newfoundland labrador hydro
a nalcor energy company

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October 10, 2013

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: An Application by Newfoundland and Labrador Hydro pursuant to Subsection 41 (3) of the Act for approval of a capital expenditure to supplement the Allowance for Unforeseen Items for the construction and purchase of certain improvements and additions to its property.

Further to the Board's letter of September 27, 2013 whereby the Board requested that Hydro provide the parties with the information requested from Newfoundland Power in their correspondence of September 18, 2013 with regard to the above noted application, Hydro's responses are as follows:

The Application does not indicate:

Q (i) whether it was impractical to make application to the Board for approval of a supplemental capital expenditure.

A (i) In Hydro's view, the unforeseen project had not closed so no new application was required or appropriate. The unforeseen capital expenditure that commenced at the time of the Black Tickle Diesel Plant fire in 2012, was carried on through 2012 and into 2013. This work comprised immediate emergency work to restore power but, as has been explained previously by Hydro (September 27, 2012 report, 13 RFIs, April 1, 2013 Report) the restoration of power by no means meant that the plant was able to operate reliably or safely or that rehabilitation and repair work could be paused.

There is a difference in the nature of the work involved in carrying out an unforeseen capital expenditure following a diesel plant fire and the work required for the completion of repairs to, for example, distribution plant repair after a storm. In the case of the replacement of fallen poles after a storm, immediate repairs are undertaken and then within a fairly short period of time the plant is restored to "new" condition. In the case of a diesel plant fire carrying out the repairs to restore the facility to a safe and reliable condition requires considerably more time. Power might be able to be restored relatively quickly, however, the operating status of the plant might be precarious and considerable further work might be required. This was the case with the Black Tickle fire. There were no practicable stages at which Hydro could delay restoration

work or make application to the Board for it to apply its discretion to the work to be carried out. Work was carried out throughout the period. The work that was undertaken under the allowance for the unforeseen item is that work, and only that work, which was required to restore the plant to its pre-fire condition.

If, on the other hand, Hydro considered that the configuration or physical makeup of the plant should be changed as part of the rehabilitation work, this would, in Hydro's view, properly require an application to the Board for approval as supplementary capital. Where, however, Hydro continues with restoration work that was commenced as a result of the fire, and does only that capital work which is required to restore the facility to its pre-fire state so that it can provide safe and reliable service from that facility, Hydro submits that there has been no break in the original work that was commenced and that a supplemental application is unnecessary.

It should be noted that hindsight ought not to be substituted for engineering judgments made at a point in time.

Q (ii) that a delay was not possible in the circumstances.

A (ii) Please see the response to (i) above.

Note that the final amount of money spent in this project in 2013 is $146,955, as follows:

Restoration (materials and labour cost)	$	77,735
Fire system refurbish and recertification		47,680
Engineering		17,350
Interest during construction		4,190
Total		146,955
Insurance recoveries		(104,329)
Net	$	42,626

This is the revised and final 2013 amount applicable to the Black Tickle project referred to in Hydro's application of September 9, 2013 (replacing the $197,000 estimate). This means that Hydro wishes to revise the final amount applied for in that application to $353,955 instead of $404,000.

Attached, please find Hydro's final report on the Black Tickle Fire rehabilitation Unforeseen Item project.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

GPY/jc

cc: Gerard Hayes – Newfoundland Power
Paul Coxworthy – Stewart McKelvey Stirling Scales
Thomas Johnson – Consumer Advocate
Thomas O'Reilly, QC – Cox & Palmer

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

Black Tickle Diesel Plant
Fire Restoration Project
Unforeseen Capital Expenditure

October 2013

newfoundland labrador hydro
a nalcor energy company

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Appendices:

1 INTRODUCTION

1.1 Background and Purpose

On March 14, 2012 at approximately 05:35 hours[1], the community of Black Tickle experienced a power outage as a result of a fire at the diesel plant. The plant experienced significant damage and required emergency restoration efforts to re-establish power to the community. Following the emergency restoration, there was a significant amount of effort required to ensure a safe operation of the temporarily repaired facility. Further work was required to make permanent repairs and restore the reliability of the diesel plant to its pre-fire condition.

Restoring power to the community was urgent in nature and delaying restoration until Board approval was obtained would have resulted in prolonged customer outages.

The purpose of this report is to summarize the events following the fire and to highlight the associated damage and customer impacts and describe the plant restoration work and associated costs, which totaled $1,786,364.

1.2 Fire Event

It is estimated the fire shut down the diesel plant at 05:35 on March 14, 2012. Due to excessive smoke, the power plant engine hall could not be entered and the Diesel System Representatives (DSRs) were advised to leave all doors and windows closed. The community of Black Tickle does not have a fire department, and as a result another Hydro employee (a DSR from Paradise River) who is the fire chief for the community of Cartwright was dispatched to assist with the fire assessment.

[1] New information received during post fire review (on outage advisory it was noted to be 06:45 hours).

Reports from the DSR in Black Tickle indicated the smoke had subsided by mid-morning and there appeared to be no flames. A crew dispatched from Happy Valley-Goose Bay and the Fire Chief from Cartwright arrived at Black Tickle at 11:10 hrs. After receiving the all clear signal from the Cartwright fire chief, the maintenance crew from Happy Valley entered the diesel plant to complete an assessment. The assessment revealed there was significant damage to overhead control wiring, plant station service wiring, plant insulation and wall paneling, diesel generator fuel lines and wiring, and switchgear equipment. Even though there was extensive damage, the maintenance crew felt confident that temporary work would make one unit (Unit 2066, the unit furthest from the fire) operational. Following the assessment, the original estimate of restoration of power to customers was the next morning. However, due to the temporary work to facilitate the restoration being more extensive than originally thought, restoration was delayed and was not completed until the next evening, March 15, 2012 at 22:37 hours.

While the maintenance crew was attempting to get a unit running in the plant, a mobile unit was delivered from Bishop's Falls to St. John's at 22:00 hours on March 14, 2014, and was loaded on a Coast Guard vessel on Thursday morning, March 15, 2012 at 07:30. The mobile generator reached the dock at Black Tickle at 09:00 hours on Saturday, March 17th, 2012 and was in service by March 20, 2012. The maintenance crew continued to work to make a third unit, Unit 579, operational and was successful on March 26, 2012.

2 CUSTOMER IMPACTS

As a result of the fire all 102 domestic and general service customers and 13 street light customers in Black Tickle experienced a power outage for approximately 41 hours and 2 minutes, from 05:35 on March 14, 2012 to 22:37 on March 15, 2012. The duration of the outage was the time required to allow employees to enter the plant and make generating units operational in order to restore power.

3 DIESEL PLANT DAMAGE

The damage caused by the fire was largely confined to the engine hall area of the diesel plant. Specifically, within the engine hall, there was damage to the plant common electrical and mechanical systems, the diesel generating units, the control switchgear, the recloser control panel, and to the plant infrastructure. Following is a detailed description of the work completed to restore the diesel plant to normal operation.

Plant Electrical Systems

The plant electrical systems housed in the engine hall required replacement of the following:

- 600 V 3 phase disconnect and associated distribution splitter;
- 600/120/240 V single phase dry type station service transformer;
- 120/240 V circuit breaker and distribution panel complete with circuit breakers;
- Conduit and wire for all electrical lighting and electrical outlets;
- Light fixtures, light switches, electrical outlets boxes, and devices;
- 600 V 3 phase motor starters for radiator fan cooling;
- 600 V 3 phase motor starters for building ventilation;
- Fire protection wiring and sensors followed by system recertification; and
- Rewiring of fuel pump control panel.

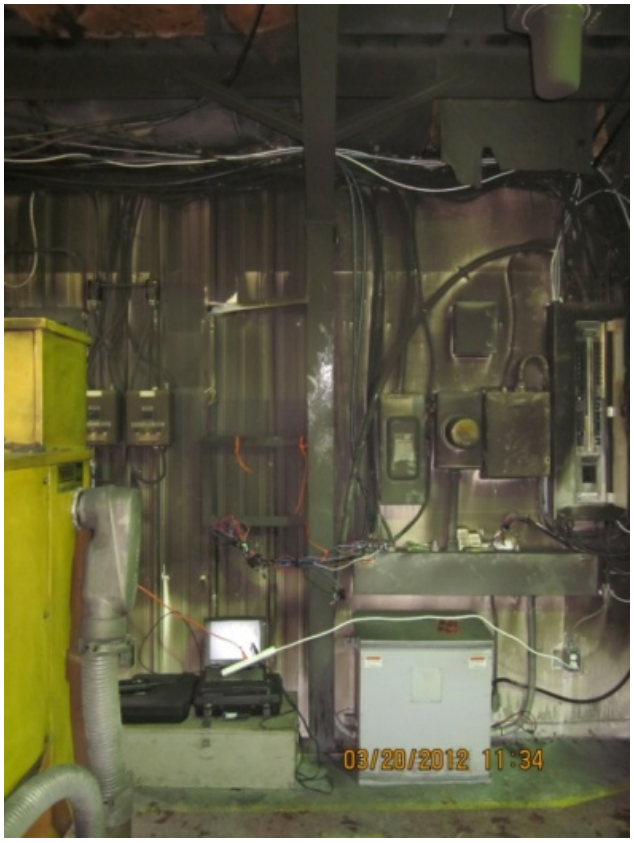

Figure 1: Station Service Equipment after the Fire

Mechanical Systems

The plant mechanical equipment housed in the engine hall which required

- Unit 582 was being serviced at the time of the fire and was partially disassembled when the fire took place. As a result of exposure to the fire and associated heat, this unit required a long block to replace the existing engine.
- Fuel oil lines on all three units required replacement to ensure operational integrity.
- One Jib crane and two gantry cranes located in the engine hall were suspect after the engine hall fire, and were assessed by a certified crane inspector and recertified.
- Cleaning and painting of the diesel genset engines and generators was completed.

- Rental of sufficient mobile generation during engine hall reconstruction was required. This involved transporting the units to and from site, installation, and commissioning the units for power generation to the community. Upon the completion of work the mobile units were decommissioned, removed from site and returned to the supplier.
- All air intake louvers, ventilation exhaust fans and associated equipment were replaced.

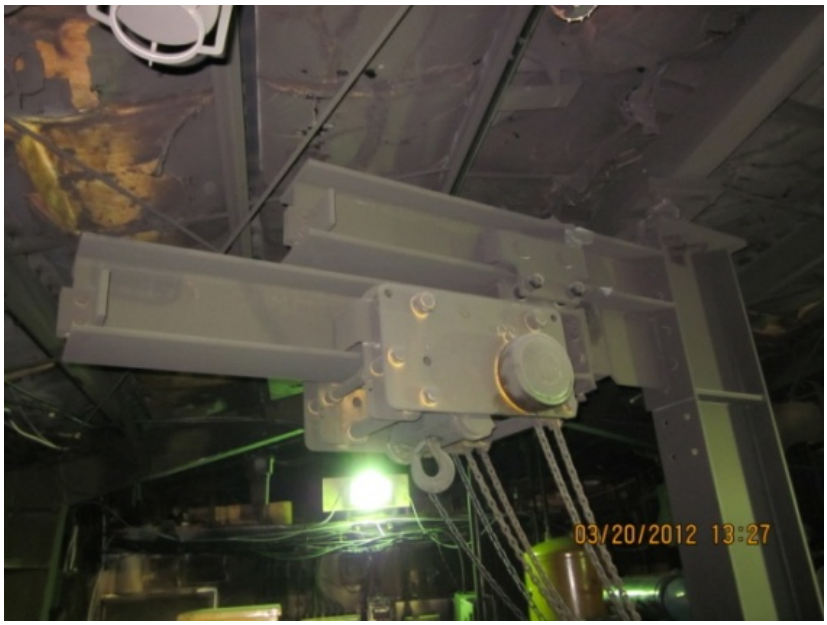

Figure 2: Jib Crane after the Fire

Generating Units Electrical

Due to the contamination of the windings as a result of the fire, the generator of Unit 582 was sent to a repair facility for inspection and cleaning.

Control Switchgear

The metal clad switchgear located in the engine hall received extensive heat damage. All control modules mounted on the doors of the switchgear were exposed to high heat.

The interior of the switchgear control cabinets were also extensively damaged by high temperatures. The switchgear itself was salvageable, but the control wiring and several interior protection and control devices required replacement.

In addition, the following work was also required:

- Replacement of all power and control cables between generators and switchgear;
- Replacement of all inter-wiring between switchgear units; and
- Installation and commissioning of all new switchgear components.

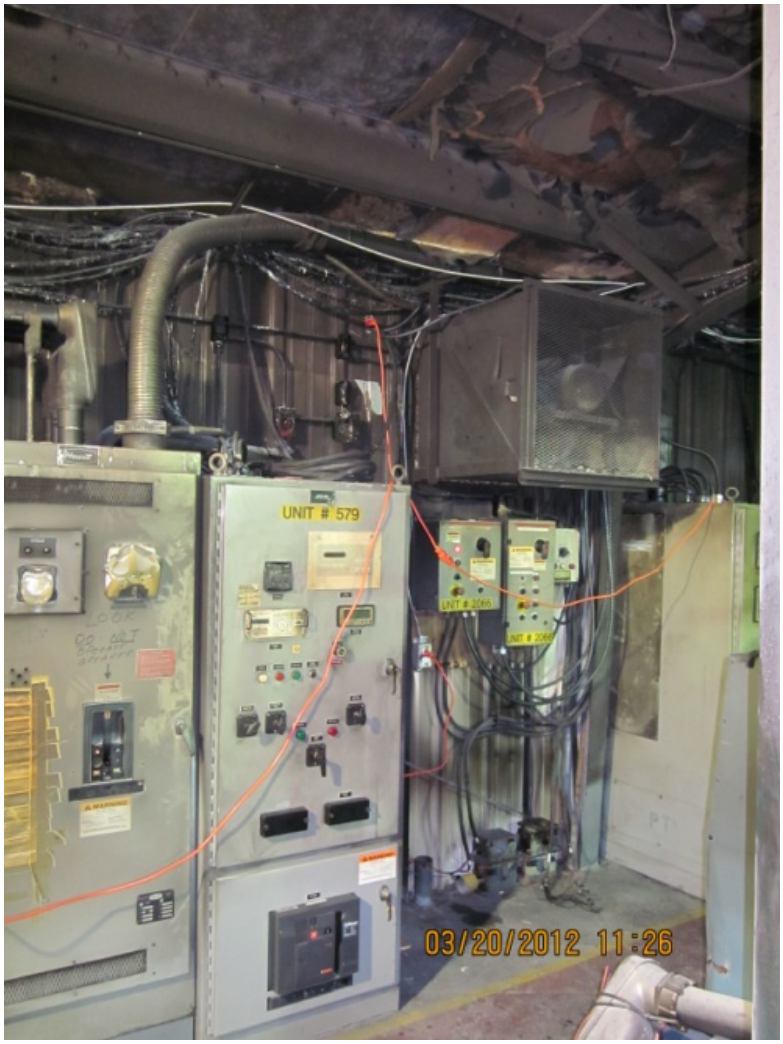

Figure 3: Switchgear after the Fire

With the installation of new protection devices in the switchgear, there was also a requirement to complete the following:

- A fault study;
- A review of all protection relay settings; and
- An arc flash study.

Recloser Control Panel

The recloser control panel mounted next to the switchgear in the engine hall was not operational after the fire, and was replaced.

Engine hall infrastructure damage

Fire damaged the interior walls and ceiling of the diesel plant engine hall. There was no degradation to the integrity of the structural steel members and the damage was restricted to the metal liner panel and building insulation. As a result, the following refurbishment work was completed:

- The interior liner panel and building insulation were replaced;
- Industrial cleaning of the interior of the diesel plant and the repainting of the plant interior and concrete floor; and
- The steel doors and hardware were replaced.

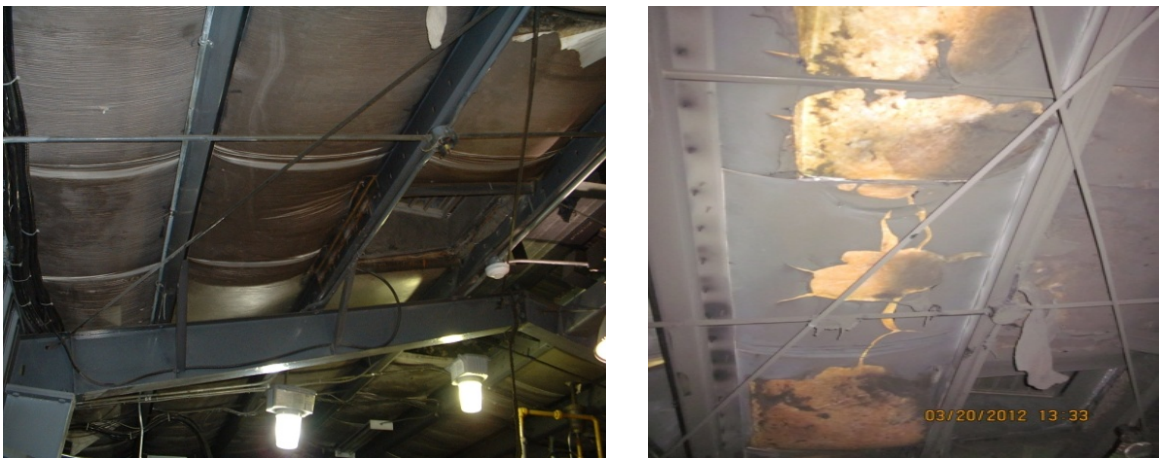

Figure 4: Building Insulation Before and After the Fire (left to right)

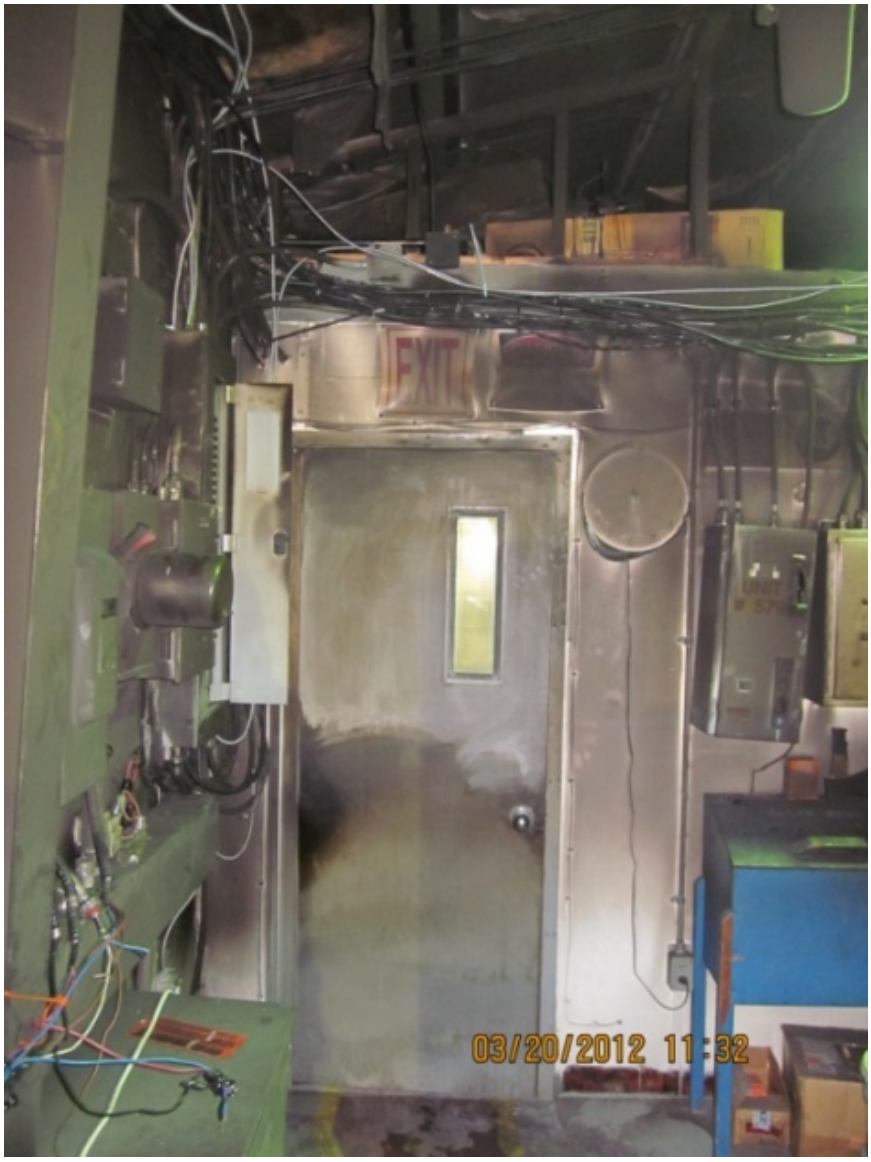

Figure 5: Fire Damage to Door, Wiring, Walls and Ceiling

4 PROJECT

4.1 Project Description

This capital project involved the restoration of the Black Tickle diesel plant after a fire caused extensive damage to the plant engine hall, generating units and associated equipment on March 14, 2012.

The work involved in the restoration of the Black Tickle diesel plant to its pre-fire condition and included the emergency response effort to restore the plant, mobilization of mobile generation, the refurbishment of the plant interior and generating equipment, and demobilization of the mobile generation once the plant generation was fully returned to service.

The refurbishment work was completed utilizing internal resources with the exception of the fire alarm panel recertification, jib crane recertification and replacement of insulation and interior paneling, plant cleaning and painting.

4.2 Project Cost and Schedule

4.2.1 Project Cost

Table 2 below shows the capital expenditures associated with this project.

Table 2: Project Total Capital Cost

Description	Cost ($000)
Materials	511,667
Labour	671,765
Consultants	10,626
Contract	8,767
Equipment Rental	243,154
Other Direct Costs	202,292
Interest	42,029
Total	**1,786,364**
Insurance Recovery	-274,801
Net Cost after insurance recovery	**1,417,031**

4.2.2 Project Schedule

The restoration of the Black Tickle diesel plant has been completed and the plant has been restored to its pre-fire condition.

5 CONCLUSION

On March 14, 2012 a fire at the Black Tickle Diesel Plant caused significant damage to the engine hall. Hydro mobilized crews from Happy Valley-Goose Bay to complete temporary emergency repairs to restore customers. Due to the temporary nature of the repairs and the poor condition inside the diesel plant due to heat, smoke and soot damage, permanent repairs were required. Even though the plant was initially operational, it was operating in a substandard manner, with questionable reliability. Power cables were initially placed in service with tape repairing damaged insulation, many cables and control devices had heat and smoke damage and needed to be replaced. As well, for the health and safety of the workers at this facility it was critical that a complete industrial cleaning of the plant was completed and the insulation and interior panels replaced.

APPENDIX A

System Map

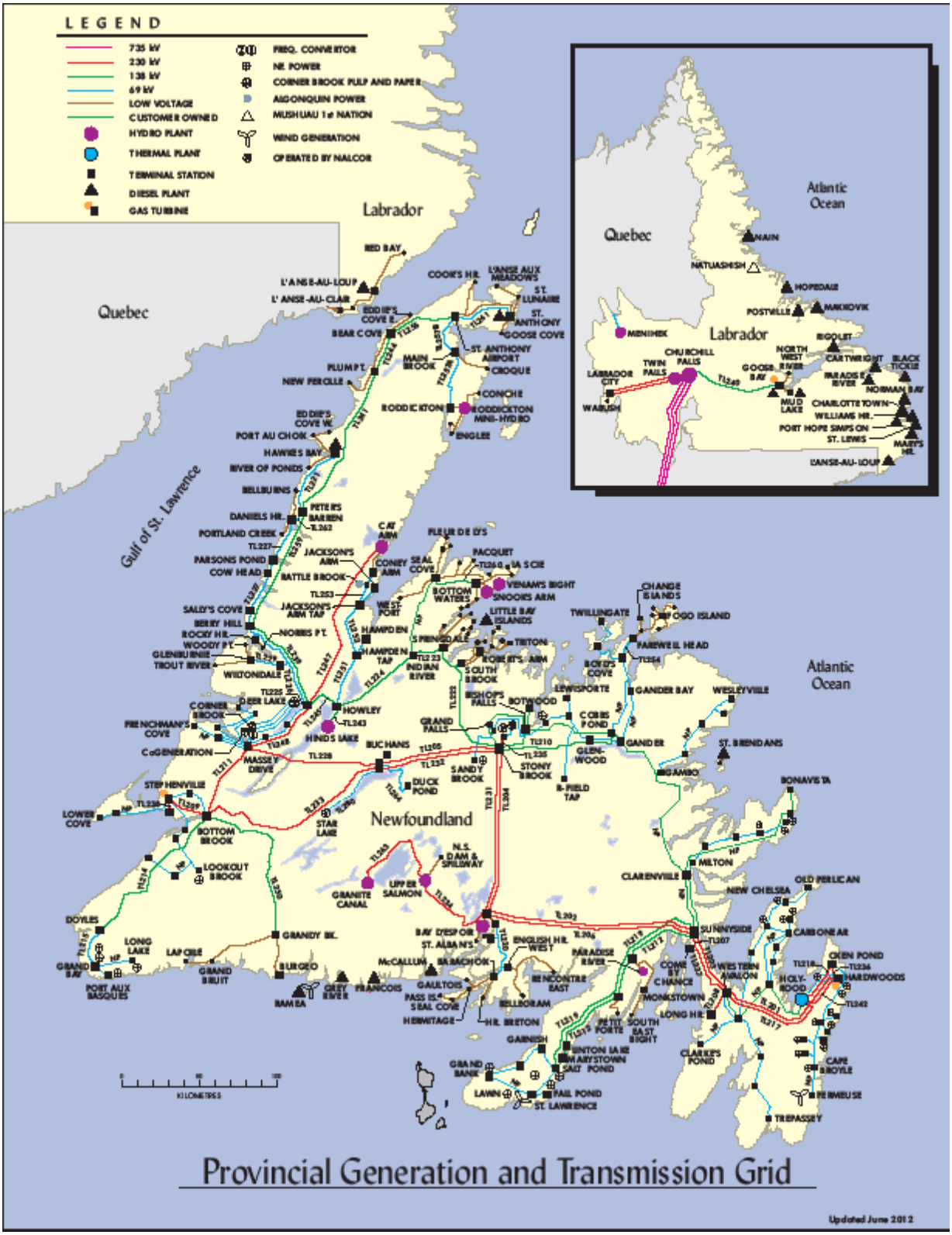

Figure 6: System Map

APPENDIX B

Photographs

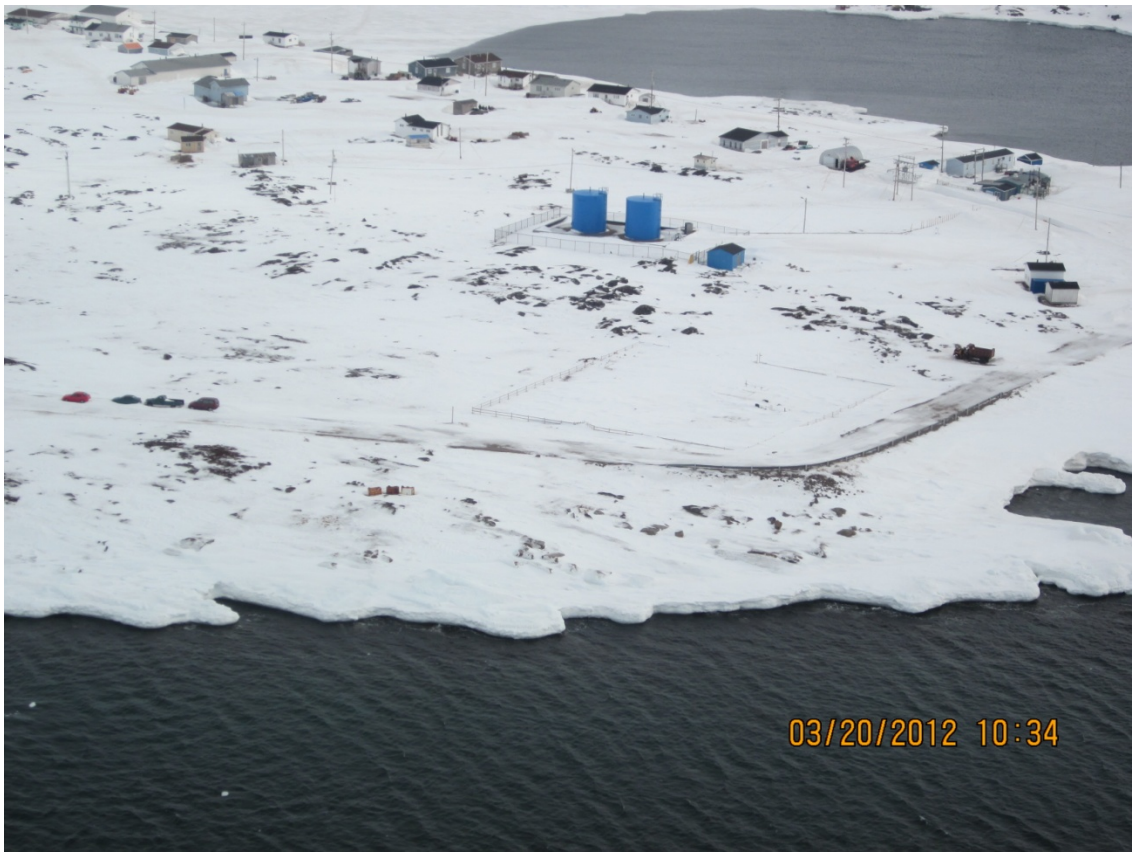

Figure 6: Aerial View of Black Tickle

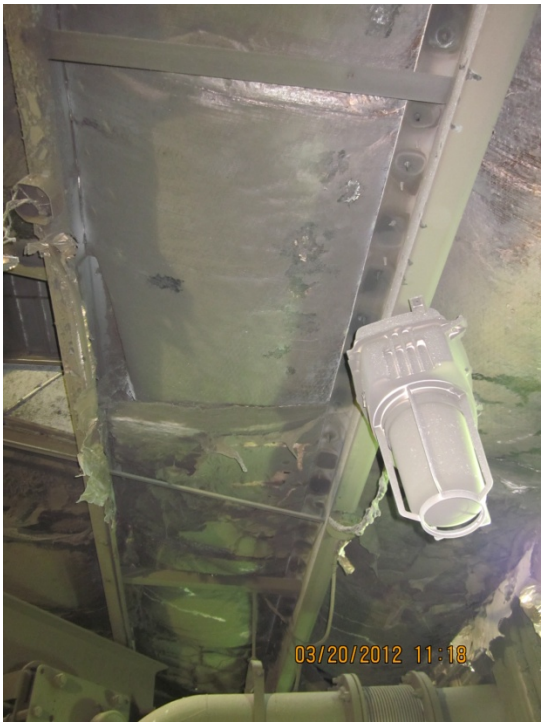

Figure 7: Fire Damage to Engine Hall Ceiling

Figure 8: Fire Damage to Interior Panelling

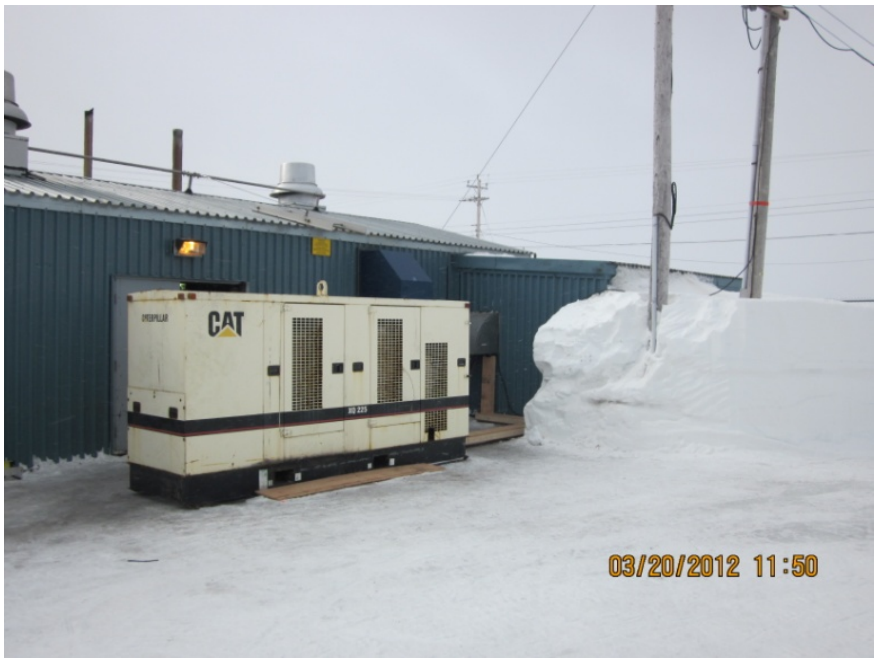

Figure 9: 225 kW Mobile Genset Installation

APPENDIX C

Outage Advisory

PUBLIC UTILITIES BOARD
POWER OUTAGE and INCIDENT ADVISORY FORM

PUB Number: 2012-H-25-Update 2 (March 16)

Section A: General Information

Company: Newfoundland and Labrador Hydro	Date Filed: March 14, 2012
Contact Information: Geoffrey P. Young, Senior Legal Counsel, (709) 737-1277	Email: gyoung@nlh.nl.ca

Section B: Initial Advisory - Details of Incident

Type of Incident: *Check all applicable*		
☒ Power Outage	☐ Damage to Company Property	☐ Damage to Customer Property
☐ Injury to Employee	☐ Injury to Member of Public	☐ Contact with Distribution system
☐ Other (explain in details)		

Date of Incident: March 14, 2012	Time of Incident: 0645 hours (Labrador time)
Location of Incident: Black Tickle, Labrador	
Number of Customers Affected: 105	
Duration of Power Outage: Approximately 40 hours	
Is power outage still occurring? ☒ No ☐ Yes	
If yes, give estimation when power is expected to be restored:	

Description of Problem:

On March 14th, at 0645 hours all customers (105) in Black Tickle experienced an unplanned power outage. The outage was caused a fire in the diesel plant. A crew from Cartwright are on route to Black Tickle to assess the damage caused by the fire. After this assessment has been completed, it will be determined if the diesel plant can be started or if mobile generation is required to restore power to customers. This assessment should be completed this afternoon.

Update No. 1

The outage was caused by a fire which damaged most of the overhead electrical conductors in the power plant engine hall. After setting up temporary lighting and clearing some damaged conductor, a maintenance crew worked throughout the night. The focus has been to restore one unit to supply power to the community. As of this morning, electrical cables have been tested and replaced, however there are still a number of systems associated with the generator that must be function tested to confirm operations. It is expected that the unit will be available for restart and operation later today.

A mobile diesel generating unit is presently being transported to site, to be used as a back-up, or to provide prime power for the community if crews are unsuccessful in getting one of the damaged units running. The expected delivery time of the mobile unit to Black tickle is Friday evening depending on ice conditions. A request has been made to the Coast Guard for ice breaking services.

Update No. 2

Power was restored to the community at approximately 10:00 pm (Labrador time) on March 15 after maintenance personnel successfully and safely completed the temporary repairs to one of the three generator units damaged in the fire. Total outage time was approximately 40 hours.

Hydro expects that the mobile generator will arrive on a Coast Guard vessel sometime on Friday (March 16). When it reaches Black Tickle, crews will focus their attention to connecting this unit to the community's electrical grid for back up service. Once the mobile unit is established, personnel will then focus on repairing and re-establishing the remaining units at the power plant.

Date Board Acknowledged: 2012-03-21-B. Thistle

Section C: Final Disposition

The Board has reviewed the information filed with respect to this incident and has determined that the information filed is deemed satisfactory. The report has been filed and accepted by the Board.

_____ _____

Board Secretary or designate