

**Southwest Power Pool
SYSTEM PROTECTION AND CONTROL WORKING GROUP
MEETING**

**MAY 6-7, 2015
SOUTHWEST POWER POOL CORPORATE OFFICE
LITTLE ROCK, ARKANSAS**

**MAY 6 (1P.M. – 5P.M.)
MAY 7 (8 A.M. – 12P.M.)**

• M I N U T E S •

Item 1a: Call to Order and Introductions

Chair, Bud Averill (GRDA), called the meeting to order at 1pm and welcomed everyone. There were 19 in-person participants and 10 teleconference participants. (Attendance List Attached).

Item 1b: Proxies

There were no proxies for this meeting.

Item 1c: Approve minutes of previous meetings (Action Item)

The minutes for the August, 20 meeting were reviewed and unanimously approved by the group.

Item 1d: Approve agenda

Bud Averill (GRDA) presented the agenda for review and asked for any additions or corrections. Two new items, “PRC-001 R2.2” and “TPL-001-4 short circuit initial data request” were added to the agenda. The agenda was then unanimously approved.

Agenda Item 2: Review of Past Action Items

Doug Bowman (SPP) reviewed and updated the status of action items through # 41.

Agenda Item3: Membership

Bud welcomed two new members to the group: Forrest Brock, Western Farmers and Bob Soper, WAPA Great Plains

Agenda Item 4: NERC SPCS Meeting Update

Forrest Brock presented his notes from the SPS meeting as follows:

Order No. 754 Data Request. Scott Barfield (NERC Coordinator - Order 754 Data Request), Rich Quest (SPCS Vice-Chair) and Bill Miller led discussion based on their comments and revisions from individual review. Much discussion was had concerning the tables of data from results of the data request. Specifically regarding what the data might or might not indicate. Resulting final revisions were clarifying and/or editorial in nature – no

substantive changes made. Approve for submission to SAMS for review and approval at their April meeting. Present to PC for approval at June meeting

Power Plant and Transmission System Protection Coordination discussion. Originally composed August, 2010. Rich Quest led discussion regarding his report review and comments. Present schedule at next PC meeting – Final approval in September.

Unit Auxiliary Transformer Protection discussion. The SPCS reviewed the current draft of the report. Questions were raised about what is the objective of the report. For example, should it be a reliability guideline or a report. The group was reminded that the purpose of this work is to prepare a report to decide whether a guideline is sufficient for addressing the low side UAT relays in PRC-025-1. The work was based on an issue raised by a minority of commenters from the previous adoption of the PRC-025-1 standard. If the work determines a reliability guideline is not sufficient to address the issue regarding the omission of low-side UAT relays in PRC-025-1, the report may recommend that PRC-025-1 be revised to include the low side UAT relays. Sub-team will distribute to generation engineering co-workers and peers for feedback/input. Jonathan Sykes (PG&E), Forrest Brock (WFEC), Mark Gutzmann (Excel), Jeff Isler (AEP) to work on report based on industry review. Goal to have final draft ready for the next SPCS meeting. Potentially present to PC in September

Review of PRC Standards Under Development

PRC-001-2 and PRC-027-1, System Protection Coordination. PRC-027-1 currently posted for 45-day comment and ballot. PRC-001 (Phase 2 of System Protection Coordination) currently planning to modify an existing or develop a new TOP standard and eliminate PRC-001

PRC-002-2, Disturbance Monitoring. On the FERC agenda for Thursday, April 16, 2015 to approve.

PRC-004-3, Protection System Misoperations. Still has not come up for FERC approval. Mr. Barfield thought its delay might be a result of the Commission waiting to see the outcome and filing of the work being balloted concerning Misoperations of UVLS equipment under the proposed PRC-004-5 and PRC-010-2.

PRC-005-3, Protection System Maintenance and Testing. Addition of Reclosing Schemes: FERC approved the standard with a directive to add "Supervisory Relays associated with reclosing schemes," which includes Synch-check and volt-check relays are considered the supervisory relays. This was part of the FERC directive. A SAR was posted for comment which closed last week and the SDT is meeting next week to review those comments and start working on the revisions to PRC-005.

PRC-005-4; Protection System Maintenance and Testing. Includes the addition of Sudden Pressure Relays. It is NERC BOT adopted and On FERC agenda for approval. Discussions are occurring to harmonize the implementation dates of the incremental implementation of the various PRC-005 versions.

PRC-006-2 and PRC-010-1; Underfrequency and Undervoltage Load Shedding. The standard PRC-010-1 was adopted in 2014 and PRC-006-2 passed in 2015 and NERC is preparing the standard for filing.

PRC026-1; Protection System Response to Power Swings. The standard was adopted by the NERC Board of Trustees in December 2014 and filed with regulatory authorities.

PRC standard revisions to address dispersed power producing resources. The DGR initial set of standards are filed with FERC and awaiting approval.

Definition of Special Protection System/Remedial Action Scheme. The definition was NERC Board of Trustee adopted along with a group of standards that were modified to replace SPS with RAS. The work has been filed with FERC.

Agenda Item 5: SPP Strategic Plan Requirements

Bud Averill led the discussion by asking the question how can we improve on our analysis concerning mis-operations? A template was presented that the group will need to populate for SPP Management. A timeline for any activities undertaken will be needed. Also will need a dollar figure for a budget.

Agenda Item 6: Misoperations

Thomas Teafatiller presented misoperations statistics for Q4, 2014. It was noted that correct operations continue to slope down.

John ZIPP from NATF presented information on what they are doing with their misoperations reduction initiative.

Louis Guidry discussed the need for consistency in reporting misoperations according to PRC-004. This presents the problem in knowing if we have more or less of the misops. Louis commented that he would put together something to provide guidance on reporting the misoperations and correct operations at the next meeting. We can address this inside SPP but what about the rest of the country?

Bud talked about the whitepaper that the group will need to produce on Incorrect Settings/Logic/Design Errors. The following tasks are required to produce the whitepaper:

- The members will send Doug their sub-cause spreadsheets by July 1, 2015 (2 year of data) and he will work to consolidate them.
- Thomas will work with SPCWG non-members to get their data into the spreadsheets.
- Data collection to be completed by August 13, 2015.
- The group will complete the analysis and comparison to PSMTF by November 12, 2015 and the whitepaper will be complete by Feb 28, 2016.

Agenda Item 7: Revision Request Process (RRP)

Erin Cathey (SPP) talked about this new process that formalizes the way changes to criteria and other documentation are implemented. The presentation showed ownership spreadsheet and the revision form. She noted that it is better to break up the revisions by subject area as one issue could hold up approval of a consolidated revision request. The SPCWG will need to use this process to make changes to its's criteria. Doug and Bud will begin to use the xcel spreadsheet of SPCWG criteria changes that the group has previously edited to populate the RRP forms.

Agenda Item 8: Criteria Review

Topic deferred due to time limitations and previous discussion (See Agenda Item 7).

Agenda Item 9: Review WAPA and Basin Special Protection Schemes

Steve Sanders (Western) presented information on the Miles City HVDC SPS. The scheme reduces the DC flow on the tie for certain conditions. Matthew Stoltz (Basin) presented on the Rapid City HVDC SPS. This SPS reduces the tie DC flow from 200 MW to 0MW for certain conditions. Matthew noted that Basin will be needing to install new SPS hardware and would

like to engage the SPCWG. Heidt noted that it will need to be approved and designed to meet criteria 7.4 requirements before installation.

Both Western and Basin were seeking temporary approval for the schemes until more definitive information could be forwarded to the SPCWG so that formal approval could be given. Since Western and Basin are joining SPP, there was some confusion about the correct deadline for formal approval. It was determined that the correct date is June 1. The SPCWG commented that among other items according to the criteria, a narrative, how it is designed, what triggers it, ac and dc schematics, etc. are required for formal approval.

Louis Guidry provided a conditional motion to approve Western's Miles City HVDC SPS for the next six months until a formal presentation and approval can be given. Steve Wadas seconded the motion and it was unanimously approved by the SPCWG.

Heidt Melson provided a conditional motion to approve Basin's Rapid City HVDC SPS for the next six months until a formal presentation and approval can be given. Rick Gurley seconded the motion and it was unanimously approved by the SPCWG.

It was noted that details should be given to the SPCWG by July 15 so they could come to the next meeting and present for approval.

Agenda Item 10: Review Existing Special Protection Schemes

The group reviewed the list of SPSs. It was noted that the Clarksdale SPS may belong to MISO now. JH will check into it.

Agenda Item 11: Review PRC-027-1 Draft (System Protection Coordination)

Ken Zellefrow asked if the group was following this standard and what was their thoughts concerning it. It was noted that a process was needed and then the process should be followed, but how in-depth should it be written? It was also noted that they don't have a written requirement to define what it is.

Agenda Item 12: UFLS Update

Harvey Scribner talked about the definition of the UFLS entity. The UFLS plan was edited by the group to provide the definition. Harvey noted that there would be a formal plan revision and a posting period.

Agenda Item 13: Minimum Design Standard

Bud asked the question: Do we want to take another look at the MDS this year in a future meeting since it is supposed to be a living document? He noted that the MDS and the Estimate Guide should be closer. The group decided that another look at this was not warranted.

Agenda Item 14: New Items for Discussion

Golden Spread DME Letter of Exemption. Chip Koloini presented on Golden Spread Electric Cooperative's request for a Disturbance Monitoring Equipment Letter of Exemption for the Antelope Elk Energy Center (Elk #1, the facility is located approximately 1-2 miles north of Abernathy, TX.) from the SPP RTO. The group determined that the waiver was reasonable and a formal waiver request was required. There is a form that Chip will need to fill out. Doug will get the form to Chip.

Chair/Vice Chair Rotation

Doug Bowman provided a draft document. The group noted it was good to go.

Agenda Item 12: Discussion of Future Meetings

The following meetings remain for 2015.

- i. Aug 12 &13, Dallas
- ii. Nov 4 & 5, Kansas City

Agenda Item 13: Review of Action Items and Closing Remarks

Doug Bowman reviewed the captured action items (attached).

The meeting was adjourned.

Respectfully Submitted,

Douglas Bowman
SPCWG Staff Secretary



Southwest Power Pool, Inc.
SYSTEMS PROTECTION WORKING GROUP
May 6-7, 2015
SPP Corporate Office/Little Rock, AR

• ATTENDANCE LIST •

Name	Company	
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Thomas Teafatiller	SPP RE	tteafatiller.re@spp.org
Tom Burns	SPP	tburns@spp.org

Action Items

Southwest Power Pool

SYSTEM PROTECTION AND CONTROL WORKING GROUP COMMITTEE

Action Items

	Action Item	Date Originated	Status	Comments
1.	Frank Bristol will work with Rick Gurley and AEP staff on his proposed option #1 scheme for Dempsey Ridge Wind Farm based on the SPCWG's conclusion that it would not be a Special Protection System.	5/8/2013	Complete	Has been handed to AEP Planning group
2.	Jay Caspary will attend the May 20, 2013 RCWG meeting to gain approval and/or guidance on the SPP UFLS Plan	5/8/2013	Complete	Approval obtained
3.	Send out a request for a conference call after feedback from RCWG meeting on May 20, 2013	5/8/2013	Complete	
4.	Send the Misoperations Report to committee members prior to SPCWG meeting for their review.	5/9/2013	Complete	Thomas T. Presented to SPCWG on 8/7/13
5.	Include the Misoperations Report as a standing Agenda Item	5/9/2013	Complete	
6.	Begin to look into the root causes of why SPP has a higher number of communication failures	5/9/2013	Complete	Will include this as subtopics under misops (See action items 12 and 18)
7.	Jason Speer to send the Southwestern Public Service Frequency Excursion event data to Harvey Scribner to work on any modifications if needed or additions of the Request for UFLS Event Data	5/9/2013	Complete	Harvey assembling UFLS data request form for future use. The will be included in the UFLS process document
8.	Follow-up with MDWG Chair and Staff Secretary in regards to the MDWG short circuit cases to determine a solution for the modeling issues between PSS/E cases and differences when converted to Aspen	5/9/2013	Complete	Discussed at 8/7/13 SPCWG meeting

9.	Develop a format or template for entities to use if they were to experience an UFLS event	5/9/2013	Complete	See action item 7
10.	Develop a format or template for entities to use for UFLS relay settings – Annually	5/9/2013	Complete	See action item 7
11.	Revise the SPS spreadsheet to include a category column. Send the NERC SPS document, which includes the proposed SPS definition, so that the SPS owners can categorize at the November SPCWG meeting.	8/7/2013	Complete	
12.	At the November SPCWG meeting, analyze past misoperations and categorize the communications failures using subcauses in the NERC Misoperations Task Force report. Begin with Q2 2013 and work back in time.	8/7/2013	Complete	Each representative will work on their own comm. misops before the February 2014 meeting. Include item aa 18 below.
13.	Invite BES Definition Drafting Team member, for the November SPCWG meeting, to present on the work they are doing. LS/DB	8/7/2013	Complete	Presented at November meeting
14.	Provide the NERC lessons learned url to the members as part of the minutes. DB	8/7/2013	Complete	
15.	Compliance department to formally send new UFLS plan and date requirements to the members. JS	8/7/2013	Complete	
16.	Determine if coordination with MISO can be worked out to obtain mutual consent concerning delaying the adjusted UFLS boundaries until 2015. HS	8/7/2013	Complete	Those entities formerly within SPP UFLS that are now under the MISO RTO will no longer be under SPP's UFLS Plan
17.	Determine how SPP deals with model corrections between model builds. DB	8/7/2013	Complete	
18.	Members to bring ideas to the November SPCWG meeting for a checklist that will assist in reducing misoperations due to communication problems,	8/7/2013	Complete	Combined with action item 12
19.	Need someone to do a presentation on GMD in a future meeting. DB	9/6/13	Complete	D.B.presented at the 2/5,6 mtg
20.	Set up conference call to work towards a charter for a short circuit task force and deliver at next meeting DB	9/6/13	Complete	Conference call produced an edited white paper for presentation at the 2/5,6 mtg

21.	Send out strategic plan to SPCWG and request comments by mid March.	2/5/2014	Complete	
22.	Members to collect actual fault data, simulate in his own model, and send both sets of info to D.B. to validate SPP short circuit models by Feb 19, 2014	2/5/2014	Complete	SPS and NPPD data provided
23.	DB to discuss with MDWG on possibility of re-activating Short Circuit task force	2/5/2014	ongoing	SPCWG designees will be put on the agenda for the November MDWG meeting
24.	DB to forward updated criteria spreadsheet to Jonathan Hayes (JH) and SPCWG members. JH to forward to compliance reps and RCWG for review by each entity to determine if included as part of a compliance plan by any individual entity	2/6/2014	complete	No responses received
25.	Areas requiring further investigation within the criteria spreadsheet will be reported on by next meeting by Louis Guidry.	2/6/2014	complete	
26.	The group will fill in misoperation subcause categories provided in the spreadsheet that TTeafatiller sent out on 2/5. Set up webcast for end of February to go through submittals	2/6/2014	complete	
27.	HS to get a copy of the scope of work for UFLS study to the members	5/28/2014	complete	
28.	HS to post UFLS plan revision for a 15 day review by the spcwg and the rcwg and will schedule a conference call for capture of comments	5/28/2014	complete	
29.	The members will review misoperation subcauses due to added category and return with comments by June 6	5/29/2014	complete	
30.	DB to clean up and add info based on item 29, add new graphs and send out to members for comment by June 13 requesting comments by June 20. Final version to be completed June 30 in time for MOPC background material submittal.	5/29/2014	complete	
31.	JH to send email to members with request for response to review recommendations for removing certain sections of the criteria. Members to respond to Jonathan Hayes by June 13.	5/29/2014	complete	
32.	DB to send out doodle poll to members for date of next meeting	5/29/2014	complete	
33.	Investigate short circuit data issues. Bud Averill and AEP representative to attend next MDWG meeting to discuss.	8/20/2014	complete	Bud, Doug, and Rick to meet with MDWG to

	Coordinate findings with TWG and TPL Task Force.			determine path forward
34.	Members to continue to send in short circuit events for analysis	8/20/2014	ongoing	DB to discuss with SPP staff concerning MOD 33-1 and support needed in analyzing cases
35.	DB will email the whitepaper to everyone and post to SPCWG website	8/20/2014	complete	Completed 8/22
36.	Mike Hughes and Thomas Teafatiller will work on how to implement an SPCWG review of misoperations before it goes to NERC each period	8/20/2014	complete	Review will occur as requested or as required by the RE.
37.	DB will send misoperation spreadsheet columns that are sent to NERC to everyone	8/20/2014	complete	Provided 8/21
38.	Mike Hughes will get the NERC presentation on misoperations to DB for the next SPCWG meeting	8/21/2014	complete	Provided 8/21
39.	Mike Hughes and Thomas Teafatiller will look into normalizing the data on the monthly misoperation presentations	8/21/2014	complete	Thomas will provide starting Q1 Meeting 2015
40.	Kevin Perry will work with Shaun Jacobs and Lynn Shroeder to determine how wind farms would be classified and weighted on the new CIP-002-V5.	8/21/2014	complete	Issue forwarded to NERC
41.	RG,DB,and BA to put together meeting dates for 2015	8/21/2015	complete	
42.	DB to forward charter revision to MOPC for approval	11/11/2014	complete	Charter revision was approved
43.	HS to forward UFLS study to the SPCWG for review by 11/30/14. He will set up call to discuss comments.	11/11/2014	complete	
44.	TT to get the most recent 24 months of misoperations data for analysis with respect to incorrect settings/logic/design	11/12/2014	complete	
45.	LS to follow up with the transmission forum to see what they have in terms of misoperations data related to item 44.	11/12/2014	complete	Forrest to take take on SPCS since Lynn is no longer available. Tom Miller to check with John Zipp for available data

46.	DB to discuss UFLS Plan Entity definition change with HS	11/12/2014	ongoing	Completion is pending UFLS plan revision approval
47.	LS will look into CCVT minimum requirements for the MDSTF	11/13/2014	complete	
48.	HS and JH to revise UFLS plan to include language about entities not participating in the SPP load shedding program to include them based on the study.	2/11/2015	ongoing	Completion is pending UFLS plan revision approval
49.	TT to follow up on getting the definition of protection system operation for the misoperation report to the group. Also will forward new misops spreadsheet.	2/11/2015	ongoing	Thomas is working with OATI to get def. into attestation form
50.	DB to check with Michael Deselle to see if the scorecard has been developed.	2/11/2015	complete	
51.	Each member to go through new misops spreadsheet (that will be sent out by TT) to determine subcauses. We will put it all together at the next face-to-face meeting in May.	2/11/2015	ongoing	
52.	BA and DB to discuss merging the Minimum Design Standard and Estimating Guide with the MDSTF and the PCWG	2/11/2015	complete	MDSTF is for competitive where est guide is not
53.	Lonnie Lindekugel to let us know their thoughts about what they do and do not want to see concerning protection system changes	2/12/2015	ongoing	Summary and status change is required. Email from Lonnie will be forwarded
54.	DB to distribute request for nominations for two SPCWG members	2/12/2015	complete	
55.	JH to check with Jason Smith on status of criteria changes that were suggested by the SPCWG	2/12/2015	complete	
56.	BA and DB to discuss path forward on getting criteria changes into the new SPP process	2/12/2015	ongoing	
57.	DB to talk to HS about voltage issues in the UFLS study and include in next study	2/12/2015	complete	Harvey to include in next study
58.	LG to provide guidance on reporting misoperations and correct operations at our next meeting	5/6/2015		
59.	JH to determine if Miss. Delta SPS should remain as an SPP SPS	5/7/2015		SPS may be under MISO now

60.	JH and HS to examine section 8 of the UFLS plan for possible needed revisions	5/7/2015		Items 46 and 48 related to this item
61.	DB to work on a repository for all SPSs	5/7/2015		
62.	DB to find waiver form and send to Golden Spread	5/7/2015		