SPP TLR 5 Investigation Report
5377 - NEOCOLNEODEL
(Neosho – Columbus 161 kV for the loss of Neosho – Delaware 345 kV)
TLR Level 5: October 5, 2010
Report Issued: January 5, 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 5377 on October 5, 2010. Flowgate 5377 is an SPP flowgate that was initially 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 3:00 until 5:20 CST on October 5, 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 135 MVA. Flow on the Contingent Element was 377 MVA. The LODF was approximately 23%. Post-contingent flow on the Limiting Element was approximately 222 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.
Generation at Flint Creek tripped on October 4, 2010. This significantly contributed to the higher loading on the flowgate.

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 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 during the temporary outage of the Orongo Junction 161 kV bus. Lack of available generation south of 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 3-5.

Event History

Issuing RC: SWPP
Flowgate: 5377 - NEOCOLNEODEL
Event Begin: 2010-10-04 20:19
Event End: 2010-10-05 05:07
Event Duration: 9 Hours

TLR Level	TLR Date	TLR Confirm Time	Run Time	Requested Relief	Remaining Relief	Relief Provided	Total Cuts	
							Tags	MW
TLR Level 3B	10/04/2010 20:30	10/04/2010 20:19	10/04/2010 20:17:37	25.0	25.0	0.0	0	0
TLR Level 3A	10/04/2010 22:00	10/04/2010 21:31	10/04/2010 21:30:29	72.0	42.0	30.0	0	0
TLR Level 3A	10/04/2010 23:00	10/04/2010 22:27	10/04/2010 22:25:52	100.0	49.9	50.1	3	255
TLR Level 3A	10/05/2010 00:00	10/04/2010 23:39	10/04/2010 23:38:53	237.0	190.8	46.2	2	250
TLR Level 3A	10/05/2010 01:00	10/05/2010 00:30	10/05/2010 00:29:51	75.0	24.9	50.1	3	255
TLR Level 3A	10/05/2010 02:00	10/05/2010 01:30	10/05/2010 01:29:40	105.0	54.9	50.1	3	255
TLR Level 5A	10/05/2010 03:00	10/05/2010 02:32	10/05/2010 02:30:53	9.0	0.0	50.1	3	255
TLR Level 5A	10/05/2010 04:00	10/05/2010 03:39	10/05/2010 03:37:51	15.0	0.0	37.4	1	100
TLR Level 5A	10/05/2010 05:00	10/05/2010 04:36	10/05/2010 04:34:11	34.0	0.0	34.5	12	59
TLR Level 0	10/05/2010 05:20	10/05/2010 05:07	10/05/2010 05:06:28	0.0	0.0	0.0	0	0

Event Summary

FILE SAVED AS: SWPP_5377_20101004_2030.htm

Incident: SWPP_5377_20101004_2030 **Date:** 10/04/2010 **Reliability Coordinator:** SWPP

Initial Conditions: N/A

Flowgate: 5377 - NEOCOLNEODEL **Rating:** 215 **LODF:** 23.21%

TLR Direction: Normal

Effective StartTime: 10/04/2010 20:30 **Effective EndTime:** 10/05/2010 05:20 **TLR Duration:** 8 Hours and 50 Minutes

TLR Actions

Confirm Time	Level	Effective Hour	Priority	Schedule							NNL Relief			Market Relief				Flow		Cont. Flow	TLR Action Comments
				Total Tags Cut / Hold	IDC Cut		RC Cut Acknowledge		Hold												
					MW	Relief	MW	Relief	MW	Relief	CA	IDC MW	RC Ackn MW	Type	Mkt	IDC MW	RC Ackn MW	Current	Post Cont.		
Oct 04 20:19	TLR 3B	CURRENT		NONE								NONE		ED-2 ED-6 FIRM-7 **Total**	SWPP SWPP SWPP	0.0 36.0 0.0 **36.0**	0.0 36.0 0.0 **36.0**	157	184	120	N/A
		NEXT	2-NH **Total**	1 / 0 **1 / 0**	78 **0**	5.2 **5.2**	78 **78**	5.2 **5.2**	0 **0**	0.0 **0.0**		NONE		ED-2 ED-6 FIRM-7 **Total**	SWPP SWPP SWPP	0.0 30.0 0.0 **30.0**	0.0 30.0 0.0 **30.0**				
Oct 04 21:31	TLR 3A	NEXT		NONE								NONE		ED-2 ED-6 FIRM-7 **Total**	SWPP SWPP SWPP	0.0 30.0 0.0 **30.0**	0.0 30.0 0.0 **30.0**	153	209	243	N/A
Oct 04 22:27	TLR 3A	NEXT	1-NS 2-NH 7-F **Total**	2 / 0 1 / 0 0 / 1 **3 / 1**	250 5 0 **255**	19.8 0.3 0.0 **20.1**	250 5 0 **255**	19.8 0.3 0.0 **20.1**	0 0 5 **5**	0.0 0.0 0.5 **0.5**		NONE		ED-2 ED-6 FIRM-7 **Total**	SWPP SWPP SWPP	0.0 30.0 0.0 **30.0**	0.0 30.0 0.0 **30.0**	163	231	297	N/A
Oct 04 23:39	TLR 3A	NEXT	1-NS **Total**	1 / 0 **1 / 0**	100 **100**	5.5 **5.5**	100 **100**	5.5 **5.5**	0 **0**	0.0 **0.0**		NONE		ED-2 ED-6 FIRM-7 **Total**	SWPP SWPP SWPP	0.0 30.0 0.0 **30.0**	0.0 30.0 0.0 **30.0**	162	244	355	N/A
Oct 05 00:30	TLR 3A	NEXT	1-NS 2-NH **Total**	1 / 0 1 / 0 **2 / 0**	100 5 **105**	7.4 0.3 **7.7**	100 5 **105**	7.4 0.3 **7.7**	0 0 **0**	0.0 0.0 **0.0**		NONE		ED-2 ED-6 FIRM-7 **Total**	SWPP SWPP SWPP	0.0 30.0 0.0 **30.0**	0.0 30.0 0.0 **30.0**	139	220	353	N/A
Oct 05 01:30	TLR 3A	NEXT	1-NS 2-NH **Total**	1 / 0 1 / 0 **2 / 0**	100 5 **105**	7.4 0.3 **7.6**	100 5 **105**	7.4 0.3 **7.6**	0 0 **0**	0.0 0.0 **0.0**		NONE		ED-2 ED-6 FIRM-7 **Total**	SWPP SWPP SWPP	0.0 30.0 0.0 **30.0**	0.0 30.0 0.0 **30.0**	143	219	328	N/A

Oct 05 02:32	TLR 5A	NEXT	1-NS 2-NH **Total**	1 / 0 1 / 0 **2 / 0**	100 5 **105**	7.4 0.3 **7.7**	100 5 **105**	7.4 0.3 **7.7**	0 0 **0**	0.0 0.0 **0.0**	NONE	ED-2 ED-8 FIRM-7 FIRM-CREDIT **Total**	SWPP SWPP SWPP SWPP	0.0 30.0 0.0 0.0 **30.0**	0.0 30.0 0.0 0.0 **30.0**	135	222	377	N/A
Oct 05 03:39	TLR 5A	NEXT	NONE								NONE	ED-2 ED-8 FIRM-7 FIRM-CREDIT **Total**	SWPP SWPP SWPP SWPP	0.0 30.0 0.0 0.0 **30.0**	0.0 30.0 0.0 0.0 **30.0**	140	222	354	N/A
Oct 05 04:36	TLR 5A	NEXT	7-F **Total**	11 / 0 **11 / 0**	12 **12**	0.9 **0.9**	12 **12**	0.9 **0.9**	0 **0**	0.0 **0.0**	NONE	ED-2 ED-8 FIRM-7 FIRM-CREDIT **Total**	SWPP SWPP SWPP SWPP	0.0 30.6 0.0 0.0 **30.6**	0.0 30.6 0.0 0.0 **30.6**	131	217	373	N/A
Oct 05 05:07	TLR 0	CURRENT	NONE								NONE	NONE				109	163	236	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	650	650	0
2	5	98	98	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	11	12	12	5
Total	**22**	**760**	**760**	**5**

TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWPP	ED-2	0.0	0.0
	ED-8	276.6	276.6
	FIRM-7	0.0	0.0
Total for SWPP		276.6	276.6
Total		**276.6**	**276.6**

NEOCOLNEODEL - 5377