

SPP TLR 5 Investigation Report
Flowgate 5393
(Iatan 345/161 kV transformer for loss of Iatan – Stranger Creek 345kV)
(IATXFRIATSTR)
TLR Level 5: November 30, 2010
Report Issued: January 28, 2011

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 5393 on November 19, 2010. Flowgate 5393 is an SPP flowgate. The Level 5 TLR was in effect from 12:10 until 17:00 and again from 20:00 until 22:30 CST on November 30, 2010. High external impacts in the area caused the projected post contingent flows on the Iatan 345/161 kV transformer 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 first issued, the Limiting Element was rated at 715 MVA. Flow on the Limiting Element was 356 MVA. Flow on the Contingent Element was 758 MVA. The LODF was approximately 45%. Post-contingent flow on the Limiting Element was approximately 694 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.

There were no unplanned outages that contributed to this TLR.

5. Procedures implemented prior to hold/curtailment.

There were not enough 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 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. 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 6.

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 in the Kansas City area. The higher loading is caused by high parallel impacts in combination with high output from Iatan generation. Loading sometimes requires escalating to a Level 5 TLR in order to obtain sufficient relief to reduce overloads.

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 3-5. AECl re-dispatched to provide NNL relief.

Event History

Issuing RC: SWPP
Flowgate: 5393 - IATXFRIATSTR
Event Begin: 2010-11-29 19:00
Event End: 2010-11-30 22:30
Event Duration: 27 Hours

TLR Level	TLR Date	TLR Confirm Time	Run Time	Requested Relief	Remaining Relief	Relief Provided	Total Cuts	
							Tags	MW
TLR Level 3A	11/29/2010 19:00	11/29/2010 18:42	11/29/2010 18:41:55	41.0	0.0	41.3	23	588
TLR Level 3B	11/29/2010 19:30	11/29/2010 19:17	11/29/2010 19:16:29	30.0	11.4	18.6	9	239
TLR Level 3A	11/29/2010 21:00	11/29/2010 20:29	11/29/2010 20:28:27	114.0	0.0	114.0	1	75
TLR Level 3A	11/29/2010 22:00	11/29/2010 21:26	11/29/2010 21:25:36	62.0	0.0	62.0	1	50
TLR Level 3A	11/29/2010 23:00	11/29/2010 22:26	11/29/2010 22:25:50	81.0	0.0	81.0	2	125
TLR Level 3A	11/30/2010 00:00	11/29/2010 23:26	11/29/2010 23:26:10	82.0	0.0	82.0	0	0
TLR Level 3A	11/30/2010 01:00	11/30/2010 00:26	11/30/2010 00:26:02	108.0	0.0	108.0	0	0
TLR Level 3A	11/30/2010 02:00	11/30/2010 01:26	11/30/2010 01:25:57	105.0	0.0	105.0	0	0
TLR Level 3A	11/30/2010 03:00	11/30/2010 02:26	11/30/2010 02:25:43	99.0	0.0	99.0	0	0
TLR Level 3A	11/30/2010 04:00	11/30/2010 03:26	11/30/2010 03:25:36	83.0	0.0	83.0	0	0
TLR Level 3A	11/30/2010 05:00	11/30/2010 04:26	11/30/2010 04:26:26	121.0	2.0	119.0	0	0
TLR Level 3A	11/30/2010 06:00	11/30/2010 05:27	11/30/2010 05:27:16	150.0	24.7	125.3	2	77
TLR Level 3A	11/30/2010 07:00	11/30/2010 06:27	11/30/2010 06:27:15	0.0	0.0	1.8	1	25
TLR Level 3A	11/30/2010 08:00	11/30/2010 07:31	11/30/2010 07:31:35	0.0	0.0	2.1	1	25
TLR Level 3A	11/30/2010 09:00	11/30/2010 08:38	11/30/2010 08:38:32	126.0	0.0	126.0	3	181
TLR Level 3A	11/30/2010 10:00	11/30/2010 09:33	11/30/2010 09:33:10	145.0	19.7	125.3	2	77
TLR Level 3A	11/30/2010 11:00	11/30/2010 10:29	11/30/2010 10:29:02	160.0	35.2	124.8	2	77
TLR Level 3A	11/30/2010 12:00	11/30/2010 11:30	11/30/2010 11:29:31	150.0	27.0	123.0	1	52
TLR Level 5A	11/30/2010 12:10	11/30/2010 11:51	11/30/2010 11:50:31	119.0	0.0	123.0	1	52
TLR Level 5A	11/30/2010 12:10	11/30/2010 11:55	11/30/2010 11:54:02	170.0	0.0	170.4	16	95
TLR Level 5A	11/30/2010 13:00	11/30/2010 12:38	11/30/2010 12:37:57	100.0	0.0	123.0	1	52
TLR Level 5A	11/30/2010 14:00	11/30/2010 13:29	11/30/2010 13:28:53	100.0	0.0	123.1	1	52
TLR Level 5A	11/30/2010 15:00	11/30/2010 14:30	11/30/2010 14:29:42	120.0	0.0	123.1	1	52
TLR Level 5A	11/30/2010 16:00	11/30/2010 15:31	11/30/2010 15:30:32	120.0	0.0	123.1	1	52
TLR Level 3A	11/30/2010 17:00	11/30/2010 16:27	11/30/2010 16:27:05	100.0	0.0	100.0	1	52
TLR Level 3A	11/30/2010 18:00	11/30/2010 17:29	11/30/2010 17:29:02	131.0	8.0	123.0	1	52
TLR Level 3A	11/30/2010 19:00	11/30/2010 18:28	11/30/2010 18:28:05	120.0	0.0	120.0	1	52
TLR Level 5A	11/30/2010 20:00	11/30/2010 19:30	11/30/2010 19:29:23	122.0	0.0	123.1	1	52
TLR Level 5A	11/30/2010 21:00	11/30/2010 20:27	11/30/2010 20:25:42	123.0	0.0	123.0	1	52
TLR Level 5A	11/30/2010 22:00	11/30/2010 21:27	11/30/2010 21:25:45	119.0	0.0	119.0	0	0
TLR Level 0	11/30/2010 22:30	11/30/2010 22:17	11/30/2010 22:16:56	0.0	0.0	0.0	0	0

Event Summary

FILE SAVED AS: SWPP_5393_20101129_1900.htm

Incident: SWPP_5393_20101129_1900

Date: 11/29/2010

Reliability Coordinator: SWPP

Initial Conditions: loading

Flowgate: 5393 - IATXFRIATSTR

Rating: 715

LODF: 44.59%

TLR Direction: Normal

Effective StartTime: 11/29/2010 19:00

Effective EndTime: 11/30/2010 22:30

TLR Duration: 27 Hours and 30 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												
Nov 29 18:42	TLR 3A	NEXT	1-NS 2-NH 6-NN Total	6 / 0 1 / 0 16 / 0 23 / 0	183 50 355 588	9.6 2.5 29.1 41.3	183 50 355 588	9.6 2.5 29.1 41.3	0 0 0 0	0.0 0.0 0.0 0.0	NONE			NONE					354	711	801	N/A
Nov 29 19:17	TLR 3B	CURRENT	6-NN Total	9 / 0 9 / 0	239 505	18.6 18.6	239 239	18.6 18.6	0 0	0.0 0.0	NONE			NONE					357	710	793	N/A
		NEXT	1-NS 6-NN Total	1 / 0 15 / 0 16 / 0	75 591 505	3.8 47.5 51.3	75 591 666	3.8 47.5 51.3	0 0 0	0.0 0.0 0.0	NONE			NONE								
Nov 29 20:29	TLR 3A	NEXT	1-NS Total	1 / 0 1 / 0	75 75	3.8 3.8	75 75	3.8 3.8	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 110.2 0.0 110.2	0.0 110.2 0.0 110.2	357	716	806	N/A			
Nov 29 21:26	TLR 3A	NEXT	2-NH Total	1 / 0 1 / 0	50 50	4.8 4.8	50 50	4.8 4.8	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 57.2 0.0 57.2	0.0 57.2 0.0 57.2	354	708	796	N/A			
Nov 29 22:26	TLR 3A	NEXT	1-NS 2-NH Total	1 / 0 1 / 0 2 / 0	75 50 125	3.8 4.9 8.8	75 50 125	3.8 4.9 8.8	0 0 0	0.0 0.0 0.0	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 72.2 0.0 72.2	0.0 72.2 0.0 72.2	345	696	788	N/A			
Nov 29 23:26	TLR 3A	NEXT	NONE							NONE			ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 82.0 0.0 82.0	0.0 82.0 0.0 82.0	334	703	828	N/A		
Nov 30 00:26	TLR 3A	NEXT	NONE							NONE			ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 108.0 0.0 108.0	0.0 108.0 0.0 108.0	330	687	801	N/A		

Nov 30 01:28	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 105.0 0.0 105.0	0.0 105.0 0.0 105.0	317	679	812	N/A
Nov 30 02:28	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 99.0 0.0 99.0	0.0 99.0 0.0 99.0	317	681	818	N/A
Nov 30 03:28	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 83.0 0.0 83.0	0.0 83.0 0.0 83.0	328	702	839	N/A
Nov 30 04:28	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 119.0 0.0 119.0	0.0 119.0 0.0 119.0	324	686	813	N/A
Nov 30 05:27	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 119.0 0.0 119.0	0.0 119.0 0.0 119.0	342	707	819	N/A
Nov 30 06:27	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	321	637	710	N/A
Nov 30 07:31	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	347	674	735	N/A
Nov 30 08:38	TLR 3A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 113.9 0.0 113.9	0.0 113.9 0.0 113.9	346	666	719	N/A
Nov 30 09:33	TLR 3A	NEXT	6-NN Total	1 / 0 1 / 0	52 52	4.3 4.3	52 52	4.3 4.3	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 119.0 0.0 119.0	0.0 119.0 0.0 119.0	351	677	733	N/A
Nov 30 10:29	TLR 3A	NEXT	6-NN Total	1 / 0 1 / 0	52 52	4.0 4.0	52 52	4.0 4.0	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 119.0 0.0 119.0	0.0 119.0 0.0 119.0	356	687	744	N/A
Nov 30 11:30	TLR 3A	NEXT	6-NN Total	1 / 0 1 / 0	52 52	4.0 4.0	52 52	4.0 4.0	0 0	0.0 0.0	NONE	ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP	0.0 119.0 0.0 119.0	0.0 119.0 0.0 119.0	355	690	752	N/A
Nov 30 11:51	TLR 5A	NEXT	NONE								NONE	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 0.0 119.0	0.0 119.0 0.0 0.0 119.0	356	694	758	N/A

Nov 30 11:55	TLR 5A	NEXT	7-F Total	15 / 0 15 / 0	43 43	2.7 2.7	43 43	2.7 2.7	0 0	0.0 0.0	AECI Total	2.0 2.0	2.0 2.0	ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 42.3 0.0 161.3	0.0 119.0 42.3 0.0 161.3	353	687	751	N/A	
Nov 30 12:38	TLR 5A	NEXT	NONE									NONE			ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 0.0 119.0	0.0 119.0 0.0 0.0 119.0	346	673	735	N/A
Nov 30 13:29	TLR 5A	NEXT	6-NN Total	1 / 0 1 / 0	52 52	4.1 4.1	52 52	4.1 4.1	0 0	0.0 0.0	NONE			ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 0.0 119.0	0.0 119.0 0.0 0.0 119.0	350	675	730	N/A	
Nov 30 14:30	TLR 5A	NEXT	NONE									NONE			ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 0.0 119.0	0.0 119.0 0.0 0.0 119.0	355	703	782	N/A
Nov 30 15:31	TLR 5A	NEXT	NONE									NONE			ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 0.0 119.0	0.0 119.0 0.0 0.0 119.0	347	673	733	N/A
Nov 30 16:27	TLR 3A	NEXT	NONE									NONE			ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP SWPP	0.0 96.0 0.0 96.0	0.0 96.0 0.0 96.0	344	656	701	N/A
Nov 30 17:29	TLR 3A	NEXT	NONE									NONE			ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 119.0	0.0 119.0 0.0 119.0	348	671	725	N/A
Nov 30 18:28	TLR 3A	NEXT	NONE									NONE			ED-2 ED-6 FIRM-7 Total	SWPP SWPP SWPP SWPP	0.0 115.9 0.0 115.9	0.0 115.9 0.0 115.9	353	692	761	N/A
Nov 30 19:30	TLR 5A	NEXT	6-NN Total	1 / 0 1 / 0	52 52	4.1 4.1	52 52	4.1 4.1	0 0	0.0 0.0	NONE			ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 0.0 119.0	0.0 119.0 0.0 0.0 119.0	358	710	791	N/A	
Nov 30 20:27	TLR 5A	NEXT	6-NN Total	1 / 0 1 / 0	52 52	4.0 4.0	52 52	4.0 4.0	0 0	0.0 0.0	NONE			ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 0.0 119.0	0.0 119.0 0.0 0.0 119.0	356	707	789	N/A	
Nov 30 21:27	TLR 5A	NEXT	NONE									NONE			ED-2 ED-6 FIRM-7 FIRM-CREDIT Total	SWPP SWPP SWPP SWPP	0.0 119.0 0.0 0.0 119.0	0.0 119.0 0.0 0.0 119.0	345	674	740	N/A

Nov 30 22:17	TLR 0	CURRENT	NONE	NONE	NONE	334	688	794	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	9	408	408	0
2	3	150	150	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	48	1497	1497	0
7	15	43	43	0
Total	73	2098	2098	0

TLR NNL Totals

CA	NNL Relief	
	IDC MW	RC Ackn MW
AECI	2.0	2.0
Total	2.0	2.0

TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWPP	ED-2	0.0	0.0
	ED-6	2827.4	2827.4
	FIRM-7	42.3	42.3
Total for SWPP		2869.7	2869.7
Total		2869.7	2869.7

IATXFRIATSTR - 5393

