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| O.O. | **18-07193-OO (V57R)**  **18-04326-OO (RavBK3)** | | MISO No. | **1-18525435**  **1-17989260** | File No. | 240802 |
| **Name of Outage:** | | 230 kV Line V57R (Vermillion – Roblin South) ***and,***  Raven Lake 230–115 kV Bank 3 | | | | |
| **Effective Dates:** | | 2018-06-14 from 0800 to 1800 CDT  (2018-06-14 from 0800 to 1800 EST) | | | | |
| **Standing Guide Reference:** | | MH-SPC Special Study (as per R. Arruda 2018-06-07) | | | | |

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| **System**  **Posturing** | B10T will be operated within the range of "Scheduled / SOL" 115 / 130 MW South and "Scheduled / SOL" 95 / 110 MW North.  **West Flow**  **“GRAPH” MAXIMUM of 900 MW** was studied for this outage for west flow conditions. Monitor Graph by using the “GRAPH LIMIT” calculation. **“GRAPH” MINIMUM of 0 MW**. Maximum **"PH" of 525 MW**. Use "ARC Constant" value of **475 MW**, for "GRAPH LIMIT" monitoring.  **East Flow**  **“GRAPH” MAXIMUM of 900 MW** was studied for this outage for east flow conditions. Monitor Graph by using the “GRAPH LIMIT” calculation. **“GRAPH” MINIMUM of 0 MW**. Maximum **"PH" of 525 MW**. Use "ARC Constant" value of **475 MW**, for "GRAPH LIMIT" monitoring.  Note: **“GRAPH”** = sum of **Grand Rapids** and Power to **Ponton and Herblet Lake**  (This acronym replaces previous “GRPTPH” which had the same parameter value )  Note: **“ARC”** = sum of **U91A and A4D “OUT**” at **Ashern** plus **MR11 “OUT”** at **Raven Lake** plus **C28R “IN”** at **Cornwallis**.  Note: **“PH”** - sum of Power to **Ponton and Herblet Lake** from lines P19W, J30P, W73H and W74H. (N.B: This acronym replaces previous “PTPH” which had the same parameter value). |
| **Description**  **of Work:** | V57R – Insulation tests on V57R Sync PT at Roblin South Station, Teleprotection mtce end-to-ends.  Raven Lake Bank 3 – PCB Bushing change, Bank/OLTC maintenance, Arrester testing, Bank 3 relay maintenance, PB82 Insulation test. |



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| **Load Serving** | **Prior to 230 kV Line V57R Outage (Vermillion to Roblin)**  On June 07, 2018 Manitoba Hydro Network Reliability Officer (Derek Williams) has confirmed with the Saskatchewan Power Corporation (SPC) Network Management Analyst (Colin Nicholson) that the SPC system can support up to 20 MW’s of load at Roblin South Station as per SPC Load Serving Agreement 2018#05.  The load serving schedule will be between Manitoba Hydro (MHEB) and Saskatchewan Power Corporation (SPC) Control Areas. Manitoba Hydro Energy Marketing (MHEM) will make the arrangements for energy to serve the load as detailed in the Manitoba Hydro Transmission Tariff Business Practices.  **Immediately after the 230 kV line V57R is removed from service:**   1. MHEB will record R25Y flow at Roblin South immediately following the 230 kV Line V57R being removed from service. 2. MHEB will scan inhibit R25Y MW value in AGC and manually enter a zero value. 3. SPC will scan inhibit Yorkton R25Y MW value in AGC and manually enter a zero value. 4. The Roblin South R25Y flow recorded in step 1 will be used for partial hour calculation if 230 kV Line R25Y was not removed from service exactly on the hour. The calculation is: R25Y Flow at Roblin South multiplied by number of minutes remaining to top of the next hour divided by 60. 5. SPC and MHEB control areas shall confirm the amount of energy supplied to the separated loads for each hour based upon the integrated hourly MWhrs from R25Y supplying Roblin South Station. MHEB will adjust the dynamic etag energy profile with this integrated hourly value. 6. MHEB will confirm with telecontrol loss of Roblin South RTU when working grounds are placed (*Roblin South Station will be staffed*).   During the 230 kV Line V57R outage, SPC will record the R25Y integrated hourly MWhr value(s) and forward the information to MHEB for after the fact billing and inadvertent calculations. These values will be entered into the dynamic schedule transaction tag for that hour as detailed above.  **Immediately prior to 230 kV Line V57R being returned to service:**   1. MHEB will record R25Y flow at Roblin South Immediately prior to the 230 kV Line V57R being returned to service. 2. The Roblin South R25Y flow recorded in step 7 will be used for partial hour calculation if 230 kV Line R25Y was not removed from service exactly on the hour. The calculation is: R25Y Flow at Roblin South multiplied by number of minutes into the current hour divided by 60. 3. SPC and MHEB control areas shall confirm the amount of energy supplied to the separated loads for each hour based upon the integrated hourly MWhrs from R25Y supplying Roblin South Station. MHEB will adjust the dynamic etag energy profile with this integrated hourly value. 4. MHEB will return R25Y signal to service in AGC. 5. SPC will return R25Y signal to service in AGC. |

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| **Special Instructions** | **TOI Extensions** - This TOI may be extended until 23:59 by performing the following steps:   1. 1. Verify system conditions to confirm there are no additional tie line facilities outages, or new internal MH outages. 2. 2. Review RTCA to confirm there are no new contingencies. 3. 3. Contact MISO to confirm there are no new outages, if there are no new outages provide notice to MISO that MH is extending the TOI. 4. 4. Extend the outage in COLA. 5. 5. Update TLAP outage table.   6. Provide notice to affected balancing authorities. |

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| **Prepared By:** | D. Williams | **Date:** | **2018.06.07** |

Copies to:

SPSO, System Control Centre NSSS, System Control Centre

GSSS, System Control Centre GSO, System Control Centre

Operating Order File 240802

MHEB OASIS MISO – St. Paul

SPC – Yong Zheng SPC - Colin Nicholson