

1 Q. Please fully describe Hydro's January 2012 plan for blackstarting the Holyrood plant
2 using the Hardwoods gas turbine.

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5 A. Please refer to NP-NLH-015, Attachment 1 which is Hydro's operating instruction to
6 supply the necessary blackstart load of the Holyrood Thermal Generating Station
7 using the Hardwoods Gas Turbine.

SYSTEM OPERATING INSTRUCTION

STATION:	Holyrood, Hardwoods and General	Inst. No.	T-007
TITLE:	Holyrood Black Start Restoration Using Hardwoods Gas Turbine**	Page 1	of 4

Introduction

The Avalon Peninsula may become separated from Bay d’Espoir and the remainder of the power system during ice, wind or other storm events. When this happens, Holyrood generation will likely trip due to an imbalance between area load and on-line generation. Customers will be without power until the Hardwoods Gas Turbine and Holyrood fossil units are placed in-service and the load is reconnected.

The goal of this instruction is to supply the necessary black start load (5-10 MW) of the Holyrood Generating Plant using the Hardwoods gas turbine via TL242.

Guidelines

Hardwoods Terminal Station

- Use the “Black Start - Open Breakers” command button to open the following breakers at HWD TS to facilitate energizing a dead bus:
 - B2L42
 - B1B2
 - B7C1
 - B7T1
 - B7T2
 - B8T4
 - B8T3
 - B8B9
 - B8C2
 - B7T5
- Confirm open the breakers listed above

Newfoundland Power Operations

- Consult with the Newfoundland Power Control Centre; inform them a black start will be initiated via the Hardwoods Gas Turbine. Request that they open all breakers associated with their 66kV Bus 6:
 - HWD-54L-B
 - HWD-5L-B
 - HWD-19L-B

SYSTEM OPERATING INSTRUCTION

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Guidelines (cont'd.)

Newfoundland Power Operations (cont'd.)

HWD-79L-B
HWD-72L-B
HWD-T2-B
HWD-T1-B

- With Newfoundland Power, confirm open the breakers listed above

Hardwoods Gas Turbine

- Request Hardwoods Gas Turbine to be started locally (Both Ends A & B, if available) in Black Start Operation as per Instruction T-075.

Holyrood Operations

- Consult with the Holyrood Control Room; inform them a black start will be initiated via the Hardwoods Gas Turbine. Request that they confirm open HRD B2L42 and HRD ST34. Have them standby until ECC is ready to energize their station service boards via transformer SST-34.

Holyrood Terminal Station

- Use the "Black Start - Open Breaker" command button to open the following breakers at HRD TS to facilitate energizing a dead bus:
 - B12B15
 - B12L18
 - B12L17
 - B6T10
 - B6L3
 - B7L2
 - B7T5
 - B7L38

SYSTEM OPERATING INSTRUCTION

STATION:	Holyrood, Hardwoods and General	Inst. No.	T-007
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Guidelines (cont'd.)

Energizing TL242

- The present operating philosophy requires that a local operator is required to close the Gas Turbine breaker, G1T5 at Hardwoods, under a black start condition (as per Instruction T-075). Have the operator close G1T5. Check closed.
- Energize B8 by closing HWD B7T5. Check closed.
- Adjust the generator output voltage to achieve approximately 67 kV on Bus 8.
- Adjust HWD T3 tap to position 4 and energize B2 by closing HWD B8T3. Check closed.
- Close and/or check closed HRD B12L42.
- Energize HRD B12 via TL242 by closing HWD B2L42. Check closed. If necessary, adjust HWD T3 tap position to achieve acceptable voltage levels on HRD B12.

Energizing Holyrood Station Service Boards

- Close and/or check closed HRD B12T10. Note that B12T10 must be closed before B6T10 as they are interlocked (described in instruction T-048).
- Energize B6 by closing DRD B6T10. Check closed.
- HRD T10 tap position can't be adjusted without station service power, which is provided by the Holyrood Plant. Without station service available, HWD T3 tap position can be adjusted to achieve acceptable voltage levels on HRD B6. Once the Holyrood Plant energizes their Unit Service and Station Service Boards, station service power should become available in the Holyrood Terminal Station. Once station service power is available, HRD T10 tap changer can be used to achieve acceptable voltage levels on HRD B6.

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Guidelines (cont'd.)

Holyrood Operations

- Inform the Holyrood Control Room their station service boards are ready to be energized. When they are ready, energize transformer SST-34 by closing HRD B6L3. Check closed. They may close ST34 and proceed with their Black Start procedure.

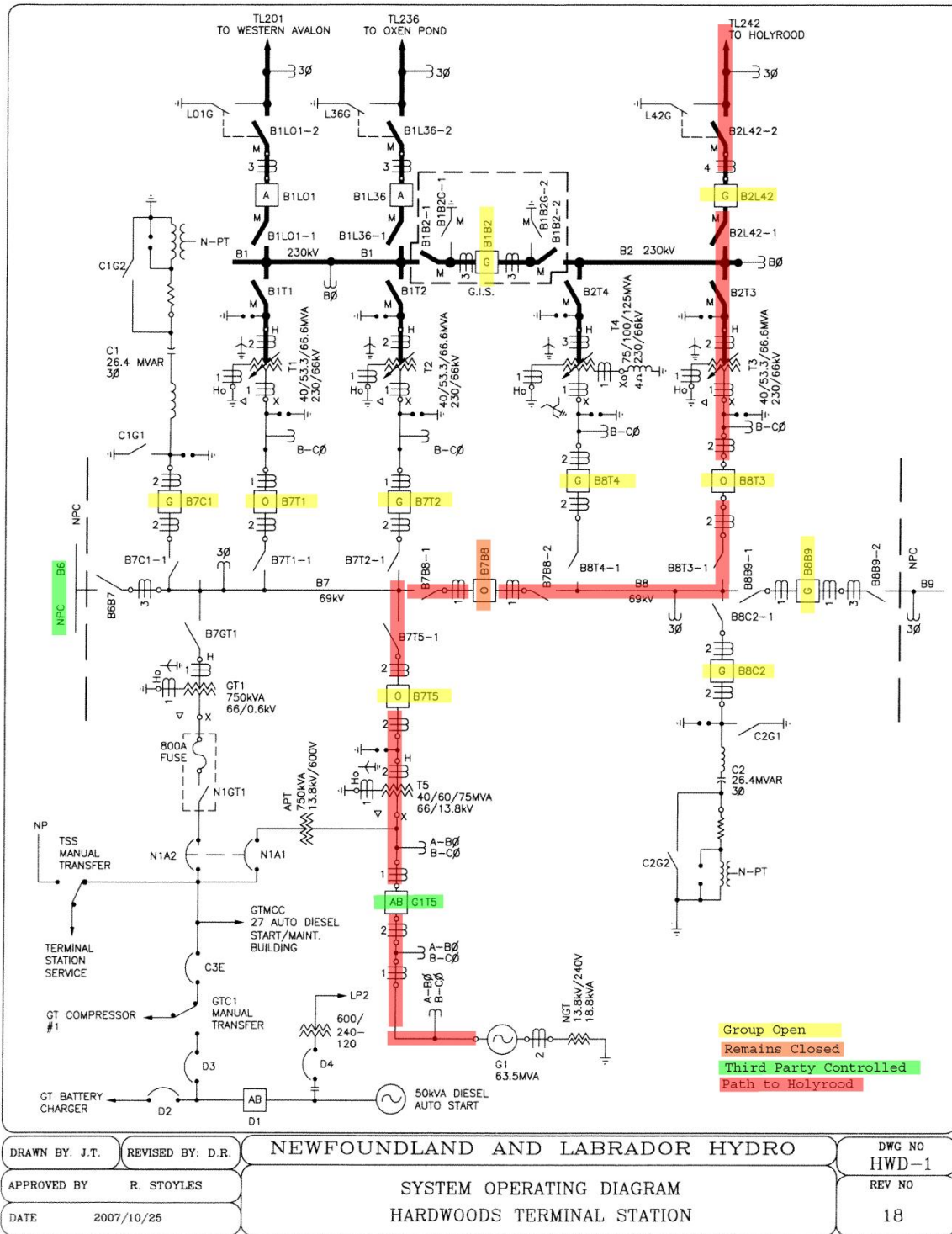
ECC Operations

- Proceed with Instruction T-022 Restoration Of The Avalon Peninsula When Isolated From Bay d'Espoir.

** Part of the Emergency Response Plan

REVISION HISTORY

<u>Version Number</u>	<u>Date</u>	<u>Description of Change</u>
0	2012-06-07	Original Issue
1	2013-10-31	Updates
PREPARED: R. Coish		APPROVED:



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APPROVED BY R. STOYLES		SYSTEM OPERATING DIAGRAM	REV NO
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