

SPP TLR 5 Investigation Report
Temp 20 Flowgate 16147
(Neosho – Columbus 161 kV for the loss of Northeast Coal – Oneta 345 kV)
TLR Level 5: January 10, 2010
Report Issued: January 31, 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 16147 on January 10, 2010. Flowgate 16147 is an SPP flowgate created for the planned outage of the Northeastern – Tulsa North 345 kV line. The Level 5 TLR was in effect from 13:05 until 15:10 CST on January 10, 2010. 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 126 MVA. Flow on the Contingent Element was 626 MVA. The LODF was approximately 12%. Post-contingent flow on the Limiting Element was projected to be approximately 203 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 3-5.

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 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 6. 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 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 due to the temporary maintenance outage of the Northeastern – Tulsa North 345 kV line. Lack of available generation in the Joplin area during heavy north to south flows from Kansas and Missouri into Oklahoma and Arkansas contributed to the loading. Since the temporary outage 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. 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.

TLR Event History

16147 - Temporary 20 Neosho-Columbus 161 FTLO NE_Coal-Oneta 345

| Status | TLR Level | TLR Date (CST) | TLR Confirm Time (CST) | Run Time (CST) | Requested Relief | Remaining Relief | Relief Provided | Total Cuts | |
|----------------------------|-----------|------------------|------------------------|---------------------|------------------|------------------|-----------------|------------|----|
| | | | | | | | | Tags | MW |
| SUPERSEDED | 3B | 01/10/2010 11:25 | 01/10/2010 11:13 | 01/10/2010 11:13:27 | 50.0 | 50.0 | 0.0 | 0 | 0 |
| SUPERSEDED | 3A | 01/10/2010 12:00 | 01/10/2010 11:29 | 01/10/2010 11:28:54 | 20.0 | 20.0 | 0.0 | 0 | 0 |
| SUPERSEDED | 3A | 01/10/2010 13:00 | 01/10/2010 12:34 | 01/10/2010 12:34:40 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| SUPERSEDED | 5A | 01/10/2010 13:05 | 01/10/2010 12:46 | 01/10/2010 12:46:37 | 10.0 | 0.0 | 10.3 | 9 | 15 |
| SUPERSEDED | 5A | 01/10/2010 14:00 | 01/10/2010 13:31 | 01/10/2010 13:30:57 | 0.0 | 0.0 | 4.0 | 0 | 0 |
| SUPERSEDED | 5A | 01/10/2010 15:00 | 01/10/2010 14:31 | 01/10/2010 14:30:40 | 15.0 | 0.0 | 27.0 | 0 | 0 |
| SUPERSEDED | 3A | 01/10/2010 15:10 | 01/10/2010 14:53 | 01/10/2010 14:52:52 | 10.0 | 0.0 | 10.0 | 0 | 0 |
| SUPERSEDED | 3A | 01/10/2010 16:00 | 01/10/2010 15:27 | 01/10/2010 15:27:33 | 50.0 | 27.0 | 23.0 | 0 | 0 |
| SUPERSEDED | 3A | 01/10/2010 17:00 | 01/10/2010 16:25 | 01/10/2010 16:25:35 | 50.0 | 44.0 | 6.0 | 0 | 0 |
| TERMINATED | 0 | 01/10/2010 17:35 | 01/10/2010 17:21 | 01/10/2010 17:21:39 | 0.0 | 0.0 | 0.0 | 0 | 0 |

02/02/2010 10:08:57 (CST)

OATI IDC Support Phone: 763-201-2010 Fax: 763-553-2813

Copyright 2010 - Interchange Distribution Calculator (OATI IDC) - Open Access Technology International, Inc. All Rights Reserved.

Event Summary

FILE SAVED AS: SWPP_16147_20100110_1125.htm

| | | |
|---|-------------------------------------|--------------------------------------|
| Incident: SWPP_16147_20100110_1125 | Date: 01/10/2010 | Reliability Coordinator: SWPP |
| Initial Conditions: Increased Loading | | |
| Flowgate: 16147 - Temporary 20 Neosho-Columbus 1... | Rating: 215 | LODF: 12.40% |
| TLR Direction: Normal | | |
| Effective StartTime: 01/10/2010 11:25 | Effective EndTime: 01/10/2010 17:35 | TLR Duration: 6 Hours and 10 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 | | | | | | | | | | | |
| Jan 10 11:13 | TLR 3B | CURRENT | | NONE | | | | | | | NONE | | | ED-2 ED-8 FIRM-7 Total | SWPP SWPP SWPP | 0.0 0.0 0.0 0.0 | 0.0 0.0 0.0 0.0 | 153 | 235 | 687 | N/A |
| | | NEXT | | NONE | | | | | | | NONE | | | ED-2 ED-8 FIRM-7 Total | SWPP SWPP SWPP | 0.0 0.0 0.0 0.0 | 0.0 0.0 0.0 0.0 | | | | |
| Jan 10 11:29 | TLR 3A | NEXT | | NONE | | | | | | | NONE | | | ED-2 ED-8 FIRM-7 Total | SWPP SWPP SWPP | 0.0 0.0 0.0 0.0 | 0.0 0.0 0.0 0.0 | 137 | 213 | 613 | N/A |
| Jan 10 12:34 | TLR 3A | NEXT | | NONE | | | | | | | NONE | | | ED-2 ED-8 FIRM-7 Total | SWPP SWPP SWPP | 0.0 0.0 0.0 0.0 | 0.0 0.0 0.0 0.0 | 131 | 208 | 629 | N/A |
| Jan 10 12:48 | TLR 5A | NEXT | 7-F Total | 9 / 0 9 / 0 | 15 15 | 0.8 0.8 | 15 15 | 0.8 0.8 | 0 0 | 0.0 0.0 | NONE | | | ED-2 ED-8 FIRM-7 FIRM-CREDIT Total | SWPP SWPP SWPP SWPP | 0.0 6.0 3.5 0.0 9.5 | 0.0 6.0 3.5 0.0 9.5 | 128 | 203 | 626 | N/A |
| Jan 10 13:31 | TLR 5A | NEXT | | NONE | | | | | | | NONE | | | ED-2 ED-8 FIRM-7 FIRM-CREDIT Total | SWPP SWPP SWPP SWPP | 0.0 2.0 2.0 0.0 4.0 | 0.0 2.0 2.0 0.0 4.0 | 131 | 213 | 684 | N/A |
| Jan 10 14:31 | TLR 5A | NEXT | | NONE | | | | | | | NONE | | | ED-2 ED-8 FIRM-7 FIRM-CREDIT Total | SWPP SWPP SWPP SWPP | 0.0 26.0 1.0 0.0 27.0 | 0.0 26.0 1.0 0.0 27.0 | 130 | 208 | 638 | N/A |
| Jan 10 14:53 | TLR 3A | NEXT | | NONE | | | | | | | NONE | | | ED-2 ED-8 FIRM-7 Total | SWPP SWPP SWPP | 0.0 10.0 0.0 10.0 | 0.0 10.0 0.0 10.0 | 138 | 209 | 593 | N/A |

| | | | | | | | | | | | | |
|-----------------|--------|---------|------|------|--|----------------------|-----------------------------------|-----------------------------------|-----|-----|-----|-----|
| Jan 10 15:27 | TLR 3A | NEXT | NONE | NONE | ED-2 ED-6 FIRM-7 Total | SWPP SWPP SWPP | 0.0 23.0 0.0 23.0 | 0.0 23.0 0.0 23.0 | 149 | 226 | 621 | N/A |
| Jan 10 16:25 | TLR 3A | NEXT | NONE | NONE | ED-2 ED-6 FIRM-7 Total | SWPP SWPP SWPP | 0.0 3.0 3.0 6.0 | 0.0 3.0 3.0 6.0 | 124 | 192 | 553 | N/A |
| Jan 10 17:21 | TLR 0 | CURRENT | NONE | NONE | NONE | | | | 118 | 182 | 524 | 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 | 9 | 15 | 15 | 0 |
| Total | 9 | 15 | 15 | 0 |

TLR Market Flow Totals

| Market | Type | Market Relief | |
|-----------------------|--------|---------------|------------------|
| | | IDC MW | RC Ackn MW |
| SWPP | ED-2 | 0.0 | 0.0 |
| | ED-6 | 70.0 | 70.0 |
| | FIRM-7 | 9.5 | 9.5 |
| Total for SWPP | | 79.5 | 79.5 |
| Total | | 79.5 | 79.5 |

| | A | B | C | D | E |
|----|--|----------|---|-------------|---|
| 1 | Reliability Log for January, 10 | | | 2010 | |
| 2 | Time | Initials | Comments | | |
| 3 | 1113 | MRH | Issued TLR level 3B on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147 | | |
| 4 | 1128 | MRH | Re-issued TLR level 3A on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147 | | |
| 5 | 1234 | MRH | Re-issued TLR level 3A on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147 | | |
| 6 | 1246 | MRH | Re-issued TLR level 5A on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147 --- LOADING & FEASIBILITY | | |
| 7 | 1330 | MRH | Re-issued TLR level 5A on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147 --- LOADING & FEASIBILITY | | |
| 8 | 1430 | MRH | Re-issued TLR level 5A on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147 --- LOADING & FEASIBILITY | | |
| 9 | 1452 | MRH | Re-issued TLR level 3A on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147. | | |
| 10 | 1527 | MRH | Re-issued TLR level 3A on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147. | | |
| 11 | 1545 | MRH | Set effective limit on FG16147 to 190 which is greater than 10%, due to the RT flows are running about 10mws over the the RTB solutions. Had it set to 195mw, RTB solved to 195, RT flows at 217. FG at 102. Pinching the limit down controls the loading but creates feasibility problems. | | |
| 12 | 1625 | MRH | Re-issued TLR level 3A on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147. | | |
| 13 | 1721 | MRH | Re-issued TLR level 0 on Temp. 20 Neosho-Columbus flo NE_Coal-Oneta #16147. | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |

TEMP20_16147 - 1/10/10

— Post Cont. — SOL

