

SPP TLR 5 Investigation Report
Flowgate TEMP14_16508
(Sapulpa – Sand Springs 138 kV line for loss of Tulsa – Olympic 138 kV line)
TLR Level 5: August 12, 2010
Report Issued: December 14, 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 16508 on August 12, 2010. Flowgate 16508 is an SPP flowgate. The Level 5 TLR was in effect from 16:00 until 18:00 CST on August 12, 2010. Projected post-contingent flows on the Sapulpa – Sand Springs 138 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 188 MVA. Flow on the Limiting Element was 125 MVA. Flow on the Contingent Element was 126 MVA. The LODF was approximately 46%. Post-contingent flow on the Limiting Element was approximately 183 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 no non-firm transactions or market flows that impacted the flowgate by more than 5% to relieve the loading. 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 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. The Sapulpa – Sand Springs 138 kV line was showing in the RTCA application on July 11, 2010. After confirmation with the Balancing Authority, it was decided to build the temporary flowgate. 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 in the Tulsa area. 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. Firm and non-firm Market Flow 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: 16508 - Temporary 14 - SAPSANTULOLY
Event Begin: 2010-08-12 09:33
Event End: 2010-08-12 19:25
Event Duration: 10 Hours

| TLR Level | TLR Date | TLR Confirm Time | Run Time | Requested Relief | Remaining Relief | Relief Provided | Total Cuts | |
|------------------------------|------------------|------------------|---------------------|------------------|------------------|-----------------|------------|----|
| | | | | | | | Tags | MW |
| TLR Level 3B | 08/12/2010 09:45 | 08/12/2010 09:33 | 08/12/2010 09:32:27 | 10.0 | 10.0 | 0.0 | 0 | 0 |
| TLR Level 3A | 08/12/2010 11:00 | 08/12/2010 10:26 | 08/12/2010 10:25:34 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| TLR Level 3A | 08/12/2010 12:00 | 08/12/2010 11:26 | 08/12/2010 11:25:53 | 16.0 | 16.0 | 0.0 | 0 | 0 |
| TLR Level 3A | 08/12/2010 13:00 | 08/12/2010 12:26 | 08/12/2010 12:25:33 | 7.0 | 7.0 | 0.0 | 0 | 0 |
| TLR Level 3A | 08/12/2010 14:00 | 08/12/2010 13:26 | 08/12/2010 13:25:41 | 3.0 | 3.0 | 0.0 | 0 | 0 |
| TLR Level 3A | 08/12/2010 15:00 | 08/12/2010 14:25 | 08/12/2010 14:25:30 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| TLR Level 5A | 08/12/2010 16:00 | 08/12/2010 15:26 | 08/12/2010 15:25:47 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| TLR Level 5A | 08/12/2010 17:00 | 08/12/2010 16:34 | 08/12/2010 16:33:44 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| TLR Level 3A | 08/12/2010 18:00 | 08/12/2010 17:33 | 08/12/2010 17:32:29 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| TLR Level 3A | 08/12/2010 19:00 | 08/12/2010 18:29 | 08/12/2010 18:27:35 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| TLR Level 0 | 08/12/2010 19:35 | 08/12/2010 19:25 | 08/12/2010 19:25:09 | 0.0 | 0.0 | 0.0 | 0 | 0 |

Event Summary

FILE SAVED AS: SWPP_16508_20100812_0945.htm

| | | |
|---|-------------------------------------|--------------------------------------|
| Incident: SWPP_16508_20100812_0945 | Date: 08/12/2010 | Reliability Coordinator: SWPP |
| Initial Conditions: loading | | |
| Flowgate: 16508 - Temporary 14 - SAPSANTULOLY | Rating: 188 | LODF: 46.39% |
| TLR Direction: Normal | | |
| Effective StartTime: 08/12/2010 09:45 | Effective EndTime: 08/12/2010 19:35 | TLR Duration: 9 Hours and 50 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 | | | | | | | | | | | |
| Aug 12 09:33 | TLR 3B | CURRENT | | NONE | | | | | | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 118 | 175 | 124 | N/A | |
| | | | | NONE | | | | | | NONE | | | ED-6 | SWPP | 0.0 | 0.0 | | | | | |
| | | NEXT | | NONE | | | | | | NONE | | | FIRM-7 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | Total | | 0.0 | 0.0 | | | | | |
| Aug 12 10:26 | TLR 3A | NEXT | | NONE | | | | | | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 125 | 186 | 133 | N/A | |
| | | | | NONE | | | | | | NONE | | | ED-6 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | FIRM-7 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | Total | | 0.0 | 0.0 | | | | | |
| Aug 12 11:26 | TLR 3A | NEXT | | NONE | | | | | | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 121 | 178 | 124 | N/A | |
| | | | | NONE | | | | | | NONE | | | ED-6 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | FIRM-7 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | Total | | 0.0 | 0.0 | | | | | |
| Aug 12 12:26 | TLR 3A | NEXT | | NONE | | | | | | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 125 | 186 | 133 | N/A | |
| | | | | NONE | | | | | | NONE | | | ED-6 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | FIRM-7 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | Total | | 0.0 | 0.0 | | | | | |
| Aug 12 13:26 | TLR 3A | NEXT | | NONE | | | | | | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 127 | 192 | 141 | N/A | |
| | | | | NONE | | | | | | NONE | | | ED-6 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | FIRM-7 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | Total | | 0.0 | 0.0 | | | | | |
| Aug 12 14:26 | TLR 3A | NEXT | | NONE | | | | | | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 127 | 188 | 133 | N/A | |
| | | | | NONE | | | | | | NONE | | | ED-6 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | FIRM-7 | SWPP | 0.0 | 0.0 | | | | | |
| | | | | NONE | | | | | | NONE | | | Total | | 0.0 | 0.0 | | | | | |

| | | | | | | | | | | | | |
|-----------------|--------|---------|------|------|---|------------------------------|--|--|-----|-----|-----|-----|
| Aug 12 15:28 | 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 | 125 | 183 | 128 | N/A |
| Aug 12 16:34 | 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 | 124 | 181 | 125 | N/A |
| Aug 12 17:33 | 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 | 120 | 177 | 123 | N/A |
| Aug 12 18:29 | 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 | 115 | 169 | 117 | N/A |
| Aug 12 19:25 | TLR 0 | CURRENT | NONE | NONE | NONE | | | | 110 | 180 | 109 | 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 | 0.0 | 0.0 |
| | ED-6 | 0.0 | 0.0 |
| | FIRM-7 | 0.0 | 0.0 |
| Total for SWPP | | 0.0 | 0.0 |
| Total | | 0.0 | 0.0 |

Reliability Log for August, 12**2010**

| Time | Initials | Comments | |
|------|----------|--|--|
| 1032 | LRG | Issued TLR level 3B on Temp. 14 SapSanTulOly # 16508 | |
| 1125 | LRG | Issued TLR level 3A on Temp. 14 SapSanTulOly # 16508 | |
| 1225 | LRG | Issued TLR level 3A on Temp. 14 SapSanTulOly # 16508 | |
| 1325 | LRG | Issued TLR level 3A on Temp. 14 SapSanTulOly # 16508 | |
| 1425 | LRG | Issued TLR level 3A on Temp. 14 SapSanTulOly # 16508 | |
| 1525 | LRG | Issued TLR level 3A on Temp. 14 SapSanTulOly # 16508 | |
| 1625 | LRG | Issued TLR level 5A on Temp. 14 SapSanTulOly # 16508-fesiability | |
| 1733 | DGA | Issued TLR level 5A on Temp. 14 SapSanTulOly # 16508-fesiability | |
| 1832 | DGA | Issued TLR level 3A on Temp. 14 SapSanTulOly # 16508-fesiability | |
| 1927 | DGA | Issued TLR level 3A on Temp. 14 SapSanTulOly # 16508-fesiability | |
| 2025 | DGA | Issued TLR level 0 on Temp. 14 SapSanTulOly # 16508-fesiability | |
| 2118 | DGA | Issued TLR level 3B on Temp 14 SapSanTulOly flgt 16508 | |
| 2226 | DGA | Issued TLR level 3A on Temp 14 SapSanTulOly flgt 16508 | |
| 2329 | DGA | Issued TLR level 0 on Temp 14 SapSanTulOly flgt 16508 | |
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