

SPP TLR 5 Investigation Report
Flowgate 6145
(Lake Rd. – Alabama 161 kV for loss of latan – Stranger Creek 345 kV)
(LAKALAIATSTR)
TLR Level 5: March 9, 2010
Report Issued: March 30, 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 6145 on March 9, 2010. Flowgate 6145 is an SPP flowgate. The Level 5 TLR was in effect from 10:00 until 20:00 CST on March 9, 2010. The projected post-contingent flows on the Lake Road – Alabama 161 kV line to 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 184 MVA but was being limited to 100 MVA due to hotline work on the St. Joe – Hawthorn 345 kV line. Loading was reduced to 100 MVA pre-contingency in order to minimize the shock to the system should the St. Joe – Hawthorn 345 kV line trip. Flow on the Limiting Element was 69 MVA. Flow on the Contingent Element was 399 MVA. The LODF was approximately 11%. Post-contingent flow on the Limiting Element was approximately 114 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.

Emergency hotline work on the St. Joe – Hawthorn 345 kV line was needed to replace damaged insulators. As a result Flowgate 6145 was controlled to a lower limit to prepare for the N-1 condition.

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 pages 7. 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.

Since the driver behind this TLR was the emergency hotline work on the St. Joe – Hawthorn 345 kV line, the next day study process did not indicate an issue with this flowgate based upon known conditions at the time of the analysis.

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 during the hotline work on the St. Joe – Hawthorn 345 kV line. Since the emergency hotline work was the most significant factor, no additional actions were necessary.

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. Non-firm Market Flow was reduced on the flowgate as reported in the TLR Event History and NERC TLR Log on pages 3-6.

TLR Event History

6145 - Lake Road-Nashua 161 flo latan-Stranger Creek 345kV

Status	TLR Level	TLR Date	TLR Confirm Time	Run Time	Requested Relief	Remaining Relief	Relief Provided	Total Cuts	
								Tags	MW
SUPERSEDED	3B	03/09/2010 06:30	03/09/2010 06:17	03/09/2010 06:16:51	30.0	30.0	0.0	0	0
SUPERSEDED	3A	03/09/2010 08:00	03/09/2010 07:28	03/09/2010 07:27:44	16.0	13.0	3.0	0	0
SUPERSEDED	3A	03/09/2010 09:00	03/09/2010 08:32	03/09/2010 08:31:58	46.0	44.0	2.0	0	0
SUPERSEDED	5A	03/09/2010 10:00	03/09/2010 09:32	03/09/2010 09:29:06	0.0	0.0	0.0	0	0
SUPERSEDED	5A	03/09/2010 11:00	03/09/2010 10:28	03/09/2010 10:27:18	0.0	0.0	0.0	0	0
SUPERSEDED	5A	03/09/2010 12:00	03/09/2010 11:28	03/09/2010 11:27:24	0.0	0.0	0.0	0	0
SUPERSEDED	5A	03/09/2010 13:00	03/09/2010 12:31	03/09/2010 12:31:15	0.0	0.0	1.0	0	0
SUPERSEDED	5A	03/09/2010 14:00	03/09/2010 13:29	03/09/2010 13:28:31	0.0	0.0	1.0	0	0
SUPERSEDED	5A	03/09/2010 15:00	03/09/2010 14:31	03/09/2010 14:30:33	0.0	0.0	1.0	0	0
SUPERSEDED	5A	03/09/2010 16:00	03/09/2010 15:27	03/09/2010 15:27:16	0.0	0.0	1.0	0	0
SUPERSEDED	5A	03/09/2010 17:00	03/09/2010 16:27	03/09/2010 16:26:57	0.0	0.0	1.0	0	0
SUPERSEDED	5A	03/09/2010 18:00	03/09/2010 17:29	03/09/2010 17:28:39	0.0	0.0	0.0	0	0
SUPERSEDED	5A	03/09/2010 19:00	03/09/2010 18:38	03/09/2010 18:36:56	0.0	0.0	0.0	0	0
SUPERSEDED	3A	03/09/2010 20:00	03/09/2010 19:29	03/09/2010 19:28:42	0.0	0.0	0.0	0	0
TERMINATED	0	03/09/2010 20:15	03/09/2010 20:03	03/09/2010 20:03:01	0.0	0.0	0.0	0	0

Mar 09 12:31 (CST)	TLR 5A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	1.0 0.0 0.0 0.0 1.0	1.0 0.0 0.0 0.0 1.0	58	95	333	N/A
Mar 09 13:29 (CST)	TLR 5A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	1.0 0.0 0.0 0.0 1.0	1.0 0.0 0.0 0.0 1.0	80	98	341	N/A
Mar 09 14:31 (CST)	TLR 5A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	1.0 0.0 0.0 0.0 1.0	1.0 0.0 0.0 0.0 1.0	59	97	344	N/A
Mar 09 15:27 (CST)	TLR 5A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	1.0 0.0 0.0 0.0 1.0	1.0 0.0 0.0 0.0 1.0	59	98	345	N/A
Mar 09 16:27 (CST)	TLR 5A	NEXT	NONE	NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	1.0 0.0 0.0 0.0 1.0	1.0 0.0 0.0 0.0 1.0	61	100	346	N/A
Mar 09 17:29 (CST)	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	59	99	361	N/A
Mar 09 18:38 (CST)	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	57	97	359	N/A
Mar 09 19:29 (CST)	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	84	135	453	N/A
Mar 09 20:03 (CST)	TLR 0	CURRENT	NONE	NONE	NONE			89	145	500	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	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
Total	0	0	0	0

TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWPP	ED-2	10.0	10.0
	ED-6	0.0	0.0
	FIRM-7	0.0	0.0
Total for SWPP		10.0	10.0
Total		10.0	10.0

	A	B	C	D
1	Reliability Log for March, 9			2010
2	Time	Initials	Comments	
3	03/02/10		MPS Opened Nashua 3-4 & 5-8 Per OP Guide for flow on flgt 6145	
4	0616	WRG	Issued TLR Level 3B on LakAlalatStr flgt #6145	
5	0727	WRG	Re-Issued TLR Level 3A on LakAlalatStr flgt #6145	
6	0812	WRG	KCPL informed RC that they need an outage on St Joe-Hawthorne 345Kv to Replace bad insulators, Lowered Effective Limit on flgt 6145 to 100 to limit flow for N-1 condition, Placed flgt #5228 in TLR as Proxy for #6145.	
7	0825	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
8	0831	WRG	Re-Issued TLR Level 3A on LakAlalatStr flgt #6145	
9	0929	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
10	0934	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
11	1027	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
12	1030	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
13	1127	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
14	1129	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
15	1231	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
16	1232	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
17	1328	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
18	1330	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
19	1430	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
20	1431	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
21	1527	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
22	1528	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
23	1626	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
24	1628	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
25	1728	WRG	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
26	1729	WRG	Issued TLR Level 3B on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
27	1836	RST	Re-Issued TLR Level 5A on LakAlalatStr flgt #6145 for Feasibility	
28	1840	RST	Re-issued TLR Level 3A on lasCikNasJha flgt #5228 as proxy for Flgt #6145 for outage on St. Joe-Hawthorne 345Kv	
29	1852	RST	KCPL informed RC that the hot line work on St. Joe-Hawthorn line is complete as of 1800 and are turning reclosers sending switchmen to subs to turn on reclosers.	
30	1856	RST	Re-issued TLR Level 3A on lasCikNasJha flgt #5228. Reloading all tags at 1915.	
31	1900	RST	Changed effective limit on Flgt. 6145 to 184 MW. Returning to normal operation. Will end TLR 5 on the half.	
32	1928	RST	Re-Issued TLR Level 3A on LakAlalatStr flgt #6145.	
33	1929	RST	Re-issued TLR Level 0 on lasCikNasJha flgt #5228.	
34	2003	RST	Re-Issued TLR Level 0 on LakAlalatStr flgt #6145.	
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LAKALAIATSTR #6145

— Post Cont. — Rating — Effective Limit

