

SPP TLR 5 Investigation Report
Temp 26 Flowgate 16045
(Neosho – Columbus 161 kV for the loss of Neosho – Delaware 345 kV)
TLR Level 5: December 25, 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 16045 on December 25, 2009. Flowgate 16045 is an SPP flowgate created for a planned outage of Neosho – Morgan 345 kV line earlier this fall. Loading on the flowgate remained relatively high after the Neosho – Morgan 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 00:50 until 9:20 CST on December 25, 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 5B TLR was issued, the Limiting Element was rated at 215 MVA. Flow on the Limiting Element was 203 MVA. Flow on the Contingent Element was 290 MVA. The LODF was approximately 12%. Post-contingent flow on the Limiting Element was approximately 237 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.

Generation at Flint Creek tripped the day before and had not returned to service yet. This caused an increase in flowgate loading.

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 being issued. The TLR was initially implemented at 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 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 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 3-5.

TLR Event History

16045 - Temporary 26 - Neosho-Columbus 161 flo Neosho-Delaware 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 | 5B | 12/25/2009 00:50 | 12/25/2009 00:40 | 12/25/2009 00:40:23 | 25.0 | 0.0 | 25.1 | 3 | 13 |
| SUPERSEDED | 5A | 12/25/2009 02:00 | 12/25/2009 01:28 | 12/25/2009 01:27:54 | 0.0 | 0.0 | 7.0 | 0 | 0 |
| SUPERSEDED | 5A | 12/25/2009 03:00 | 12/25/2009 02:25 | 12/25/2009 02:25:37 | 60.0 | 0.0 | 60.1 | 4 | 44 |
| SUPERSEDED | 5A | 12/25/2009 04:00 | 12/25/2009 03:27 | 12/25/2009 03:27:13 | 40.0 | 0.0 | 40.0 | 2 | 20 |
| SUPERSEDED | 5A | 12/25/2009 05:00 | 12/25/2009 04:27 | 12/25/2009 04:26:48 | 15.0 | 0.0 | 15.1 | 3 | 11 |
| SUPERSEDED | 5A | 12/25/2009 06:00 | 12/25/2009 05:25 | 12/25/2009 05:25:13 | 30.0 | 0.0 | 30.1 | 5 | 37 |
| SUPERSEDED | 5A | 12/25/2009 07:00 | 12/25/2009 06:26 | 12/25/2009 06:26:17 | 11.0 | 0.0 | 11.1 | 4 | 15 |
| SUPERSEDED | 5A | 12/25/2009 08:00 | 12/25/2009 07:26 | 12/25/2009 07:25:54 | 15.0 | 0.0 | 15.1 | 4 | 21 |
| SUPERSEDED | 5A | 12/25/2009 09:00 | 12/25/2009 08:27 | 12/25/2009 08:27:11 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| TERMINATED | 0 | 12/25/2009 09:20 | 12/25/2009 09:07 | 12/25/2009 09:07:21 | 0.0 | 0.0 | 0.0 | 0 | 0 |

12/30/2009 14:06:54 (CST)

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Event Summary

FILE SAVED AS: SWPP_16045_20091225_0050.htm

| | | |
|---|-------------------------------------|--------------------------------------|
| Incident: SWPP_16045_20091225_0050 | Date: 12/25/2009 | Reliability Coordinator: SWPP |
| Initial Conditions: Increased Flows | | |
| Flowgate: 16045 - Temporary 26 - Neosho-Columbus... | Rating: 215 | LODF: 12.04% |
| TLR Direction: Normal | | |
| Effective StartTime: 12/25/2009 00:50 | Effective EndTime: 12/25/2009 09:20 | TLR Duration: 8 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 | | | | | | | | | | | | | |
| Dec 25 00:40 | TLR 5B | CURRENT | 7-F | 3 / 0 | 13 | 0.7 | 13 | 0.7 | 0 | 0.0 | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 203 | 237 | 290 | N/A | | |
| | | Total | 3 / 0 | 13 | 0.7 | 13 | 0.7 | 0 | 0.0 | ED-8 | SWPP | 15.0 | 15.0 | FIRM-7 | SWPP | 9.3 | 9.3 | | | | | 24.3 | 24.3 |
| | | NEXT | 7-F | 3 / 0 | 18 | 1.0 | 18 | 1.0 | 0 | 0.0 | NONE | | | NONE | | | | | | | | | |
| | | Total | 7-F | 3 / 0 | 13 | 1.0 | 18 | 1.0 | 0 | 0.0 | NONE | | | NONE | | | | | | | | | |
| Dec 25 01:28 | TLR 5A | NEXT | 7-F | NONE | | | | | | | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 170 | 184 | 121 | N/A | | |
| | | | | 44 | 2.5 | 44 | 2.5 | 0 | 0.0 | ED-8 | SWPP | 0.0 | 0.0 | FIRM-7 | SWPP | 7.0 | 7.0 | | | | | FIRM-CREDIT | SWPP |
| | | Total | 7-F | 4 / 0 | 44 | 2.5 | 44 | 2.5 | 0 | 0.0 | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 159 | 181 | 188 | N/A | | |
| | | | | 20 | 1.1 | 20 | 1.1 | 0 | 0.0 | NONE | | | ED-8 | SWPP | 0.0 | 0.0 | | | | | | | |
| | | Total | 7-F | 2 / 0 | 20 | 1.1 | 20 | 1.1 | 0 | 0.0 | NONE | | | FIRM-7 | SWPP | 57.5 | 57.5 | | | | | | |
| | | | | 20 | 1.1 | 20 | 1.1 | 0 | 0.0 | NONE | | | FIRM-CREDIT | SWPP | 0.0 | 0.0 | | | | | | | |
| | | Total | 7-F | 2 / 0 | 20 | 1.1 | 20 | 1.1 | 0 | 0.0 | NONE | | | 38.9 | 38.9 | | | 161 | 186 | 214 | N/A | | |
| Dec 25 03:27 | TLR 5A | NEXT | 7-F | 2 / 0 | 20 | 1.1 | 20 | 1.1 | 0 | 0.0 | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 161 | 186 | 214 | N/A | | |
| | | | | 11 | 0.6 | 11 | 0.6 | 0 | 0.0 | NONE | | | ED-8 | SWPP | 14.0 | 14.0 | | | | | | | |
| | | Total | 7-F | 2 / 0 | 20 | 1.1 | 20 | 1.1 | 0 | 0.0 | NONE | | | FIRM-7 | SWPP | 24.9 | 24.9 | | | | | | |
| | | | | 11 | 0.6 | 11 | 0.6 | 0 | 0.0 | NONE | | | FIRM-CREDIT | SWPP | 0.0 | 0.0 | | | | | | | |
| | | Total | 7-F | 3 / 0 | 11 | 0.6 | 11 | 0.6 | 0 | 0.0 | NONE | | | 38.9 | 38.9 | | | 172 | 203 | 260 | N/A | | |
| Dec 25 04:27 | TLR 5A | NEXT | 7-F | 3 / 0 | 11 | 0.6 | 11 | 0.6 | 0 | 0.0 | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 172 | 203 | 260 | N/A | | |
| | | | | 37 | 2.1 | 37 | 2.1 | 0 | 0.0 | NONE | | | ED-8 | SWPP | 7.0 | 7.0 | | | | | | | |
| | | Total | 7-F | 3 / 0 | 11 | 0.6 | 11 | 0.6 | 0 | 0.0 | NONE | | | FIRM-7 | SWPP | 7.5 | 7.5 | | | | | | |
| | | | | 37 | 2.1 | 37 | 2.1 | 0 | 0.0 | NONE | | | FIRM-CREDIT | SWPP | 0.0 | 0.0 | | | | | | | |
| | | Total | 7-F | 5 / 0 | 37 | 2.1 | 37 | 2.1 | 0 | 0.0 | NONE | | | 14.5 | 14.5 | | | 181 | 211 | 253 | N/A | | |
| Dec 25 05:25 | TLR 5A | NEXT | 7-F | 5 / 0 | 37 | 2.1 | 37 | 2.1 | 0 | 0.0 | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 181 | 211 | 253 | N/A | | |
| | | | | 15 | 0.8 | 15 | 0.8 | 0 | 0.0 | NONE | | | ED-8 | SWPP | 24.0 | 24.0 | | | | | | | |
| | | Total | 7-F | 5 / 0 | 37 | 2.1 | 37 | 2.1 | 0 | 0.0 | NONE | | | FIRM-7 | SWPP | 4.0 | 4.0 | | | | | | |
| | | | | 15 | 0.8 | 15 | 0.8 | 0 | 0.0 | NONE | | | FIRM-CREDIT | SWPP | 0.0 | 0.0 | | | | | | | |
| | | Total | 7-F | 4 / 0 | 15 | 0.8 | 15 | 0.8 | 0 | 0.0 | NONE | | | 28.0 | 28.0 | | | 183 | 203 | 173 | N/A | | |
| Dec 25 06:26 | TLR 5A | NEXT | 7-F | 4 / 0 | 15 | 0.8 | 15 | 0.8 | 0 | 0.0 | NONE | | | ED-2 | SWPP | 0.0 | 0.0 | 183 | 203 | 173 | N/A | | |
| | | | | 15 | 0.8 | 15 | 0.8 | 0 | 0.0 | NONE | | | ED-8 | SWPP | 0.0 | 0.0 | | | | | | | |
| | | Total | 7-F | 4 / 0 | 15 | 0.8 | 15 | 0.8 | 0 | 0.0 | NONE | | | FIRM-7 | SWPP | 10.3 | 10.3 | | | | | | |
| | | | | 15 | 0.8 | 15 | 0.8 | 0 | 0.0 | NONE | | | FIRM-CREDIT | SWPP | 0.0 | 0.0 | | | | | | | |
| | | Total | 7-F | 4 / 0 | 15 | 0.8 | 15 | 0.8 | 0 | 0.0 | NONE | | | 10.3 | 10.3 | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|-----------------|--------|---------|--------------|----------------|----------|------------|----------|------------|--------|------------|------|--|------------------------------|-----------------------------------|-----------------------------------|-----|-----|-----|-----|
| Dec 25 07:26 | TLR 5A | NEXT | 7-F Total | 4 / 0 4 / 0 | 21 21 | 1.2 1.2 | 21 21 | 1.2 1.2 | 0 0 | 0.0 0.0 | NONE | ED-2 ED-6 FIRM-7 FIRM-CREDIT Total | SWPP SWPP SWPP SWPP | 0.0 0.0 13.9 0.0 13.9 | 0.0 0.0 13.9 0.0 13.9 | 183 | 195 | 104 | N/A |
| Dec 25 08:27 | 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 | 172 | 175 | 28 | N/A |
| Dec 25 09:07 | TLR 0 | CURRENT | NONE | | | | | | | | NONE | NONE | | | 176 | 180 | 39 | 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 | 28 | 179 | 179 | 0 |
| Total | 28 | 179 | 179 | 0 |

TLR Market Flow Totals

| Market | Type | Market Relief | |
|----------------|--------|---------------|------------------|
| | | IDC MW | RC Ackn MW |
| SWPP | ED-2 | 0.0 | 0.0 |
| | ED-6 | 60.0 | 60.0 |
| | FIRM-7 | 134.4 | 134.4 |
| Total for SWPP | | 194.4 | 194.4 |
| Total | | 194.4 | 194.4 |

| | A | B | C | D | E |
|----|-------------------------|----------|--|--|---|
| 1 | Merry Christmas! | | | Reliability Log for December, 25 2009 | |
| 2 | Time | Initials | Comments | Friday | |
| 3 | 0040 | MRH | Issued TLR Level 5B on Temp 26, flgt # 16045 - LOADING | | |
| 4 | 0043 | MRH | Set the effective limits on FG 16045 and 16094 to 190 to try and lower the loading. Both FG above 104% even after TLR 5 issue. | | |
| 5 | 0127 | MRH | Re-issued TLR Level 5A on Temp 26, flgt # 16045 - LOADING | | |
| 6 | 0225 | MRH | Re-issued TLR Level 5A on Temp 26, flgt # 16045 - LOADING | | |
| 7 | 0327 | MRH | Re-issued TLR Level 5A on Temp 26, flgt # 16045 - LOADING | | |
| 8 | 0426 | MRH | Re-issued TLR Level 5A on Temp 26, flgt # 16045 - LOADING | | |
| 9 | 0525 | MRH | Re-issued TLR Level 5A on Temp 26, flgt # 16045 - LOADING | | |
| 10 | 0626 | WRG | Re-issued TLR Level 5A on Temp 26, flgt # 16045 - LOADING | | |
| 11 | 0725 | WRG | Re-issued TLR Level 5A on Temp 26, flgt # 16045 - LOADING | | |
| 12 | 0827 | WRG | Re-issued TLR Level 5A on Temp 26, flgt # 16045 - LOADING | | |
| 13 | 0907 | WRG | Issued TLR Level 0 on Temp 26, flgt # 16045 | | |
| 14 | | | | | |
| 15 | | | | | |

TEMP26_16045 - 12/25/09

