

SPP TLR 5 Investigation Report
Flowgate 15940
(Osage Switch – Canyon East 115 kV for loss of Bushland – Deaf Smith 230 kV)
(OASCANBUSDEA)
TLR Level 5: May 21, 2010
Report Issued: June 7, 2010

1. Description of purpose/cause of hold/curtailment.

This report is submitted in accordance with the NERC Transmission Loading Relief Investigation Procedure for the Level 5 TLR event that occurred on Flowgate 15940 on May 21, 2010. Flowgate 15940 is an SPP flowgate. The Level 5 TLR was in effect from 16:00 until 22:00 CST on May 21, 2010. Projected post-contingent flows on the Osage Switch – Canyon East 115 kV line exceeded the SOL. The flowgate was built as a result of the reconfiguration option to relieve the Randall-Palo Duro 115 kV line for the loss of the Amarillo-Swisher 230 kV line flowgate (# 5354, RANPALAMASWI).

2. Facility/flowgate limitations and flows at the time the TLR was initiated.

At the time the Level 5A TLR was issued, the Limiting Element was rated at 99 MVA. Flow on the Limiting Element was 45 MVA. Flow on the Contingent Element was 224 MVA. The LODF was approximately 23%. Post-contingent flow on the Limiting Element was approximately 95 MVA.

3. TLR levels, timing, and relief requested amounts.

TLR levels, timing and relief requested amounts are shown in the Event History and NERC TLR Log on pages 3-5.

4. Transmission and generation outages or changes from prediction that may have contributed.

Mustang Unit 2 and Unit 3 tripped causing heavy North – South flows in the SPS region contributing to the flowgate loading.

5. Procedures implemented prior to hold/curtailment.

There were not enough non-firm transactions and market flows that impacted the flowgate by more than 5%. The TLR was escalated to a Level 5 in order to curtail firm transactions and firm market flow to alleviate loading on the flowgate.

6. The initial investigation shall compare all transaction curtailment lists as generated by the IDC with the list of transactions flowing as determined by the IDC (Whole Transaction Lists) both before and after curtailment. The reasons for any transactions that were excluded from curtailment shall be provided. For those transactions not curtailed, the Reliability Authority will identify those entities and any affiliation with said entities.

There were no known transactions excluded from curtailment for this TLR.

7. List of known transactions not in the IDC with Transaction Contribution Factors greater than the curtailment threshold and actions taken to curtail such transactions.

There were no known transactions not in the IDC.

8. Excerpts from the RA Operations Log containing information relevant to the TLR event.

Information was provided to Reliability Coordinators through the IDC and the RCIS. Also the SPP Reliability Coordinators logged information describing the actions taken at each issuance of the TLR, see page 6. Times in the RC Log are CDT.

9. Flowgate limitations as identified by security analysis processes conducted by the Reliability Authority for the day prior to the TLR event.

The next day study process did not indicate an issue with this flowgate based upon conditions at the time of the daily peak.

10. State Estimator snapshots and security analysis, including any contingency analysis or stability analysis, along with any other recorded data indicating need for TLR.

The SPP Reliability Coordinator was monitoring their state estimator, RTCA and RTLODF applications for current flowgate loading and other potential issues during this time. eDNA data historian recorded all line flows before, during and after the Level 5 TLR event, see page 7.

11. ATC limitations before, during, and after the TLR event.

SPP Tariff Administration grants transmission service using an AFC process. This process evaluates each transmission request on a case by case basis. SPP Tariff Administration was not granting any transmission requests that impacted the congested flowgate by 3 % or greater at the time of the Level 5 TLR.

12. Description of actions taken to avoid future hold/curtailments.

This TLR was caused by a combination of generation patterns, load, and system flows due to the forced outage of Mustang Unit 2 and Unit 3. A reconfiguration option to relieve loading on the Randall-Palo Duro 115 kV line (flowgate # 5354) had been implemented prior to this TLR. It did not provide sufficient relief to prevent the TLR and escalation to a Level 5.

13. Provide IDC generated Congestion Management Reports showing transaction curtailment list and Control Area NNL (network and native load) curtailment responsibility.

Congestion Management Reports for each issuance of the TLR have been reviewed and are archived in the IDC. These screen shots have not been included to reduce the size of this report.

14. Re-dispatch actions taken.

SPP EIS Market redispatch was implemented during the entire TLR event. Firm and non-firm Market Flow were reduced on the flowgate as reported in the TLR Event History and NERC TLR Log on pages 3-5.

TLR Event History

15940 - Temporary 1 - OASCANBUSDEA

Status	TLR Level	TLR Date	TLR Confirm Time	Run Time	Requested Relief	Remaining Relief	Relief Provided	Total Cuts	
								Tags	MW
SUPERSEDED	3B	05/21/2010 12:40	05/21/2010 12:28	05/21/2010 12:27:29	0.0	0.0	0.0	0	0
SUPERSEDED	3A	05/21/2010 14:00	05/21/2010 13:26	05/21/2010 13:25:59	0.0	0.0	0.0	0	0
SUPERSEDED	3A	05/21/2010 15:00	05/21/2010 14:29	05/21/2010 14:29:00	0.0	0.0	0.0	0	0
SUPERSEDED	5A	05/21/2010 16:00	05/21/2010 15:27	05/21/2010 15:26:59	0.0	0.0	5.0	0	0
SUPERSEDED	5A	05/21/2010 17:00	05/21/2010 16:30	05/21/2010 16:30:11	0.0	0.0	9.0	0	0
SUPERSEDED	5A	05/21/2010 18:00	05/21/2010 17:30	05/21/2010 17:30:15	0.0	0.0	7.0	0	0
SUPERSEDED	5A	05/21/2010 19:00	05/21/2010 18:33	05/21/2010 18:32:51	0.0	0.0	12.0	0	0
SUPERSEDED	5A	05/21/2010 20:00	05/21/2010 19:36	05/21/2010 19:35:16	0.0	0.0	14.0	0	0
SUPERSEDED	5A	05/21/2010 21:00	05/21/2010 20:29	05/21/2010 20:29:05	0.0	0.0	19.0	0	0
SUPERSEDED	3A	05/21/2010 22:00	05/21/2010 21:30	05/21/2010 21:29:39	19.0	0.0	19.0	0	0
SUPERSEDED	3A	05/21/2010 23:00	05/21/2010 22:30	05/21/2010 22:29:53	46.0	44.0	2.0	0	0
SUPERSEDED	3A	05/22/2010 00:00	05/21/2010 23:32	05/21/2010 23:32:04	36.0	29.0	7.0	0	0
SUPERSEDED	3A	05/22/2010 01:00	05/22/2010 00:38	05/22/2010 00:38:04	24.0	21.0	3.0	0	0
SUPERSEDED	3A	05/22/2010 02:00	05/22/2010 01:33	05/22/2010 01:32:53	27.0	18.0	9.0	0	0
SUPERSEDED	3A	05/22/2010 03:00	05/22/2010 02:28	05/22/2010 02:27:42	26.0	22.0	4.0	0	0
SUPERSEDED	3A	05/22/2010 04:00	05/22/2010 03:33	05/22/2010 03:32:32	27.0	18.0	9.0	0	0
SUPERSEDED	3A	05/22/2010 05:00	05/22/2010 04:31	05/22/2010 04:30:52	10.0	0.0	10.0	0	0
SUPERSEDED	3A	05/22/2010 06:00	05/22/2010 05:30	05/22/2010 05:29:37	0.0	0.0	0.0	0	0
SUPERSEDED	3A	05/22/2010 07:00	05/22/2010 06:27	05/22/2010 06:27:28	7.0	0.0	7.0	0	0
SUPERSEDED	3A	05/22/2010 08:00	05/22/2010 07:28	05/22/2010 07:27:43	5.0	0.0	5.0	0	0
SUPERSEDED	3A	05/22/2010 09:00	05/22/2010 08:27	05/22/2010 08:27:28	8.0	0.0	8.0	0	0
SUPERSEDED	3A	05/22/2010 10:00	05/22/2010 09:28	05/22/2010 09:28:18	8.0	0.0	8.0	0	0
TERMINATED	0	05/22/2010 10:25	05/22/2010 10:11	05/22/2010 10:11:24	0.0	0.0	0.0	0	0

Event Summary

FILE SAVED AS: SWPP_15940_20100521_1240.htm

Incident:	SWPP_15940_20100521_1240	Date: 05/21/2010 (CST)	Reliability Coordinator: SWPP
Initial Conditions:	loading		
Flowgate:	15940 - Temporary 1 - OASCANBUSDEA	Rating: 99	LODF: 22.76%
TLR Direction:	Normal		
Effective StartTime:	05/21/2010 12:40 (CST)	Effective EndTime: 05/22/2010 10:25 (CST)	TLR Duration: 21 Hours and 45 Minutes

TLR Actions

Confirm Time	Level	Effective Hour	Priority	Schedule								NNL Relief			Market Relief				Flow			TLR Action Comments
				Total Tags Cut / Hold	IDC Cut		RC Cut Acknowledge		Hold		CA	IDC MW	RC Ackn MW	Type	Mkt	IDC MW	RC Ackn MW	Current	Post Cont.	Cont. Flow		
					MW	Relief	MW	Relief	MW	Relief												
May 21 12:28 (CST)	TLR 3B	CURRENT		NONE								NONE			ED-2	SWPP	0.0	0.0	44	92	213	N/A
		NEXT		NONE								NONE			ED-6	SWPP	0.0	0.0				
May 21 13:26 (CST)	TLR 3A	NEXT		NONE								NONE			ED-2	SWPP	0.0	0.0	44	94	221	N/A
May 21 14:28 (CST)	TLR 3A	NEXT		NONE								NONE			ED-6	SWPP	0.0	0.0	44	93	216	N/A
May 21 15:27 (CST)	TLR 5A	NEXT		NONE								NONE			FIRM-7	SWPP	3.0	3.0	45	95	224	N/A
May 21 16:30 (CST)	TLR 5A	NEXT		NONE								NONE			FIRM-CREDIT	SWPP	0.0	0.0	43	91	212	N/A
May 21 17:30 (CST)	TLR 5A	NEXT		NONE								NONE			FIRM-CREDIT	SWPP	0.0	0.0	44	89	201	N/A

May 21 18:33 (CST)	TLR 5A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 7.0 5.0 0.0 12.0	0.0 7.0 5.0 0.0 12.0	38	81	193	N/A
May 21 19:36 (CST)	TLR 5A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 0.0 14.0 0.0 14.0	0.0 0.0 14.0 0.0 14.0	42	90	213	N/A
May 21 20:29 (CST)	TLR 5A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 10.0 9.0 0.0 19.0	0.0 10.0 9.0 0.0 19.0	43	92	218	N/A
May 21 21:30 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 10.0 9.0 19.0	0.0 10.0 9.0 19.0	41	89	212	N/A
May 21 22:30 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 2.0 0.0 2.0	0.0 2.0 0.0 2.0	40	86	205	N/A
May 21 23:32 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 7.0 0.0 7.0	0.0 7.0 0.0 7.0	45	98	234	N/A
May 22 00:36 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 3.0 0.0 3.0	0.0 3.0 0.0 3.0	43	94	227	N/A
May 22 01:33 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 9.0 0.0 9.0	0.0 9.0 0.0 9.0	43	95	229	N/A
May 22 02:28 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 4.0 0.0 4.0	0.0 4.0 0.0 4.0	41	91	221	N/A
May 22 03:33 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 9.0 0.0 9.0	0.0 9.0 0.0 9.0	41	91	222	N/A
May 22 04:31 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 10.0 0.0 10.0	0.0 10.0 0.0 10.0	40	90	224	N/A
May 22 05:30 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	43	94	228	N/A

May 22 08:27 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 7.0 0.0 7.0	0.0 7.0 0.0 7.0	40	88	211	N/A
May 22 07:26 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 5.0 0.0 5.0	0.0 5.0 0.0 5.0	45	97	229	N/A
May 22 08:27 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 8.0 0.0 8.0	0.0 8.0 0.0 8.0	38	78	186	N/A
May 22 09:26 (CST)	TLR 3A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 8.0 0.0 8.0	0.0 8.0 0.0 8.0	38	77	181	N/A
May 22 10:11 (CST)	TLR 0	CURRENT	NONE	NONE	NONE				37	78	184	N/A

TLR Schedule Totals

Priority	Schedule			
	Total Tags Cut / Hold	IDC Cut MW	RC Cut Acknowledge MW	Hold MW
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
Total	0	0	0	0

TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWPP	ED-2	0.0	0.0
	ED-6	104.0	104.0
	FIRM-7	53.0	53.0
Total for SWPP		157.0	157.0
Total		157.0	157.0

Reliability Log for May, 21			2010
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Time	Initials	Comments	
4/19/10		SPS opened Kress 8927 breaker at Kress on the Kress-Happy 115kv, the breaker will stay open unless they need to close for adverse conditions demand closing. Limits SPS North_S to 700.	
1327	LRG	Issued TLR Level 3B on Temp 1 flgt # 15940	
1425	LRG	Issued TLR Level 3A on Temp 1 flgt # 15940	
1443	LRG	SPS entered RSS event #5102 flo Maddox 2 ORF	
1504	LRG	SPS entered RSS event #5103 flo Plant X 4 ORF	
1529	LRG	Issued TLR Level 3A on Temp 1 flgt # 15940	
1626	LRG	Issued TLR Level 5A on Temp 1 flgt # 15940- FEASIBILITY	
1730	LWB	Re-issued TLR Level 5A on Temp 1 flgt # 15940- FEASIBILITY	
1830	LWB	Re-issued TLR Level 5A on Temp 1 flgt # 15940- FEASIBILITY	
1932	LWB	Re-issued TLR Level 5A on Temp 1 flgt # 15940- FEASIBILITY	
2035	LWB	Re-issued TLR Level 5A on Temp 1 flgt # 15940- FEASIBILITY	
2129	LWB	Re-issued TLR Level 5A on Temp 1 flgt # 15940- FEASIBILITY	
2229	LWB	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
2329	LWB	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	

Reliability Log for May, 22			2010
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Time	Initials	Comments	
4/19/10		SPS opened Kress 8927 breaker at Kress on the Kress-Happy 115kv, the breaker will stay open unless they need to close for adverse conditions demand closing. Limits SPS North_S to 700.	
0032	LWB	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0138	LWB	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0232	LWB	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0327	LWB	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0432	LWB	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0530	LRG	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0629	LRG	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0727	LRG	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0827	LRG	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
0927	LRG	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
1028	LRG	Re-issued TLR Level 3A on Temp 1 flgt # 15940.	
1111	LRG	Re-issued TLR Level 0 on Temp 1 flgt # 15940.	

TEMP01_15940

— Post Cont. — SOL

