

**SPP TLR 5 Investigation Report**  
**Temp 26 Flowgate 16045**  
**(Neosho – Columbus 161 kV for the loss of Neosho – Delaware 345 kV)**  
**TLR Level 5: December 24, 2009**  
**Report Issued: December 29, 2009**

**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 December 24, 2009. Flowgate 16045 is an SPP flowgate created for a planned outage of Neosho – Morgan 345 kV line earlier this 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 until 23:35 CST on December 24, 2009. Projected post contingent flows on the Neosho – Columbus 161 kV line exceeded 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 184 MVA. Flow on the Contingent Element was 120 MVA. The LODF was approximately 12%. Post-contingent flow on the Limiting Element was approximately 198 MW.

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

TLRs 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.**

At approximately 21:50 CST AEP's Flint Creek unit tripped, causing a substantial increase in flowgate loading.

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

There were no non-firm transactions or market flows impacting the flowgate by more than 5% prior to the Level 5 TLR being issued. 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 CST.

**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 unscheduled outage of Flint Creek generation and lack of available generation in the Joplin area.

**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 3-5.

## TLR Event History

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

Status	TLR Level	TLR Date (CST)	TLR Confirm Time (CST)	Run Time (CST)	Requested Relief	Remaining Relief	Relief Provided	Total Cuts	
								Tags	MW
SUPERSEDED	3B	12/24/2009 13:15	12/24/2009 13:05	12/24/2009 13:05:08	50.0	46.2	3.8	2	30
<a href="#">SUPERSEDED</a>	3A	12/24/2009 15:00	12/24/2009 14:28	12/24/2009 14:27:44	15.0	11.0	4.0	0	0
<a href="#">SUPERSEDED</a>	3A	12/24/2009 16:00	12/24/2009 15:27	12/24/2009 15:27:01	5.0	3.0	2.0	0	0
<a href="#">SUPERSEDED</a>	3A	12/24/2009 17:00	12/24/2009 16:27	12/24/2009 16:27:03	0.0	0.0	0.0	0	0
<a href="#">SUPERSEDED</a>	3A	12/24/2009 18:00	12/24/2009 17:26	12/24/2009 17:26:17	0.0	0.0	0.0	0	0
<a href="#">SUPERSEDED</a>	3A	12/24/2009 19:00	12/24/2009 18:26	12/24/2009 18:25:39	40.0	38.8	1.2	1	20
<a href="#">SUPERSEDED</a>	3A	12/24/2009 20:00	12/24/2009 19:25	12/24/2009 19:25:32	40.0	40.0	0.0	0	0
<a href="#">SUPERSEDED</a>	3A	12/24/2009 21:00	12/24/2009 20:29	12/24/2009 20:28:48	50.0	50.0	0.0	0	0
<a href="#">SUPERSEDED</a>	3A	12/24/2009 22:00	12/24/2009 21:30	12/24/2009 21:30:28	30.0	30.0	0.0	0	0
<a href="#">SUPERSEDED</a>	5B	12/24/2009 22:25	12/24/2009 22:14	12/24/2009 22:13:59	42.0	0.0	42.1	6	46
<a href="#">TERMINATED</a>	0	12/24/2009 23:35	12/24/2009 23:21	12/24/2009 23:21:08	0.0	0.0	0.0	0	0

12/30/2009 13:45:08 (CST)

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## Event Summary

FILE SAVED AS: SWPP\_16045\_20091224\_1315.htm

Incident: SWPP_16045_20091224_1315	Date: 12/24/2009	Reliability Coordinator: SWPP
Initial Conditions: load increasing		
Flowgate: 16045 - Temporary 26 - Neosho-Columbus...	Rating: 215	LODF: 12.04%
TLR Direction: Normal		
Effective StartTime: 12/24/2009 13:15	Effective EndTime: 12/24/2009 23:35	TLR Duration: 10 Hours and 20 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											
Dec 24 13:05	TLR 3B	CURRENT	2-NH 8-NN <b>Total</b>	1 / 0 1 / 0 <b>2 / 0</b>	15 15 <b>30</b>	0.9 0.9 <b>1.8</b>	15 15 <b>30</b>	0.9 0.9 <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 2.0 0.0 <b>2.0</b>	0.0 2.0 0.0 <b>2.0</b>	172	209	315	N/A		
		NEXT	2-NH 7-F <b>Total</b>	1 / 0 0 / 1 <b>1 / 1</b>	10 0 <b>10</b>	0.6 0.0 <b>0.6</b>	10 0 <b>10</b>	0.6 0.0 <b>0.6</b>	0 25 <b>25</b>	0.0 1.5 <b>1.5</b>	NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 3.0 0.0 <b>3.0</b>	0.0 3.0 0.0 <b>3.0</b>						
Dec 24 14:28	TLR 3A	NEXT			NONE							NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 4.0 0.0 <b>4.0</b>	0.0 4.0 0.0 <b>4.0</b>	171	203	272	N/A	
Dec 24 15:27	TLR 3A	NEXT			NONE							NONE	ED-2 ED-6 FIRM-7 <b>Total</b>	SWPP SWPP SWPP	0.0 2.0 0.0 <b>2.0</b>	0.0 2.0 0.0 <b>2.0</b>	170	197	232	N/A	
Dec 24 16:27	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>	173	201	240	N/A	
Dec 24 17:26	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>	174	196	188	N/A	
Dec 24 18:26	TLR 3A	NEXT	8-NN <b>Total</b>	1 / 0 <b>1 / 0</b>	20 <b>20</b>	1.2 <b>1.2</b>	20 <b>20</b>	1.2 <b>1.2</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 0.0 0.0 <b>0.0</b>	0.0 0.0 0.0 <b>0.0</b>	181	207	216	N/A		
Dec 24 19:25	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>	188	218	251	N/A	

Dec 24 20:29	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>	185	206	178	N/A	
Dec 24 21:30	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>	189	209	171	N/A	
Dec 24 22:14	TLR 5B	CURRENT	7-F <b>Total</b>	6 / 0 <b>6 / 0</b>	46 <b>46</b>	2.6 <b>2.6</b>	46 <b>46</b>	2.6 <b>2.6</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 24.0 19.4 <b>43.4</b>	0.0 24.0 19.4 <b>43.4</b>	184	198	120	N/A
		NEXT	7-F <b>Total</b>	5 / 0 <b>5 / 0</b>	30 <b>46</b>	1.8 <b>1.8</b>	30 <b>30</b>	1.8 <b>1.8</b>	0 <b>0</b>	0.0 <b>0.0</b>	NONE	NONE							
Dec 24 23:21	TLR 0	CURRENT	NONE							NONE	NONE			180	162	24	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	2	25	25	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	2	35	35	0
7	11	76	76	25
<b>Total</b>	<b>15</b>	<b>136</b>	<b>136</b>	<b>25</b>

### TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWPP	ED-2	0.0	0.0
	ED-6	32.0	32.0
	FIRM-7	19.4	19.4
<b>Total for SWPP</b>		<b>51.4</b>	<b>51.4</b>
<b>Total</b>		<b>51.4</b>	<b>51.4</b>

	A	B	C	D
1	<b>Reliability Log for December, 24</b>			<b>2009</b>
2	<b>Time</b>	<b>Initials</b>	<b>Comments</b>	<b>Thursday</b>
3	1305	WRG	Issued TLR Level 3B on Temp 26, flgt # 16045	
4	1427	WRG	Issued TLR Level 3A on Temp 26, flgt # 16045	
5	1527	WRG	Issued TLR Level 3A on Temp 26, flgt # 16045	
6	1627	WRG	Issued TLR Level 3A on Temp 26, flgt # 16045	
7	1726	WRG	Issued TLR Level 3A on Temp 26, flgt # 16045	
8	1825	MRH	Re-issued TLR Level 3A on Temp 26, flgt # 16045	
9	1925	MRH	Re-issued TLR Level 3A on Temp 26, flgt # 16045	
10	2028	MRH	Re-issued TLR Level 3A on Temp 26, flgt # 16045	
11	2130	MRH	Re-issued TLR Level 3A on Temp 26, flgt # 16045	
12	2151	MRH	CSWS entered RSS event fto of CSWFlintcreek1 528 - ENTERED WRONG - CANCELLED	
13	2155	MRH	CSWS entered RSS event fto of CSWFlintcreek1 ORF 264	
14	2158	MRH	CSWS entered RSS event fto of CSW.AECC.Flntcreek1 ORF 264	
15	2211	MRH	Set Effective limits on Temp 6 and Temp 26 to control loading, Temp 6 at 112% and Temp 26 at 114%	
16	2213	MRH	Re-issued TLR Level 5B on Temp 26, flgt # 16045 - <b>LOADING</b>	
17	2321	MRH	Re-issued TLR Level 0 on Temp 26, flgt # 16045	
18				

# TEMP26\_16045

— Post Cont. — SOL

