

SPP TLR 5 Investigation Report
Temp 6 Flowgate 16094
(Neosho – Columbus 161 kV for the loss of Neosho – Morgan 345 kV)
TLR Level 5: December 27-28, 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 16094 on December 27-28, 2009. Flowgate 16094 is an SPP flowgate created for a planned outage of Northeastern – Delaware 345 kV line earlier in December. Loading on the flowgate remained relatively high after the Northeastern – Delaware 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 8:00 until 18:00 CST on December 27 and again from 1:00 until 8:00 CST on December 28, 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 5A TLR was issued, the Limiting Element was rated at 215 MVA. Flow on the Limiting Element was 174 MVA. Flow on the Contingent Element was 275 MVA. The LODF was approximately 13%. Post-contingent flow on the Limiting Element was projected to be approximately 210 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 3-7.

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

Generation at Flint Creek, which tripped on December 24 and again on December 26, was still out of service and contributed to loading on this flowgate.

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. 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 8. 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 pages 9-10.

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 3-7.

TLR Event History

16094 - Temp 6 -- Neosho - Columbus 161kV (flo) Neosho - Morgan 345kV

Status	TLR Level	TLR Date (CST)	TLR Confirm Time (CST)	Run Time (CST)	Requested Relief	Remaining Relief	Relief Provided	Total Cuts	
								Tags	MW
SUPERSEDED	3A	12/27/2009 07:00	12/27/2009 06:42	12/27/2009 06:41:27	8.0	8.0	0.0	0	0
SUPERSEDED	5A	12/27/2009 08:00	12/27/2009 07:29	12/27/2009 07:29:12	0.0	0.0	0.0	0	0
SUPERSEDED	5A	12/27/2009 09:00	12/27/2009 08:32	12/27/2009 08:31:18	0.0	0.0	0.0	0	0
SUPERSEDED	5A	12/27/2009 10:00	12/27/2009 09:28	12/27/2009 09:28:06	0.0	0.0	0.0	0	0
SUPERSEDED	5A	12/27/2009 11:00	12/27/2009 10:28	12/27/2009 10:27:35	0.0	0.0	43.0	0	0
SUPERSEDED	5A	12/27/2009 12:00	12/27/2009 11:28	12/27/2009 11:27:56	0.0	0.0	9.0	0	0
SUPERSEDED	5A	12/27/2009 13:00	12/27/2009 12:29	12/27/2009 12:29:18	0.0	0.0	2.0	0	0
SUPERSEDED	5A	12/27/2009 14:00	12/27/2009 13:28	12/27/2009 13:27:49	0.0	0.0	2.0	0	0
SUPERSEDED	5A	12/27/2009 15:00	12/27/2009 14:27	12/27/2009 14:26:24	0.0	0.0	0.0	0	0
SUPERSEDED	5A	12/27/2009 16:00	12/27/2009 15:28	12/27/2009 15:27:49	0.0	0.0	4.0	0	0
SUPERSEDED	5A	12/27/2009 17:00	12/27/2009 16:30	12/27/2009 16:29:57	0.0	0.0	5.0	0	0
SUPERSEDED	3A	12/27/2009 18:00	12/27/2009 17:27	12/27/2009 17:26:26	17.0	11.0	6.0	0	0
SUPERSEDED	3A	12/27/2009 19:00	12/27/2009 18:34	12/27/2009 18:33:33	0.0	0.0	0.0	0	0
SUPERSEDED	3A	12/27/2009 20:00	12/27/2009 19:27	12/27/2009 19:26:49	7.0	6.0	1.0	0	0
SUPERSEDED	3A	12/27/2009 21:00	12/27/2009 20:27	12/27/2009 20:26:38	0.0	0.0	0.0	0	0
SUPERSEDED	3A	12/27/2009 22:00	12/27/2009 21:27	12/27/2009 21:27:21	10.0	10.0	0.0	0	0
SUPERSEDED	3A	12/27/2009 23:00	12/27/2009 22:32	12/27/2009 22:32:12	2.0	2.0	0.0	0	0
SUPERSEDED	3A	12/28/2009 00:00	12/27/2009 23:35	12/27/2009 23:35:01	11.0	11.0	0.0	0	0
SUPERSEDED	5A	12/28/2009 01:00	12/28/2009 00:32	12/28/2009 00:31:36	15.0	0.0	15.1	2	13
SUPERSEDED	5A	12/28/2009 02:00	12/28/2009 01:33	12/28/2009 01:32:32	7.0	0.0	7.1	2	7
SUPERSEDED	5A	12/28/2009 03:00	12/28/2009 02:29	12/28/2009 02:29:20	11.0	0.0	11.1	2	4
SUPERSEDED	5A	12/28/2009 04:00	12/28/2009 03:34	12/28/2009 03:33:38	18.0	0.0	18.1	2	17
SUPERSEDED	5A	12/28/2009 05:00	12/28/2009 04:37	12/28/2009 04:36:09	0.0	0.0	0.0	0	0
SUPERSEDED	5A	12/28/2009 06:00	12/28/2009 05:31	12/28/2009 05:30:51	15.0	0.0	15.1	3	26
SUPERSEDED	5A	12/28/2009 07:00	12/28/2009 06:28	12/28/2009 06:27:16	0.0	0.0	0.0	0	0
SUPERSEDED	3A	12/28/2009 08:00	12/28/2009 07:30	12/28/2009 07:30:18	11.0	11.0	0.0	0	0
SUPERSEDED	3A	12/28/2009 09:00	12/28/2009 08:27	12/28/2009 08:27:06	17.0	17.0	0.0	0	0
SUPERSEDED	3A	12/28/2009 10:00	12/28/2009 09:28	12/28/2009 09:27:56	14.0	14.0	0.0	0	0
TERMINATED	0	12/28/2009 10:20	12/28/2009 10:10	12/28/2009 10:09:37	0.0	0.0	0.0	0	0

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Dec 27 13:28	TLR 5A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 2.0 0.0 0.0 2.0	0.0 2.0 0.0 0.0 2.0	173	210	284	N/A
Dec 27 14:27	TLR 5A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	178	215	301	N/A
Dec 27 15:28	TLR 5A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 4.0 0.0 0.0 4.0	0.0 4.0 0.0 0.0 4.0	172	213	318	N/A
Dec 27 18:30	TLR 5A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 5.0 0.0 0.0 5.0	0.0 5.0 0.0 0.0 5.0	169	211	324	N/A
Dec 27 17:27	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 6.0 0.0 6.0	0.0 6.0 0.0 6.0	161	201	309	N/A
Dec 27 18:34	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	169	212	334	N/A
Dec 27 19:27	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 1.0 0.0 1.0	0.0 1.0 0.0 1.0	164	205	315	N/A
Dec 27 20:27	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	161	201	307	N/A
Dec 27 21:27	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	175	211	280	N/A
Dec 27 22:32	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	183	217	265	N/A
Dec 27 23:35	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	178	216	290	N/A
Dec 28 00:32	TLR 5A	NEXT	7-F Total	2 / 0 2 / 0	13 13	0.8 0.8	13 13	0.8 0.8	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 9.0 5.2 0.0 14.2	0.0 9.0 5.2 0.0 14.2	185	226	318	N/A

Dec 28 01:33	TLR 5A	NEXT	7-F Total	2 / 0 2 / 0	7 7	0.5 0.5	7 7	0.5 0.5	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 0.0 6.6 0.0 6.6	0.0 0.0 6.6 0.0 6.6	175	220	346	N/A
Dec 28 02:29	TLR 5A	NEXT	7-F Total	2 / 0 2 / 0	4 4	0.3 0.3	4 4	0.3 0.3	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 10.8 0.0 0.0 10.8	0.0 10.8 0.0 0.0 10.8	169	208	303	N/A
Dec 28 03:34	TLR 5A	NEXT	7-F Total	2 / 0 2 / 0	17 17	1.1 1.1	17 17	1.1 1.1	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 0.0 17.0 0.0 17.0	0.0 0.0 17.0 0.0 17.0	170	209	300	N/A
Dec 28 04:37	TLR 5A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	175	214	300	N/A
Dec 28 05:31	TLR 5A	NEXT	2-NH 7-F Total	1 / 0 2 / 0 3 / 0	10 16 26	0.5 1.0 1.5	10 16 26	0.5 1.0 1.5	0 0 0	0.0 0.0 0.0	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 13.0 0.5 0.0 13.5	0.0 13.0 0.5 0.0 13.5	166	203	284	N/A
Dec 28 06:28	TLR 5A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	174	212	290	N/A
Dec 28 07:30	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	163	198	287	N/A
Dec 28 08:27	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	171	208	289	N/A
Dec 28 09:28	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	166	203	285	N/A
Dec 28 10:10	TLR 0	CURRENT	NONE								NONE	NONE			157	192	287	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	1	10	10	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	10	57	57	0
Total	11	67	67	0

TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWPP	ED-2	0.0	0.0
	ED-6	91.8	91.8
	FIRM-7	42.3	42.3
Total for SWPP		134.1	134.1
Total		134.1	134.1

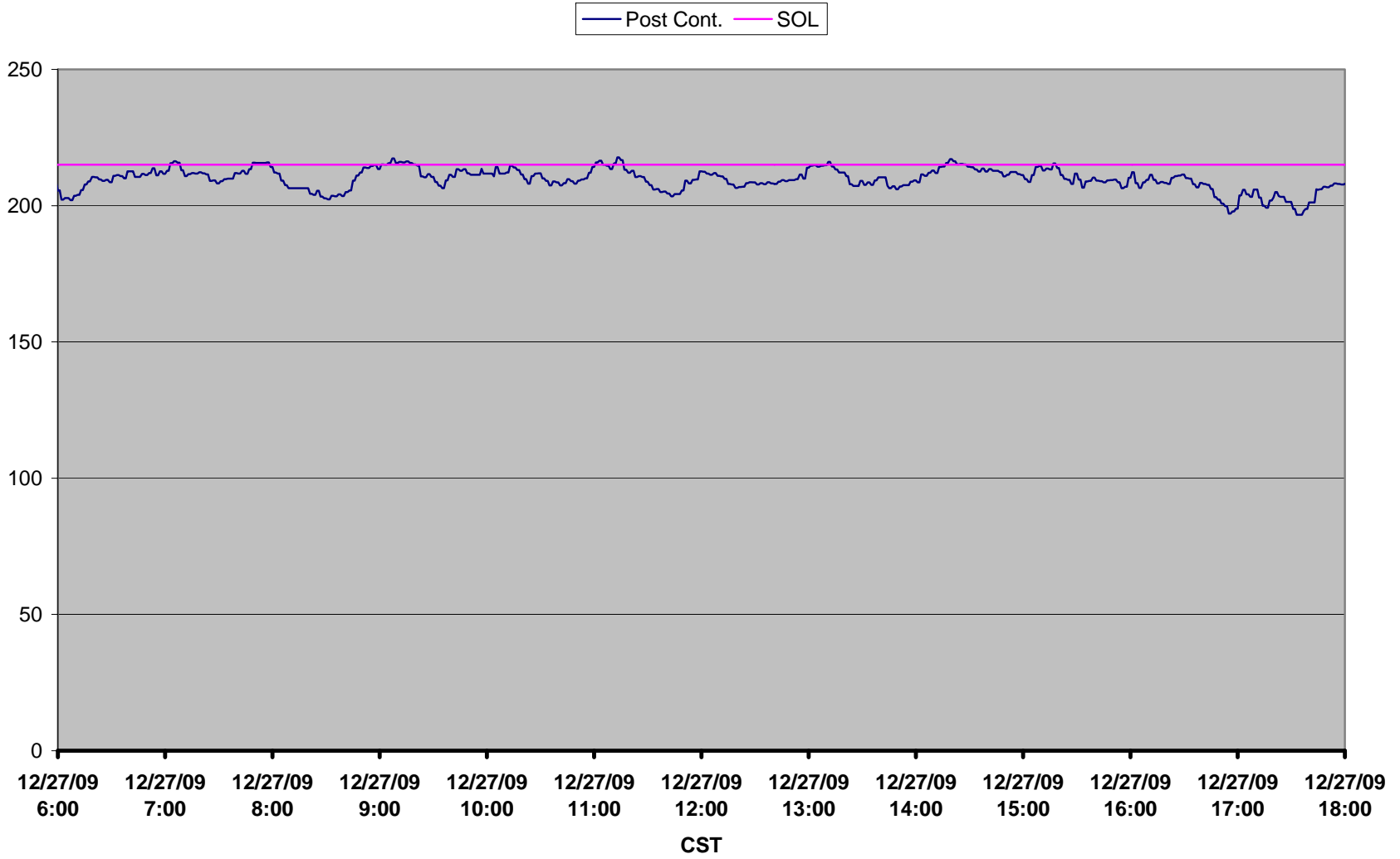
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	A	B	C	D
1	Reliability Log for December, 27			2009
2	Time	Initials	Comments	
3	0641	RGH	Issued TLR Level 3A on Temp 6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV Flgt 16094	
4	0729	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
5	0831	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
6	0928	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
7	1027	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
8	1127	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
9	1229	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
10	1327	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
11	1426	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
12	1527	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
13	1629	RGH	Issued TLR level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094. Feasibility	
14	1726	RGH	Issued TLR level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
15	1833	RST	Re-issued TLR level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
16	1926	RST	Re-issued TLR level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
17	2026	RST	Re-issued TLR level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
18	2127	RST	Re-issued TLR level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
19	2232	RST	Re-issued TLR Level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
20	2336	RST	Re-issued TLR Level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
21				
22				
23	Reliability Log for December, 28			2009
24	Time	Initials	Comments	
25	0031	RST	Re-issued TLR Level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
26	0132	RST	Re-issued TLR Level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
27	0229	RST	Re-issued TLR Level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
28	0333	RST	Re-issued TLR Level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
29	0436	RST	Re-issued TLR Level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
30	0530	RST	Re-issued TLR Level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
31	0627	MRH	Re-issued TLR Level 5A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094, LOADING.	
32	0707	MRH	Set effective limit on FG 16094 Temp 6 from 175 to 200.	
33	0715	MRH	Set effective limit on FG 16094 Temp 6 from 200 to 215.	
34	0730	MRH	Re-issued TLR Level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
35	0827	MRH	Re-issued TLR Level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
36	0927	MRH	Re-issued TLR Level 3A on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
37	1009	MRH	Re-issued TLR Level 0 on Temp6 Neosho-Columbus 161kV flo Neosho-Morgan 345kV, #16094.	
38				
39				

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