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November 16, 2017

[redacted]

VIA EMAIL

Attention: [redacted]

Dear [redacted]

Re: Your requests for access to information under Part II of the *Access to Information and Protection of Privacy Act, 2015* (File #: PB/763/2017)

On October 20, 2017, Nalcor Energy ("Nalcor") received your requests for access to the following records:

PB/763/2017 –I would like the telemetry collar data of collared caribou within buffers around the LCP footprint

Please be advised that the telemetry collar data has been withheld under s. 36 of the ATIPPA (harmful to conservation), as it would reveal the location of the caribou which are endangered species. However, in an effort to be as responsive as possible, attached are the 2015 and 2016 Annual Caribou Reports for the Red Wine Herd. However, again location information, where it appears in these reports has been redacted. While not noted directly on each redaction, any and all redactions in these reports is location data and has been redacted under s. 36 of the ATIPPA (harmful to conservation).

This letter will be published following a 72 hour period after it is sent electronically to you or five business days in the case where the letter has been mailed to you. It is the goal to have the responsive records posted to Nalcor Energy's website within one business day following the applicable period of time.

Please be advised that you may appeal this decision and ask the Information and Privacy Commissioner to review the decision to deny access to the requested information, as set out in section 42 of the Act (a copy of this section of the Act has been enclosed for your reference). A request to the Commissioner must be made in writing within 15 business days of the date of this letter or within a longer period that may be allowed by the Commissioner. Your appeal should identify your concerns with the request and why you are submitting the appeal.

The appeal may be addressed to the Information and Privacy Commissioner is as follows:

Office of the Information and Privacy Commissioner
2 Canada Drive
P. O. Box 13004, Stn. A
St. John's, NL. A1B 3V8

Telephone: (709) 729-6309
Toll-Free: 1-877-729-6309
Facsimile: (709) 729-6500

You may also appeal directly to the Supreme Court Trial Division within 15 business days after you receive the decision of the public body, pursuant to section 52 of the Act (a copy of this section of the Act has been enclosed for your reference).

If you have any further questions, please feel free to contact the undersigned by telephone at (709) 737-1284 or by e-mail at suzannehollett@nalcorenergy.com.

Sincerely,

Suzanne Hollett
Access and Privacy Officer

Access or correction complaint

42.(1) A person who makes a request under this Act for access to a record or for correction of personal information may file a complaint with the commissioner respecting a decision, act or failure to act of the head of the public body that relates to the request.

(2) A complaint under subsection (1) shall be filed in writing not later than 15 business days

(a) after the applicant is notified of the decision of the head of the public body, or the date of the act or failure to act; or

(b) after the date the head of the public body is considered to have refused the request under subsection 16(2).

(3) A third party informed under section 19 of a decision of the head of a public body to grant access to a record or part of a record in response to a request may file a complaint with the commissioner respecting that decision.

(4) A complaint under subsection (3) shall be filed in writing not later than 15 business days after the third party is informed of the decision of the head of the public body.

(5) The commissioner may allow a longer time period for the filing of a complaint under this section.

(6) A person or third party who has appealed directly to the Trial Division under subsection 52(1) or 53(1) shall not file a complaint with the commissioner.

(7) The commissioner shall refuse to investigate a complaint where an appeal has been commenced in the Trial Division.

(8) A complaint shall not be filed under this section with respect to

(a) a request that is disregarded under section 21;

(b) a decision respecting an extension of time under section 23;

(c) a variation of a procedure under section 24; or

(d) an estimate of costs or a decision not to waive a cost under section 26.

(9) The commissioner shall provide a copy of the complaint to the head of the public body concerned.

Direct appeal to Trial Division by an applicant

52.(1) Where an applicant has made a request to a public body for access to a record or correction of personal information and has not filed a complaint with the commissioner under section 42, the applicant may appeal the decision, act or failure to act of the head of the public body that relates to the request directly to the Trial Division.

(2) An appeal shall be commenced under subsection (1) not later than 15 business days

(a) after the applicant is notified of the decision of the head of the public body, or the date of the act or failure to act; or

(b) after the date the head of the public body is considered to have refused the request under subsection 16(2).

(3) Where an applicant has filed a complaint with the commissioner under section 42 and the commissioner has refused to investigate the complaint, the applicant may commence an appeal in the Trial Division of the decision, act or failure to act of the head of the public body that relates to the request for access to a record or for correction of personal information.

(4) An appeal shall be commenced under subsection (3) not later than 15 business days after the applicant is notified of the commissioner's refusal under subsection 45(2).

Lower Churchill Management Corporation

2015 Annual Caribou Report – Red Wine Mountain Herd

Nalcor Doc. No. LCP-PT-MD-0000-EV-RP-0015-01

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Inter-Departmental / Discipline Approval (where required)

Department	Department Manager Approval	Date
	Name	
	Name	
	Name	
	Name	

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1 PURPOSE

The purpose of this annual report is to provide a summary of the mitigation and monitoring efforts associated with the Lower Churchill Project (LCP) Species at Risk (SAR) Impacts Mitigation and Monitoring Plan, specifically the Red Wine Mountain (RWM) Caribou during 2015.

2 SCOPE

This annual report applies to the 2015 monitoring and mitigation efforts for the RWM Caribou Herd undertaken for the Lower Churchill Project as described in Section 6.0.

3 DEFINITIONS

Environmental Assessment: The evaluation of the Project's potential environmental risks and effects before it is carried out and identification of ways to improve project design and implementation to prevent, minimize, mitigate, or compensate for adverse environmental effects and to enhance positive effects. This includes the EIS (Nalcor 2009), subsequent Information Requests, and statements issued by Nalcor Energy (NE) during the course of the Environmental Assessment Hearings in 2011.

Environmental Management: The management of human interactions with the environment (e.g., air, water and land and all species that occupy these habitats including humans).

Environmental Management System: Part of LCP's management system used to develop and implement its environmental policy and manage its environmental aspects.

Environmental Protection Plan: Document outlining the specific mitigation measures, contingency plans and emergency response procedures to be implemented during the construction or operations of the Project.

Environmental Effects Monitoring: Monitoring of overall Project effects to confirm the predictions of the EIS (Nalcor 2009) and to fulfill commitments.

Environmental Compliance Monitoring: Monitoring of Project activities to confirm compliance with regulatory requirements and commitments.

4 ABBREVIATIONS & ACRONYMS

EA	Environmental Assessment
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EMP	Environmental Management Plan
EPP	Environmental Protection Plan
EMS	Environmental Management System
ERC	Environment and Regulatory Compliance

HVac	High voltage alternating current
JRH	Joir River Herd
KI	Key Indicator
LTA	Labrador Transmission Asset
LCP	Lower Churchill Project
LWCRT	Labrador Woodland Caribou Recovery Team
NE	Nalcor Energy
NLESA	Newfoundland and Labrador Endangered Species Act
NLENCC-WD	Newfoundland and Labrador Department of Environment and Climate Change – Wildlife Division
OSEM	On-Site Environmental Monitor
PEEMP	Protection and Environmental Effects Monitoring Plan
RWM	Red Wine Mountains
SARA	federal Species at Risk Act
SAR IMMP	Species at Risk Impacts Mitigation and Monitoring Plan
SSAC	Species Status Advisory Committee

5 REFERENCE DOCUMENTS

LCP-PT-ED-0000-EA-SY-0001-01	*Environmental Impact Statement and Supporting Documentation for the Lower Churchill Hydroelectric Generation Project*
LCP-PT-MD-0000-EV-PL-0004-01	*LCP Species at Risk Protection and Environmental Effects Management Plan*
LCP-PT-MD-0000-EV-PL-0005-01	*Caribou Protection and Environmental Effects Monitoring Plan*
LCP-PT-MD-0000-EV-PL-0023-01	*LCP Species at Risk Impacts Mitigations and Monitoring Plan – Caribou and Avifauna*

6 PROJECT DESCRIPTION

6.1 MUSKRAT FALLS GENERATION

The Muskrat Falls Generation Project will include the following sub-components which are broken down under the five principal areas of the development:

- 22 km of access roads, including upgrading and new construction, and temporary bridges;
- A 1,500 person accommodations complex (for the construction period); and
- A north roller compacted concrete overflow dam;
- A south rockfill dam;
- River diversion during construction via the spillway;
- 5 vertical gate spillway;
- Reservoir preparation and reservoir clearing;
- Replacement of fish and terrestrial habitat;
- North spur stabilization works, and:
- A close coupled intake and powerhouse, including:
    - 4 intakes with gates and trash racks;
    - 4 turbine/generator units at approximately 206 MW each with associated ancillary electrical/mechanical and protection/control equipment;
    - 5 power transformers (includes 1 spare), located on the draft tube deck of the powerhouse; and
    - 2 overhead cranes each rated at 450 Tonnes

Figure 6-1 Muskrat Falls Generating Facility

6.2 LABRADOR TRANSMISSION ASSET (LTA)

LTA consists of an AC transmission line system from Churchill Falls to Muskrat Falls, specifically:

- Churchill Falls switchyard extension;
- Muskrat Falls switchyard;
- Transmission lines from Muskrat Falls to Churchill Falls: double-circuit 315 kV ac, 3 phase lines, double bundle conductor, single circuit galvanized lattice steel guyed suspension and rigid angle towers; 247 km long;
- 735 kV transmission line at Churchill Falls interconnecting the existing and the new Churchill Falls switchyards; and
- Labrador Fibre Project (Nalcor's participation in Aliant led initiative).

Figure 6-2 presents the LTA.

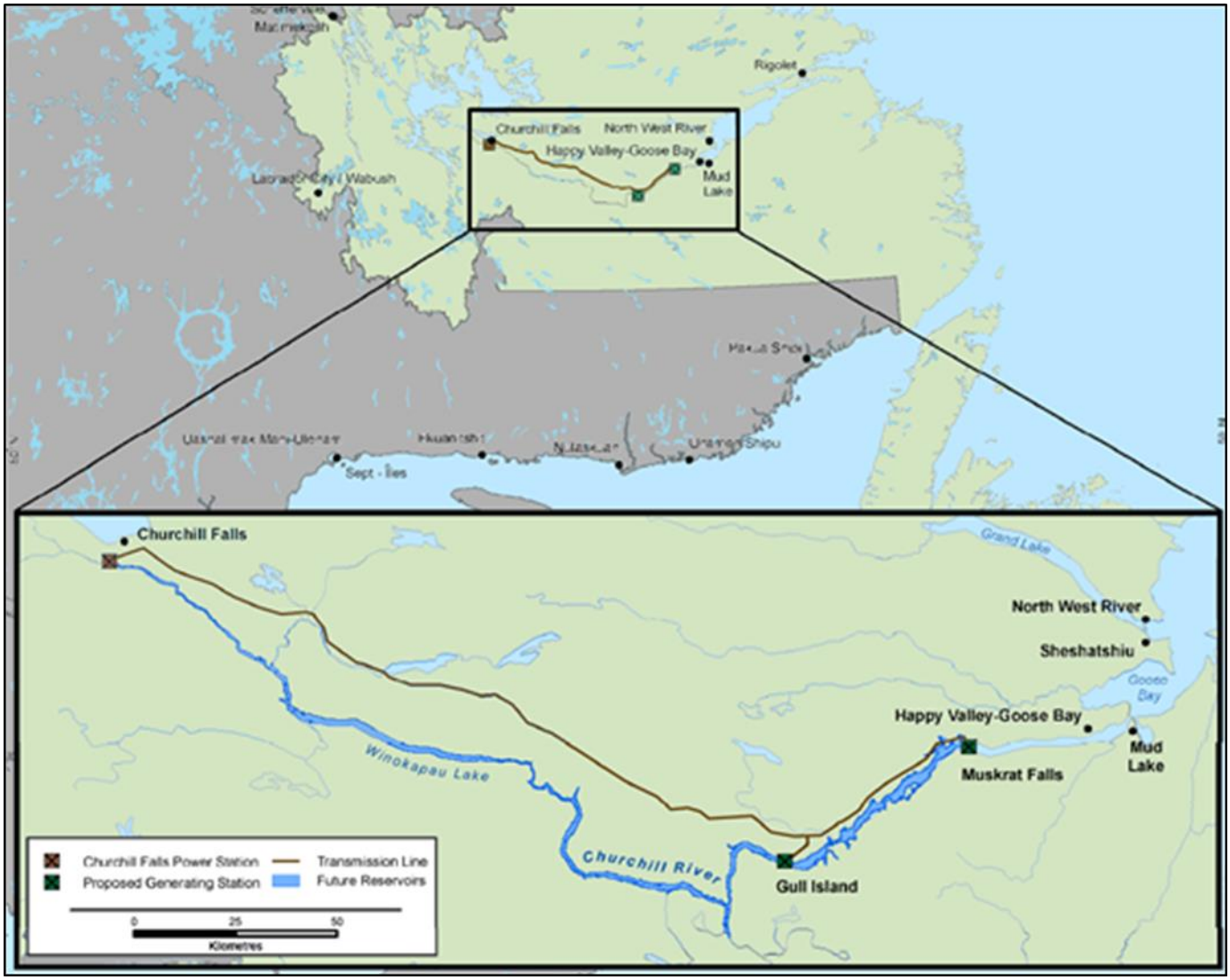

Figure 6-2 Labrador Transmission Asset

7 CARIBOU

7.1 EXISTING INFORMATION

As described in Nalcor (2009) woodland caribou (Rangifer caribou) are an important cultural, economic, and ecosystem component in Labrador, supplying a hunting resource for residents and prey for wildlife. Caribou within Labrador are classified as one of three ecotypes: (i) sedentary, (ii) migratory, or (iii) montane (Bergerud et al. 2008; Boulet et al. 2005; Thomas and Gray 2002). Sedentary

caribou are the forest dwelling ecotype that undergoes a seasonal dispersion (rather than migration) during calving (Bergerud et al. 2008).

Sedentary populations of woodland caribou in the province are considered Threatened under the NLESA, and occur in the lower Churchill River watershed. Sedentary herds that occur in the vicinity of the Project include the RWM Herd and the Mealy Mountains Herd (MMH), which includes the Joir River Herd (JRH) subpopulation (Bergerud et al. 2008). Of greatest concern for the Project is the RWM herd, which has a current range that overlaps with the Project. The RWM Herd was considered stable in the 1980s but declined dramatically to 151 animals in 1997 (Schaefer et al. 1999) with a further decrease to 87 animals by 2003 (NLDEC 2010, internet site). The JRH and MMH occur outside the physical footprint of the Project. The latest survey of the Red Wine Mountain Caribou sub population, traditionally found in the northern part of the Red Wine Mountain, indicates this herd is at its all-time low of approximately 20 animals (GNL 2015).

7.2 MITIGATION AND MONITORING

As described in the Lower Churchill Project (LCP) Species at Risk (SAR) Impacts Mitigation and Monitoring Plan (IMMP), the effects management measures (i.e., mitigation measures outlined in the EIS [Nalcor 2009]) the LCP Integrated Generation and Labrador Transmission Assets Environmental Protection Plan (Nalcor 2013), and the commitments made by the Project during the Information Request responses and the environmental assessment hearings to ensure regulatory compliance of the above discussed Acts and regulations included:

- All site personnel shall receive training to recognize any Endangered, Threatened or Vulnerable species of plant or animal and its habitat prior to the start of clearing and any other site activities;
- Personal pets are not permitted on the construction site;
- Buffer zones (of various distances) shall be implemented to protect wildlife at the site;
- Hunting is prohibited at the construction site. All Project participants shall be prohibited from hunting at the construction site while working on the Project;
- Under no circumstances are wildlife to be fed and all measures shall be taken to avoid inadvertent feeding;
- Wildlife shall not be chased, caught, diverted, followed or otherwise harassed by Project participants;
- All wildlife sightings and nuisance wildlife shall be reported to the On-Site Environmental Monitor (OSEM) who will oversee various mitigation measures and collect observation and other monitoring data related to wildlife;
- The Forestry Branch shall be contacted and updated with regards to nuisance wildlife and wildlife encounters;

- Equipment and vehicles shall yield the right-of-way to wildlife and adhere to construction site speed limits. Speed limits associated with Project access roads vary from 10 – 60 km/hr, and are set as per the regulatory requirements set by the Department of Transportation and Works. LCP enforces speed limits on all Project roads;
- LCP will create breaks every 500 m in snow berms alongside roads to enable caribou crossings;
- Where possible, the design of ROW will provide clear sightlines for caribou across the width of the ROW;
- Environmental awareness training, with regular briefings, shall be implemented for all personnel;
- Firearms shall not be permitted on site, with exception of approved bear monitors;
- Where possible, scheduling of activities will be limited and adaptable during calving and post-calving periods as well as during sensitive periods in the winter for caribou (LCP will consult with the NLENCC-WD in such instances);
- Maintain higher flight altitudes (300 agl or higher) during the 'critical' periods (as defined below as sensitive periods) during flights and monitoring programs. If caribou are startled ascend to a higher flight path or veer away.
- When caribou (based on collar or observational data) occupy an area under construction/development, LCP will contact the NLENCC-WD to determine if appropriate mitigation can be put into place or if activities must be suspended at that location (see below);
- When roads not essential to long-term maintenance are not needed, they will be decommissioned, habitat stabilized, and access shall be restricted;
- Temporary decommissioning of access roads may be considered if Project construction is considerably delayed;
- If access roads are deemed to be necessary during the operations and maintenance phase of the Project, LCP will consult with NLENCC-WD regarding the implementation of access control measures;
- The LCP will continue its participation as an observer on the Labrador Woodland Caribou Recovery Team regarding the RWM Herd and support of related research such as the telemetry monitoring program; and
- If necessary, access control measures will be applied in certain areas associated with facilities and/or ongoing activities to prevent disturbance of individual caribou:
    - the reservoir preparation approach will be mostly river based, thereby reducing the need for access from the TLH
    - existing access points will be used;
    - signage in the Project area will be used to deter access; and

- site security will be in place during construction at the South Side Access Road and other Project locations to restrict public access.

As stated in the SAR IMMP, LCP committed to supporting the deployment of additional collars on the RWM Herd. In 2014, 3 collars were deployed. LCP was advised by NLENCC-WD that additional deployment in 2015 should not be completed as the population was in further decline.

Weekly telemetry of Red Wine Mountain Herd individuals within 20 km of the Project are provided to LCP who map the locations and issue advisories on the approximate location of RWM caribou with respect to Project activities. Depending on the proximity of caribou observations from the Project, different mitigation scenarios were then applied.

The following describes specific potential interaction scenarios and the associated mitigation:

- **Scenario 1** – Caribou **within 20 km** of Project activities (based on satellite telemetry or other reports)
  - OSEM will conduct weekly visual surveys of 10 km radius around each activity from road-accessible vantage points for caribou or signs of caribou (i.e., winter craters, tracks or scat)
    - If present, wildlife observations will be included in the weekly environmental report to be sent to NLENCC-WD in Corner Brook (whenever Project activities are ongoing), and such information will be presented during environmental awareness training and regular briefings for all personnel
- **Scenario 2** – Caribou **within 5 km** of Project activities (based on satellite telemetry or other reports)
  - OSEM to issue advisory to all Project personnel that all sightings of caribou to be reported immediately to the OSEM. The OSEM will then immediately notify all vehicle operators.
  - OSEM will conduct daily visual surveys of 10 km radius around each activity from road-accessible vantage points for caribou or signs of caribou (i.e., winter craters, tracks or scat).
    - If present, wildlife observations will be included in the weekly environmental report to be sent to NLENCC-WD in Corner Brook
- **Scenario 3** – Caribou present during sensitive time periods
  - To reduce disturbance to caribou during the late winter and late pregnancy periods, NLENCC-WD has identified two sensitive time periods during which Project activities may be restricted, delayed or minimized:
    1) A cautionary period (late winter) – February 3 to April 15
       - If Project activities are to occur within 4 km of the known presence of caribou based on satellite telemetry or other reports, work activities are to be rescheduled.
    2) A critical period (calving/immediately post-calving) – May 30 to July 15

- No Project activities are permitted within important and highly used core calving areas.
- No blasting is to occur within a 2.5 km buffer of the core calving areas.

- **Scenario 4** – Blasting at the Main Site at Muskrat Falls
  - Prior to blasting, the OSEM will conduct a visual survey
  - If caribou are within 3 km of the site, blasting will be delayed until caribou have left the area
  - Methods to encourage caribou to leave the area may be implemented in consultation with NLENCC-WD
  - Note, if LCP can demonstrate the planned blasting activity will not likely result in a behavioural response by caribou, the 3 km radius may be reduced.
- **Scenario 5** – Other Project activities (e.g., grubbing, grading and leveling, laydown and storage of equipment and material in existing areas, generators to support the activity, vehicle and heavy equipment use, handling and transfer of fuel and other hazardous material, waste disposal, sewage disposal and hazardous waste disposal, localized and low intensity blasting, tower erection and conductor stringing)
  - As these activities would not be audible beyond a short distance, if caribou are observed within 500 m of such an activity, the OSEM will determine if the activity will be delayed or curtailed
  - Wildlife interactions will be included in the weekly environmental report to be sent to NLENCC-WD

Aerial Winter Survey

Between February 11 and February 24, 2015, an aerial survey was conducted of wintering areas for the RWM Herd (see Figure 7-1). The survey was conducted by three observers and a helicopter pilot. The survey followed pre-selected transects spaced at 2 km intervals, with additional transects added in areas deemed to be of high importance by NLENCC-WD. A Bell 206L Long Ranger was used throughout the survey, and was flown at 100 km/hr at an altitude of approximately 150 m above ground level. No caribou were observed.

Figure 7-1 Red Wine Mountains Herd Survey transect locations

7.3 REPORTING

A compilation of daily environmental reports were submitted to NLENCC-WD on a weekly basis. These reports provide a synopsis of completed activities, and a weekly look-ahead.

Throughout the 2015 construction year, LCP maintained frequent communications with the provincial NLENCC-WD regarding the movementsRWM Herd individuals within or near the Project area.

In addition to the high level weekly report, LCP also submitted a detailed Threatened Caribou Report weekly. This report presented the results of the telemetry observations, the mitigation scenario that applied, and the results of the surveys completed by the on-site environmental monitors, and any other surveys and observations recorded by project personnel. As the telemetry results are confidential, Table 1 provides a summary of the contents of the reports submitted to NLENCC-WD in 2015.

Table 7-1 Summary of the 2015 Threatened Caribou Reports

Week Ending	Caribou within 20 km (Y/N)	Number of Caribou within 20 km	Daily or Weekly Surveys	Caribou observations from surveys (Y/N)	Number of Observations
16-Jan	Y	1	Daily	N	None
23-Jan	N	0	Weekly	N	None
30-Jan	Y	1	Weekly	N	None
6-Feb	Y	1	Weekly	N	None
20-Feb	Y	1	Weekly	N	None
27-Feb	N	0	Weekly	N	None
13-Mar	Y	1	Weekly	N	None
20-Mar	Y	3	Weekly	N	None
27-Mar	Y	3	Weekly	N	None
3-Apr	Y	2	Weekly	N	None
10-Apr	Y	1	Weekly	N	None
17-Apr	Y	1	Weekly	N	None
24-Apr	Y	2	Daily	N	None
1-May	Y	2	Weekly	N	None
8-May	Y	1	Weekly	N	None
15-May	Y	2	Weekly	N	None
22-May	Y	2	Weekly	N	None
29-May	Y	2	Weekly	N	None
5-Jun	Y	1	Weekly	N	None
12-Jun	N	0	Weekly	N	None
19-Jun	N	0	Weekly	N	None
26-Jun	N	1	Weekly	N	None
3-Jul	Y	1	Weekly	N	None
9-Jul	Y	1	Weekly	N	None
17-Jul	N	0	Weekly	N	None
24-Jul	N	0	Weekly	N	None
31-Jul	N	0	Weekly	N	None
7-Aug	Y	1	Weekly	N	None
14-Aug	N	0	Weekly	Y	1
21-Aug	Y	N/A	Daily	N	None
21-Sep	Y	1	Daily	N	None
28-Sep	Y	1	Weekly	N	None
17-Oct	N	0	Weekly	N	None
24-Oct	Y	1	Weekly	N	None
26-Oct	Y	1	Weekly	N	None
9-Nov	Y	1	Weekly	N	None

16-Nov	Y	1	Weekly	N	None
23-Nov	Y	1	Weekly	N	None
30-Nov	Y	1	Daily	N	None
7-Dec	Y	1	Weekly	N	None
14-Dec	Y	1	Weekly	N	None

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Lower Churchill Management Corporation

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LOWER CHURCHILL PROJECT

2016 Annual Caribou Report – Red Wine Mountain Herd

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1 PURPOSE

The purpose of this annual report is to provide a summary of the mitigation and monitoring efforts associated with the Lower Churchill Project (LCP) Species at Risk (SAR) Impacts Mitigation and Monitoring Plan, specifically the Red Wine Mountain (RWM) Caribou during 2016.

2 SCOPE

This annual report applies to the 2016 monitoring and mitigation efforts for the RWM Caribou Herd undertaken for the Lower Churchill Project as described in Section 6.0.

3 DEFINITIONS

Environmental Assessment: The evaluation of the Project's potential environmental risks and effects before it is carried out and identification of ways to improve project design and implementation to prevent, minimize, mitigate, or compensate for adverse environmental effects and to enhance positive effects. This includes the EIS (Nalcor 2009), subsequent Information Requests, and statements issued by Nalcor Energy (NE) during the course of the Environmental Assessment Hearings in 2011.

Environmental Management: The management of human interactions with the environment (e.g., air, water and land and all species that occupy these habitats including humans).

Environmental Management System: Part of LCP's management system used to develop and implement its environmental policy and manage its environmental aspects.

Environmental Protection Plan: Document outlining the specific mitigation measures, contingency plans and emergency response procedures to be implemented during the construction or operations of the Project.

Environmental Effects Monitoring: Monitoring of overall Project effects to confirm the predictions of the EIS (Nalcor 2009) and to fulfill commitments.

Environmental Compliance Monitoring: Monitoring of Project activities to confirm compliance with regulatory requirements and commitments.

4 ABBREVIATIONS & ACRONYMS

EA	Environmental Assessment
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EMP	Environmental Management Plan
EPP	Environmental Protection Plan
EMS	Environmental Management System
ERC	Environment and Regulatory Compliance

HVac	High voltage alternating current
JRH	Joir River Herd
KI	Key Indicator
LTA	Labrador Transmission Asset
LCP	Lower Churchill Project
LWCRT	Labrador Woodland Caribou Recovery Team
NE	Nalcor Energy
NLESA	Newfoundland and Labrador Endangered Species Act
NLENCC-WD	Newfoundland and Labrador Department of Environment and Climate Change – Wildlife Division
OSEM	On-Site Environmental Monitor
PEEMP	Protection and Environmental Effects Monitoring Plan
RWM	Red Wine Mountains
SARA	federal Species at Risk Act
SAR IMMP	Species at Risk Impacts Mitigation and Monitoring Plan
SSAC	Species Status Advisory Committee

5 REFERENCE DOCUMENTS

LCP-PT-ED-0000-EA-SY-0001-01	*Environmental Impact Statement and Supporting Documentation for the Lower Churchill Hydroelectric Generation Project*
LCP-PT-MD-0000-EV-PL-0004-01	*LCP Species at Risk Protection and Environmental Effects Management Plan*
LCP-PT-MD-0000-EV-PL-0005-01	*Caribou Protection and Environmental Effects Monitoring Plan*
LCP-PT-MD-0000-EV-PL-0023-01	*LCP Species at Risk Impacts Mitigations and Monitoring Plan – Caribou and Avifauna*

6 PROJECT DESCRIPTION

6.1 MUSKRAT FALLS GENERATION

The Muskrat Falls Generation Project will include the following sub-components which are broken down under the five principal areas of the development:

- 22 km of access roads, including upgrading and new construction, and temporary bridges;
- A 1,500 person accommodations complex (for the construction period); and
- A north roller compacted concrete overflow dam;
- A south rockfill dam;
- River diversion during construction via the spillway;
- 5 vertical gate spillway;
- Reservoir preparation and reservoir clearing;
- Replacement of fish and terrestrial habitat;
- North spur stabilization works, and:
- A close coupled intake and powerhouse, including:
    - 4 intakes with gates and trash racks;
    - 4 turbine/generator units at approximately 206 MW each with associated ancillary electrical/mechanical and protection/control equipment;
    - 5 power transformers (includes 1 spare), located on the draft tube deck of the powerhouse; and
    - 2 overhead cranes each rated at 450 Tonnes

Figure 6-1 Muskrat Falls Generating Facility

6.2 LABRADOR TRANSMISSION ASSET (LTA)

LTA consists of an AC transmission line system from Churchill Falls to Muskrat Falls, specifically:

- Churchill Falls switchyard extension;
- Muskrat Falls switchyard;
- Transmission lines from Muskrat Falls to Churchill Falls: double-circuit 315 kV ac, 3 phase lines, double bundle conductor, single circuit galvanized lattice steel guyed suspension and rigid angle towers; 247 km long;
- 735 kV transmission line at Churchill Falls interconnecting the existing and the new Churchill Falls switchyards; and
- Labrador Fibre Project (Nalcor's participation in Aliant led initiative).

Figure 6-2 presents the LTA.

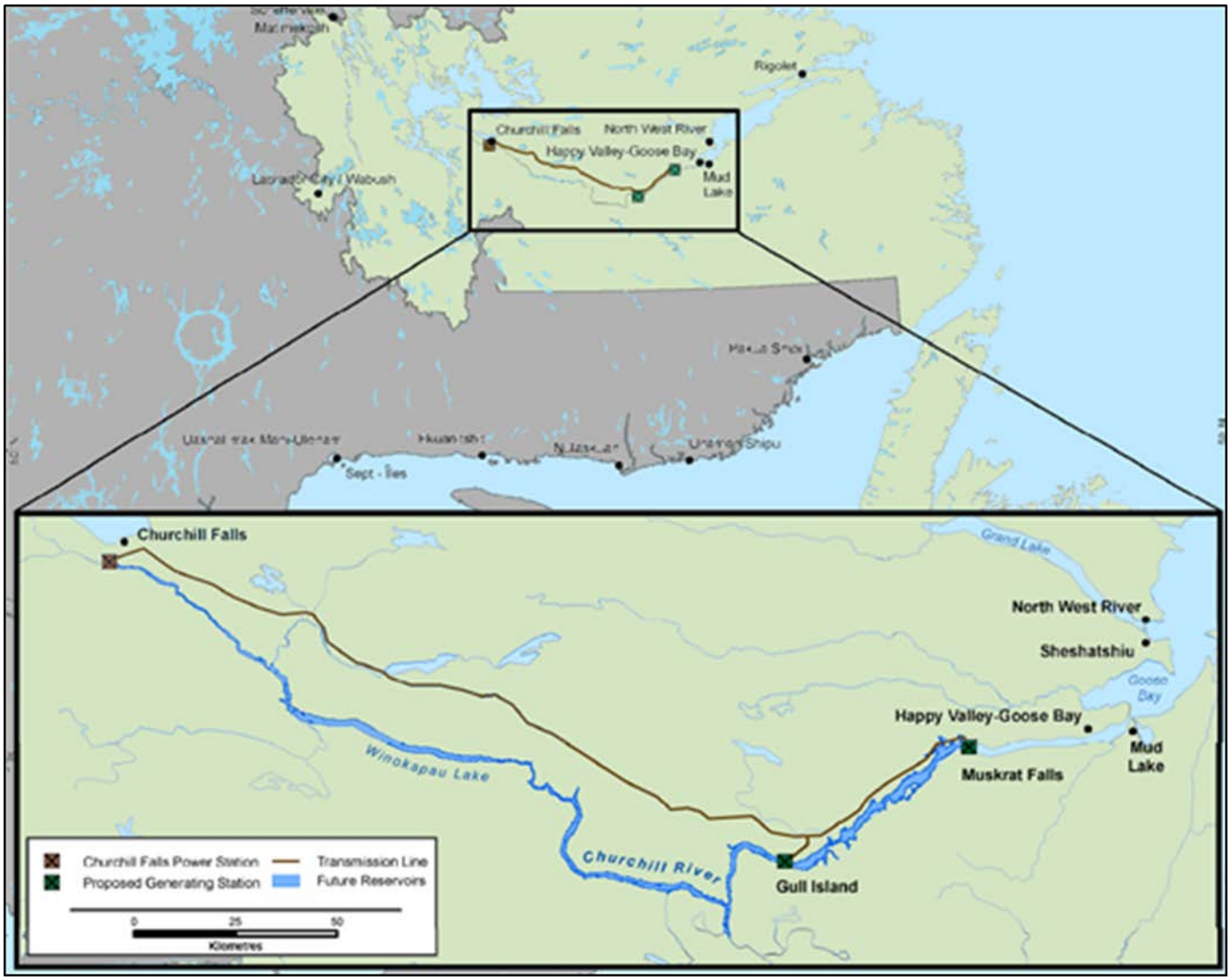

Figure 6-2 Labrador Transmission Asset

7 CARIBOU

7.1 EXISTING INFORMATION

As described in Nalcor (2009) woodland caribou (*Rangifer caribou*) are an important cultural, economic, and ecosystem component in Labrador, supplying a hunting resource for residents and prey for wildlife. Caribou within Labrador are classified as one of three ecotypes: (i) sedentary, (ii) migratory, or (iii) montane (Bergerud et al. 2008; Boulet et al. 2005; Thomas and Gray 2002). Sedentary

caribou are the forest dwelling ecotype that undergoes a seasonal dispersion (rather than migration) during calving (Bergerud et al. 2008).

Sedentary populations of woodland caribou in the province are considered Threatened under the NLESA, and occur in the lower Churchill River watershed. Sedentary herds that occur in the vicinity of the Project include the RWM Herd and the Mealy Mountains Herd (MMH), which includes the Joir River Herd (JRH) subpopulation (Bergerud et al. 2008). Of greatest concern for the Project is the RWM herd, which has a current range that overlaps with the Project. The RWM Herd was considered stable in the 1980s but declined dramatically to 151 animals in 1997 (Schaefer et al. 1999) with a further decrease to 87 animals by 2003 (NLDEC 2010, internet site). The JRH and MMH occur outside the physical footprint of the Project. The latest survey of the Red Wine Mountain Caribou sub population, traditionally found in the northern part of the Red Wine Mountain, indicates this herd is at its all-time low of approximately 20 animals (GNL 2015).

7.2 MITIGATION AND MONITORING

As described in the Lower Churchill Project (LCP) Species at Risk (SAR) Impacts Mitigation and Monitoring Plan (IMMP), the effects management measures (i.e., mitigation measures outlined in the EIS [Nalcor 2009]) the LCP Integrated Generation and Labrador Transmission Assets Environmental Protection Plan (Nalcor 2013), and the commitments made by the Project during the Information Request responses and the environmental assessment hearings to ensure regulatory compliance of the above discussed Acts and regulations included:

- All site personnel shall receive training to recognize any Endangered, Threatened or Vulnerable species of plant or animal and its habitat prior to the start of clearing and any other site activities;
- Personal pets are not permitted on the construction site;
- Buffer zones (of various distances) shall be implemented to protect wildlife at the site;
- Hunting is prohibited at the construction site. All Project participants shall be prohibited from hunting at the construction site while working on the Project;
- Under no circumstances are wildlife to be fed and all measures shall be taken to avoid inadvertent feeding;
- Wildlife shall not be chased, caught, diverted, followed or otherwise harassed by Project participants;
- All wildlife sightings and nuisance wildlife shall be reported to the On-Site Environmental Monitor (OSEM) who will oversee various mitigation measures and collect observation and other monitoring data related to wildlife;
- The Forestry Branch shall be contacted and updated with regards to nuisance wildlife and wildlife encounters;

- Equipment and vehicles shall yield the right-of-way to wildlife and adhere to construction site speed limits. Speed limits associated with Project access roads vary from 10 – 60 km/hr, and are set as per the regulatory requirements set by the Department of Transportation and Works. LCP enforces speed limits on all Project roads;
- LCP will create breaks every 500 m in snow berms alongside roads to enable caribou crossings;
- Where possible, the design of ROW will provide clear sightlines for caribou across the width of the ROW;
- Environmental awareness training, with regular briefings, shall be implemented for all personnel;
- Firearms shall not be permitted on site, with exception of approved bear monitors;
- Where possible, scheduling of activities will be limited and adaptable during calving and post-calving periods as well as during sensitive periods in the winter for caribou (LCP will consult with the NLENCC-WD in such instances);
- Maintain higher flight altitudes (300 agl or higher) during the 'critical' periods (as defined below as sensitive periods) during flights and monitoring programs. If caribou are startled ascend to a higher flight path or veer away.
- When caribou (based on collar or observational data) occupy an area under construction/development, LCP will contact the NLENCC-WD to determine if appropriate mitigation can be put into place or if activities must be suspended at that location (see below);
- When roads not essential to long-term maintenance are not needed, they will be decommissioned, habitat stabilized, and access shall be restricted;
- Temporary decommissioning of access roads may be considered if Project construction is considerably delayed;
- If access roads are deemed to be necessary during the operations and maintenance phase of the Project, LCP will consult with NLENCC-WD regarding the implementation of access control measures;
- The LCP will continue its participation as an observer on the Labrador Woodland Caribou Recovery Team regarding the RWM Herd and support of related research such as the telemetry monitoring program; and
- If necessary, access control measures will be applied in certain areas associated with facilities and/or ongoing activities to prevent disturbance of individual caribou:
    - the reservoir preparation approach will be mostly river based, thereby reducing the need for access from the TLH
    - existing access points will be used;
    - signage in the Project area will be used to deter access; and

- site security will be in place during construction at the South Side Access Road and other Project locations to restrict public access.

As stated in the SAR IMMP, LCP committed to supporting the deployment of additional collars on the RWM Herd. In 2014, 3 collars were deployed. LCP was advised by NLENCC-WD that additional deployment in 2015 should not be completed as the population was in further decline.

Weekly telemetry of Red Wine Mountain Herd individuals within 20 km of the Project are provided to LCP who map the locations and issue advisories on the approximate location of RWM caribou with respect to Project activities. Depending on the proximity of caribou observations from the Project, different mitigation scenarios were then applied.

The following describes specific potential interaction scenarios and the associated mitigation:

- **Scenario 1** – Caribou **within 20 km** of Project activities (based on satellite telemetry or other reports)
  - OSEM will conduct weekly visual surveys of 10 km radius around each activity from road-accessible vantage points for caribou or signs of caribou (i.e., winter craters, tracks or scat)
    - If present, wildlife observations will be included in the weekly environmental report to be sent to NLENCC-WD in Corner Brook (whenever Project activities are ongoing), and such information will be presented during environmental awareness training and regular briefings for all personnel
- **Scenario 2** – Caribou **within 5 km** of Project activities (based on satellite telemetry or other reports)
  - OSEM to issue advisory to all Project personnel that all sightings of caribou to be reported immediately to the OSEM. The OSEM will then immediately notify all vehicle operators.
  - OSEM will conduct daily visual surveys of 10 km radius around each activity from road-accessible vantage points for caribou or signs of caribou (i.e., winter craters, tracks or scat).
    - If present, wildlife observations will be included in the weekly environmental report to be sent to NLENCC-WD in Corner Brook
- **Scenario 3** – Caribou present during sensitive time periods
  - To reduce disturbance to caribou during the late winter and late pregnancy periods, NLENCC-WD has identified two sensitive time periods during which Project activities may be restricted, delayed or minimized:
    1) A cautionary period (late winter) – February 3 to April 15
       - If Project activities are to occur within 4 km of the known presence of caribou based on satellite telemetry or other reports, work activities are to be rescheduled.
    2) A critical period (calving/immediately post-calving) – May 30 to July 15

- No Project activities are permitted within important and highly used core calving areas.
- No blasting is to occur within a 2.5 km buffer of the core calving areas.

- **Scenario 4** – Blasting at the Main Site at Muskrat Falls
  - Prior to blasting, the OSEM will conduct a visual survey
  - If caribou are within 3 km of the site, blasting will be delayed until caribou have left the area
  - Methods to encourage caribou to leave the area may be implemented in consultation with NLENCC-WD
  - Note, if LCP can demonstrate the planned blasting activity will not likely result in a behavioural response by caribou, the 3 km radius may be reduced.
- **Scenario 5** – Other Project activities (e.g., grubbing, grading and leveling, laydown and storage of equipment and material in existing areas, generators to support the activity, vehicle and heavy equipment use, handling and transfer of fuel and other hazardous material, waste disposal, sewage disposal and hazardous waste disposal, localized and low intensity blasting, tower erection and conductor stringing)
  - As these activities would not be audible beyond a short distance, if caribou are observed within 500 m of such an activity, the OSEM will determine if the activity will be delayed or curtailed
  - Wildlife interactions will be included in the weekly environmental report to be sent to NLENCC-WD

Aerial Winter Survey

Between February 15 and February 19, 2016, an aerial survey was conducted of wintering areas for the RWM Herd (see Figure 7-1). The survey was conducted by three observers and a helicopter pilot. The survey followed pre-selected transects spaced at 2 and 4 km intervals, with additional transects added in areas deemed to be of high importance by NLENCC-WD. A Bell 206L Long Ranger was used throughout the survey, and was flown at 100-120 km/hr at an altitude of approximately 100 m above ground level. On February 16, 14 caribou were observed (two male, seven female, and five calves), on February 18, one female was observed, and on February 19, no caribou were observed. A total of 15 caribou were observed.

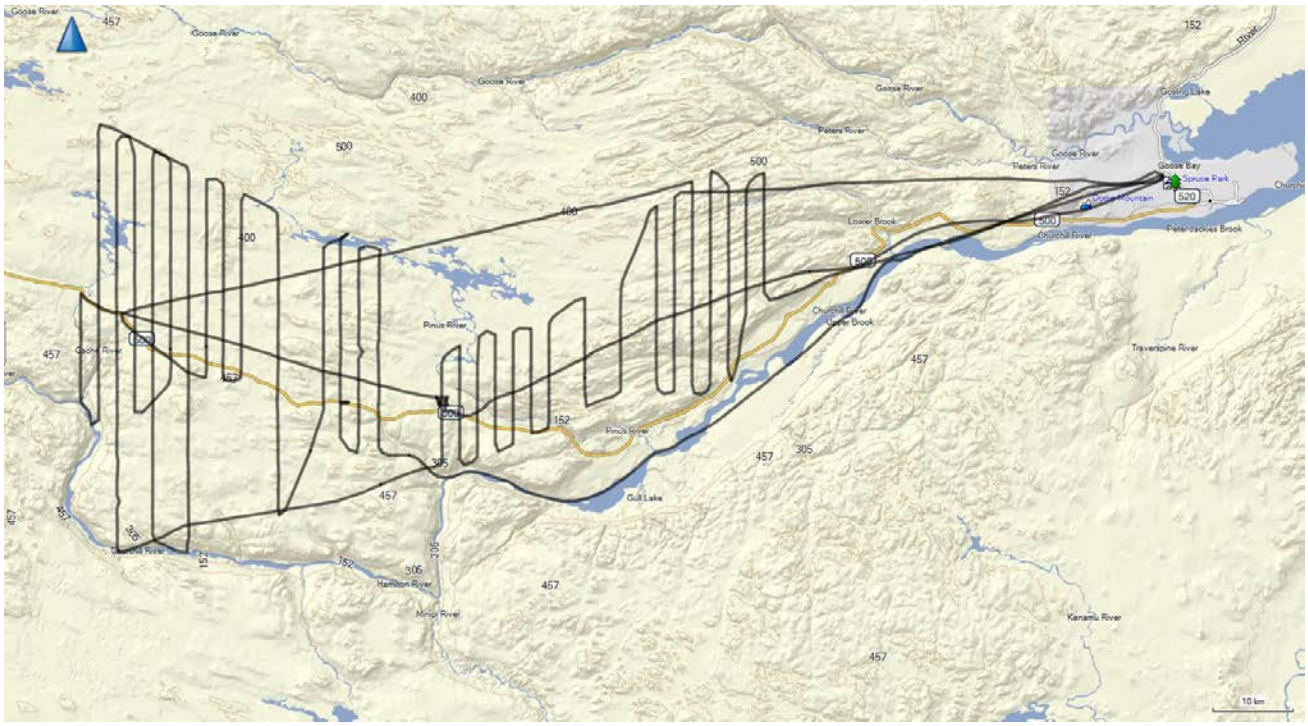

Figure 7-1 Survey Transects, February 15-16, 2016

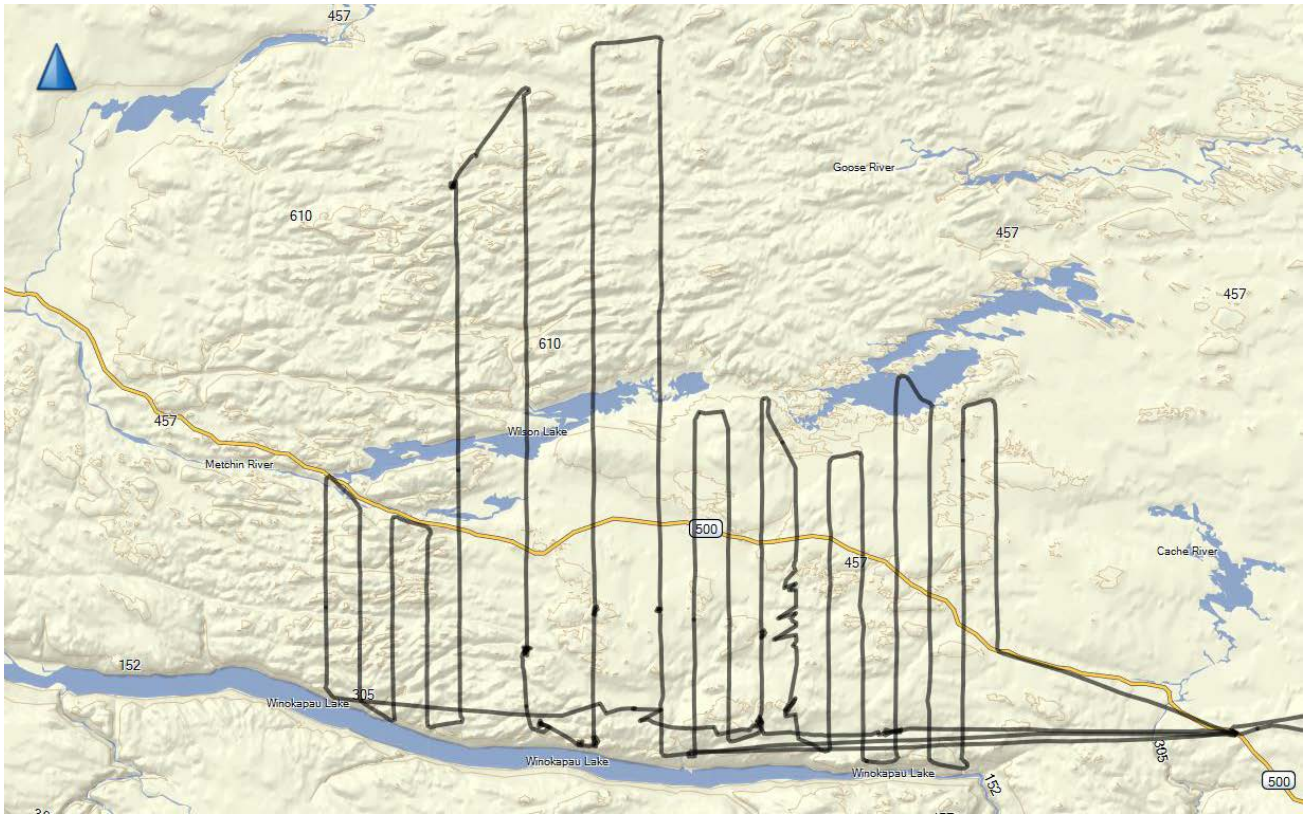

Figure 7-2 Survey Transects, February 18, 2016

7.3 REPORTING

A compilation of daily environmental reports were submitted to NLENCC-WD on a weekly basis. These reports provide a synopsis of completed activities, and a weekly look-ahead.

Throughout the 2016 construction year, LCP maintained frequent communications with the provincial NLENCC-WD regarding the movementsRWM Herd individuals within or near the Project area.

In addition to the high level weekly report, LCP also submitted a detailed Threatened Caribou Report weekly. This report presented the results of the telemetry observations, the mitigation scenario that applied, and the results of the surveys completed by the on-site environmental monitors, and any other surveys and observations recorded by project personnel. As the telemetry results are confidential, Table 1 provides a summary of the contents of the reports submitted to NLENCC-WD in 2015.

Table 7-1 Summary of the 2016 Threatened Caribou Reports

Week Ending	Caribou within 20 km (Y/N)	Number of Caribou within 20 km	Daily or Weekly Surveys	Caribou observations from surveys (Y/N)	Number of Observations
10-Jan-16	Y	0	Weekly	N	0
17-Jan-16	Y	2	Daily	N	0
24-Jan-16	N	0	Weekly	N	0
31-Jan-16	N	0	Weekly	N	0
7-Feb-16	Y	1	Weekly	N	0
14-Feb-16	Y	1	Weekly	N	0
21-Feb-16	N	0	Weekly	N	0
28-Feb-16	N	0	Weekly	N	0
6-Mar-16	Y	1	Weekly	N	0
13-Mar-16	Y	1	Daily	N	0
20-Mar-16	Y	2	Weekly	N	0
27-Mar-16	Y	2	Weekly	N	0
3-Apr-16	Y	2	Weekly	N	0
10-Apr-16	Y	3	Daily	N	0
17-Apr-16	Y	2	Daily	N	0
24-Apr-16	Y	1	Daily	N	0
1-May-16	Y	1	Weekly	N	0
8-May-16	Y	1	Weekly	N	0
15-May-16	Y	1	Weekly	N	0
22-May-16	Y	2	Weekly	N	0

29-May-16	Y	4	Weekly	N	0
5-Jun-16	Y	4	Weekly	N	0
12-Jun-16	Y	4	Daily	N	0
19-Jun-16	Y	3	Daily	N	0
26-Jun-16	Y	2	Weekly	N	0
3-Jul-16	Y	2	Weekly	N	0
10-Jul-16	Y	2	Daily	N	0
24-Jul-16	Y	2	Daily	N	0
31-Jul-16	Y	2	Daily	N	0
7-Aug-16	Y	2	Daily	N	0
14-Aug-16	Y	2	Daily	N	0
28-Aug-16	Y	3	Daily	N	0
4-Sep-16	Y	3	Daily	N	0
11-Sep-16	Y	4	Daily	N	0
18-Sep-16	Y	2	Daily	N	0
25-Sep-16	Y	3	Daily	N	0
2-Oct-16	Y	2	Weekly	N	0
9-Oct-16	Y	2	Weekly	N	0
16-Oct-16	Y	3	Daily	N	0
23-Oct-16	Y	3	Daily	N	0
30-Oct-16	Y	3	Weekly	N	0
6-Nov-16	N	0	Weekly	N	0
13-Nov-16	Y	1	Weekly	N	0
20-Nov-16	Y	1	Weekly	N	0
27-Nov-16	Y	2	Daily	N	0
4-Dec-16	Y	2	Weekly	N	0
11-Dec-16	Y	2	Weekly	N	0
18-Dec-16	Y	3	Daily	N	0
25-Dec-16	Y	1	Weekly	N	0

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