

MISO Investigation Report on the NERC TLR Level 5 Event
Manitoba Hydro
Flowgate 6002: MHEX_S Interface
April 29, 2010

Report submitted to NERC on: May 28, 2010

This report is submitted in accordance with the NERC Transmission Loading Relief (TLR) Investigation Procedure for the TLR events that occurred on Flowgate 6002 on April 29, 2010. This event resulted in curtailment of Firm transactions.

1. Description of purpose/cause of hold/curtailment:

The definition of flowgate 6002 is listed below.

Monitored Facilities: Dorsey-Roseau 500kV line
Glenboro-Rugby 230kV line
Richer-Roseau 230kV line
Letellier-Drayton 230kV line

2. Facility/Flow gate limitations and flow at the time the TLR was initiated:

Midwest ISO, along with Manitoba Hydro has developed a standing operating guide to provide guidance for operators to manage real time flow on the MHEX_S Interface.

On April 29, 2010, a TLR 5 was required to reduce the scheduled & real-time south flows across flowgate 6002 due to a Comm. Channel 1 failure alarm on the Letellier-Laverendrye 230kV circuit. Interface FG 6002 must be operated to the most restrictive limits of 474MW until the situation can be studied.

At 16:08 EST, MHEB informed MISO that they needed TLR the MHEX_S flowgate 6002 to reduce the real-time flows on FG 6002 due to HVDC failure alarm.

At 16:10 EST, MISO issued a TLR-5B for across 16:15 EST on the MHEX_S flowgate 6002 to reduce the schedules & real-time flows below the limit OF 474MW.

At 16:25 EST, MHEB requested a TLR-0 on the Interface. Alarm was generic, Channel 2 is in-service and the HVDC system is not compromised.

At 16:30 EST, MISO re-issued the TLR-5A to a TLR-0 for across 16:45 EST on flowgate 6002 thus ending the TLR

As the NERC IDC showed insufficient non-firm schedule curtailments to relieve flows to the necessary levels, TLR-5 was issued for 1 issuance.

**3. TLR Level 5 issuance information, timing (EST), firm tag information obtained for flow gate #6002
April 29, 2010:**

TLR LEVEL	TIME (EST)	Firm Transaction / Curtailment Information	NNL Reduction Requirement
5A	16:15	11 tags of (7-F & 7-FN) = 845 MW schedules curtailed to provide 845 MW relief	None
0	16:45	Terminated TLR	None

NNL Mitigation:

- There were no NNL obligations for this TLR 5.

4. Transmission and generation outage or changes from prediction that may have contributed:

Significant Transmission Outages:

Prairie-Winger 230kV

Significant Generator Outages:

Duane Arnold	640
Boswell 4	563
Coal Creek 2	550
Prairie Island 2	563
Sherburne County 2	769
Antelope Valley 2	480
	====
	3565

System Condition Summary:

Temporary loss of Communication Channel 1 on the Letellier-Laverendrye 230kV circuit resulted in a restricted limit on the Interface FG 6002 of 474MW until the situation could be verified and studied.

5. Procedures implemented prior to hold/curtailment:

None – this issue is covered by the Standing op-guide

6. Compare Complete Transaction Curtailment List with the Whole Transaction List as generated by the IDC, before and after curtailments:

Firm transactions impacting the flow gate by 5% or greater were partially curtailed and reloaded.

7. Known Transactions not in the IDC and actions taken:

There were no known transactions not in the IDC at the time this TLR was in effect that were impacting this flow gate.

8. RCIS or other system messages:

Information was provided to NERC Reliability Coordinators via the NERC IDC. The IDC automatically sends TLR Level information to the RCIS. Curtailment information was communicated to the MISO control areas via the MISO MCN and ICCS messaging systems.

9. State estimator snapshots and security analysis including contingency analysis or stability analysis along with any other recorded data indicating the need for TLR:

None – this issue is covered by the Standing op-guide

10. ATC Limitations before, during, and after the event:

None – this issue is covered by the Standing op-guide

11. Description of actions taken to avoid future hold/curtailments:

None – this issue is covered by the Standing op-guide

12. Re-dispatch actions taken:

None – this issue is covered by the Standing op-guide

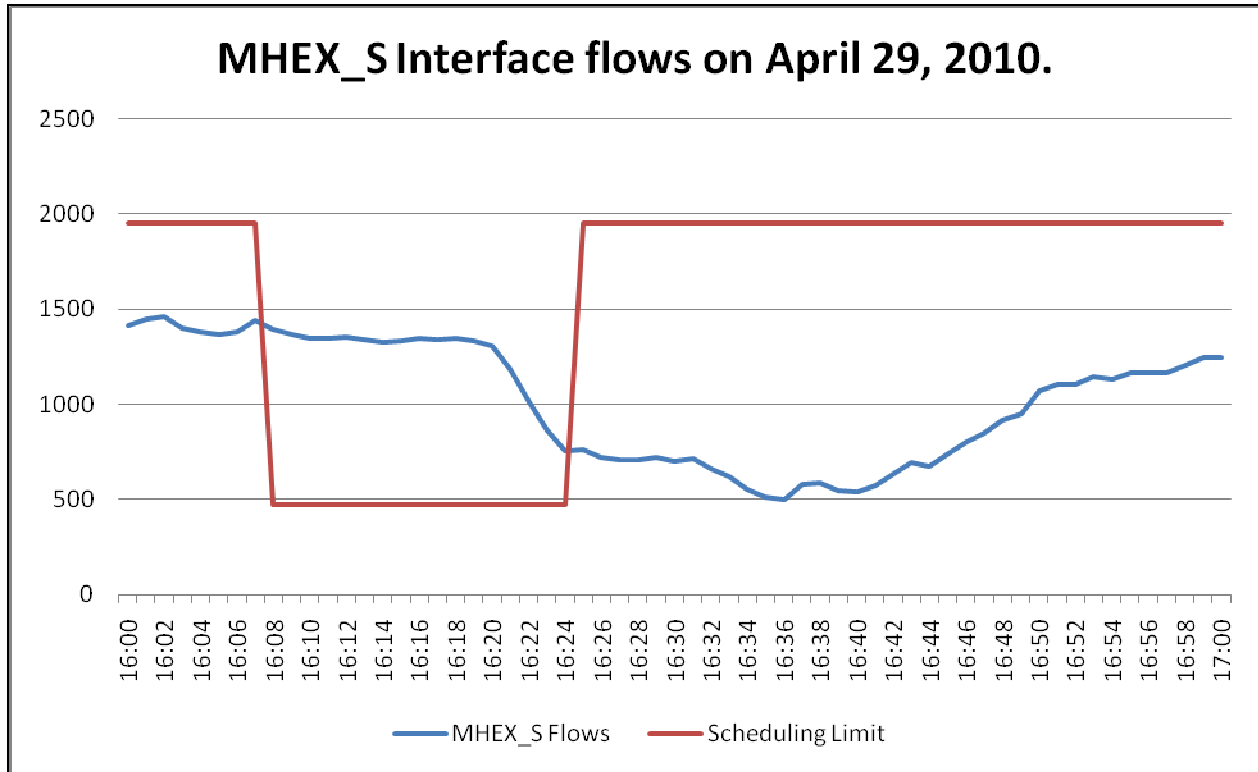
13. If Firm transaction curtailments took place, description of Transactional Contribution Factor calculation and results as well as how necessary relief was obtained through network service and native load contributions:

Firm schedules were curtailed as detailed in section 3 above.

14. Other options considered before/during to avoid hold/curtailment:

None – this issue is covered by the Standing op-guide

15. The following chart identifies the flowgate loading for the TLR level 5 event:



Note: This was a scheduling limit that proved to be conservative due to the alarm received that was later proven to be a non-threat to the DC.

16. Lessons Learned

The MHEB and MISO Operators reacted appropriately to the Comm. Ch. 1 failure alarm on the Letellier-Laverendrye 230kV circuit of the MHEX_S Interface.

MHEB and MISO will continue to work closely to ensure the Interface limits are respected.