

**SPP TLR 5 Investigation Report  
Temp 26 Flowgate 16045  
(Neosho – Columbus 161 kV for the loss of Neosho – Delaware 345 kV)  
TLR Level 5: May 4, 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 16045 on May 4, 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 01:00 until 7:00 CST on May 4, 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 5A TLR was issued, the Limiting Element was rated at 215 MVA. Flow on the Limiting Element was 175 MVA. Flow on the Contingent Element was 350 MVA. The LODF was approximately 15%. Post-contingent flow on the Limiting Element was approximately 228 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
SUPERSEDED	3A	05/03/2010 22:05	05/03/2010 21:49	05/03/2010 21:48:32	9.0	0.0	9.1	3	167
<a href="#">SUPERSEDED</a>	3A	05/03/2010 23:00	05/03/2010 22:26	05/03/2010 22:25:35	32.0	0.0	32.0	1	50
<a href="#">SUPERSEDED</a>	3A	05/04/2010 00:00	05/03/2010 23:28	05/03/2010 23:27:41	57.0	14.2	42.8	2	162
<a href="#">SUPERSEDED</a>	3A	05/04/2010 01:00	05/04/2010 00:26	05/04/2010 00:25:47	54.0	9.1	44.9	2	162
<a href="#">SUPERSEDED</a>	5A	05/04/2010 01:00	05/04/2010 00:44	05/04/2010 00:42:37	59.0	0.0	59.5	11	200
<a href="#">SUPERSEDED</a>	5A	05/04/2010 02:00	05/04/2010 01:29	05/04/2010 01:27:11	63.0	0.0	63.3	11	244
<a href="#">SUPERSEDED</a>	5A	05/04/2010 03:00	05/04/2010 02:28	05/04/2010 02:27:35	63.0	0.0	63.3	10	286
<a href="#">SUPERSEDED</a>	5A	05/04/2010 04:00	05/04/2010 03:28	05/04/2010 03:27:13	39.0	0.0	39.2	5	21
<a href="#">SUPERSEDED</a>	5A	05/04/2010 05:00	05/04/2010 04:27	05/04/2010 04:26:18	30.0	0.0	30.4	10	55
<a href="#">SUPERSEDED</a>	5A	05/04/2010 06:00	05/04/2010 05:27	05/04/2010 05:26:05	33.0	0.0	33.2	9	67
<a href="#">SUPERSEDED</a>	3A	05/04/2010 07:00	05/04/2010 06:28	05/04/2010 06:27:09	30.0	14.1	15.9	2	29
<a href="#">SUPERSEDED</a>	3A	05/04/2010 08:00	05/04/2010 07:27	05/04/2010 07:27:02	15.0	1.2	13.8	2	29
<a href="#">SUPERSEDED</a>	3A	05/04/2010 09:00	05/04/2010 08:27	05/04/2010 08:26:41	25.0	7.2	17.8	2	29
<a href="#">SUPERSEDED</a>	3A	05/04/2010 10:00	05/04/2010 09:30	05/04/2010 09:29:44	66.0	57.1	8.9	2	29
<a href="#">TERMINATED</a>	0	05/04/2010 10:35	05/04/2010 10:25	05/04/2010 10:25:22	0.0	0.0	0.0	0	0

## Event Summary

FILE SAVED AS: SWPP\_16045\_20100503\_2205.htm

Incident:	SWPP_16045_20100503_2205	Date: 05/03/2010 (CST)	Reliability Coordinator: SWPP
Initial Conditions:	loading		
Flowgate:	16045 - Temporary 26 - Neosho-Columbus...	Rating: 215	LODF: 15.26%
TLR Direction:	Normal		
Effective StartTime:	05/03/2010 22:05 (CST)	Effective EndTime: 05/04/2010 10:35 (CST)	TLR Duration: 12 Hours and 30 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 MV	RC Ackn MV	Type	Mkt	IDC MV	RC Ackn MV	Current	Post Cont.	Cont. Flow		
					MW	Relief	MW	Relief	MW	Relief												
May 03 21:45 (CST)	TLR 3A	NEXT	1-NS 2-NH <b>Total</b>	1 / 0 2 / 0 <b>3 / 0</b>	50 117 <b>167</b>	2.6 6.4 <b>9.1</b>	50 117 <b>167</b>	2.6 6.4 <b>9.1</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	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>	162	213	335	N/A			
May 03 22:26 (CST)	TLR 3A	NEXT	3-ND <b>Total</b>	1 / 0 <b>1 / 0</b>	50 <b>50</b>	3.2 <b>3.2</b>	50 <b>50</b>	3.2 <b>3.2</b>	0 <b>0</b>	0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 28.8 0.0 <b>28.8</b>	0.0 28.8 0.0 <b>28.8</b>	167	218	340	N/A			
May 03 23:28 (CST)	TLR 3A	NEXT	1-NS 3-ND <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	112 50 <b>162</b>	5.6 3.2 <b>8.8</b>	112 50 <b>162</b>	5.6 3.2 <b>8.8</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 34.0 0.0 <b>34.0</b>	0.0 34.0 0.0 <b>34.0</b>	171	219	319	N/A			
May 04 00:26 (CST)	TLR 3A	NEXT	1-NS 3-ND <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	112 50 <b>162</b>	5.7 3.2 <b>8.9</b>	112 50 <b>162</b>	5.7 3.2 <b>8.9</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 36.0 0.0 <b>36.0</b>	0.0 36.0 0.0 <b>36.0</b>	172	223	338	N/A			
May 04 00:44 (CST)	TLR 5A	NEXT	1-NS 3-ND 7-F <b>Total</b>	1 / 0 1 / 0 10 / 0 <b>12 / 0</b>	112 50 38 <b>200</b>	5.7 3.2 2.6 <b>11.4</b>	112 50 38 <b>200</b>	5.7 3.2 2.6 <b>11.4</b>	0 0 0 <b>0</b>	0.0 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 48.0 0.0 0.0 <b>48.0</b>	0.0 48.0 0.0 0.0 <b>48.0</b>	175	228	350	N/A			
May 04 01:29 (CST)	TLR 5A	NEXT	1-NS 3-ND 7-F <b>Total</b>	1 / 0 1 / 0 10 / 0 <b>12 / 0</b>	112 50 82 <b>244</b>	5.7 3.2 5.5 <b>14.4</b>	112 50 82 <b>244</b>	5.7 3.2 5.5 <b>14.4</b>	0 0 0 <b>0</b>	0.0 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 42.0 7.0 0.0 <b>49.0</b>	0.0 42.0 7.0 0.0 <b>49.0</b>	178	228	334	N/A			
May 04 02:28 (CST)	TLR 5A	NEXT	1-NS 3-ND 7-F <b>Total</b>	1 / 0 1 / 0 9 / 0 <b>11 / 0</b>	112 50 124 <b>286</b>	5.7 3.2 8.3 <b>17.1</b>	112 50 124 <b>286</b>	5.7 3.2 8.3 <b>17.1</b>	0 0 0 <b>0</b>	0.0 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 25.0 21.2 0.0 <b>46.2</b>	0.0 25.0 21.2 0.0 <b>46.2</b>	176	231	364	N/A			

May 04 03:28' (CST)	TLR 5A	NEXT	7-F <b>Total</b>	5 / 0 <b>5 / 0</b>	21 <b>21</b>	1.8 <b>1.8</b>	21 <b>21</b>	1.8 <b>1.8</b>	0 <b>0</b>	0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT <b>Total</b>	SWPP SWPP SWPP SWPP	0.0 17.0 20.4 0.0 <b>37.4</b>	0.0 17.0 20.4 0.0 <b>37.4</b>	173	226	351	N/A
May 04 04:27' (CST)	TLR 5A	NEXT	2-NH 6-NN 7-F <b>Total</b>	1 / 0 1 / 0 8 / 0 <b>10 / 0</b>	4 25 26 <b>55</b>	0.3 1.6 1.9 <b>3.8</b>	4 25 28 <b>55</b>	0.3 1.6 1.9 <b>3.8</b>	0 0 0 <b>0</b>	0.0 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 14.0 12.6 0.0 <b>26.6</b>	0.0 14.0 12.6 0.0 <b>26.6</b>	168	216	316	N/A
May 04 05:27' (CST)	TLR 5A	NEXT	2-NH 6-NN 7-F <b>Total</b>	1 / 0 1 / 0 7 / 0 <b>9 / 0</b>	4 25 38 <b>67</b>	0.3 1.6 2.8 <b>4.7</b>	4 25 38 <b>67</b>	0.3 1.6 2.8 <b>4.7</b>	0 0 0 <b>0</b>	0.0 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 6.0 22.5 0.0 <b>28.5</b>	0.0 6.0 22.5 0.0 <b>28.5</b>	174	203	194	N/A
May 04 06:28' (CST)	TLR 3A	NEXT	2-NH 6-NN <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	4 25 <b>29</b>	0.3 1.6 <b>1.9</b>	4 25 <b>29</b>	0.3 1.6 <b>1.9</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 0.0 14.0 <b>14.0</b>	0.0 0.0 14.0 <b>14.0</b>	173	196	154	N/A
May 04 07:27' (CST)	TLR 3A	NEXT	2-NH 6-NN <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	4 25 <b>29</b>	0.3 1.6 <b>1.8</b>	4 25 <b>29</b>	0.3 1.6 <b>1.8</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 0.0 12.0 <b>12.0</b>	0.0 0.0 12.0 <b>12.0</b>	171	193	145	N/A
May 04 08:27' (CST)	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 6.0 10.0 <b>16.0</b>	0.0 6.0 10.0 <b>16.0</b>	173	184	78	N/A
May 04 09:30' (CST)	TLR 3A	NEXT	2-NH 6-NN <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	4 25 <b>29</b>	0.3 1.6 <b>1.9</b>	4 25 <b>29</b>	0.3 1.6 <b>1.9</b>	0 0 <b>0</b>	0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 7.0 0.0 <b>7.0</b>	0.0 7.0 0.0 <b>7.0</b>	161	161	0	157 Conitgent flow
May 04 10:25' (CST)	TLR 0	CURRENT	NONE								NONE	NONE			161	161	4	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	6	610	610	0
2	7	137	137	0
3	6	300	300	0
4	0	0	0	0
5	0	0	0	0
6	5	125	125	0
7	49	329	329	0
<b>Total</b>	<b>73</b>	<b>1501</b>	<b>1501</b>	<b>0</b>

### TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWPP	ED-2	0.0	0.0
	ED-8	263.9	263.8
	FIRM-7	119.7	119.7
Total for SWPP		383.5	383.5
Total		383.5	383.5

Reliability Log for May, 3			2010
Time	Initials	Comments	
2248	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	
2325	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	

Reliability Log for May, 4			2010
Time	Initials	Comments	
0027	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	
0125	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	
0142	LRG	Issued TLR Level 5A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.-loading	
0225	LRG	Issued TLR Level 5A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.-loading	
0327	LRG	Issued TLR Level 5A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.-loading	
0340	LRG	Checked with both EDE and Wr on flowgate Temp. 26 running at 105% both agree that with the temps and loading ok with that level and that Riverton 12 can be on line in 10 min. if there is a contingency	
0427	LRG	Issued TLR Level 5A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.-loading	
0526	MRH	Re-issued TLR Level 5A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.-loading	
0527	MRH	Effective limit on FG 16045 set at 220 in MOI for Loading control	
0626	MRH	Re-issued TLR Level 5A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.-loading	
0727	MRH	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	
0827	MRH	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	
0926	MRH	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	
1029	MRH	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	
1125	MRH	Issued TLR Level 0 on Temp 26 Neosho-Columbus 161 flo Neosho-Delaware 345 Flgt. 16045.	

### Temp26\_16045

— Post Cont. — SOL

