

**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 22, 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 22, 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 02:15 until 5:00 CST and again from 10:00 until 10:50 CST on May 22, 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 133 MVA. Flow on the Contingent Element was 404 MVA. The LODF was approximately 17%. Post-contingent flow on the Limiting Element was approximately 201 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	3B	05/21/2010 17:55	05/21/2010 17:45	05/21/2010 17:44:07	25.0	0.0	25.0	1	17
<a href="#">SUPERSEDED</a>	3A	05/21/2010 19:00	05/21/2010 18:28	05/21/2010 18:27:56	0.0	0.0	0.0	0	0
<a href="#">SUPERSEDED</a>	3A	05/21/2010 20:00	05/21/2010 19:28	05/21/2010 19:27:52	22.0	0.0	22.0	1	1
<a href="#">SUPERSEDED</a>	3A	05/21/2010 21:00	05/21/2010 20:27	05/21/2010 20:26:55	0.0	0.0	0.0	0	0
<a href="#">SUPERSEDED</a>	3A	05/21/2010 22:00	05/21/2010 21:26	05/21/2010 21:26:12	22.0	0.0	22.0	3	120
<a href="#">SUPERSEDED</a>	3A	05/21/2010 23:00	05/21/2010 22:28	05/21/2010 22:27:21	73.0	0.0	73.0	3	258
<a href="#">SUPERSEDED</a>	3A	05/22/2010 00:00	05/21/2010 23:28	05/21/2010 23:28:11	164.0	89.8	74.2	9	286
<a href="#">SUPERSEDED</a>	3A	05/22/2010 01:00	05/22/2010 00:35	05/22/2010 00:33:59	180.0	101.3	78.7	8	282
<a href="#">SUPERSEDED</a>	3A	05/22/2010 02:00	05/22/2010 01:28	05/22/2010 01:27:47	172.0	102.3	69.7	3	172
<a href="#">SUPERSEDED</a>	5B	05/22/2010 02:15	05/22/2010 02:05	05/22/2010 02:03:06	5.0	0.0	5.4	15	41
<a href="#">SUPERSEDED</a>	5A	05/22/2010 04:00	05/22/2010 03:28	05/22/2010 03:27:10	0.0	0.0	63.7	3	171
<a href="#">SUPERSEDED</a>	3A	05/22/2010 05:00	05/22/2010 04:29	05/22/2010 04:28:32	52.0	0.0	52.0	3	211
<a href="#">SUPERSEDED</a>	3A	05/22/2010 06:00	05/22/2010 05:26	05/22/2010 05:26:26	29.0	0.0	29.0	3	101
<a href="#">SUPERSEDED</a>	3A	05/22/2010 07:00	05/22/2010 06:26	05/22/2010 06:25:43	49.0	0.0	49.0	3	207
<a href="#">SUPERSEDED</a>	3A	05/22/2010 08:00	05/22/2010 07:26	05/22/2010 07:26:13	74.0	29.0	45.0	3	205
<a href="#">SUPERSEDED</a>	3A	05/22/2010 09:00	05/22/2010 08:26	05/22/2010 08:25:50	74.0	30.0	44.0	2	204
<a href="#">SUPERSEDED</a>	5A	05/22/2010 10:00	05/22/2010 09:27	05/22/2010 09:26:35	0.0	0.0	41.0	2	204
<a href="#">TERMINATED</a>	0	05/22/2010 10:50	05/22/2010 10:30	05/22/2010 10:30:19	0.0	0.0	0.0	0	0

## Event Summary

FILE SAVED AS: SWPP\_16045\_20100521\_1755.htm

Incident:	SWPP_16045_20100521_1755	Date: 05/21/2010 (CST)	Reliability Coordinator: SWPP
Initial Conditions:	increasing load		
Flowgate:	16045 - Temporary 26 - Neosho-Columbus...	Rating: 215	LODF: 16.92%
TLR Direction:	Normal		
Effective StartTime:	05/21/2010 17:55 (CST)	Effective EndTime: 05/22/2010 10:50 (CST)	TLR Duration: 16 Hours and 55 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 21 17:45 (CST)	TLR 3B	CURRENT	8-NN	1 / 0	17	1.1	17	1.1	0	0.0	NONE			ED-2	SWPP	0.0	0.0	163	209	273	N/A	
		<b>Total</b>	<b>1 / 0</b>	<b>42</b>	<b>1.1</b>	<b>17</b>	<b>1.1</b>	<b>0</b>	<b>0.0</b>	ED-6	SWPP	24.0	24.0	FIRM-7	SWPP	0.0	0.0					<b>24.0</b>
		NEXT	3-ND	1 / 0	1	0.1	1	0.1	0	0.0	NONE			ED-2	SWPP	0.0	0.0					
		<b>Total</b>	<b>2 / 0</b>	<b>42</b>	<b>1.6</b>	<b>26</b>	<b>1.6</b>	<b>0</b>	<b>0.0</b>	ED-6	SWPP	31.2	31.2	FIRM-7	SWPP	0.0	0.0					<b>31.2</b>
May 21 18:28 (CST)	TLR 3A	NEXT	NONE								NONE			ED-2	SWPP	0.0	0.0	152	187	211	N/A	
														ED-6	SWPP	0.0	0.0					
														FIRM-7	SWPP	0.0	0.0					
														<b>Total</b>		<b>0.0</b>	<b>0.0</b>					
May 21 19:28 (CST)	TLR 3A	NEXT	3-ND	1 / 0	1	0.1	1	0.1	0	0.0	NONE			ED-2	SWPP	0.0	0.0	155	198	248	N/A	
			<b>Total</b>	<b>1 / 0</b>	<b>1</b>	<b>0.1</b>	<b>1</b>	<b>0.1</b>	<b>0</b>	<b>0.0</b>				ED-6	SWPP	21.9	21.9					
														FIRM-7	SWPP	0.0	0.0					
														<b>Total</b>		<b>21.9</b>	<b>21.9</b>					
May 21 20:27 (CST)	TLR 3A	NEXT	NONE								NONE			ED-2	SWPP	0.0	0.0	149	193	264	N/A	
														ED-6	SWPP	0.0	0.0					
														FIRM-7	SWPP	0.0	0.0					
														<b>Total</b>		<b>0.0</b>	<b>0.0</b>					
May 21 21:26 (CST)	TLR 3A	NEXT	1-NS	1 / 0	112	7.0	112	7.0	0	0.0	NONE			ED-2	SWPP	0.0	0.0	138	184	288	N/A	
			2-NH	1 / 0	3	0.2	3	0.2	0	0.0				ED-6	SWPP	14.4	14.4					
			3-ND	1 / 0	5	0.3	5	0.3	0	0.0				FIRM-7	SWPP	0.0	0.0					
			<b>Total</b>	<b>3 / 0</b>	<b>120</b>	<b>7.6</b>	<b>120</b>	<b>7.6</b>	<b>0</b>	<b>0.0</b>				<b>Total</b>		<b>14.4</b>	<b>14.4</b>					
May 21 22:28 (CST)	TLR 3A	NEXT	3-ND	1 / 0	6	0.3	6	0.3	0	0.0	NONE			ED-2	SWPP	0.0	0.0	135	188	305	N/A	
			<b>Total</b>	<b>1 / 0</b>	<b>6</b>	<b>0.3</b>	<b>6</b>	<b>0.3</b>	<b>0</b>	<b>0.0</b>				ED-6	SWPP	56.0	56.0					
														FIRM-7	SWPP	0.8	0.8					
														<b>Total</b>		<b>56.8</b>	<b>56.8</b>					
May 21 23:28 (CST)	TLR 3A	NEXT	3-ND	1 / 0	7	0.4	7	0.4	0	0.0	NONE			ED-2	SWPP	0.0	0.0	133	194	365	N/A	
			<b>Total</b>	<b>1 / 0</b>	<b>7</b>	<b>0.4</b>	<b>7</b>	<b>0.4</b>	<b>0</b>	<b>0.0</b>				ED-6	SWPP	56.0	56.0					
														FIRM-7	SWPP	0.0	0.0					
														<b>Total</b>		<b>56.0</b>	<b>56.0</b>					

May 22 00:35 (CST)	TLR 3A	NEXT	3-ND <b>Total</b>	1 / 0 <b>1 / 0</b>	8 <b>8</b>	0.4 <b>0.4</b>	8 <b>8</b>	0.4 <b>0.4</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 62.0 0.0 <b>62.0</b>	0.0 62.0 0.0 <b>62.0</b>	126	183	341	N/A
May 22 01:28 (CST)	TLR 3A	NEXT	1-NS 3-ND 6-NN <b>Total</b>	1 / 0 1 / 0 1 / 0 <b>3 / 0</b>	112 8 52 <b>172</b>	7.1 0.4 3.3 <b>10.7</b>	112 8 52 <b>172</b>	7.1 0.4 3.3 <b>10.7</b>	0 0 0 <b>0</b>	0.0 0.0 0.0 <b>0.0</b>	NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 59.0 0.0 <b>59.0</b>	0.0 59.0 0.0 <b>59.0</b>	132	200	403	N/A
May 22 02:05 (CST)	TLR 5B	CURRENT	7-F <b>Total</b>	15 / 0 <b>15 / 0</b>	41 <b>41</b>	2.5 <b>2.5</b>	41 <b>41</b>	2.5 <b>2.5</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 65.0 13.8 <b>78.8</b>	0.0 65.0 13.8 <b>78.8</b>	133	201	404	N/A
		NEXT	1-NS 2-NH 3-ND 6-NN 7-F <b>Total</b>	1 / 0 1 / 0 1 / 0 2 / 0 14 / 0 <b>19 / 0</b>	112 52 8 93 59 <b>41</b>	7.1 3.3 0.4 5.8 3.8 <b>20.3</b>	112 52 8 93 59 <b>324</b>	7.1 3.3 0.4 5.8 3.8 <b>20.3</b>	0 0 0 0 0 <b>0</b>	0.0 0.0 0.0 0.0 0.0 <b>0.0</b>	NONE	NONE							
May 22 03:28 (CST)	TLR 5A	NEXT	1-NS 3-ND 6-NN <b>Total</b>	1 / 0 1 / 0 1 / 0 <b>3 / 0</b>	112 7 52 <b>171</b>	7.0 0.4 3.3 <b>10.7</b>	112 7 52 <b>171</b>	7.0 0.4 3.3 <b>10.7</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 53.0 0.0 0.0 <b>53.0</b>	0.0 53.0 0.0 0.0 <b>53.0</b>	131	202	420	N/A
May 22 04:29 (CST)	TLR 3A	NEXT	3-ND 6-NN <b>Total</b>	1 / 0 2 / 0 <b>3 / 0</b>	7 204 <b>211</b>	0.4 12.8 <b>13.2</b>	7 204 <b>211</b>	0.4 12.8 <b>13.2</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 38.8 0.0 <b>38.8</b>	0.0 38.8 0.0 <b>38.8</b>	130	197	400	N/A
May 22 05:28 (CST)	TLR 3A	NEXT	3-ND 6-NN <b>Total</b>	1 / 0 2 / 0 <b>3 / 0</b>	5 96 <b>101</b>	0.3 5.8 <b>6.0</b>	5 96 <b>101</b>	0.3 5.8 <b>6.0</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 23.0 0.0 <b>23.0</b>	0.0 23.0 0.0 <b>23.0</b>	127	187	360	N/A
May 22 06:28 (CST)	TLR 3A	NEXT	3-ND 6-NN <b>Total</b>	1 / 0 2 / 0 <b>3 / 0</b>	3 204 <b>207</b>	0.2 13.0 <b>13.2</b>	3 204 <b>207</b>	0.2 13.0 <b>13.2</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 35.8 0.0 <b>35.8</b>	0.0 35.8 0.0 <b>35.8</b>	134	190	332	N/A
May 22 07:28 (CST)	TLR 3A	NEXT	3-ND 6-NN <b>Total</b>	1 / 0 2 / 0 <b>3 / 0</b>	1 204 <b>205</b>	0.1 13.0 <b>13.0</b>	1 204 <b>205</b>	0.1 13.0 <b>13.0</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 32.0 0.0 <b>32.0</b>	0.0 32.0 0.0 <b>32.0</b>	146	200	324	N/A
May 22 08:28 (CST)	TLR 3A	NEXT	6-NN <b>Total</b>	2 / 0 <b>2 / 0</b>	204 <b>204</b>	13.0 <b>13.0</b>	204 <b>204</b>	13.0 <b>13.0</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 31.0 0.0 <b>31.0</b>	0.0 31.0 0.0 <b>31.0</b>	150	197	283	N/A
May 22 09:27 (CST)	TLR 5A	NEXT	6-NN <b>Total</b>	2 / 0 <b>2 / 0</b>	204 <b>204</b>	13.0 <b>13.0</b>	204 <b>204</b>	13.0 <b>13.0</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 28.0 0.0 0.0 <b>28.0</b>	0.0 28.0 0.0 0.0 <b>28.0</b>	158	199	247	N/A
May 22 10:30 (CST)	TLR 0	CURRENT	NONE								NONE	NONE				154	177	138	N/A

### TLR Schedule Totals

Priority	Schedule			
	Total Tags Cut / Hold	IDC Cut MVV	RC Cut Acknowledge MVV	Hold MVV
0	0	0	0	0
1	4	448	448	0
2	2	55	55	0
3	13	67	67	0
4	0	0	0	0
5	0	0	0	0
6	18	1355	1355	0
7	29	100	100	0
<b>Total</b>	<b>66</b>	<b>2025</b>	<b>2025</b>	<b>0</b>

### TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MVV	RC Ackn MVV
SWPP	ED-2	0.0	0.0
	ED-6	599.9	599.9
	FIRM-7	14.7	14.6
Total for SWPP		614.6	614.5
<b>Total</b>		<b>614.6</b>	<b>614.5</b>

### Reliability Log for May, 21

2010

Time	Initials	Comments
1844	LWB	Issued TLR Level 3B on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
1927	LWB	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
2027	LWB	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
2126	LWB	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
2226	LWB	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
2327	LWB	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
2330	LWB	Requested SPP Market to have EDE get available units on deployment, they are affecting flgt Temp26
2348	LWB	Requested SPP Market to have EDE get available units on deployment, they are affecting flgt Temp26

### Reliability Log for May, 22

2010

Time	Initials	Comments
0028	LWB	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
0133	LWB	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
0227	LWB	Re-issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
0303	LWB	Issued TLR Level 5B on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045. For loading and Feasibility.
0324	LWB	Requested Market desk to get ask EDE why they have ITAN in SELF-Schedule, EDE reports that they can't dispatch ITAN any lower than where they are now 68mw.
0349	LWB	Requested Market desk to advise EDE if he is going to keep the ITAN unit on self-schedule then he best get the RIV 8 on deployment.
0400	LWB	EDE had not moved RIV 8 so I ask the market desk to get them on the phone Brian the marketer at EDE thatwe had been talking to all night said we need to talk to the dispatcher at EDE GT .
0401	LWB	Called the EDE GT spoke to David and informed him that I wanted RIV 8 on deployment now.
0427	LWB	Issued TLR Level 5A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045. For Feasibility.
0528	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
0626	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
0725	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
0826	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
0925	LRG	Issued TLR Level 3A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.
1026	LRG	Issued TLR Level 5A on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045. For Feasibility.
1130	LRG	Issued TLR Level 0 on Temp 26 Neosho-Columbus 161 fto Neosho-Delaware 345 Flgt 16045.

# TEMP26\_16045

— Post Cont. — SOL

