intervals of its Program.

*Risk Considerations and Violation Duration*

82. PRC-005-1, R2.1 has a Violation Risk Factor ("VRF") of "High," consistent with the VRF Matrix promulgated by NERC.
83. This alleged violation did not pose a substantial risk to the BES concerning the missed testing and maintenance on the relays because the relays at issue were in good condition immediately prior to and after the missed test intervals. The fact that AEP has both primary and backup relays also lessened the risk. In addition, transfer trip pilot channels are continuously monitored by SCADA and alarms for loss of channel, which identified no issues. Facilities that missed relay testing intervals are part of a networked system supplying customer load that does not affect the bulk transport of electricity.
84. This alleged violation did not place the BES at substantial risk concerning the missed testing and maintenance on the station batteries because 45 of the 55 station batteries with missed maintenance and testing intervals were monitored by SCADA, which identified no issues. The SCADA monitoring verifies the battery condition, consequently reducing the negative impact of the alleged violation on the BES. In addition, AEP performs monthly station inspections where abnormal conditions are discovered and AEP takes corrective actions as appropriate. These inspections would have alerted AEP if any of the batteries had been non-functional.



85. The duration of this alleged violation, for purposes of penalty determination, is from June 18, 2007 to December 30, 2009, when AEP completed all deficient maintenance and testing of transmission protection system devices.

*Mitigating Actions*

86. On March 26, 2010, AEP submitted to ReliabilityFirst a mitigation plan to address the alleged violation of PRC-005-1, R2.1 set forth in this agreement. *See*, NERC Mitigation Plan ID # MIT-07-2451, (attached as **Attachment B**). ReliabilityFirst accepted this mitigation plan on April 14, 2010, and on April 16, 2010, submitted this accepted mitigation plan to NERC for approval. NERC approved this mitigation plan on April 30, 2010, and on May 3, 2010, submitted this mitigation plan to the Commission as confidential, non-public information.
87. On July 30, 2010, AEP submitted to ReliabilityFirst a certification of completion of this mitigation plan, which stated that this mitigation plan was completed as of June 30, 2010. *See*, Certification of Mitigation Plan Completion (attached as **Attachment C**). On this same date, AEP also submitted to ReliabilityFirst evidence of its completion of this mitigation plan.
88. In this mitigation plan, AEP outlined actions necessary to mitigate the alleged violation. AEP completed all outstanding maintenance and testing on the protection system devices at issue. AEP reinstated centralized “battery maintenance exception reports” for both the monthly and semi-annual battery inspections, which ensure that all inspections are conducted and reported pursuant to AEP’s Program. AEP also developed and implemented improved “station maintenance completion reports” as part of a process where transmission asset engineering staff initiate monthly proactive reviews of any issues that could cause deviations from scheduled protection system maintenance and testing.
89. On January 27, 2010, ReliabilityFirst verified that AEP completed this mitigation plan in accordance with its terms. *See*, Verification of Mitigation Plan Completion (attached as **Attachment D**).

**IV. COMPLIANCE CULTURE AND HISTORY**

90. ReliabilityFirst recognizes certain aspects of AEP’s compliance program. For example, AEP’s Compliance Officer has independent access to the CEO, Executive Committee and Board of Directors. AEP’s compliance program provides an annual schedule of standards to review and internal assessments of compliance by each affected business unit and by independent staff such as Internal Audits and Regulatory Services. AEP expanded its existing utilization of a compliance management software program. This program allows AEP to create and assign tasks to key staff involved in compliance activities and provide centralized documentation, coordination, reminders, and reporting capabilities.

91. AEP provides training to all staff directly involved in reliability compliance activities through large group presentations on FERC, NERC and Regional compliance requirements, AEP's compliance program, and related processes. In addition, AEP regularly conducts targeted focus group training for each business unit. AEP regularly reviews and modifies its compliance program when necessary. AEP has internal auditors who perform spot checks on a random basis.
92. When assessing the penalty for the alleged violations at issue in this Agreement, ReliabilityFirst considered whether there was any (a) repeated or continuing conduct similar to that underlying the prior violation of the same or a closely-related Reliability Standard Requirement; (b) conduct addressed in any previously submitted mitigation plan for a prior violation of the same or a closely-related Reliability Standard Requirement; or (c) multiple violations of the same Standard and Requirement. ReliabilityFirst concluded that AEP's prior alleged violations of PRC-005-1, R2.1<sup>9</sup> constituted prior violations of the same or closely-related Reliability Standard Requirement and therefore treated the alleged violations as repeat violations. This conclusion resulted in an increased monetary penalty amount.

## V. PENALTY

93. Based upon the foregoing, AEP shall pay a monetary penalty of \$35,000 to ReliabilityFirst.
94. ReliabilityFirst shall present a \$35,000 invoice to AEP within 20 days after the Agreement is approved by the Commission or affirmed by operation of law. Upon receipt, AEP shall have 30 days to remit payment. ReliabilityFirst will notify NERC if it does not timely receive the payment from AEP.
95. If AEP fails to timely remit the monetary penalty payment to ReliabilityFirst, interest will commence to accrue on the outstanding balance, pursuant to 18 C.F.R. § 35.19a (a)(2)(iii), on the earlier of (a) the 31<sup>st</sup> day after the date on the invoice issued by ReliabilityFirst to AEP for the monetary penalty payment or (b) the 51<sup>st</sup> day after the Agreement is approved by the Commission or operation of law.
96. ReliabilityFirst may deem AEP's failure to timely remit the penalty payment as either the same alleged violations identified in this Agreement or additional violations or both, and, if so deemed, AEP will be subject to new or additional enforcement, penalty, or sanction actions in accordance with the NERC Rules of Procedure. AEP shall retain all rights to defend against such additional actions in accordance with the NERC Rules of Procedure.

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<sup>9</sup> Referenced as RFC200800074 and SPP200800061 in Settlement Agreement between ReliabilityFirst, SPP RE, and AEP, executed February 26, 2010.



## VI. ADDITIONAL TERMS

97. ReliabilityFirst and AEP agree that this Agreement is in the best interest of BES reliability.
98. The terms and conditions of the Agreement are consistent with the regulations and orders of the Commission and the NERC Rules of Procedure.
99. ReliabilityFirst 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 ReliabilityFirst will attempt to negotiate with AEP a revised settlement agreement that addresses NERC's concerns. If a settlement cannot be reached, the enforcement process shall continue to conclusion. If NERC approves the Agreement, NERC will (a) report the approved settlement to the Commission review and approval by order or operation of law and (b) publicly post the alleged violation and the terms provided for in this Agreement.
100. This Agreement shall become effective upon the Commission's approval of the Agreement by order or operation of law or as modified in a manner acceptable to the parties.
101. AEP agrees that this Agreement, when approved by NERC and the Commission, shall represent a final settlement of all matters set forth herein and binds AEP to perform the actions enumerated herein. AEP expressly waives its right to any hearing or appeal concerning any matter set forth herein, unless and only to the extent that AEP contends that any NERC or Commission action constitutes a material modification to this Agreement.
102. ReliabilityFirst reserves all rights to initiate enforcement actions against AEP in accordance with the NERC Rules of Procedure in the event that AEP fails to comply with any of the terms or conditions of this Agreement, including failure to timely complete mitigation plans or other remedies of this Agreement. In the event AEP fails to comply with any of the terms or conditions of this Agreement, ReliabilityFirst may initiate an action or actions against AEP to the maximum extent allowed by the NERC Rules of Procedure, including, but not limited to, the imposition of the maximum statutorily allowed monetary penalty. AEP will retain all rights to defend against such action or actions in accordance with the NERC Rules of Procedure.
103. AEP consents to ReliabilityFirst's future use of conclusions, determinations, and findings set forth in this Agreement for the purpose of assessing the factors within the NERC Sanction Guidelines and applicable Commission orders and policy

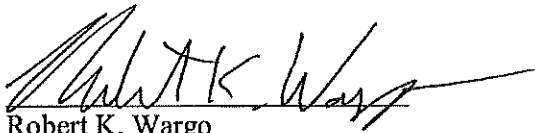
statements, including, but not limited to, the factor evaluating AEP's history of violations. Such use may be in any enforcement action or compliance proceeding undertaken by NERC or any Regional Entity or both, provided however that AEP does not consent to the use of the conclusions, determinations, and findings set forth in this Agreement as the sole basis for any other action or proceeding brought by NERC or any Regional Entity or both, nor does AEP consent to the use of this Agreement by any other party in any other action or proceeding.

104. AEP 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 ReliabilityFirst enters into this Agreement in express reliance on the representations contained herein, as well as any other representations or information provided by AEP to ReliabilityFirst during any AEP interaction with ReliabilityFirst relating to the subject matter of this Agreement.
105. Each of the undersigned warrants that he or she is an authorized representative of the entity designated below, is authorized to bind such entity, and accepts the Agreement on the entity's behalf.
106. The signatories to this Agreement agree 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 ReliabilityFirst or AEP has been made to induce the signatories or any other party to enter into this Agreement.
107. The Agreement may be signed in counterparts.
108. This Agreement is executed in duplicate, each of which so executed shall be deemed to be an original.

**[SIGNATURE PAGE TO FOLLOW]**


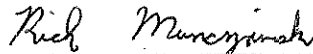
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**Agreed to and accepted:**

  
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Robert K. Wargo  
Director of Enforcement & Regulatory Affairs  
ReliabilityFirst Corporation

3/7/2011  
Date

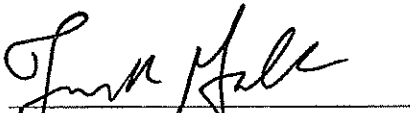
*for*  *VP Transmission Engineering*  
  
\_\_\_\_\_

Richard E. Munczinski  
Senior VP – Regulatory Services

American Electric Power Service Corporation as agent for Appalachian Power Company,  
Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power  
Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company

9 March 2011  
Date

**Approved:**

  
\_\_\_\_\_

Timothy R. Gallagher  
President & Chief Executive Officer  
ReliabilityFirst Corporation

3-7-2011  
Date

# **Attachment a**

## Mitigation Plan

Submitted October 05, 2010



RFC200900257  
RFC200900258  
RFC200900259  
RFC200900260  
RFC200900261  
RFC200900262

# Mitigation Plan Submittal Form

Date this Mitigation Plan is being submitted: 10/5/2010  
(Draft was submitted to RFC on September 10, 2010)

## **Section A: Compliance Notices & Mitigation Plan Requirements**

- A.1 Notices and requirements applicable to Mitigation Plans and this Submittal Form are set forth in "Attachment A - Compliance Notices & Mitigation Plan Requirements."
- A.2 This form must be used to submit required Mitigation Plans for review and acceptance by ReliabilityFirst and approval by NERC.
- A.3  I have reviewed Attachment A and understand that this Mitigation Plan Submittal Form will not be accepted unless this box is checked.

## **Section B: Registered Entity Information**

B.1 Identify your organization.

Company Name: [American Electric Power](#)

Company Address: [1 Riverside Plaza](#)  
[Columbus, OH 43215](#)

NERC Compliance Registry ID: [NCR00682](#)

B.2 Identify the individual in your organization who will be the Entity Contact regarding this Mitigation Plan.

Name: [Thad Ness](#)

Title: [Reliability Standards Compliance Manager](#)

Email: [tkness@aep.com](mailto:tkness@aep.com)

Phone: [\(614\) 716-2053](tel:(614)716-2053)



**Section C: Identification of Alleged or Confirmed Violation(s)  
Associated with this Mitigation Plan**

C.1 This Mitigation Plan is associated with the following Alleged or Confirmed violation(s) of the reliability standard listed below.

NERC Violation ID #	Reliability Standard	Requirement Number	Violation Risk Factor	Alleged or Confirmed Violation Date <sup>(*)</sup>	Method of Detection (e.g., Audit, Self-report, Investigation)
RFC2009257	PRC-001-1	R3 (R3.1)	High	August 4, 2007	Investigation
RFC2009258	PRC-015-0	R1	Medium	August 4, 2007	Investigation
RFC2009259	PRC-015-0	R2	Medium	August 4, 2007	Investigation
RFC2009260	PRC-016-0	R1	Medium	August 4, 2007	Investigation
RFC2009261	PRC-016-0	R3	Lower	August 4, 2007	Investigation
RFC2009262	PRC-017-0	R1 (1.2 thru 1.6)	High	August 4, 2007	Investigation

(\*) Note: The Alleged or Confirmed Violation Date shall be expressly specified by the Registered Entity, and subject to modification by ReliabilityFirst, as: (i) the date the Alleged or Confirmed violation occurred; (ii) the date that the Alleged or Confirmed violation was self-reported; or (iii) the date that the Alleged or Confirmed violation has been deemed to have occurred on by ReliabilityFirst. Questions regarding the date to use should be directed to the ReliabilityFirst contact identified in Section G of this form.

C.2 Identify the cause of the Alleged or Confirmed violation(s) identified above. Additional detailed information may be provided as an attachment.

A system disturbance and frequency excursion occurred in the Eastern Interconnection on August 4, 2007. A NERC Event Analysis team led a review of the system disturbance to gain an understanding of the events that transpired on August 4, 2007. A Compliance Violation Investigation was initiated by RFC, with the following findings:

- PRC-001-1, R3.1 - AEP failed as a GOP to coordinate the Rockport fast valving reset time with the TOP (PJM) transmission system automatic reclosing prior to the August 4, 2007 event.
- PRC-015-0, R1 - The CVI team determined that the protection system at Rockport, as installed on August 4, 2007, was an SPS and AEP failed to maintain a list and provide data of the SPS as required by the standard. AEP also failed to document the modifications that were made to the Rockport area protection scheme to address coordination failures cited in the NERC Event Analysis Report, when the scheme was made completely automatic and declared an SPS by AEP in 2008.



- PRC-015-0, R2 - AEP did not provide evidence to show that AEP had reviewed the Rockport SPS, as installed on August 4, 2007, in accordance with the Regional Reliability Organization's procedures as defined in Reliability Standard PRC-012-0\_R1 prior to being placed in service.
- PRC-016-0, R1 – AEP did not provide evidence that they analyzed its SPS operations and maintained a record of all misoperations in accordance with the Regional SPS review procedure specified in Reliability Standard PRC-012-0, R1 for the generation fast valving scheme misoperation ( that is part of an SPS) that occurred on 8/4/2007.
- PRC-016-0, R3 - AEP did not provide documentation of the generation fast valving scheme (that is part of an SPS) misoperations analyses and corrective action plans for the fast valving misoperation that occurred on 8/4/2007 to its Regional Reliability Organization (Reliability First) as requested.
- PRC-017-0, R1.2 thru R1.6 - AEP did not have documentation, as the GO and TO in place as required to show they had a maintenance and test program in place prior to the August 4, 2007 event to check the entire Rockport protection scheme including unit runback

Note: If a formal root cause analysis evaluation was performed, submit a copy of the summary report.

- C.3 Provide any additional relevant information regarding the Alleged or Confirmed violations associated with this Mitigation Plan. Additional detailed information may be provided as an attachment.

In applying the NERC SPS definition, AEP focused on what AEP understood to be the intent of an SPS in the context of Bulk Electric System reliability. The NERC SPS definition does not reference unit stability, rather its focus is on "maintaining system reliability, stability, acceptable voltage and power flows." Therefore, AEP did not classify any of the Rockport stability controls, including the fast valving control, as SPS for the following reasons.

Rockport fast valving (FV) is designed to protect the integrity of the Rockport Plant and is not designed specifically for bulk power system reliability purposes. The need for FV was recognized in the transmission planning studies conducted during the late 1970s / early 1980s. FV was designed to improve the stability performance of the Rockport Plant, thereby a) reducing operator-directed plant curtailments in anticipation of certain transmission contingencies; and b) providing direct economic benefits as well as improved plant reliability and availability.



In addition, TPL-004-0 Standard: Category D Contingency – sets criteria for the evaluation of loss of a station. AEP’s operating experience and analyses do not indicate that a loss of 2,600 MW of Rockport generation would:

- Adversely impact system reliability
- Adversely impact system stability performance
- Cause unacceptable voltages and power flows
- Cause cascading outages

Moreover, prior to August 2007, there was uncertainty in the industry over the appropriate application of the SPS definition. AEP as well as other ECAR member companies worked with ECAR to gain clarity and specificity on the SPS definition. This resulted in AEP participation in extensive efforts by ECAR to develop a succinct definition of SPS.

AEP did not receive the guidance it expected from ECAR, AEP followed what it believed to be the reasonable and rational approach of continuing to follow its interpretation of the NERC definition of SPS, as explained above.

In April and December of 2008, AEP presented to the RFC SPS Review Task Force the then Rockport SPS, which was designed to address the NERC August 4, 2007 Event Analysis team’s recommendations. AEP described the SPS as a unit tripping scheme, which is always enabled and acts as a backup to fast valving. During these presentations, AEP mentioned that a separate fast valving control also exists at Rockport, which has not been classified as an SPS.

As part of this mitigation plan, AEP accepts that fast valving is a Special Protection System. AEP intends to modify the necessary documentation to include the fast valving within the newly revised scope of the Rockport Special Protection System.





## **Section D: Details of Proposed Mitigation Plan**

### **Mitigation Plan Contents**

- D.1 Identify and describe the action plan, including specific tasks and actions that your organization is proposing to undertake, or which it undertook if this Mitigation Plan has been completed, to correct the Alleged or Confirmed violations identified above in Part C.1 of this form. Additional detailed information may be provided as an attachment.

The NERC Event Analysis team issued nine (9) recommendations to AEP as a result of their review of the August 4, 2007 disturbance. AEP has addressed each of these recommendations. For the sake of completeness, the proposed mitigation plan includes both AEP's response to NERC's recommendations and additional tasks that AEP feels must be completed. Items D1.1 through D1.9 were completed to address the recommendations outlined in the NERC Event Analysis Report, and are not related to the Alleged violations.

### **Work Already Completed To Address the NERC Event Analysis Report Recommendations:**

1. Investigated & Corrected Reclosing Problems with Greentown CBs  
Investigation into the reclosing problems on Greentown circuit breakers S1 and S2 found that the shock absorbers were out of specification. This work is not associated with the Rockport Special Protection System. The equipment was adjusted to be within specification and all test operations thereafter were normal. This work was completed in August 2007. (Recommendation 9)
2. Verified Spark Gap Settings and Line Relaying Schemes  
The non-adjustable sealed spark gaps that protect the line's capacitive voltage transformers (CVTs) were replaced with adjustable open air spark gaps. The CVT spark gaps and line tuner spark gaps were adjusted to improve the coordination between the spark gap flashing and the line relaying. This work is not associated with the Rockport Special Protection System This work was completed on October 4, 2007. (Recommendation 7)
3. Completed Investigation of Power Line Carrier Equipment on Rockport-Jefferson 765 kV Line  
AEP completed additional testing that was inconclusive. AEP replaced with spark gaps and repaired the missing link on the A phase matching transformer. This work is not associated with the Rockport



Special Protection System This work was completed in October 2007. (Recommendation 8)

4. Modified Power Line Carrier Logic for POTT Scheme  
A loss of signal delay timer was added to the power line carrier logic for the POTT scheme to improve relay security. This work is not associated with the Rockport Special Protection System and was completed on both the Rockport-Jefferson and the Rockport-Sullivan lines in October 2007. (Recommendation 3)
5. Reviewed and Modified Outage Coordination Process  
A new process for the AEP Protection and Measurement Asset Engineering Department / Regional Operations Groups to prioritize planned upgrades in the Fort Wayne Transmission Region Operations Group was implemented on November 9, 2007. This work is not associated with the Rockport Special Protection System This process was refined and implemented across the entire AEP system by March 31, 2008. (Recommendation 6)
6. Incorporated a Breaker Operations Limiter (BOL) and Flashover Functions on the Rockport Line Terminals  
Relaying was installed on the Rockport line terminals to provide breaker operations limiter (BOL) functionality and to provide current transformer flashover protection for column current transformers that cause a lockout during a flashover fault. This work is not associated with the Rockport Special Protection System and was completed in March 2008. The BOL functionality will be incorporated in future 765 kV projects. (Recommendations 1 & 2)
7. Modified Time Delay Reclosing on Rockport Line Terminals  
The modification of the time delay reclosing of the Rockport line terminals was not associated with the Rockport Special Protection System. The work was completed in March 2008.
8. Installed Rockport Special Protection System (Phase I and II)  
Enhancements were made to the existing Rockport plant and transmission protection and control schemes to allow, under certain conditions, the tripping of one Rockport unit and fast valving of the second Rockport unit. This work was completed in two phases. Phase I was completed in March 2008, when the entire SPS scheme was placed in service. Phase II installed full redundancy on the SPS system and was completed in March 2009. (Recommendations 4 & 5)



9. Upgrade Station Protection System Equipment Associated with Rockport Fast Valving

The existing Station Protection System equipment that provides inputs to the Rockport plant fast valving logic was replaced with new equipment to provide additional redundancy. These upgrades were completed at a cost of approximately \$1.3 million. At the time this work was completed, the fast valving was not considered part of the Rockport SPS. The upgrades were completed in two phases with the second phase being completed in March 2009.

**Work To Be Completed As Part of the Proposed Mitigation Plan**

10. PRC-015-0, R1 - PRC-015-0, R2 - Update Rockport Operating Guide

The existing Rockport Operating Guide will be revised to include both the fast valving and the emergency unit trip within the scope of the Rockport SPS.

11. AEP Process Update - Revise Commercial Operations Training

The AEP Commercial Operations training used for PRC-001 compliance shall be revised to include both the fast valving and the emergency unit trip within the scope of the Rockport SPS.

12. PRC-001-1, R3.1 - Revise Transmission Operations Training

The AEP Transmission Operations training used for PRC-001 compliance shall be revised to include both the fast valving and the emergency unit trip within the scope of the Rockport SPS.

13. AEP Process Update - Revise Rockport Plant Supplemental Operating Procedure

Rockport Plant Supplemental Operating Procedure SOP 5-12 provides plant production personnel with special guidance on the operation of the Rockport SPS. This document shall be revised to include both the fast valving and the emergency unit trip within the scope of the Rockport SPS.

14. AEP Process Update - Revise Rockport Plant Operations Training

Training for Rockport production personnel shall be revised to include both the fast valving and the emergency unit trip within the scope of the Rockport SPS.

15. AEP Process Update - Update Transmission 765kV Station Logic and Elementary Diagrams

The existing 765kV station logic and elementary diagrams will be revised to clearly identify the portion of the protection schemes that are within the new scope of the Rockport SPS.



16. AEP Process Update - Modify Transmission Station Panel Labeling  
The station panel labeling will be updated to clearly identify equipment that is associated with the SPS, which includes the fast valving and emergency unit trip.
17. PRC-017-0, R1.2 thru R1.6 - Update Transmission Rockport SPS Maintenance and Testing Procedures  
The existing AEP Transmission Rockport SPS maintenance and testing procedure will be updated to include the Transmission equipment that is related to the fast valving and emergency unit trip at Rockport.
18. PRC-015-0, R1 - PRC-015-0, R2 - Provide Revised Rockport SPS Documentation to Reliability First (RFC)  
The original SPS design submitted to RFC did not include within its scope fast valving or emergency unit trip. In order to comply with PRC-015-0 "Special Protection System Data and Documentation" and Reliability First's "Procedure for the Review of Special Protection Systems (SPS)" Version 1, AEP will provide revised Rockport SPS documentation to RFC in accordance with RFC's defined process.
19. PRC-015-0, R1 - PRC-015-0, R2 - Provide Revised Rockport SPS Documentation to PJM  
The original SPS design submitted to PJM did not include within its scope fast valving or emergency unit trip. In order to comply with PRC-001-1 "System Protection Coordination" and PJM's "Manual 03: Transmission Operations" Revision 37, AEP will provide revised Rockport SPS documentation to PJM in accordance with PJM's defined process.
20. AEP Process Update - Update Generation SPS Logic and Elementary Diagrams  
The existing SPS logic diagrams and elementary diagrams will be revised to clearly identify the portion of each drawing that is within the new scope of the Rockport SPS.
21. PRC-016-0 R1 & R3, PRC-017-0 R1.2 thru R1.6 - Update Generation SPS Circular Letter  
AEP Generation uses Circular Letter EL-M-CL-024 to comply with NERC Standards PRC-016 "Special Protection System Misoperations" and PRC-017 "Special Protection System Maintenance and Testing." The current revision of the document does not include within its scope misoperation analysis, maintenance or testing of the fast valving or the



emergency unit trip. The document will be revised to include these components.

22. PRC-017-0, R1.2 thru R1.6 - Issue Generation Fast Valving and Emergency Unit Trip Logic Maintenance and Testing Document  
AEP Generation's current documentation for maintenance and testing of Protection Systems focuses solely on those elements listed in the NERC Glossary of Terms definition of Protection System. The Rockport fast valving and emergency unit trip are implemented using DCS logic, which is not included within the definition of Protection System. A dedicated document will be issued to address the maintenance and testing intervals and their basis for the Rockport fast valving and emergency unit trip DCS logic.

23. AEP Process Update - Revise Rockport Plant DCS Logic Sheets & Logic Alarms

The DCS logic sheets that contain the fast valving logic and the emergency unit trip logic will be revised to include text that clearly designates these logic sheets as part of the SPS. Changes to any SPS logic sheet require an engineering review and plant management approval.

The addition of the fast valving and the emergency unit trip to the scope of the Rockport SPS requires the revision of the description text on existing fast valving, emergency unit trip or SPS alarms. New alarms from the DCS logic are also required.

These revisions must be completed on both Unit 1 and Unit 2 and will require a unit outage. The changes will be completed no later than the next major outage, currently scheduled to conclude in February 2011 on Unit 2 and May 2011 on Unit 1.

24. AEP Process Update - Modify Transmission Station Alarming

The station alarming will be updated to properly alarm for equipment associated with the SPS, which includes the fast valving and emergency unit trip.

25. PRC-015-0, R1 - PRC-015-0, R2 - Revise Rockport SPS Alarms to PJM  
With the addition of the fast valving and the emergency unit trip to the scope of the Rockport SPS, the alarms provided by AEP to PJM must be revised. The complete set of new alarms will not be available until after the DCS logic alarm changes are completed on each unit.

### **Mitigation Plan Timeline and Milestones**



D.2 Provide the date by which full implementation of the Mitigation Plan will be, or has been, completed with respect to the Alleged or Confirmed violations identified above. State whether the Mitigation Plan has been fully implemented, and/or whether the actions necessary to assure the entity has returned to full compliance have been completed.

The above Mitigation Plan contains several elements that require a unit outage to complete. Assuming no changes to the Rockport unit outage schedules, which are currently scheduled to conclude in February 2011 on Unit 2 and May 2011 on Unit 1, the Mitigation Plan will be fully implemented as outlined below. .



D.3 Enter Key Milestone Activities (with due dates) that can be used to track and indicate progress towards timely and successful completion of this Mitigation Plan.

No.	Key Milestone Activity	Proposed/Actual Completion Date* (shall not be more than 3 months apart)
1	Investigate & Correct Reclosing Problems with Greentown CBs (D1.1)	8/2007
2	Verify Spark Gap Settings and Line Relay Schemes (D1.2)	10/2007
3	Complete Investigation of PLC Equipment on Rockport-Jefferson 765 kV Line (D1.3)	10/2007
4	Modify Power Line Carrier Logic for POTT Scheme (D1.4)	10/2007
5a	Review & Modify Outage Coordination Process (Fort Wayne Region) – (D1.5)	11/2007
5b	Review & Modify Outage Coordination Process (AEP System Wide) – (D1.5)	3/2008
6	Incorporate BOL and Flashover Functions on Rockport Line Terminals (D1.6)	3/2008
7	Modified Time Delay Reclosing on Rockport Line Terminals (D1.7)	3/2008
8a	Installed Rockport SPS (Phase I) – (D1.8)	3/2008
8b	Installed Rockport SPS (Phase II) (D1.8)	3/2009
9	Upgrade Station Protection System Equipment Associated with Rockport Fast Valving (D1.9)	3/2009
10	Update Rockport Operating Guide (D1.10)	10/15/2010
11	Revise Commercial Operation Training (D1.11)	11/5/2010
12	Revise Transmission Operation Training (D1.12)	11/5/2010
13	Revise Rockport Plant Supplemental Operating Procedure (D1.13)	11/5/2010
14	Revise Rockport Plant Operations Training (D1.14)	11/5/2010
15	Update Transmission 765kV Station Logic and Elementary Diagrams (D1.15)	12/1/2010
16	Modify Transmission Station Panel Labeling (D1.16)	12/1/2010
17	Update Transmission Rockport SPS Maintenance and Testing Procedures (D1.17)	12/1/2010
18	Provide Revised Rockport SPS Documentation to RFC (D1.18)	12/31/2010
19	Provide Revised Rockport SPS Documentation to	12/31/2010

# RELIABILITY FIRST

	PJM (D1.19)	
20	Update Generation SPS Logic and Elementary Diagrams (D1.20)	12/31/2010
21	Update Generation SPS Circular Letter (D1.21)	12/31/2010
22	Issue Generation Fast Valving and Emergency Unit Trip Logic Maintenance and Testing Document (D1.22)	12/31/2010
23a	Revise Rockport Plant DCS Logic Sheets & Logic Alarms (Unit 2) (D1.23)	2/28/2011
23b	Revise Rockport Plant DCS Logic Sheets & Logic Alarms (Unit 1) (D1.23)	5/31/2011
24	Modify Transmission Station Alarming (D1.24)	5/31/2011
25	Revise Rockport SPS Alarms to PJM (D1.25)	6/30/2011

(\*) Note: Additional violations could be determined for not completing work associated with accepted milestones.





## **Section E: Interim and Future Reliability Risk**

### **Abatement of Interim BPS Reliability Risk**

- E.1 While your organization is implementing this Mitigation Plan the reliability of the Bulk Power System (BPS) may remain at higher risk or be otherwise negatively impacted until the plan is successfully completed. To the extent they are, or may be, known or anticipated: (i) identify any such risks or impacts; and (ii) discuss any actions that your organization is planning to take to mitigate this increased risk to the reliability of the BPS. Additional detailed information may be provided as an attachment.

There is no substantial risk to the reliability of BES while this mitigation plan is being executed because significant work has already been accomplished. There is no change in functionality or design of the Rockport SPS or Protection System; it is merely a clarification of content. The alleged violations are procedural in nature.

### **Prevention of Future BPS Reliability Risk**

- E.2 Describe how successful completion of this Mitigation Plan by your organization will prevent or minimize the probability that the reliability of the BPS incurs further risk of similar violations in the future. Additional detailed information may be provided as an attachment.

The remedial actions described in this plan will clarify for all affected parties, including AEP Operations, AEP Engineering Services, as well as PJM, the full extent of the boundaries of the Rockport SPS and the actions necessary for its reliable operation.



**Section F: Authorization**

An authorized individual must sign and date this Mitigation Plan Submittal Form. By doing so, this individual, on behalf of your organization:

- a) Submits this Mitigation Plan for acceptance by ReliabilityFirst and approval by NERC, and
- b) If applicable, certifies that this Mitigation Plan was completed on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
  - 1. I am Senior Vice President of AEP Transmission.
  - 2. I am qualified to sign this Mitigation Plan on behalf of AEP.
  - 3. I have read and am familiar with the contents of this Mitigation Plan.
  - 4. AEP agrees to comply with, this Mitigation Plan, including the timetable completion date, as accepted by ReliabilityFirst and approved by NERC.

**Authorized Individual Signature \_\_\_\_\_**

Name (Print): Michael Heyeck  
Title: Senior Vice President - Transmission  
Date:

**Section G: Regional Entity Contact**

Please direct completed forms or any questions regarding completion of this form to the ReliabilityFirst Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

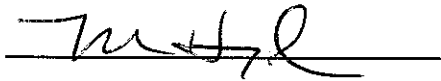
Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any ReliabilityFirst Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the ReliabilityFirst Compliance web page.



**Section F: Authorization**

An authorized individual must sign and date this Mitigation Plan Submittal Form. By doing so, this individual, on behalf of your organization:

- a) Submits this Mitigation Plan for acceptance by ReliabilityFirst and approval by NERC, and
- b) If applicable, certifies that this Mitigation Plan was completed on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
  - 1. I am Senior Vice President of AEP Transmission.
  - 2. I am qualified to sign this Mitigation Plan on behalf of AEP.
  - 3. I have read and am familiar with the contents of this Mitigation Plan.
  - 4. AEP agrees to comply with, this Mitigation Plan, including the timetable completion date, as accepted by ReliabilityFirst and approved by NERC.

**Authorized Individual Signature** 

Name (Print): Michael Heyeck  
Title: Senior Vice President - Transmission  
Date: 10/5/2010

**Section G: Regional Entity Contact**

Please direct completed forms or any questions regarding completion of this form to the ReliabilityFirst Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any ReliabilityFirst Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the ReliabilityFirst Compliance web page.



## **Attachment A – Compliance Notices & Mitigation Plan Requirements**

- I. Section 6.2 of the CMEP<sup>1</sup> sets forth the information that must be included in a Mitigation Plan. The Mitigation Plan must include:
- (1) The Registered Entity's point of contact for the Mitigation Plan, who shall be a person (i) responsible for filing the Mitigation Plan, (ii) technically knowledgeable regarding the Mitigation Plan, and (iii) authorized and competent to respond to questions regarding the status of the Mitigation Plan.
  - (2) The Alleged or Confirmed Violation(s) of Reliability Standard(s) the Mitigation Plan will correct.
  - (3) The cause of the Alleged or Confirmed Violation(s).
  - (4) The Registered Entity's action plan to correct the Alleged or Confirmed Violation(s).
  - (5) The Registered Entity's action plan to prevent recurrence of the Alleged or Confirmed violation(s).
  - (6) The anticipated impact of the Mitigation Plan on the bulk power system reliability and an action plan to mitigate any increased risk to the reliability of the bulk power-system while the Mitigation Plan is being implemented.
  - (7) A timetable for completion of the Mitigation Plan including the completion date by which the Mitigation Plan will be fully implemented and the Alleged or Confirmed Violation(s) corrected.
  - (8) Key implementation milestones no more than three (3) months apart for Mitigation Plans with expected completion dates more than three (3) months from the date of submission. Additional violations could be determined for not completing work associated with accepted milestones.
  - (9) Any other information deemed necessary or appropriate.
  - (10) The Mitigation Plan shall be signed by an officer, employee, attorney or other authorized representative of the Registered Entity, which if applicable, shall be the person that signed the Self-Certification or Self Reporting submittals.
- II. This submittal form must be used to provide a required Mitigation Plan for review and acceptance by ReliabilityFirst and approval by NERC.
- III. This Mitigation Plan is submitted to ReliabilityFirst and NERC as confidential information in accordance with Section 1500 of the NERC Rules of Procedure.
- IV. This Mitigation Plan Submittal Form may be used to address one or more related Alleged or Confirmed violations of one Reliability Standard. A separate

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<sup>1</sup> "Compliance Monitoring and Enforcement Program" of the ReliabilityFirst Corporation;" a copy of the current version approved by the Federal Energy Regulatory Commission is posted on the ReliabilityFirst website.



mitigation plan is required to address Alleged or Confirmed violations with respect to each additional Reliability Standard, as applicable.

- V. If the Mitigation Plan is accepted by ReliabilityFirst and approved by NERC, a copy of this Mitigation Plan will be provided to the Federal Energy Regulatory Commission in accordance with applicable Commission rules, regulations and orders.
- VI. ReliabilityFirst or NERC may reject Mitigation Plans that they determine to be incomplete or inadequate.
- VII. Remedial action directives also may be issued as necessary to ensure reliability of the BPS.



**DOCUMENT CONTROL**

**Title:** Mitigation Plan Submittal Form  
**Issue:** Version 2.0  
**Date:** 11 July 2008  
**Distribution:** Public  
**Filename:** ReliabilityFirst Mitigation Plan Submittal Form - Ver 2.DOC  
**Control:** Reissue as complete document only

**DOCUMENT APPROVAL**

Prepared By	Approved By	Approval Signature	Date
Robert K. Wargo Senior Consultant Compliance	Raymond J. Palmieri Vice President and Director Compliance	<i>Raymond J. Palmieri</i>	1/2/08

**DOCUMENT CHANGE/REVISION HISTORY**

Version	Prepared By	Summary of Changes	Date
1.0	Robert K. Wargo	Original Issue – Replaces “Proposed Mitigation Plan” Form	1/2/08
2.0 Tony	Purgar	Revised email address from <a href="mailto:compliance@rfirst.org">compliance@rfirst.org</a> to <a href="mailto:mitigationplan@rfirst.org">mitigationplan@rfirst.org</a>	7/11/08

# **Attachment b**

Mitigation Plan (MIT-07-2451)

Submitted March 26, 2010



## Mitigation Plan Submittal Form

Date this Mitigation Plan is being submitted: 03/26/2010

### **Section A: Compliance Notices & Mitigation Plan Requirements**

- A.1 Notices and requirements applicable to Mitigation Plans and this Submittal Form are set forth in "Attachment A - Compliance Notices & Mitigation Plan Requirements."
- A.2 This form must be used to submit required Mitigation Plans for review and acceptance by ReliabilityFirst and approval by NERC.
- A.3  I have reviewed Attachment A and understand that this Mitigation Plan Submittal Form will not be accepted unless this box is checked.

### **Section B: Registered Entity Information**

- B.1 Identify your organization.

Company Name: American Electric Power Service Corp, as agent for Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company

Company Address: 1 Riverside Plaza, Columbus, OH 43215

NERC Compliance Registry ID: NCR00682

- B.2 Identify the individual in your organization who will be the Entity Contact regarding this Mitigation Plan.

Name: Ronald K. McCrea

Title: Director, Transmission Reliability Compliance

Email: rkmccrea@aep.com

Phone: 614-552-2190





**Section C: Identification of Alleged or Confirmed Violation(s)  
Associated with this Mitigation Plan**

C.1 This Mitigation Plan is associated with the following Alleged or Confirmed violation(s) of the reliability standard listed below.

NERC Violation ID #	Reliability Standard	Requirement Number	Violation Risk Factor	Alleged or Confirmed Violation Date <sup>(*)</sup>	Method of Detection (e.g., Audit, Self-report, Investigation)
<a href="#">RFC200900182</a>	<a href="#">PRC-005-1</a>	<a href="#">R2.1</a>	<a href="#">High</a>	<a href="#">9/24/09</a>	<a href="#">Self-Report</a>

(\*) Note: The Alleged or Confirmed Violation Date shall be expressly specified by the Registered Entity, and subject to modification by ReliabilityFirst, as: (i) the date the Alleged or Confirmed violation occurred; (ii) the date that the Alleged or Confirmed violation was self-reported; or (iii) the date that the Alleged or Confirmed violation has been deemed to have occurred on by ReliabilityFirst. Questions regarding the date to use should be directed to the ReliabilityFirst contact identified in Section G of this form.

C.2 Identify the cause of the Alleged or Confirmed violation(s) identified above. Additional detailed information may be provided as an attachment.

[Maintenance records for some Transmission Owner Protection System devices were missing or found to indicate that maintenance did not always occur in accordance with guidelines defined in AEP's maintenance and testing program. These maintenance items include relay calibration, functional trip testing and power line carrier maintenance. Also, maintenance records for some Transmission Owner batteries indicated that maintenance and testing did not occur within the intervals defined in AEP's maintenance guidelines.](#)

[These deviations from AEP guidelines were discovered just as AEP's protection system evidence documents were being finalized for submittal in preparation for the October 2009 on-site compliance audit. The number of missed maintenance intervals involves less than 3% of AEP Transmission's overall BES protection maintenance program in the RFC footprint subject to PRC-005-1.](#)

Note: If a formal root cause analysis evaluation was performed, submit a copy of the summary report. [Reference D.1.5 below.](#)



- C.3 Provide any additional relevant information regarding the Alleged or Confirmed violations associated with this Mitigation Plan. Additional detailed information may be provided as an attachment.

As prescribed in AEP's Protection and Control Testing and Maintenance Guide, there are two components of the AEP System Maintenance and Testing Program. The first is "Calibration" which corresponds to "System Maintenance". The second component is "Trip Path Testing" which corresponds to "System Testing". The Protection System devices of the BES relay and carrier that missed the maintenance and testing intervals include 43 devices (35 on relay functional trip tests and 8 on relay calibration). As of 12/31/2009, testing and maintenance of all relays subject to PRC-005-1 has been brought up-to-date. Furthermore, after maintenance and testing, all subject relays are within specification and have not caused any misoperations.

In addition, as described in AEP's updated Protection and Control Testing and Maintenance Guide, maintenance of CTs and PTs is condition-based with their reasonability being continuously verified by SCADA, State Estimator or Operator awareness indications. There are no routine preventive maintenance activities for instrument transformers. Instrument transformers are tested at time of commissioning and inspected when there are indications of trouble.

As prescribed in AEP's Station Battery Maintenance Guideline, each station battery is to be inspected and with the inspection recorded in ISIS database within a maximum of 90-day interval from the last inspection ("monthly inspection"). In addition, a more thorough and detailed testing and inspection procedure is to be performed on station batteries twice a year with inspection recorded in ISIS database within 215 days of the previous such inspection ("detailed inspection"). There were no missed monthly inspection intervals. However, a total of 55 batteries have missed the semi-annual testing intervals. As of 12/23/2009, testing of all batteries subject to PRC-005-1 has been brought up-to-date. Furthermore, after maintenance and testing, all subject batteries are in proper operating condition.



## **Section D: Details of Proposed Mitigation Plan**

### **Mitigation Plan Contents**

- D.1 Identify and describe the action plan, including specific tasks and actions that your organization is proposing to undertake, or which it undertook if this Mitigation Plan has been completed, to correct the Alleged or Confirmed violations identified above in Part C.1 of this form. Additional detailed information may be provided as an attachment.
1. A near-term plan was initiated on September 24, 2009 to bring all Protection System devices of the BES relay and carrier maintenance up-to-date with weekly progress reporting until complete. As of December 31, 2009, this task was completed.
  2. Reinstate centralized Battery Maintenance Exception reports for both the monthly and detailed battery inspections. Transmission Asset Engineering is to run the exception reports and inform the Station Supervisors to ensure the inspections are conducted and reported according to the guidelines. The first exception report was issued on 11/12/2009.
  3. Test/maintain all NERC reportable batteries for which testing were not up-to-date. This task was completed on 12/23/2009.
  4. Develop and implement improved station maintenance completion reports as part of a more formal process in which Transmission Asset Engineering staffs initiate monthly proactive reviews of issues that may cause deviations from scheduled protection system element maintenance and testing. Target initial report: July 31, 2010.
  5. Initiate a formal Root Cause Analysis and Process Review specifically for missed battery maintenance activities to understand if there are process gaps and to identify potential improvements. Start process reviews and root cause analysis work by mid February with monthly reports and a targeted completion of June 18, 2010.



### **Mitigation Plan Timeline and Milestones**

- D.2 Provide the date by which full implementation of the Mitigation Plan will be, or has been, completed with respect to the Alleged or Confirmed violations identified above. State whether the Mitigation Plan has been fully implemented, and/or whether the actions necessary to assure the entity has returned to full compliance have been completed.

As of December 31, 2009, all Protection System devices of the BES relay and carrier maintenance are up-to-date. As of December 23, 2009, all NERC reportable batteries testing/maintenance are up-to-date. Full implementation of the Mitigation Plan will be completed by July 31, 2010.

- D.3 Enter Key Milestone Activities (with due dates) that can be used to track and indicate progress towards timely and successful completion of this Mitigation Plan.

Key Milestone Activity	Proposed/Actual Completion Date* (shall not be more than 3 months apart)
D.1.1 Bring all Protection System devices of the BES relay maintenance and trip testing up-to-date (all 43 devices mitigated)	12/31/2009
D.1.2. Reinstated centralized Battery Maintenance Exception reports	11/12/2009
D.1.3. Bring all NERC reportable batteries testing/maintenance up-to-date (all 55 batteries mitigated).	12/23/2009
D.1.5a. Initiate process review and root cause analysis	2/15/2010
D.1.4a. Develop improved station maintenance completion reports – 50% complete	3/31/2010
D.1.5b. Complete process review and root cause analysis	6/18/2010
D.1.4b. Develop improved station maintenance completion reports – 100% complete	6/30/2010
D.1.4c. Implement improved station maintenance reports	7/31/2010

(\*) Note: Additional violations could be determined for not completing work associated with accepted milestones.



## **Section E: Interim and Future Reliability Risk**

### **Abatement of Interim BPS Reliability Risk**

- E.1 While your organization is implementing this Mitigation Plan the reliability of the Bulk Power System (BPS) may remain at higher risk or be otherwise negatively impacted until the plan is successfully completed. To the extent they are, or may be, known or anticipated: (i) identify any such risks or impacts; and (ii) discuss any actions that your organization is planning to take to mitigate this increased risk to the reliability of the BPS. Additional detailed information may be provided as an attachment.

Completion of Item D.1.1 of the plan has brought relay and carrier maintenance up-to-date, as of 12/31/2009. AEP continues to have high confidence in the functionality of these relay systems, since there have been no mis-operations on these systems and backup relaying systems are in place. In addition, Transfer Trip pilot channels are continuously monitored by SCADA and alarms for loss of channel. Facilities for which the maintenance has been completed as identified in D.1.1 are part of the 138 kV system. The geographical area of these facilities is a networked system supplying customer load and review has indicated that it does not affect the bulk transport of electricity. Item D.1.3 of the Mitigation Plan, testing of all batteries that were overdue, was completed as of 12/23/2009. For the Station Batteries reported, 45 of the 55 PRC-005 batteries were monitored by SCADA. This SCADA monitoring verifies the battery condition, consequently reducing the negative impact to the Bulk Power System.

### **Prevention of Future BPS Reliability Risk**

- E.2 Describe how successful completion of this Mitigation Plan by your organization will prevent or minimize the probability that the reliability of the BPS incurs further risk of similar violations in the future. Additional detailed information may be provided as an attachment.

Improved station maintenance reports (Item D.1.4) will help keep a focus on maintenance items that are coming due in the near future and allow for efficient planning of resources and outages. These improved reports will be routinely routed to executive management to ensure oversight and accountability.



**Section F: Authorization**

An authorized individual must sign and date this Mitigation Plan Submittal Form. By doing so, this individual, on behalf of your organization:

- a) Submits this Mitigation Plan for acceptance by ReliabilityFirst and approval by NERC, and
- b) If applicable, certifies that this Mitigation Plan was completed on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
  - 1. I am Senior Vice President of AEP Transmission.
  - 2. I am qualified to sign this Mitigation Plan on behalf of AEP.
  - 3. I have read and am familiar with the contents of this Mitigation Plan.
  - 4. AEP agrees to comply with this Mitigation Plan, including the timetable completion date, as accepted by ReliabilityFirst and approved by NERC.

**Authorized Individual Signature** \_\_\_\_\_

Name (Print): Michael Heyeck

Title : Senior VP - Transmission

Date: March 26, 2010

**Section G: Regional Entity Contact**

Please direct completed forms or any questions regarding completion of this form to the ReliabilityFirst Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any ReliabilityFirst Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the ReliabilityFirst Compliance web page.

# RELIABILITY ~~FIRST~~

## **Section F: Authorization**

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  - 1. I am Senior Vice President of AEP Transmission.
  - 2. I am qualified to sign this Mitigation Plan on behalf of AEP.
  - 3. I have read and am familiar with the contents of this Mitigation Plan.
  - 4. AEP agrees to comply with this Mitigation Plan, including the timetable completion date, as accepted by ReliabilityFirst and approved by NERC.

Authorized Individual Signature

Michael Heyeck AWS JPH

Name (Print): Michael Heyeck

Title: Senior VP - Transmission

Date: March 26, 2010

## **Section G: Regional Entity Contact**

Please direct completed forms or any questions regarding completion of this form to the ReliabilityFirst Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any ReliabilityFirst Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the ReliabilityFirst Compliance web page.

# **Attachment c**

## **Certification of Mitigation Plan Completion**

Submitted July 30, 2010





**Certification of Mitigation Plan Completion**

Submittal of a Certification of Mitigation Plan Completion shall include data or information sufficient for ReliabilityFirst Corporation to verify completion of the Mitigation Plan. ReliabilityFirst Corporation may request 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)

Registered Entity Name: American Electric Power Service Corp, as agent for Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company

NERC Registry ID:NCR00682

Date of Submittal of Certification:7/30/2010

NERC Violation ID No(s):RFC200900182

Reliability Standard and the Requirement(s) of which a violation was mitigated:PRC-005-1 R2.1

Date Mitigation Plan was scheduled to be completed per accepted Mitigation Plan:7/31/2010

Date Mitigation Plan was actually completed:6/30/2010

Additional Comments (or List of Documents Attached):See list of attachments for Mitigation Plan Milestone items D.1.1 through D1.5

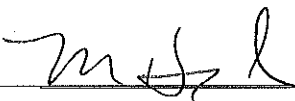
I certify that the Mitigation Plan for the above named violation has been completed on the date shown above and that all submitted information is complete and correct to the best of my knowledge.

Name:Michael Heyeck

Title:Senior VP-Transmission

Email:mheyeck@aep.com

Phone:614-552-1700

Authorized Signature 

Date 7/29/2010

*Den*  
7-29-10



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Please direct completed forms or any questions regarding completion of this form to the Reliability*First* Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any Reliability*First* Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the Reliability*First* Compliance web page.

## DOCUMENT CONTROL

**Title:** Certification of Mitigation Plan Completion  
**Issue:** Version 1  
**Date:** 5 January 2008  
**Distribution:** Public  
**Filename:** Certification of a Completed Mitigation Plan\_Ver1.doc  
**Control:** Reissue as complete document only

## DOCUMENT APPROVAL

Prepared By	Approved By	Approval Signature	Date
Robert K. Wargo Manager of Compliance Enforcement	Raymond J. Palmieri Vice President and Director Compliance	<i>Raymond J. Palmieri</i>	1/5/2009

## DOCUMENT CHANGE/REVISION HISTORY

Version	Prepared By	Summary of Changes	Date
1.0	Robert K. Wargo	Original Issue	1/5/2009

# **Attachment d**

## Summary and Review of Mitigation Plan Completion

Dated August 31, 2010

August 31, 2010

**Summary and Review of Evidence of Mitigation Plan Completion**

<b>NERC Violation ID #:</b>	<b>RFC200900182</b>
<b>NERC Plan ID:</b>	<b>MIT-07-2451</b>
<b>Registered Entity;</b>	<b>AEP</b>
<b>NERC Registry ID:</b>	<b>NCR00682</b>
<b>Standard:</b>	<b>PRC-005-1</b>
<b>Requirement:</b>	<b>2.1</b>
<b>Status:</b>	<b>Mitigation Plan Verified Complete</b>

**Relevant Background:**

AEP self-reported noncompliance with NERC Reliability Standard PRC-005-1, R 2.1, on October 5, 2009.

Specifically, AEP reported that maintenance records for certain transmission protection system devices were missing or indicated that maintenance did not always occur within the intervals defined in AEP's Protection System Maintenance and Testing Program. AEP stated that the number of missed maintenance and testing intervals constitutes less than 3% of AEP's overall Program in the ReliabilityFirst footprint subject to PRC-005-1.

AEP submitted a Proposed Mitigation Plan to ReliabilityFirst on March 26, 2010, whereby stating AEP would complete all mitigating actions by July 31, 2010. ReliabilityFirst accepted this Mitigation Plan, designated MIT-07-2541, on April 14, 2010, and NERC approved it on April 30, 2010.

**Review Process:**

On July 30, 2010, AEP certified that the Mitigation Plan for PRC-005-1, R2.1, was completed as of June 30, 2010. ReliabilityFirst requested and received evidence of completion for actions taken by AEP as specified in the Mitigation Plan. ReliabilityFirst performed an in depth review of the information provided to verify that all actions specified in the Mitigation Plan were successfully completed.

The AEP Mitigation Plan for RFC200900182, Reliability Standard PRC-005-1, R2.1, consisted of five (5) steps:

1. A near-term plan was initiated on September 24, 2009 to bring all Protection System devices of the BES relay and carrier maintenance up-to-date with weekly progress reporting until complete.

## Summary and Review of Mitigation Plan Completion

**MIT-07-2451**

AEP

August 31, 2010

Page 2 of 4

Pages 56 to 58 of 74 “*Milestone Evidence D1.1 Relays and carrier Self-Report Missed Intervals Detail*” of document “*American Electric Power RFC Certification of a Completed Mitigation Plan PRC-005-1\_20100729.pdf*” identified 43 relay and carrier devices that missed the maintenance and testing intervals as defined in “*AEP’s Protection and Control Testing and Maintenance Guide.*” One device was mislabeled as a BES element, station Livingston Avenue, and subsequently removed from consideration for not being on schedule of its maintenance and testing intervals. These pages included information on the Testing Interval, Last Maintenance Date, Date Due, Date Maintenance Completed, and the Revised Due Date or Next Maintenance Due Date which supported that these devices were not maintained within the defined Interval and were subsequently tested and maintained and brought up to date. Pages 12 to 55 of “*Milestone Evidence D1.1 Relays and carrier maintenance records Self-Report, Missed Intervals Detail*” is documentation from AEP’s Production Database, with records of the maintenance and testing of these devices ,which supports that these devices have now been brought into compliance with PRC-005.

2. Reinstate centralized Battery Maintenance Exception reports for both the monthly and detailed battery inspections.

Pages 59 to 60 of 74 “*Milestone Evidence D1.2 Reinstated battery exception reports*” of document “*American Electric Power RFC Certification of a Completed Mitigation Plan PRC-005-1\_20100729.pdf*” is correspondence referencing exception reports being used to track management of the battery maintenance and testing program.

3. Test/maintain all NERC reportable batteries for which testing were not up to-date.

Pages 61 to 62 of 74 “*Milestone Evidence D1.3 Battery details*” of document “*American Electric Power RFC Certification of a Completed Mitigation Plan PRC-005-1\_20100729.pdf*” identified 55 station batteries that missed the maintenance and testing intervals , monthly, as defined in “*AEP’s Protection and Control Testing and Maintenance Guide.*” This was an increase of 23 station batteries from the self-reported numbers which resulted from a comprehensive review and updating of all station battery maintenance and testing records. While the Date of Previous Test/maintenance could not support that maintenance and testing was not on schedule, the data on the Days Overdue (Past 215 days) column was interpreted as the worst case for identifying those batteries not on schedule. Date of Most Recent Test/maintenance presented documentation of the maintenance and testing of these devices which supports that these devices have now been brought into compliance with PRC-005.

4. Develop and implement improved station maintenance completion reports.

## Summary and Review of Mitigation Plan Completion

**MIT-07-2451**

AEP

August 31, 2010

Page 3 of 4

Pages 63 to 70 of 74 “Milestone Evidence D1.4 Improved maintenance completion reports” is documentation of AEP’s battery exception reports used to focus on maintenance items that are coming due in the near future, allow for efficient planning of resources and outages, track management of battery maintenance and testing program, and support station maintenance completion reports.

### 5. Initiate a formal Root Cause Analysis and Process Review

Pages 71 to 74 of 74 “*Milestone Evidence D1.5b AEP Battery Inspection Processes Review*” and “*Milestone Evidence D1.5b AEP Battery Inspection Processes Review Report*” is documentation of AEP’s Battery Inspection Process Review program and its subsequent report addressing corrective action recommendations to improve on the monthly and detailed battery inspections throughout the AEP territory.

AEP demonstrated completion of the five (5) action items of the referenced Mitigation Plan.

**PRC-005-1, Requirement 2.1** states: “Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30 calendar days). The documentation of the program implementation shall include:

**R2.1.** Evidence Protection System devices were maintained and tested within the defined Intervals.”

### **Evidence Submitted:**

#### **Requirement 2.1:**

Pages 56 to 58 of 74 “*Milestone Evidence D1.1 Relays and carrier Self-Report Missed Intervals Detail*” of document “*American Electric Power RFC Certification of a Completed Mitigation Plan PRC-005-1\_20100729.pdf*” identified 43 relay and carrier devices that missed the maintenance and testing intervals as defined in “*AEP’s Protection and Control Testing and Maintenance Guide*.” One device was mislabeled as a BES element, station Livingston Avenue, and subsequently removed from consideration for not being on schedule of its maintenance and testing intervals. These pages included information on the Testing Interval, Last Maintenance Date, Date Due, Date Maintenance Completed, and the Revised Due Date or Next Maintenance Due Date which supported that these devices were not maintained within the defined Interval and were subsequently tested and maintained and brought

Summary and Review of Mitigation Plan Completion

**MIT-07-2451**

AEP

August 31, 2010

Page 4 of 4

up to date. Pages 12 to 55 of this document "*Milestone Evidence D1.1 Relays and carrier maintenance records Self-Report, Missed Intervals Detail*" is documentation, from AEP's Production Database, with records of the maintenance and testing of these devices which supports that these devices have now been brought into compliance with PRC-005.

Pages 61 to 62 of 74 "*Milestone Evidence D1.3 Battery details*" of document "*American Electric Power RFC Certification of a Completed Mitigation Plan PRC-005-1\_20100729.pdf*" identified 55 station batteries that missed the maintenance and testing intervals, monthly, as defined in "*AEP's Protection and Control Testing and Maintenance Guide*." This was an increase of 23 station batteries from the self-report following a comprehensive review and updating of all station battery maintenance and testing records. While the Date of Previous Test/maintenance could not support that maintenance and testing was not on schedule, the data on the Days Overdue (Past 215 days) column was interpreted as the worst case for identifying those batteries not on schedule. Date of Most Recent Test/maintenance presented documentation of the maintenance and testing of these devices which supports that these devices have now been brought into compliance with PRC-005.

AEP, having demonstrated completion of action items one (1) and three (3) of the referenced Mitigation Plan as stated above, is considered to now be in compliance with requirement R2.1 of reliability standard PRC-005-1.

**Review Results:**

ReliabilityFirst Corporation reviewed the evidence AEP submitted in support of its Certification of Completion. On August 31, 2010, ReliabilityFirst verified that the Mitigation Plan was completed in accordance with its terms and has therefore deemed that AEP has successfully completed the Mitigation Plan associated with the alleged violation of the aforementioned NERC Reliability Standard.

Respectf

ully Submitted,



Robert  
Manager  
Reliability

K. Wargo  
of Compliance Enforcement  
First Corporation



**Attachment b**

**AEP's Self-Report for PRC-005-1 R2.1 dated  
October 5, 2009**



COMPLIANCE MONITORING AND ENFORCEMENT PROGRAM
VIOLATION SELF-REPORTING FORM

This Violation Self-Reporting Form can be used for submittals via e-mail or fax for violations of the Reliability Standards identified by a self- assessment.

1. Reliability Standard (XXX-###-# or XXX-###-RFC-##) PRC-005-1

2. Violation(s): Check the appropriate box(s) to identify violation(s) of any of the applicable requirement(s) referenced in the standard.

For violations of requirements with Levels of Non-Compliance or Violation Severity Levels (VSL) specified in the standard:

- Entity is Level 1 Non-Compliance or has Lower VSL for the following: requirement(s): R2.1 for function(s): TO
Entity is Level 2 Non-Compliance or has Moderate VSL for the following: requirement(s): for function(s):
Entity is Level 3 Non-Compliance or has High VSL for the following: requirement(s): for function(s):
Entity is Level 4 Non-Compliance or has Severe VSL for the following: requirement(s): for function(s):

For violations of requirements with no Levels of Non-Compliance or Violation Severity Levels specified in the standard:

- Entity is in violation of requirement(s) not referenced in the Levels of Non-Compliance or Violation Severity Levels section of the standard:
requirement(s): for function(s):

3. Description of the violation: Maintenance records for some Transmission Owner protection system devices were found to indicate that maintenance did not always occur within the intervals defined in the maintenance and testing program.

4. Additional information: These maintenance gaps were identified as AEP's protection system evidence documents were being finalized for submittal in preparation for the October 2009 on-site compliance audit. AEP initially notified RFC of this issue in a 9/24/09 conference call with multiple parties from RFC and AEP. As reported in this discussion, the number of missed intervals involves less than 1% of AEP Transmission's overall BES protection maintenance program. Our review of the maintenance records and causes of missed intervals is ongoing. Also, a priority program has been initiated to catch up any currently required maintenance on devices in our BES protection maintenance program. Complete details of the missed maintenance intervals and our catch-up program will be provided to RFC with our Mitigation Plan.

In our 9/24 phone call, RFC requested an early report on the issues identified regarding station battery maintenance. Our battery maintenance program includes two inspection intervals, monthly and semi-annual. There were no missed monthly inspection intervals of the total of 3473 required, while 32 of 1736 of the semi-annual inspections were outside of the required interval (combined 0.6% of battery maintenance program). Our review also identified some cases in which recording of monthly inspection parameters was incomplete. All of these inspections have recently been brought up to date, with all of the inspections resulting in 'No problems found'. Attached is a spreadsheet with the details of these semi-annual battery inspection exceptions.

5. Mitigation Plan attached: Yes No

6. **Officer Verification:** I understand that this information is being provided as required by the Reliability *First* Compliance Monitoring and Enforcement Program. Any review of this violation will require all information certified on this form be supported by appropriate documentation.

Enter NERC Registry ID# NCR00682

Officer's Name: Michael Heyeck 

Officer's Title: Senior Vice President - Transmission

Officer's e-mail address: mheyeck@aep.com Phone: 614-552-1700

Registered Company Name: American Electric Power Service Corporation as agent for Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company CDMS User ID: AEP

Primary Compliance Contact (PCC)/Alternate: Thad Ness / Raj Rana

Email: tkness@aep.com, raj\_rana@aep.com Phone: 614-716-2053 Date: 10/05/09

E-mail Submittals to: **compliance@rfirst.org** or Fax#: **330-456-5408 – Attention Compliance Dept.**  
For any questions regarding compliance submittals, please e-mail: **compliance@rfirst.org**.

## Attachment c

Reliability First's Uwe o ct { 'qh'Rquidng  
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## *Summary for Possible Alleged Violation (PAV)*

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**Registered Entity: AEP**

**NERC ID#: NCR00682**

**Compliance Monitoring Process: Compliance Violation Investigation**

**Standard and Requirement: PRC015 R1**

**Registered Function(s) in Violation: GO, TO**

**Initial PAV Date: June 18, 2007**

**Date for Determination of Penalty/Sanction: June 18, 2007**

**Violation Risk Factor: Medium**

**Violation Severity Level: Severe**

**Violation Reported By: CVI0002 Team**

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**Basis for the PAV: AEP did not provide evidence of maintaining a list of and providing data for existing and proposed SPSs as specified in Reliability Standard PRC-013-0\_R1. AEP did not report SPS Design Objectives, Operation and Modeling as required. AEP failed to identify the Rockport area protection scheme (Fast Valving, Unit Runback and Unit Tripping), as it existed on August 4, 2007, as a Special Protection System (SPS) as defined by NERC in the Glossary of Terms.**

**Facts and Evidence pertaining to the PAV: The CVI team concluded that the Rockport area protection scheme, as it existed on August 4, 2007 met the NERC definition of an SPS. AEP as the GO and TO should have recognized it as such. Once armed the scheme operates automatically for various transmission system**

**contingencies not only to protect the Rockport units but to also maintain area power system stability. The scheme is normally armed. No identification and/or reporting by AEP were made to the RRO (ReliabilityFirst) as required for SPS schemes as outlined in PRC-013-0 R1.**

**Impact to Bulk Electrical System (BES): Minimal**

- **Provide Explanation for Impact to BES: Even though AEP did not consider the Rockport area protection scheme to be an SPS, documentation which addresses design, operations and modeling is available in the form of an operating guide. However this is not the documentation required to satisfy PRC-015 R1.**



## *Summary for Possible Alleged Violation (PAV)*

---

**Registered Entity: AEP**

**NERC ID#: NCR00682**

**Compliance Monitoring Process: Compliance Violation Investigation**

**Standard and Requirement: PRC015 R2**

**Registered Function(s) in Violation: GO, TO**

**Initial PAV Date: June 18, 2007**

**Date for Determination of Penalty/Sanction: June 18, 2007**

**Violation Risk Factor: Medium**

**Violation Severity Level: Severe**

**Violation Reported By: CVI0002 Team**

---

**Basis for the PAV: AEP did not have evidence it reviewed the Rockport protection scheme SPS in accordance with the Regional Reliability Organization's procedures as defined in Reliability Standard PRC-012-0\_R1 prior to being placed in service.**

**AEP failed to identify the Rockport area protection scheme (Fast Valving, Unit Runback and Unit Tripping), as it existed on August 4, 2007, as a Special Protection System (SPS) as defined by NERC in the Glossary of Terms.**

**Facts and Evidence pertaining to the PAV: The CVI team concluded that the Rockport area protection scheme, as it existed on August 4, 2007 met the NERC definition of an SPS. AEP as the GO and TO should have recognized it as such. Once armed the scheme operates automatically for various transmission system contingencies not only to protect the Rockport units but to also maintain area power**

**system stability. The scheme is normally armed. No identification and/or reporting by AEP were made to the RRO (ReliabilityFirst) as required for SPS schemes as outlined in PRC-013-0 R1.**

**Impact to Bulk Electrical System (BES): Minimal**

- **Provide Explanation for Impact to BES: AEP has documentation of the Rockport area protection scheme Design Objectives, Operation and Modeling but did not provide the information to the RRO (ReliabilityFirst) to be included in its SPS database since AEP did not consider the scheme to be an SPS.**





## *Summary for Possible Alleged Violation (PAV)*

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**Registered Entity: AEP**

**NERC ID#: NCR00682**

**Compliance Monitoring Process: Compliance Violation Investigation**

**Standard and Requirement: PRC016 R1**

**Registered Function(s) in Violation: GO, TO**

**Initial PAV Date: June 18, 2007**

**Date for Determination of Penalty/Sanction: June 18, 2007**

**Violation Risk Factor: Medium**

**Violation Severity Level: Severe**

**Violation Reported By: CVI0002 Team**

---

**Basis for the PAV: AEP did not analyze its SPS operations and maintain a record of all misoperations in accordance with the Regional SPS review procedure specified in Reliability Standard PRC-012-0\_R1.**

**AEP failed to identify the Rockport area protection scheme (Fast Valving, Unit Runback and Unit Tripping), as it existed on August 4, 2007, as a Special Protection System (SPS) as defined by NERC in the Glossary of Terms.**

**Facts and Evidence pertaining to the PAV: The CVI team concluded that the Rockport area protection scheme, as it existed on August 4, 2007 met the NERC definition of an SPS. AEP as the GO and TO should have recognized it as such. Once armed the scheme operates automatically for various transmission system contingencies not only to protect the Rockport units but to also maintain area power**

**system stability. The scheme is normally armed. AEP did not provide evidence that they analyzed its SPS operations and maintained a record of all misoperations in accordance with the Regional SPS review procedure specified in Reliability Standard PRC-012-0\_R1 for the generation fast valving scheme misoperation (that is part of an SPS) that occurred on 8/4/2007.**

**Impact to Bulk Electrical System (BES): Moderate**

- **Provide Explanation for Impact to BES: In this instance, the misoperation of the Rockport area protection scheme caused the loss of both Rockport Generators.**



## *Summary for Possible Alleged Violation (PAV)*

---

**Registered Entity: AEP**

**NERC ID#: NCR00682**

**Compliance Monitoring Process: Compliance Violation Investigation**

**Standard and Requirement: PRC016 R3**

**Registered Function(s) in Violation: GO, TO**

**Initial PAV Date: June 18, 2007**

**Date for Determination of Penalty/Sanction: June 18, 2007**

**Violation Risk Factor: Lower**

**Violation Severity Level: Severe**

**Violation Reported By: CVI0002 Team**

---

**Basis for the PAV: AEP did not provide documentation of the misoperation analyses and the corrective action plans to its Regional Reliability Organization and NERC on request (within 90 calendar days).**

**AEP failed to identify the Rockport area protection scheme (Fast Valving, Unit Runback and Unit Tripping), as it existed on August 4, 2007, as a Special Protection System (SPS) as defined by NERC in the Glossary of Terms.**

**Facts and Evidence pertaining to the PAV: The CVI team concluded that the Rockport area protection scheme, as it existed on August 4, 2007 met the NERC definition of an SPS. AEP as the GO and TO should have recognized it as such. Once armed the scheme operates automatically for various transmission system contingencies not only to protect the Rockport units but to also maintain area power**

**system stability. The scheme is normally armed. AEP did not provide documentation of the misoperation analyses and the corrective action plans to its Regional Reliability Organization (ReliabilityFirst) and NERC on request (within 90 calendar days) for the generation fast valving scheme misoperation (that is part of an SPS) that occurred on 8/4/2007.**

**Impact to Bulk Electrical System (BES): Minimal**

- **Provide Explanation for Impact to BES: AEP has documentation of the analysis and has implemented a corrective action plan to avoid future misoperations. The documentation and corrective action plan was not reported to ReliabilityFirst since AEP did not consider the Rockport area protection scheme to be an SPS on August 4, 2007.**



## *Summary for Possible Alleged Violation (PAV)*

---

**Registered Entity: AEP**

**NERC ID#: NCR00682**

**Compliance Monitoring Process: Compliance Violation Investigation**

**Standard and Requirement: PRC017 R1**

**Registered Function(s) in Violation: GO, TO**

**Initial PAV Date: June 18, 2007**

**Date for Determination of Penalty/Sanction: June 18, 2007**

**Violation Risk Factor: R1.2 - High, R1.3 - High R1.4 - High, R1.5 - High, R1.6 - Medium**

**Violation Severity Level: R1.2 - Severe, R1.3 - Severe, R1.4 - Severe, R1.5 - Severe, R1.6 - Severe**

**Violation Reported By: CVI0002 Team**

---

**Basis for the PAV: AEP did not have a system maintenance and testing program in place as required to test the entire Rockport SPS scheme including unit runback. AEP failed to identify the Rockport area protection scheme (Fast Valving, Unit Runback and Unit Tripping), as it existed on August 4, 2007, as a Special Protection System (SPS) as defined by NERC in the Glossary of Terms.**

**Facts and Evidence pertaining to the PAV: AEP stated that they perform fast valving checking/testing based upon the recommendations provided within the AEPSC memo issued on May 16, 1989, "Checkouts of Fast Valving Equipment at**

**Rockport Plant". The CVI team reviewed a copy this memo provided by AEP that outlines fast valving scheme testing.**

**The CVI team reviewed graphical plots of fast valving tests (information was also provided to address PRC-005-0 R2) conducted on 10/25/05 and 6/13/2007 for Rockport units 1&2 respectively. AEP stated that fast valving checking/testing and unit tripping scheme tests are performed during GBIR (General Boiler Inspection and Repair) outages. GBIR outages occur approximately every two years. Unit tripping is confirmed with turbine interlock checks that are performed during a GBIR outage. AEP provided the dates prior to Aug. 4, 2007 when these systems were last tested.**

**AEP stated that they have no specific procedure for testing unit runback.**

**The CVI team concluded that AEP, as the GO and TO was required to have had a maintenance and test program in place prior to the August 4, 2007 event to check the entire Rockport protection scheme including unit runback.**

**Impact to Bulk Electrical System (BES): Minimal**

- **Provide Explanation for Impact to BES: Testing is performed during General Boiler Inspection and Repair outages. However no specific test is performed for the unit run back scheme.**

## **Attachment d**

# **Disposition Document for Common Information**

**DISPOSITION OF VIOLATION<sup>1</sup>**  
**INFORMATION COMMON TO INSTANT VIOLATIONS**

Dated April 11, 2011

REGISTERED ENTITY	NERC REGISTRY ID	NOC#
American Electric Power Service Corporation as agent for Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company (AEP)	NCR00682	NOC-727

REGIONAL ENTITY  
**ReliabilityFirst Corporation (ReliabilityFirst)**

**I. REGISTRATION INFORMATION**

ENTITY IS REGISTERED FOR THE FOLLOWING FUNCTIONS (BOTTOM ROW INDICATES REGISTRATION DATE):

BA	DP	GO	GOP	IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
	X	X	X		X		X		X		X	X		
	5/30/07	5/30/07	5/30/07		5/30/07		5/30/07		5/30/07		5/30/07	5/30/07		

DESCRIPTION OF THE REGISTERED ENTITY

**AEP is engaged in the generation and transmission of electricity throughout the United States. AEP is one of the nation's largest generators of electricity, owning nearly 38,000 MW of generating capacity in the United States. AEP also owns the nation's largest electricity transmission system, a nearly 39,000 mile network that includes more 765 kV extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP's transmission system directly or indirectly serves about ten percent of the electricity demand in the Eastern Interconnection, the interconnected transmission system that covers 38 eastern and central U.S. states and eastern Canada, and approximately 11 percent of the electricity demand in ERCOT, the transmission system that covers much of Texas.**

<sup>1</sup> For 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.



**AEP's utility units operate as Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company and Wheeling Power Company (collectively, the AEP East Companies); Public Service Company of Oklahoma, and Southwestern Electric Power Company (collectively, the AEP West Companies); and AEP Texas Central Company and AEP Texas North Company (collectively, AEP Texas).**

**A system disturbance and frequency excursion occurred in the Eastern Interconnection on August 4, 2007 (the Event). The Event resulted in the loss of significant high voltage transmission facilities and 4,457 MW of output from several generating units. System frequency in the Eastern Interconnection declined from 60.003 Hz to 59.863 Hz. ReliabilityFirst initiated and led a Compliance Violation Investigation (CVI) as a result of the Event and the CVI team investigated AEP as part of the CVI. In addition to ReliabilityFirst, the CVI team included Midwest Reliability Organization, the SERC Reliability Corporation, and independent industry experts. Representatives from NERC and FERC observed the CVI team activities.**

**In addition, the Settlement Agreement includes a violation of PRC-005-1, R2.1 that AEP self-reported to ReliabilityFirst. This violation did not arise from the CVI.**

IS THERE A SETTLEMENT AGREEMENT      YES       NO

WITH RESPECT TO THE VIOLATION(S), REGISTERED ENTITY

NEITHER ADMITS NOR DENIES IT (SETTLEMENT ONLY)      YES   
 ADMITS TO IT      YES   
 DOES NOT CONTEST IT (INCLUDING WITHIN 30 DAYS)      YES

WITH RESPECT TO THE ASSESSED PENALTY OR SANCTION, REGISTERED ENTITY

ACCEPTS IT/ DOES NOT CONTEST IT      YES

## **II. PENALTY INFORMATION**

**TOTAL ASSESSED PENALTY OR SANCTION OF \$35,000 FOR SIX VIOLATIONS OF RELIABILITY STANDARDS.**

(1) REGISTERED ENTITY'S COMPLIANCE HISTORY

PREVIOUSLY FILED VIOLATIONS OF ANY OF THE INSTANT RELIABILITY STANDARD(S) OR REQUIREMENT(S) THEREUNDER  
 YES       NO

## LIST VIOLATIONS AND STATUS

## ADDITIONAL COMMENTS

PREVIOUSLY FILED VIOLATIONS OF OTHER RELIABILITY  
STANDARD(S) OR REQUIREMENTS THEREUNDERYES  NO 

## LIST VIOLATIONS AND STATUS

## ADDITIONAL COMMENTS

(2) THE DEGREE AND QUALITY OF COOPERATION BY THE REGISTERED ENTITY (IF THE RESPONSE TO FULL COOPERATION IS "NO," THE ABBREVIATED NOP FORM MAY NOT BE USED.)

FULL COOPERATION YES  NO   
IF NO, EXPLAIN

(3) THE PRESENCE AND QUALITY OF THE REGISTERED ENTITY'S COMPLIANCE PROGRAM

IS THERE A DOCUMENTED COMPLIANCE PROGRAM

YES  NO  UNDETERMINED

EXPLAIN

**ReliabilityFirst considered AEP's compliance program a mitigating factor in the penalty determination. AEP's compliance program provides an annual schedule of standards to review and internal assessments of compliance by each affected business unit and by independent staff such as Internal Audits and Regulatory Services. AEP expanded its existing utilization of a compliance management software program. This program allows AEP to create and assign tasks to key staff involved in compliance activities and provide centralized documentation, coordination, reminders, and reporting capabilities.**

EXPLAIN SENIOR MANAGEMENT'S ROLE AND INVOLVEMENT WITH RESPECT TO THE REGISTERED ENTITY'S COMPLIANCE PROGRAM, INCLUDING WHETHER SENIOR MANAGEMENT TAKES ACTIONS THAT SUPPORT THE COMPLIANCE PROGRAM, SUCH AS TRAINING, COMPLIANCE AS A FACTOR IN EMPLOYEE EVALUATIONS, OR OTHERWISE.

**AEP's Compliance Officer has independent access to the CEO, Executive Committee and Board of Directors. AEP provides training**

**to all staff directly involved in reliability compliance activities through large group presentations on FERC, NERC and Regional compliance requirements, AEP's compliance program, and related processes. In addition, AEP regularly conducts targeted focus group training for each business unit. AEP regularly reviews and modifies its compliance program when necessary. AEP has internal auditors who perform spot checks on a random basis.**

(4) ANY ATTEMPT BY THE REGISTERED ENTITY TO CONCEAL THE VIOLATION(S) OR INFORMATION NEEDED TO REVIEW, EVALUATE OR INVESTIGATE THE VIOLATION.

YES  NO   
IF YES, EXPLAIN

(5) ANY EVIDENCE THE VIOLATION(S) WERE INTENTIONAL (IF THE RESPONSE IS "YES," THE ABBREVIATED NOP FORM MAY NOT BE USED.)

YES  NO   
IF YES, EXPLAIN

(6) ANY OTHER MITIGATING FACTORS FOR CONSIDERATION

YES  NO   
IF YES, EXPLAIN

(7) ANY OTHER AGGRAVATING FACTORS FOR CONSIDERATION

YES  NO   
IF YES, EXPLAIN

(8) ANY OTHER EXTENUATING CIRCUMSTANCES

YES  NO   
IF YES, EXPLAIN

OTHER RELEVANT INFORMATION:

NOTICE OF ALLEGED VIOLATION AND PROPOSED PENALTY OR  
SANCTION ISSUED

DATE: OR N/A

SETTLEMENT DISCUSSIONS COMMENCED

DATE: **3/5/10 for RFC200900182 and 7/30/10 for the remaining violations**  
OR N/A

NOTICE OF CONFIRMED VIOLATION ISSUED

DATE: OR N/A

SUPPLEMENTAL RECORD INFORMATION

DATE(S) OR N/A

REGISTERED ENTITY RESPONSE CONTESTED

FINDINGS  PENALTY  BOTH  DID NOT CONTEST

HEARING REQUESTED

YES  NO

DATE

OUTCOME

APPEAL REQUESTED

## **Disposition Document for PRC-005-1 R2.1**

## DISPOSITION OF VIOLATION

**Dated April 11, 2011**

NERC TRACKING NO.	REGIONAL ENTITY TRACKING NO.
<b>RFC200900182</b>	<b>RFC200900182</b>

### I. VIOLATION INFORMATION

RELIABILITY STANDARD	REQUIREMENT(S)	SUB-REQUIREMENT(S)	VRF(S)	VSL(S)
<b>PRC-005-1</b>	<b>2</b>	<b>2.1</b>	<b>High<sup>1</sup></b>	<b>Lower</b>

VIOLATION APPLIES TO THE FOLLOWING FUNCTIONS:

BA	DP	GO	GOP	IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
											X			

PURPOSE OF THE RELIABILITY STANDARD AND TEXT OF RELIABILITY STANDARD AND REQUIREMENT(S)/SUB-REQUIREMENT(S)

**The purpose statement of PRC-005-1 provides: “To ensure all transmission and generation Protection Systems<sup>[2]</sup> affecting the reliability of the Bulk Electric System (BES) are maintained and tested.”**

**PRC-005-1 R2 provides, in pertinent part:**

- R2. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization<sup>[3]</sup> on request (within 30 calendar days). The documentation of the program implementation shall include:**

<sup>1</sup> PRC-005-1 R2 has a “Lower” Violation Risk Factor (VRF); R2.1 and R2.2 each have a “High” VRF. During a final review of the standards subsequent to the March 23, 2007 filing of the Version 1 VRFs, NERC identified that some standards requirements were missing VRFs; one of these include PRC-005-1 R2.1. On May 4, 2007, NERC assigned PRC-005 R2.1 a “High” VRF. In the Commission’s June 26, 2007 Order on Violation Risk Factors, the Commission approved the PRC-005-1 R2.1 “High” VRF as filed. Therefore, the “High” VRF was in effect from June 26, 2007. In the context of this case, ReliabilityFirst determined that the violation related to R2.1, and therefore a “High” VRF is appropriate.

<sup>2</sup> *The NERC Glossary of Terms Used in Reliability Standards* defines Protection System as “Protective relays, associated communication systems, voltage and current sensing devices, station batteries and DC control circuitry.”

<sup>3</sup> Consistent with applicable FERC precedent, the term ‘Regional Reliability Organization’ in this context refers to ReliabilityFirst.

**R2.1. Evidence Protection System devices were maintained and tested within the defined intervals.**

**(Footnotes added.)**

VIOLATION DESCRIPTION

**On October 5, 2009, AEP submitted a self-report concerning a violation of PRC-005-1 R2.1 under its Transmission Owner function. AEP discovered this violation while preparing for its October 2009 on-site compliance audit, finding that maintenance and testing records for transmission protection system devices were missing or indicated that maintenance and testing did not always occur within the defined intervals of AEP's Protection System Maintenance and Testing Program (Program). AEP's violations comprised missing maintenance and testing intervals on relays and on station batteries, which amounted to less than 3% of AEP's overall Program in the Reliability*First* footprint subject to the applicable standard.**

**AEP provided a table describing the missed maintenance and testing intervals on the relays. Missed maintenance and testing intervals included relay calibration, functional trip testing and power line carrier maintenance. AEP missed 42<sup>4</sup> maintenance and testing intervals on BES relays. Specifically, AEP missed 35 relay functional trip tests, six communication equipment calibrations, and one relay calibration.<sup>5</sup> AEP performed all deficient relay maintenance and testing by December 31, 2009.**

**AEP also missed maintenance and testing intervals on station batteries. AEP's Program requires AEP to inspect each station battery and to record the inspection in AEP's database within 90 days from the battery's last inspection. This requirement is called the "monthly inspection." AEP's Program also requires AEP to perform a more detailed testing and inspection procedure on each station battery twice a year and to record this inspection in AEP's database within 215 days of the previous inspection. This requirement is called the "semi-annual inspection." In the present case, AEP did not miss any monthly station battery inspection intervals, but AEP did miss semi-annual inspection intervals on 55 out of 646 station batteries.<sup>6</sup> AEP performed all deficient station battery maintenance and testing by December 23, 2009.**

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<sup>4</sup> AEP originally self-reported that it missed 43 maintenance intervals, but Reliability*First* later determined that AEP self-reported one of the missed intervals in error because it did not fall within the definition of the BES.

<sup>5</sup> The missed relay calibration affected eight relays.

<sup>6</sup> Numbers reflect AEP transmission station batteries in the Reliability*First* footprint that protect the bulk electric system.

RELIABILITY IMPACT STATEMENT- POTENTIAL AND ACTUAL

**ReliabilityFirst determined that the violation did not pose a serious or substantial risk to the reliability of the bulk power system (BPS) because the relays at issue were in good condition immediately prior to and after the missed test intervals, and the fact that AEP has both primary and backup relays also lessened the risk. Moreover, transfer trip pilot channels are continuously monitored by SCADA and alarms for loss of channel, which identified no issues. Facilities that missed relay testing intervals are part of a networked system supplying customer load that does not affect the bulk transport of electricity.**

**In addition, the BPS was not at substantial risk concerning the missed testing and maintenance on the station batteries because 45 of the 55 station batteries with missed maintenance and testing intervals were monitored by SCADA, which identified no issues. The SCADA monitoring verifies the battery condition, consequently reducing the negative impact of the alleged violation on the BPS. In addition, AEP performs monthly station inspections where abnormal conditions are discovered and AEP takes corrective actions as appropriate. These inspections would have alerted AEP if any of the batteries had been nonfunctional.**

**II. DISCOVERY INFORMATION**

METHOD OF DISCOVERY

- SELF-REPORT
- SELF-CERTIFICATION
- COMPLIANCE AUDIT
- COMPLIANCE VIOLATION INVESTIGATION
- SPOT CHECK
- COMPLAINT
- PERIODIC DATA SUBMITTAL
- EXCEPTION REPORTING

**DURATION DATE(S) 6/18/07 (date the Standard became mandatory and enforceable) through 12/31/2009 (date AEP completed all deficient maintenance and testing)**

**DATE DISCOVERED BY OR REPORTED TO REGIONAL ENTITY 10/5/09**

IS THE VIOLATION STILL OCCURRING      YES       NO   
 IF YES, EXPLAIN

REMEDIAL ACTION DIRECTIVE ISSUED      YES       NO   
 PRE TO POST JUNE 18, 2007 VIOLATION      YES       NO



**III. MITIGATION INFORMATION**

## FOR FINAL ACCEPTED MITIGATION PLAN:

MITIGATION PLAN NO.	<b>MIT-07-2451</b>
DATE SUBMITTED TO REGIONAL ENTITY	<b>3/26/10</b>
DATE ACCEPTED BY REGIONAL ENTITY	<b>4/14/10</b>
DATE APPROVED BY NERC	<b>4/30/10</b>
DATE PROVIDED TO FERC	<b>5/3/10</b>

IDENTIFY AND EXPLAIN ALL PRIOR VERSIONS THAT WERE ACCEPTED OR REJECTED, IF APPLICABLE

MITIGATION PLAN COMPLETED      YES       NO

EXPECTED COMPLETION DATE	<b>7/31/10</b>
EXTENSIONS GRANTED	<b>N/A</b>
ACTUAL COMPLETION DATE	<b>6/30/10</b>

DATE OF CERTIFICATION LETTER	<b>7/30/10</b>
CERTIFIED COMPLETE BY REGISTERED ENTITY AS OF	<b>6/30/10</b>

DATE OF VERIFICATION LETTER	<b>8/31/10</b>
VERIFIED COMPLETE BY REGIONAL ENTITY AS OF	<b>6/30/10</b>

ACTIONS TAKEN TO MITIGATE THE ISSUE AND PREVENT RECURRENCE

**AEP's Mitigation Plan outlined actions necessary to mitigate the alleged violation, including the completion of all outstanding maintenance and testing on the protection system devices at issue. AEP reinstated centralized "battery maintenance exception reports" for both the monthly and semi-annual battery inspections, which ensure that all inspections are conducted and reported pursuant to AEP's Program. AEP also developed and implemented improved "station maintenance completion reports" as part of a process where transmission asset engineering staff initiate monthly proactive reviews of any issues that could cause deviations from scheduled protection system maintenance and testing. AEP also initiated a formal Root Cause Analysts and Process Review for missed battery maintenance activities to understand if there are process gaps and to identify improvements.**

LIST OF EVIDENCE REVIEWED BY REGIONAL ENTITY TO EVALUATE COMPLETION OF MITIGATION PLAN OR MILESTONES (FOR CASES IN WHICH MITIGATION IS NOT YET COMPLETED, LIST EVIDENCE REVIEWED FOR COMPLETED MILESTONES)

- *“Milestone Evidence D1.1 Relays and carrier maintenance records Self-Report, Missed Intervals Detail”*
- *“Milestone Evidence D1.1 Relays and carrier Self-Report Missed Intervals Detail” of document “American Electric Power RFC Certification of a Completed Mitigation Plan PRC-005-1\_20100729.pdf”*
- *“Milestone Evidence D1.3 Battery details” of document “American Electric Power RFC Certification of a Completed Mitigation Plan PRC-005-1\_20100729.pdf”*

EXHIBITS:

SOURCE DOCUMENT

**AEP’s Self-Report dated October 5, 2009**

MITIGATION PLAN

**AEP’s Mitigation Plan, MIT-07-2451, submitted March 26, 2010**

CERTIFICATION BY REGISTERED ENTITY

**AEP’s Certification of Mitigation Plan Completion submitted July 30, 2010**

VERIFICATION BY REGIONAL ENTITY

**ReliabilityFirst’s Verification of Mitigation Plan Completion dated August 31, 2010**

## **Disposition Document for PRC-015-0 R1 and R2**

## DISPOSITION OF VIOLATION

### Dated April 11, 2011

NERC TRACKING NO.	REGIONAL ENTITY TRACKING NO.
<b>RFC200900258</b>	<b>RFC200900258</b>
<b>RFC200900259</b>	<b>RFC200900259</b>

#### I. VIOLATION INFORMATION

RELIABILITY STANDARD	REQUIREMENT(S)	SUB-REQUIREMENT(S)	VRF(S)	VSL(S)
<b>PRC-015-0</b>	<b>1</b>		<b>Medium</b>	<b>Severe</b>
<b>PRC-015-0</b>	<b>2</b>		<b>Medium</b>	<b>Severe</b>

VIOLATION APPLIES TO THE FOLLOWING FUNCTIONS:

BA	DP	GO	GOP	IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
		X									X			

PURPOSE OF THE RELIABILITY STANDARD AND TEXT OF RELIABILITY STANDARD AND REQUIREMENT(S)/SUB-REQUIREMENT(S)

**The purpose statement of PRC-015-0 provides: “To ensure that all Special Protection Systems<sup>[1]</sup> (SPS) are properly designed, meet performance requirements, and are coordinated with other protection systems. To ensure that maintenance and testing programs are developed and misoperations are analyzed and corrected.”**

**PRC-015-1 R1 and R2 provide:**

**R1. The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall maintain a list of and provide data for existing and proposed SPSs as specified in Reliability Standard PRC-013-0\_R1.<sup>[2]</sup>**

<sup>1</sup> *The NERC Glossary of Terms Used in Reliability Standards* defines Special Protection Systems as

An automatic protection system designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components to maintain system reliability. Such action may include changes in demand, generation (MW and Mvar), or system configuration to maintain system stability, acceptable voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding or (b) fault conditions that must be isolated or (c) out-of-step relaying (not designed as an integral part of an SPS). Also called Remedial Action Scheme.

<sup>2</sup> PRC-013-0 R1 states that the The Regional Reliability Organization that has a Transmission Owner, Generator Owner, or Distribution Provider with an SPS installed shall maintain an SPS database, which shall include specific information on design objectives, operation, and modeling.

- R2. The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall have evidence it reviewed new or functionally modified SPSs in accordance with the Regional Reliability Organization's<sup>[3]</sup> procedures as defined in Reliability Standard PRC-012-0\_R1,<sup>[4]</sup> prior to being placed in service.**

(Footnotes added.)

#### VIOLATION DESCRIPTION

##### R1

**During the CVI, AEP asserted that the Rockport area protection scheme as it existed on August 4, 2007 for transmission system contingencies was not an SPS because the scheme's sole function was to protect the Rockport generators from potential damage. For this reason, AEP concluded that the Rockport area protection scheme was not an SPS and, consequently, believed that no reporting was necessary to ReliabilityFirst under the terms of PRC-015-0 R1.<sup>5</sup>**

**The CVI team disagreed with AEP's contention and concluded that the Rockport area protection scheme, as it existed on August 4, 2007, was an SPS. The CVI team determined that the protection system at Rockport, as installed on August 4, 2007, was an SPS and AEP failed to maintain a list and provide data of the SPS as required by the standard. AEP also failed to document the modifications that were made to the Rockport area protection scheme when the scheme was made completely automatic and declared an SPS by AEP in 2008. Once armed<sup>6</sup> the**

<sup>3</sup> Consistent with applicable FERC precedent, the term 'Regional Reliability Organization' in this context refers to ReliabilityFirst.

<sup>4</sup> PRC-012-0 R1 states that each Regional Reliability Organization with a Transmission Owner, Generator Owner, or Distribution Provider that uses or is planning to use an SPS shall have a documented Regional Reliability Organization SPS review procedure to ensure that SPSs comply with Regional criteria and NERC Reliability Standards.

<sup>5</sup> The violation numbers RFC200900258 - RFC200900262 are tied to AEP's failure to designate its Rockport area protection scheme as a Special Protection System (SPS). In applying the NERC SPS definition, AEP focused on what it understood to be the intent of an SPS and the fact that the NERC SPS definition focuses on "maintaining system reliability, stability, acceptable voltage and power flows." As a result, at the time of the violations, AEP did not classify any of the stability controls at the area protection scheme for its Rockport Plant, including the fast valving portion, as an SPS.

AEP designed the fast valving portion of the Rockport area protection scheme to protect the integrity of the Rockport Plant, and did not design the fast valving specifically for bulk power system reliability purposes.

In April and December of 2008, AEP presented to the ReliabilityFirst SPS Review Task Force the Rockport SPS, which was designed to address the NERC August 4, 2007 Event Analysis Team's recommendations. AEP described the SPS as a unit tripping scheme, which is always enabled and acts as a backup to the fast valving. During these presentations, AEP stated that fast valving exists at the Rockport Station, but that AEP did not classify it as an SPS.

As part of this Agreement and AEP's mitigation plan for RFC200900258-RFC200900262, AEP accepts that the fast valving at the Rockport Station is an SPS. AEP will modify the necessary documentation to classify the fast valving as an SPS.

<sup>6</sup> The Rockport area protection scheme is normally armed.

**Rockport area protection scheme operates automatically for various transmission system contingencies and ultimately maintains area power system stability. In addition, the CVI team noted that after the Event, AEP made modifications to the Rockport area protection scheme to address coordination failures cited in the NERC Event Analysis Report.**

**R2**

**AEP as the GO and TO should have recognized the Rockport scheme as an SPS as the scheme is normally armed and operates automatically for various transmission system contingencies. Because of this error, AEP did not provide evidence to show that AEP had reviewed the Rockport SPS or submit any identification and/or reports to the RRO, ReliabilityFirst, prior to the unit being placed into service.**

**AEP accepted that the fast valving at the Rockport Station is an SPS and will update the Rockport Operating Guide to include both the fast valving and the emergency unit trip within the scope of the Rockport SPS.**

**RELIABILITY IMPACT STATEMENT- POTENTIAL AND ACTUAL**

**ReliabilityFirst determined that the violations did not pose a serious or substantial risk to the reliability of the bulk power system (BPS) because:**

- a. R1: Although AEP did not consider the Rockport area protection scheme to be an SPS, AEP had documentation addressing design, operations, and modeling available in the form of an operating guide.**
- b. R2: Although AEP did not provide documentation of the Rockport area protection scheme design objectives, operation, and modeling to ReliabilityFirst to be included in the SPS database, AEP internally maintained this documentation at all relevant times.**

**II. DISCOVERY INFORMATION**

**METHOD OF DISCOVERY**

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| SELF-REPORT                        | <input type="checkbox"/>            |
| SELF-CERTIFICATION                 | <input type="checkbox"/>            |
| COMPLIANCE AUDIT                   | <input type="checkbox"/>            |
| COMPLIANCE VIOLATION INVESTIGATION | <input checked="" type="checkbox"/> |
| SPOT CHECK                         | <input type="checkbox"/>            |
| COMPLAINT                          | <input type="checkbox"/>            |
| PERIODIC DATA SUBMITTAL            | <input type="checkbox"/>            |
| EXCEPTION REPORTING                | <input type="checkbox"/>            |

**DURATION DATE(S) 6/18/07 (date the Standards became mandatory and enforceable) through present (Mitigation Plan expected completion date is 6/30/11)**

DATE DISCOVERED BY OR REPORTED TO REGIONAL ENTITY **12/10/09**IS THE VIOLATION STILL OCCURRING      YES       NO 

IF YES, EXPLAIN

**Mitigation Plan is not yet completed, the expected completion date is June 30, 2011**REMEDIAL ACTION DIRECTIVE ISSUED      YES       NO PRE TO POST JUNE 18, 2007 VIOLATION      YES       NO **III. MITIGATION INFORMATION**

FOR FINAL ACCEPTED MITIGATION PLAN:

MITIGATION PLAN NO.	<b>MIT-07-3037</b>
DATE SUBMITTED TO REGIONAL ENTITY	<b>10/5/10</b>
DATE ACCEPTED BY REGIONAL ENTITY	<b>11/5/10</b>
DATE APPROVED BY NERC	<b>12/1/10</b>
DATE PROVIDED TO FERC	<b>12/3/10</b>

IDENTIFY AND EXPLAIN ALL PRIOR VERSIONS THAT WERE ACCEPTED OR REJECTED, IF APPLICABLE

MITIGATION PLAN COMPLETED      YES       NO EXPECTED COMPLETION DATE **6/30/11**

EXTENSIONS GRANTED

ACTUAL COMPLETION DATE      **TBD**DATE OF CERTIFICATION LETTER      **TBD**CERTIFIED COMPLETE BY REGISTERED ENTITY AS OF      **TBD**DATE OF VERIFICATION LETTER      **TBD**VERIFIED COMPLETE BY REGIONAL ENTITY AS OF      **TBD**ACTIONS TAKEN TO MITIGATE THE ISSUE AND PREVENT RECURRENCE<sup>7</sup>

- **AEP will revise its existing Rockport Operating Guide to include both the fast valving and the emergency unit trip within the scope of the Rockport SPS.**
- **The original SPS design submitted to RFC did not include within its scope fast valving or emergency unit trip. In order to comply with PRC-015-0 "Special Protection System Data and Documentation" and Reliability First's "Procedure for the Review of Special Protection**

<sup>7</sup> See Mitigation Plan for additional information.

**Systems (SPS)” Version 1, AEP will provide revised Rockport SPS documentation to RFC in accordance with RFC’s defined process.**

- **The original SPS design submitted to PJM Interconnection (PJM) did not include within its scope fast valving or emergency unit trip. In order to comply with PRC-001-1 “System Protection Coordination” and PJM’s “Manual 03: Transmission Operations” Revision 37, AEP will provide revised Rockport SPS documentation to PJM in accordance with PJM’s defined process.**
- **With the addition of the fast valving and the emergency unit trip to the scope of the Rockport SPS, AEP will revise the alarms it provides to PJM. The complete set of new alarms will not be available until after the DCS logic alarm changes are completed on each unit.**

LIST OF EVIDENCE REVIEWED BY REGIONAL ENTITY TO EVALUATE COMPLETION OF MITIGATION PLAN OR MILESTONES (FOR CASES IN WHICH MITIGATION IS NOT YET COMPLETED, LIST EVIDENCE REVIEWED FOR COMPLETED MILESTONES)  
**TBD**

**EXHIBITS:**

**SOURCE DOCUMENT**

**ReliabilityFirst’s Summary of Possible Alleged Violations for PRC-015-0 R1 and R2**

**MITIGATION PLAN**

**AEP’s Mitigation Plan, MIT-07-3037, submitted October 5, 2010**



## **Disposition Document for PRC-016-0 R1 and R3**

## DISPOSITION OF VIOLATION

### Dated April 11, 2011

NERC TRACKING NO.	REGIONAL ENTITY TRACKING NO.
<b>RFC200900260</b>	<b>RFC200900260</b>
<b>RFC200900261</b>	<b>RFC200900261</b>

#### I. VIOLATION INFORMATION

RELIABILITY STANDARD	REQUIREMENT(S)	SUB-REQUIREMENT(S)	VRF(S)	VSL(S)
<b>PRC-016-0</b>	<b>1</b>		<b>Medium</b>	<b>Severe</b>
<b>PRC-016-0</b>	<b>3</b>		<b>Lower</b>	<b>Severe</b>

VIOLATION APPLIES TO THE FOLLOWING FUNCTIONS:

BA	DP	GO	GOP	IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
		X									X			

PURPOSE OF THE RELIABILITY STANDARD AND TEXT OF RELIABILITY STANDARD AND REQUIREMENT(S)/SUB-REQUIREMENT(S)

**The purpose statement of PRC-016-0 provides: “To ensure that all Special Protection Systems<sup>[1]</sup> (SPS) are properly designed, meet performance requirements, and are coordinated with other protection systems. To ensure that maintenance and testing programs are developed and misoperations are analyzed and corrected.”**

**PRC-016-0 R1 and R3 provide in pertinent part:**

- R1. The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall analyze its SPS operations and maintain a record of all misoperations in accordance with the Regional SPS review procedure specified in Reliability Standard PRC-012-0 R1.**

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<sup>1</sup> *The NERC Glossary of Terms Used in Reliability Standards* defines Special Protection Systems as

An automatic protection system designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components to maintain system reliability. Such action may include changes in demand, generation (MW and Mvar), or system configuration to maintain system stability, acceptable voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding or (b) fault conditions that must be isolated or (c) out-of-step relaying (not designed as an integral part of an SPS). Also called Remedial Action Scheme.

- R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall provide documentation of the misoperation analyses and the corrective action plans to its Regional Reliability Organization<sup>[2]</sup> and NERC on request (within 90 calendar days).**

(Footnotes added.)

## VIOLATION DESCRIPTION

### R1

**During the CVI, AEP believed that there was no reporting requirement under PRC-016-0 R1 because their scheme had to be manually armed and that the scheme's sole function is to protect the Rockport generators from potential damage.<sup>3</sup>**

**The CVI team determined that the Rockport area protection scheme, as it existed on August 4, 2007, met the NERC definition of an SPS, and that AEP should have recognized it as such.<sup>4</sup> AEP did not provide evidence that they analyzed its SPS operations and maintained a record of all misoperations in accordance with the Regional SPS review procedure specified in PRC-012-0 R1 for the generation fast valving scheme misoperation that occurred on August 4, 2007. AEP did report transmission system misoperations using the ReliabilityFirst Misoperation Reporting Form but not the generation fast valving scheme misoperations that occurred on August 4, 2007.**

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<sup>2</sup> Consistent with applicable FERC precedent, the term 'Regional Reliability Organization' in this context refers to ReliabilityFirst.

<sup>3</sup> See Paragraph 7 of the Settlement Agreement for a description of the August 4, 2007 Event.

<sup>4</sup> The violation numbers RFC200900258 - RFC200900262 are tied to AEP's failure to designate its Rockport area protection scheme as a Special Protection System (SPS). In applying the NERC SPS definition, AEP focused on what it understood to be the intent of an SPS and the fact that the NERC SPS definition focuses on "maintaining system reliability, stability, acceptable voltage and power flows." As a result, at the time of the violations, AEP did not classify any of the stability controls at the area protection scheme for its Rockport Plant, including the fast valving portion, as an SPS.

AEP designed the fast valving portion of the Rockport area protection scheme to protect the integrity of the Rockport Plant, and did not design the fast valving specifically for bulk power system reliability purposes.

In April and December of 2008, AEP presented to the ReliabilityFirst SPS Review Task Force the Rockport SPS, which was designed to address the NERC August 4, 2007 Event Analysis Team's recommendations. AEP described the SPS as a unit tripping scheme, which is always enabled and acts as a backup to the fast valving. During these presentations, AEP stated that fast valving exists at the Rockport Station, but that AEP did not classify it as an SPS.

As part of this Agreement and AEP's mitigation plan for RFC200900258-RFC200900262, AEP accepts that the fast valving at the Rockport Station is an SPS. AEP will modify the necessary documentation to classify the fast valving as an SPS.

**R3**

**AEP did not provide documentation of the generation fast valving scheme (that is part of an SPS) misoperations analyses and corrective action plans for the fast valving misoperation that occurred on August 4, 2007 to ReliabilityFirst as requested.**

RELIABILITY IMPACT STATEMENT- POTENTIAL AND ACTUAL

**ReliabilityFirst determined that the violations did not pose a serious or substantial risk to the reliability of the bulk power system (BPS) because although AEP did not report to ReliabilityFirst that misoperations occurred on the Rockport area protection scheme on August 4, 2007 because it believed the Rockport area protection scheme was not an SPS, AEP immediately informed the TOP (PJM) of the misoperations. Although AEP did not provide documentation of the misoperations analyses and corrective action plans, AEP participated fully with NERC in conducting its event analysis, providing all necessary information to complete the analysis.**

**II. DISCOVERY INFORMATION**

METHOD OF DISCOVERY

- SELF-REPORT
- SELF-CERTIFICATION
- COMPLIANCE AUDIT
- COMPLIANCE VIOLATION INVESTIGATION
- SPOT CHECK
- COMPLAINT
- PERIODIC DATA SUBMITTAL
- EXCEPTION REPORTING

**DURATION DATE(S) 6/18/07 (date the Standards became mandatory and enforceable) through 6/30/2011 (the date AEP is scheduled to complete the Mitigation Plan)**

**DATE DISCOVERED BY OR REPORTED TO REGIONAL ENTITY 12/10/09**

- IS THE VIOLATION STILL OCCURRING      YES       NO
- IF YES, EXPLAIN (Mitigation Plan is ongoing)
- REMEDIAL ACTION DIRECTIVE ISSUED      YES       NO
- PRE TO POST JUNE 18, 2007 VIOLATION      YES       NO

### III. MITIGATION INFORMATION

FOR FINAL ACCEPTED MITIGATION PLAN:

MITIGATION PLAN NO.	<b>MIT-07-3037</b>
DATE SUBMITTED TO REGIONAL ENTITY	<b>10/5/10</b>
DATE ACCEPTED BY REGIONAL ENTITY	<b>11/5/10</b>
DATE APPROVED BY NERC	<b>12/1/10</b>
DATE PROVIDED TO FERC	<b>12/3/10</b>

IDENTIFY AND EXPLAIN ALL PRIOR VERSIONS THAT WERE ACCEPTED OR REJECTED, IF APPLICABLE

N/A

MITIGATION PLAN COMPLETED      YES       NO

EXPECTED COMPLETION DATE **6/30/11**

EXTENSIONS GRANTED

ACTUAL COMPLETION DATE      **TBD**

DATE OF CERTIFICATION LETTER

**TBD**

CERTIFIED COMPLETE BY REGISTERED ENTITY AS OF

**TBD**

DATE OF VERIFICATION LETTER

**TBD**

VERIFIED COMPLETE BY REGIONAL ENTITY AS OF

**TBD**

ACTIONS TAKEN TO MITIGATE THE ISSUE AND PREVENT RECURRENCE<sup>5</sup>

- **AEP Generation uses Circular Letter EL-M-CL-024 to comply with NERC Standard PRC-016 “Special Protection System Misoperations.” The current revision of the document does not include within its scope misoperation analysis, maintenance or testing of the fast valving or the emergency unit trip. As part of the Mitigation Plan, AEP committed to revise the document to include these components.**

LIST OF EVIDENCE REVIEWED BY REGIONAL ENTITY TO EVALUATE COMPLETION OF MITIGATION PLAN OR MILESTONES (FOR CASES IN WHICH MITIGATION IS NOT YET COMPLETED, LIST EVIDENCE REVIEWED FOR COMPLETED MILESTONES)

**TBD**

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<sup>5</sup> See Mitigation Plan for additional information.

EXHIBITS:

SOURCE DOCUMENT

**ReliabilityFirst's Summary of Possible Alleged Violations for PRC-016-0 R1 and R3**

MITIGATION PLAN

**AEP's Mitigation Plan, MIT-07-3037, submitted October 5, 2010**

## **Disposition Document for PRC-017-0 R1**

## DISPOSITION OF VIOLATION

**Dated April 11, 2011**

NERC TRACKING NO.	REGIONAL ENTITY TRACKING NO.
<b>RFC200900262</b>	<b>RFC200900262</b>

### I. VIOLATION INFORMATION

RELIABILITY STANDARD	REQUIREMENT(S)	SUB-REQUIREMENT(S)	VRF(S)	VSL(S)
<b>PRC-017-0</b>	<b>1</b>		<b>High</b>	<b>Severe</b>

VIOLATION APPLIES TO THE FOLLOWING FUNCTIONS:

BA	DP	GO	GOP	IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
		X									X			

PURPOSE OF THE RELIABILITY STANDARD AND TEXT OF RELIABILITY STANDARD AND REQUIREMENT(S)/SUB-REQUIREMENT(S)

**The purpose statement of PRC-017-0 provides: “To ensure that all Special Protection Systems<sup>[1]</sup> (SPS) are properly designed, meet performance requirements, and are coordinated with other protection systems. To ensure that maintenance and testing programs are developed and misoperations are analyzed and corrected.”**

**PRC-017-0 R1 provides, in pertinent part:**

**R1. The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall have a system maintenance and testing program(s) in place. The program(s) shall include:**

**R1.2. Documentation of maintenance and testing intervals and their basis.**

**R1.3. Summary of testing procedure.**

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<sup>1</sup> *The NERC Glossary of Terms Used in Reliability Standards* defines Special Protection Systems as

An automatic protection system designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components to maintain system reliability. Such action may include changes in demand, generation (MW and Mvar), or system configuration to maintain system stability, acceptable voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding or (b) fault conditions that must be isolated or (c) out-of-step relaying (not designed as an integral part of an SPS). Also called Remedial Action Scheme.



**R1.4. Schedule for system testing.**

**R1.5. Schedule for system maintenance.**

**R1.6. Date last tested/maintained.**

(Footnotes added.)

#### VIOLATION DESCRIPTION

**AEP believed that the Rockport area protection scheme was not an SPS, and therefore did not have a documented SPS maintenance and testing program in place for the entire Rockport area protection scheme.<sup>2</sup>**

**AEP stated that they perform fast valving checking/testing based upon the recommendations provided within the AEPSC memo issued on May 16, 1989, “Checkouts of Fast Valving Equipment at Rockport Plant.” The CVI team reviewed a copy of this memo provided by AEP that outlines fast valving scheme testing. AEP provided the dates prior to August 4, 2007 event when these systems were last tested and the CVI team reviewed graphical plots of fast valving tests (information was also provided to address PRC-005-0 R2) conducted on October 25, 2005 and June 13, 2007 for Rockport units 1 & 2 respectively. AEP stated that fast valving checking/testing and unit tripping scheme tests are performed during General Boiler Inspection and Repair (GBIR) outages. GBIR outages occur approximately every two years. Unit tripping is confirmed with turbine interlock checks that are performed during a GBIR outage. AEP stated that they have no specific procedure for testing unit runback.**

**After completing the CVI, the team determined that AEP, as the Generation Owner and Transmission Owner was required to have had a maintenance and test program in place prior to the August 4, 2007 event to check the entire Rockport protection**

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<sup>2</sup> The violation numbers RFC200900258 - RFC200900262 are tied to AEP’s failure to designate its Rockport area protection scheme as a Special Protection System (SPS). In applying the NERC SPS definition, AEP focused on what it understood to be the intent of an SPS and the fact that the NERC SPS definition focuses on “maintaining system reliability, stability, acceptable voltage and power flows.” As a result, at the time of the violations, AEP did not classify any of the stability controls at the area protection scheme for its Rockport Plant, including the fast valving portion, as an SPS.

AEP designed the fast valving portion of the Rockport area protection scheme to protect the integrity of the Rockport Plant, and did not design the fast valving specifically for bulk power system reliability purposes.

In April and December of 2008, AEP presented to the ReliabilityFirst SPS Review Task Force the Rockport SPS, which was designed to address the NERC August 4, 2007 Event Analysis Team’s recommendations. AEP described the SPS as a unit tripping scheme, which is always enabled and acts as a backup to the fast valving. During these presentations, AEP stated that fast valving exists at the Rockport Station, but that AEP did not classify it as an SPS.

As part of this Agreement and AEP’s mitigation plan for RFC200900258-RFC200900262, AEP accepts that the fast valving at the Rockport Station is an SPS. AEP will modify the necessary documentation to classify the fast valving as an SPS.

**scheme, including unit runback. AEP did not have documentation in place as required to show they had a maintenance and test program in place prior to the August 4, 2007 event to check the entire Rockport protection scheme including unit runback.**

RELIABILITY IMPACT STATEMENT- POTENTIAL AND ACTUAL

**ReliabilityFirst determined that the violation did not pose a serious or substantial risk to the reliability of the bulk power system (BPS) because although AEP did not have an SPS maintenance and testing program in place for the Rockport area protection scheme, AEP successfully tested the fast valving portion of the Rockport area protection scheme during general boiler inspection and repair outages on October 25, 2005 and June 13, 2007.**

**II. DISCOVERY INFORMATION**

METHOD OF DISCOVERY

- SELF-REPORT
- SELF-CERTIFICATION
- COMPLIANCE AUDIT
- COMPLIANCE VIOLATION INVESTIGATION
- SPOT CHECK
- COMPLAINT
- PERIODIC DATA SUBMITTAL
- EXCEPTION REPORTING

**DURATION DATE(S) 6/18/07 (date the Standard became mandatory and enforceable) through present (Mitigation Plan expected completion date is 6/30/11)**

**DATE DISCOVERED BY OR REPORTED TO REGIONAL ENTITY 12/10/09**

IS THE VIOLATION STILL OCCURRING      YES       NO   
 IF YES, EXPLAIN

**Mitigation Plan is not yet completed; the expected completion date is June 30, 2011.**

REMEDIAL ACTION DIRECTIVE ISSUED      YES       NO   
 PRE TO POST JUNE 18, 2007 VIOLATION      YES       NO



LIST OF EVIDENCE REVIEWED BY REGIONAL ENTITY TO EVALUATE COMPLETION OF MITIGATION PLAN OR MILESTONES (FOR CASES IN WHICH MITIGATION IS NOT YET COMPLETED, LIST EVIDENCE REVIEWED FOR COMPLETED MILESTONES)

**TBD**

EXHIBITS:

SOURCE DOCUMENT

**ReliabilityFirst's Summary of Possible Alleged Violations for PRC-017-0 R1**

MITIGATION PLAN

**AEP's Mitigation Plan, MIT-07-3037, submitted October 5, 2010**

**Attachment e**

**Notice of Filing**

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

American Electric Power Service Corporation

Docket No. NP11-\_\_\_\_-000

NOTICE OF FILING  
April 29, 2011

Take notice that on April 29, 2011, the North American Electric Reliability Corporation (NERC) filed a Notice of Penalty regarding American Electric Power Service Corporation in the Reliability *First* Corporation region.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.

The Commission encourages electronic submission of protests and interventions in lieu of paper using the "eFiling" link at <http://www.ferc.gov>. Persons unable to file electronically should submit an original and 14 copies of the protest or intervention to the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426.

This filing is accessible on-line at <http://www.ferc.gov>, using the "eLibrary" link and is available for review in the Commission's Public Reference Room in Washington, D.C. There is an "eSubscription" link on the web site that enables subscribers to receive email notification when a document is added to a subscribed docket(s). For assistance with any FERC Online service, please email [FERCOnlineSupport@ferc.gov](mailto:FERCOnlineSupport@ferc.gov), or call (866) 208-3676 (toll free). For TTY, call (202) 502-8659.

Comment Date: [BLANK]

Kimberly D. Bose,  
Secretary