

**SPP TLR 5 Investigation Report  
Temp 26 Flowgate 16045  
(Neosho – Columbus 161 kV for the loss of Neosho – Delaware 345 kV)  
TLR Level 5: April 29-30, 2010  
Report Issued: May 3, 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 16045 on April 29-30, 2010. Flowgate 16045 is an SPP flowgate created for a planned outage of Neosho – Morgan 345 kV line earlier last fall. Loading on the flowgate remained relatively high after the Neosho – Morgan 345 kV line was returned to service so the flowgate was maintained following the end of the outage. The Level 5 TLR was in effect from 22:25 CST on April 29 until 7:00 CST on April 30, 2010. Projected post contingent flows on the Neosho – Columbus 161 kV line were expected to exceed the SOL.

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

At the time the Level 5B TLR was issued, the Limiting Element was rated at 215 MVA. Flow on the Limiting Element was 145 MVA. Flow on the Contingent Element was 254 MVA. The LODF was approximately 21%. Post-contingent flow on the Limiting Element was approximately 198 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 3-6.

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

There were no unplanned outages that contributed to this TLR.

**5. Procedures implemented prior to hold/curtailment.**

There were not enough non-firm transactions and market flows to provide the necessary relief on the flowgate. The TLR was escalated to a Level 5 in order to curtail firm transactions and firm market flow to relieve loading.

**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 7. 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 8.

**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. Lack of available generation in the Joplin area during heavy north to south flows from Kansas and Missouri into Oklahoma and Arkansas contributed to the loading.

**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 Flows were reduced on the flowgate as reported in the TLR Event History and NERC TLR Log on pages 3-6.

## TLR Event History

### 16045 - Temporary 26 - Neosho-Columbus 161 flo Neosho-Delaware 345

Status	TLR Level	TLR Date	TLR Confirm Time	Run Time	Requested Relief	Remaining Relief	Relief Provided	Total Cuts	
								Tags	MW
<a href="#">SUPERSEDED</a>	3B	04/29/2010 20:15	04/29/2010 20:06	04/29/2010 20:05:36	75.0	53.5	21.5	4	263
<a href="#">SUPERSEDED</a>	3A	04/29/2010 21:00	04/29/2010 20:29	04/29/2010 20:29:28	136.0	96.0	40.0	5	323
<a href="#">SUPERSEDED</a>	3A	04/29/2010 22:00	04/29/2010 21:29	04/29/2010 21:28:33	90.0	50.4	39.6	4	260
<a href="#">SUPERSEDED</a>	5B	04/29/2010 22:25	04/29/2010 22:15	04/29/2010 22:13:56	0.0	0.0	0.0	0	0
<a href="#">SUPERSEDED</a>	5A	04/30/2010 00:00	04/29/2010 23:27	04/29/2010 23:27:05	35.0	0.0	40.9	2	110
<a href="#">SUPERSEDED</a>	5A	04/30/2010 01:00	04/30/2010 00:32	04/30/2010 00:30:21	40.0	0.0	40.9	2	110
<a href="#">SUPERSEDED</a>	5A	04/30/2010 02:00	04/30/2010 01:26	04/30/2010 01:26:00	40.0	0.0	42.9	2	110
<a href="#">SUPERSEDED</a>	5A	04/30/2010 03:00	04/30/2010 02:28	04/30/2010 02:27:51	40.0	0.0	40.9	2	110
<a href="#">SUPERSEDED</a>	5A	04/30/2010 04:00	04/30/2010 03:29	04/30/2010 03:29:13	40.0	0.0	48.0	1	129
<a href="#">SUPERSEDED</a>	5A	04/30/2010 05:00	04/30/2010 04:28	04/30/2010 04:27:09	40.0	0.0	44.2	2	60
<a href="#">SUPERSEDED</a>	5A	04/30/2010 06:00	04/30/2010 05:40	04/30/2010 05:37:40	25.0	0.0	55.0	2	57
<a href="#">SUPERSEDED</a>	3A	04/30/2010 07:00	04/30/2010 06:30	04/30/2010 06:30:17	28.0	0.0	28.0	0	0
<a href="#">SUPERSEDED</a>	3A	04/30/2010 08:00	04/30/2010 07:26	04/30/2010 07:25:55	0.0	0.0	0.0	0	0
<a href="#">TERMINATED</a>	0	04/30/2010 08:30	04/30/2010 08:18	04/30/2010 08:17:48	0.0	0.0	0.0	0	0

## Event Summary

FILE SAVED AS: SWPP\_16045\_20100429\_2015.htm

Incident:	SWPP_16045_20100429_2015	Date: 04/29/2010 (CST)	Reliability Coordinator: SWPP
Initial Conditions:	Increased Flows		
Flowgate:	16045 - Temporary 26 - Neosho-Columbus...	Rating: 215	LODF: 21.17%
TLR Direction:	Normal		
Effective StartTime:	04/29/2010 20:15 (CST)	Effective EndTime: 04/30/2010 08:30 (CST)	TLR Duration: 12 Hours and 15 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											
Apr 29 20:06 (CST)	TLR 3B	CURRENT	2-NH	1 / 0	50	2.7	50	2.7	0	0.0	NONE			ED-2	SWPP	0.0	0.0	182	251	329	N/A
			3-ND	1 / 0	5	0.3	5	0.3	0	0.0	ED-8	SWPP	0.0	0.0							
			6-NN	2 / 0	208	12.5	208	12.5	0	0.0											
			<b>Total</b>	<b>4 / 0</b>	<b>263</b>	<b>15.5</b>	<b>263</b>	<b>15.5</b>	<b>0</b>	<b>0.0</b>			<b>Total</b>		<b>6.0</b>	<b>6.0</b>					
		NEXT	1-NS	1 / 0	85	4.5	85	4.5	0	0.0	NONE			ED-2	SWPP	0.0	0.0				
			2-NH	3 / 0	250	17.1	250	17.1	0	0.0	ED-8	SWPP	7.0	0.0							
			3-ND	1 / 0	8	0.4	0	0.0	0.0	FIRM-7	SWPP	11.0	0.0								
			<b>Total</b>	<b>5 / 0</b>	<b>263</b>	<b>22.0</b>	<b>315</b>	<b>21.6</b>	<b>0</b>	<b>0.0</b>			<b>Total</b>		<b>18.0</b>	<b>0.0</b>					
Apr 29 20:29 (CST)	TLR 3A	NEXT	1-NS	1 / 0	85	4.5	85	4.5	0	0.0	NONE			ED-2	SWPP	0.0	0.0	150	197	224	N/A
			2-NH	3 / 0	250	17.2	250	17.2	0	0.0			ED-8	SWPP	18.0	18.0					
			3-ND	1 / 0	8	0.4	8	0.4	0	0.0			FIRM-7	SWPP	0.0	0.0					
			<b>Total</b>	<b>5 / 0</b>	<b>323</b>	<b>22.0</b>	<b>323</b>	<b>22.0</b>	<b>0</b>	<b>0.0</b>			<b>Total</b>		<b>18.0</b>	<b>18.0</b>					
Apr 29 21:29 (CST)	TLR 3A	NEXT	2-NH	3 / 0	250	17.1	250	17.1	0	0.0	NONE			ED-2	SWPP	0.0	0.0	159	215	285	N/A
			3-ND	1 / 0	10	0.5	10	0.5	0	0.0			ED-8	SWPP	22.0	22.0					
			<b>Total</b>	<b>4 / 0</b>	<b>260</b>	<b>17.6</b>	<b>260</b>	<b>17.6</b>	<b>0</b>	<b>0.0</b>			<b>Total</b>		<b>22.0</b>	<b>22.0</b>					
Apr 29 22:15 (CST)	TLR 5B	CURRENT	NONE						NONE			ED-2	SWPP	0.0	0.0	145	198	254	N/A		
			ED-8	SWPP	7.0	7.0															
			FIRM-7	SWPP	48.0	48.0					<b>Total</b>		<b>55.0</b>	<b>55.0</b>							
		NEXT	1-NS	1 / 0	28	1.9	28	1.9	0	0.0	NONE			NONE							
			2-NH	1 / 0	100	5.4	100	5.4	0	0.0											
			3-ND	1 / 0	10	0.5	10	0.5	0	0.0											
			<b>Total</b>	<b>3 / 0</b>	<b>0</b>	<b>7.8</b>	<b>136</b>	<b>7.8</b>	<b>0</b>	<b>0.0</b>											
Apr 29 23:27 (CST)	TLR 5A	NEXT	2-NH	1 / 0	100	5.4	100	5.4	0	0.0	NONE			ED-2	SWPP	0.0	0.0	152	217	310	N/A
			3-ND	1 / 0	10	0.5	10	0.5	0	0.0			ED-8	SWPP	35.0	35.0					
			6-NN	0 / 1	0	0.0	0	0.0	10	0.8			FIRM-7	SWPP	0.0	0.0					
			<b>Total</b>	<b>2 / 1</b>	<b>110</b>	<b>5.9</b>	<b>110</b>	<b>5.9</b>	<b>10</b>	<b>0.8</b>			<b>Total</b>		<b>35.0</b>	<b>35.0</b>					

Apr 30 00:32 (CST)	TLR 5A	NEXT	2-NH 3-ND <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	100 10 <b>110</b>	5.4 0.5 <b>5.9</b>	100 10 <b>110</b>	5.4 0.5 <b>5.9</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT <b>Total</b>	SWPP SWPP SWPP SWPP	0.0 35.0 0.0 0.0 <b>35.0</b>	0.0 35.0 0.0 0.0 <b>35.0</b>	144	204	285	N/A
Apr 30 01:26 (CST)	TLR 5A	NEXT	2-NH 3-ND <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	100 10 <b>110</b>	5.4 0.5 <b>5.9</b>	100 10 <b>110</b>	5.4 0.5 <b>5.9</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT <b>Total</b>	SWPP SWPP SWPP SWPP	0.0 37.0 0.0 0.0 <b>37.0</b>	0.0 37.0 0.0 0.0 <b>37.0</b>	141	208	308	N/A
Apr 30 02:28 (CST)	TLR 5A	NEXT	2-NH 3-ND <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	100 10 <b>110</b>	5.4 0.5 <b>5.9</b>	100 10 <b>110</b>	5.4 0.5 <b>5.9</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT <b>Total</b>	SWPP SWPP SWPP SWPP	0.0 35.0 0.0 0.0 <b>35.0</b>	0.0 35.0 0.0 0.0 <b>35.0</b>	145	203	278	N/A
Apr 30 03:29 (CST)	TLR 5A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT <b>Total</b>	SWPP SWPP SWPP SWPP	0.0 39.0 0.0 0.0 <b>39.0</b>	0.0 39.0 0.0 0.0 <b>39.0</b>	146	203	271	N/A
Apr 30 04:28 (CST)	TLR 5A	NEXT	2-NH 3-ND <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	50 10 <b>60</b>	2.7 0.5 <b>3.2</b>	50 10 <b>60</b>	2.7 0.5 <b>3.2</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT <b>Total</b>	SWPP SWPP SWPP SWPP	0.0 41.0 0.0 0.0 <b>41.0</b>	0.0 41.0 0.0 0.0 <b>41.0</b>	131	197	314	N/A
Apr 30 05:40 (CST)	TLR 5A	NEXT	2-NH 3-ND <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	50 7 <b>57</b>	2.7 0.4 <b>3.0</b>	50 7 <b>57</b>	2.7 0.4 <b>3.0</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT <b>Total</b>	SWPP SWPP SWPP SWPP	0.0 45.0 7.0 0.0 <b>52.0</b>	0.0 45.0 7.0 0.0 <b>52.0</b>	137	196	279	N/A
Apr 30 06:30 (CST)	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 28.0 0.0 <b>28.0</b>	0.0 28.0 0.0 <b>28.0</b>	125	173	229	N/A
Apr 30 07:28 (CST)	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 0.0 0.0 <b>0.0</b>	0.0 0.0 0.0 <b>0.0</b>	112	148	172	N/A
Apr 30 08:18 (CST)	TLR 0	CURRENT	NONE								NONE	NONE				119	159	193	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	3	156	156	0
2	17	1400	1400	0
3	11	98	90	0
4	0	0	0	0
5	0	0	0	0
6	2	208	208	10
7	0	0	0	0
<b>Total</b>	<b>33</b>	<b>1862</b>	<b>1854</b>	<b>10</b>

### TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWPP	ED-2	0.0	0.0
	ED-6	342.0	342.0
	FIRM-7	61.0	61.0
Total for SWPP		403.0	403.0
<b>Total</b>		<b>403.0</b>	<b>403.0</b>

Reliability Log for April, 29			2010
Time	Initials	Comments	Thursday
2105	MRH	Issued TLR Level 3B on Temp 26 Flgt.16045	
2129	MRH	Re-issued TLR Level 3A on Temp 26 Flgt.16045	
2228	MRH	Re-issued TLR Level 3A on Temp 26 Flgt.16045	
2313	MRH	Re-issued TLR Level 5B on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	

Reliability Log for April, 30			2010
Time	Initials	Comments	Friday
0027	MRH	Re-issued TLR Level 5A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0130	MRH	Re-issued TLR Level 5A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0226	MRH	Re-issued TLR Level 5A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0327	MRH	Re-issued TLR Level 5A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0429	MRH	Re-issued TLR Level 5A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0527	WRG	Re-issued TLR Level 5A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0637	WRG	Re-issued TLR Level 5A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0730	WRG	Re-issued TLR Level 3A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0825	WRG	Re-issued TLR Level 3A on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	
0917	WRG	Re-issued TLR Level 0 on Temp 26 Flgt.16045, Loading & Feasibility - set effective at 215, No NNL	

### Temp26\_16045

— Post Cont. — SOL

