

Mr. Willard Hagen  
Chairman and CEO  
Mackenzie Valley Land and Water Board  
4910 50th Avenue, 2nd Floor  
PO BOX 2130  
YELLOWKNIFE NT X1A 2P6

Dear Mr. Hagen:

**Application for Land Use Permit and Water Licence for the Mackenzie Valley Fibre Optic Link Project**

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On behalf of the Government of the Northwest Territories (GNWT), please find attached three hard copies and one digital copy of applications for a Land Use Permit and Water Licence for the proposed Mackenzie Valley Fibre Link Project (MVFL). Also included as part of the application package are:

- A positive conformity determination and Exception to the Gwich'in Land Use Plan granted by the Gwich'in Land Use Planning Board;
- Evidence of access to private lands within the Gwich'in and Sahtu Settlement Areas;
- Bathymetric Survey reports for water sources applied for under the licence;
- The Project Description Report (PDR) which presents a detailed project description, summary of consultation, effects assessment and supporting documentation;
- A table documenting the substantive changes in the current application from the application submitted in March 2014; and
- A table documenting responses to comments received on the March 2014 application for the same project.

The MVFL is a priority of the GNWT, as it will provide improved telecommunication services to residents and businesses in Mackenzie Valley communities enabling improved delivery of government services, increased healthcare and educational opportunities, and new and expanded business opportunities. Construction is planned to commence in January 2015 to allow for the in service date of July 2016 to be met.

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Consistent with the GNWT's policy for large capital projects, the MVFL is being implemented under a design, build, finance, operate and maintain (DBFOM) model according to requirements specified by the GNWT. The GNWT has engaged the Northern Lights Fibre LP as its DBFOM contractor, who will be responsible for complying with any of the conditions included in the land use permit and water licence issued to the GNWT for the project.

We believe our applications and supporting documentation describe the scope of the MVFL components and activities in sufficient detail to allow the Mackenzie Valley Land and Water Board (MVLWB) and reviewers to undertake an informed review and Preliminary Screening of the project proposal. As requested by the MVLWB, we have included a summary of changes to the project description and effects assessment from our original application submitted in March 2014.

Over the past 20 months, our project team has been meeting with government agencies, regulatory authorities, Aboriginal organizations, and the public in communities throughout the Mackenzie Valley to explain the project proposal and gather input to improve the project design, mitigate potential environmental effects and enhance project benefits. As demonstrated by the consultation record included in the PDR, our project has improved as a result of the consultation process and we believe we have addressed the potential concerns raised by the parties.

We look forward to a timely determination on our applications by the MVLWB and are available to respond to any enquires you may have about our applications.

Sincerely,



Sandy Kalgutkar  
Deputy Secretary of the FMB

Attachment

c. Jordon Woodall, Director, Business Operations  
Ledcor Technical Services

Sean Craig, P3 Analyst, Finance



**Mackenzie Valley Land and Water Board**  
**7th Floor - 4910 50th Avenue**  
**P.O. Box 2130**  
**YELLOWKNIFE NT X1A 2P6**  
**Phone (867) 669-0506**  
**FAX (867) 873-6610**

**APPLICATION FOR A NEW WATER LICENCE, AMENDMENT OF LICENCE, OR RENEWAL OF LICENCE.**

**Application/Licence No:**  
 (amendment or renewal only)

<p><b>1. Name and Mailing Address of Applicant</b>          Department of Finance          Government of the Northwest Territories          P.O. Box 1320          Yellowknife, NT, X1A 2L9</p> <p>Telephone: <u>867-873-7117</u>          Fax: <u>867-873-0414</u></p>	<p><b>2. Address of Head Office in Canada if Incorporate</b></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Telephone: _____          Fax: _____</p>
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**3. Location of Undertaking (describe and attach a map, indicating watercourses and location of any proposed waste deposits).**

Start and end points indicated, see maps in attached Project Description Report (PDR).

Latitude	Longitude
61°22',20.6"	120°52'58.7"
68°18'15"	133°28'58"

**The GNWT requests a licence to withdraw water from the sources identified on Attachment A to this application.**

**4. Description of Undertaking (describe and attach plans)**

The Government of the Northwest Territories has engaged a contractor to design, build and operate a buried fibre optic cable system between the existing fibre-based infrastructure at the junction of Highway 1 and Highway 7 (McGill Lake Microwave site near Checkpoint Junction) and the Town of Inuvik, Northwest Territories. Please see Section 3 – Proposed Development in the attached Project Description Report (PDR) for a detailed description of the proposed development.

Map illustrating location of water sources is included in PDR and smaller scale map appended.

**5. Type of Undertaking.**

- |                       |       |                  |            |
|-----------------------|-------|------------------|------------|
| 1. Industrial         | _____ | 5. Agriculture   | _____      |
| 2. Mining and Milling | _____ | 6. Conservation  | _____      |
| 3. Municipal          | _____ | 7. Recreation    | _____      |
| 4. Power              | _____ | 8. Miscellaneous | <u>Yes</u> |

**6. Water Use**

To obtain water                      Yes                      Flood control                      \_\_\_\_\_

To cross a watercourse                      \_\_\_\_\_                      To divert water                      \_\_\_\_\_

To modify the bed or bank of  
a watercourse                      \_\_\_\_\_                      To alter the flow of,  
or store water                      \_\_\_\_\_

Other (describe): \_\_\_\_\_

**7. Quantity of water involved (litres per second, litres per day or cubic meters per year), including both quantity to be used and quantity to be returned to source.**

Estimated camp use of 2m<sup>3</sup> per camp per day, possible 5 camps =10 m<sup>3</sup> day

Horizontal directional drill use of up to 30m<sup>3</sup> day for estimated 70 days. Boring under small crossings – water use of up to 3m<sup>3</sup> per day. Estimated daily water use under routine conditions is 43m<sup>3</sup>. Contingency water use of use of up to 40m<sup>3</sup> per day for snow trail construction and 10m<sup>3</sup> per day for geotechnical drilling. Maximum daily water use = 93m<sup>3</sup>.

**8. Waste deposited (quantity, quality, treatment and disposal)**

A Waste Management Plan for the proposed activities is to be developed in accordance with the Board's *Guidelines for Developing a Waste Management Plan* (accessible at [www.mvlwb.com](http://www.mvlwb.com)) and submitted as an attachment to the application form. A template for this Plan is provided in the Guidelines. Applications for a municipal licence do not need to include a Waste Management Plan as this information is required under the Operation and Maintenance Plan.

In addition, applicants are referred to the Board's *Water and Effluent Quality Management Policy* (accessible at [www.mvlwb.com](http://www.mvlwb.com)) to understand the Board's approach to managing the deposit of waste into the receiving environment through enforceable terms and conditions set in water licences.

See Section 3.8.7 and Waste Management Plan (Appendix B) of PDR for greater detail.

Solid waste and sewage to be disposed of in municipal facilities. Greywater will either be disposed of in municipal facilities or filtered and discharged in natural depressions. Vegetation either windrowed or mulched. Non- toxic drilling fluids disposed of in natural depressions or by land spreading at least 100m from ordinary high water mark of water bodies.

**9. Other persons or properties affected by this Undertaking (give name, mailing address and location). Attach a list if necessary.**

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**10. Predicted environmental impacts of Undertaking and proposed mitigation.**

As part of the response to this section, a spill contingency plan for the proposed activities is to be developed in accordance with INAC's *Guidelines for Spill Contingency Planning, April 2007*. (accessible at <http://www.ainc-inac.gc.ca/ai/scr/nt/pdf/SCP-EUD-eng.pdf>). This plan is to be submitted as an attachment to the application form.

An assessment of the proposed development's effects on the environment, potential effects of the environment on the development, potential effects of accidents and malfunctions and potential cumulative effects was undertaken and is documented in Sections 4, 6 and 7 of the PDR. In summary, once proposed mitigations are applied, residual effects of the development are predicted to be none to negligible for the following Valued Components identified during the assessment:

- Terrain stability
- Sensitive terrain features
- Soil quality
- Air quality
- Hydrology (water quantity)
- Water chemistry (water quality)
- Fish and fish habitat
- Vegetation
- Rare plants
- Waterfowl and waterbirds
- Peregrine falcon
- Short-eared owl
- Heritage resources

Residual Project effects, once mitigations are applied, are predicted to be low for the following Valued Components:

- Caribou – habitat loss and sensory disturbance
- Grizzly bear – den disturbance
- Wolverine – den disturbance
- Traditional and local land use

An evaluation of these residual effects and an assessment of Project interactions with other past, present and reasonably foreseeable activities in the area concludes that with the implementation of mitigation measures, the Project will not result in significant cumulative effects for wildlife or traditional and local land use. A significant, positive effect is identified for business and employment opportunities.

**11. Contractors and sub-contractors (names, addresses and functions). Attach a list if necessary.**

Northern Lights Fibre, a partnership between Northwestel and the Leducor Group. Leducor, through subsidiary Leducor Technical Services Limited Partnership (LTS) is responsible for construction of the MVFL. The primary contact for LTS is Marcus van Zyl, Project Manager. Tel 604-699-2974. Mobile: 778-877-4394. Email: Marcus.VanZyl@Leducor.com

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**12. Studies undertaken to date. Attach a list if necessary.**

Bathymetric survey undertaken on water sources in GSA and SSA completed in summer 2014 (report appended). Archaeological Impact Assessment of route undertaken in 2014.

**13. Proposed time schedule.**

Start date: December 2014 Completion date: August 2017

Name (print): Sandy Kalgutkar Signature: \_\_\_\_\_

Title (print): Deputy Secretary of the Financial Management Board Date: Oct 30/14

***Please make all cheques payable to "Receiver General of Canada"***

**FOR OFFICE USE ONLY**

**Application Fee Amount:**      \$ \_\_\_\_\_      **Receipt No:**      \_\_\_\_\_

**Water Use Deposit Amount:**      \$ \_\_\_\_\_      **Receipt No:**      \_\_\_\_\_

**Table 1-1 Water Sources Surveyed in 2014 included in MVFL Project Water Licence Application**

Lake ID	Latitude (° N) <sup>1</sup>	Longitude (° W) <sup>1</sup>	Surface Area (m <sup>2</sup> )	Maximum Depth (m)	Winter Volume (1.5 m ice) (m <sup>3</sup> )	Water Volume Requested for Winter Withdrawal (m <sup>3</sup> )	% of available Water Volume
53	68.3033	-133.2023	2,025,873.09	2.83	9,057.95	450	5
MVFL1	68.1624	-132.9491	201,502.45	1.03	–	0	0
58	68.1142	-132.9606	1,998,936.53	1.71	49,555.84	1000	2
Fish Trap Lake/74	67.9467	-132.2219	3,729,867.21	16.76	12,455,742.52	4000	0.03
GSA8x/76	67.8654	-132.0562	359,079.61	4.65	119,016.32	2000	1.6
80	67.8562	-131.8437	4,913,942.23	23.29	17,608,520.58	4000	0.02
83	67.8141	-131.6536	5,785,684.97	3.40	519,785.63	0 (Conservation Zone)	0
87	67.7232	-131.5324	984,510.42	14.20	2,901,323.11	0 (Conservation Zone)	0
88	67.6678	-131.3875	5,733,019.16	17.60	16,603,418.83	4000	0.02
89	67.6299	-131.1484	188,922.71	5.87	145,918.17	2000	1.4
93	67.5686	-130.9457	414,899.64	6.24	273,492.03	4000	1.5
MVFL-TR	67.5502	-130.8132	64,044.18	5.97	34,867.93	1500	4.3
96	67.5124	-130.7189	621,440.71	1.49	–	0	0
98	67.4757	-130.6928	969,634.66	3.46	273,735.80	0	0
100	67.4520	-130.5973	590,951.53	4.35	309,332.86	4000	1.3
MVFL13	67.3611	-130.4281	257,066.90	6.46	263,175.54	4000	1.5
MVFL15	67.1792	-130.0449	91,707.40	5.95	86,231.13	4000	4.6
117	67.0261	-129.9166	203,817.89	3.25	77,595.82	3000	3.9
120A	66.8666	-129.9768	901,700.09	1.62	764.44	0	0
121	66.8671	-129.7790	176,164.36	1.80	6,283.24	500	8
MVFL19	66.9147	-129.5816	1,217,773.63	9.73	1,663,111.91	4000	0.2
MVFL20	66.5483	-128.8193	139,709.56	1.22	–	0	0
135/Loon Lake	66.6071	-128.7277	19,890,586.57	11.16	45,223,689.35	4,000	0.009

**Table 1-1 Water Sources Surveyed in 2014 included in MVFL Project Water Licence Application**

<b>Lake ID</b>	<b>Latitude (° N)<sup>1</sup></b>	<b>Longitude (° W)<sup>1</sup></b>	<b>Surface Area (m<sup>2</sup>)</b>	<b>Maximum Depth (m)</b>	<b>Winter Volume (1.5 m ice) (m<sup>3</sup>)</b>	<b>Water Volume Requested for Winter Withdrawal (m<sup>3</sup>)</b>	<b>% of available Water Volume</b>
138	66.3610	-128.6190	225,053.39	1.47	–	0	0
139	66.3531	-128.5463	812,053.03	1.16	518.58	0	0
141	66.2497	-128.5073	338,928.53	1.68	733.29	0	0



**Table 1-2 Water Sources Previously Surveyed included in MVFL Project Water Licence Application**

Lake ID	Latitude (°N) <sup>1</sup>	Longitude (° W) <sup>1</sup>	Surveyed Surface Area (m <sup>2</sup> ) <sup>2</sup>	Surveyed Available Winter Volume (m <sup>3</sup> ) <sup>2,3</sup>	Previously Approved Winter withdrawal Volume (m <sup>3</sup> ) <sup>4</sup>	Water Volume Requested for Winter Withdrawal (m <sup>3</sup> )	% of available Water Volume	Previous Approval Licence
GSA2	68.14.37	133.5.18	192,769	4,085	200	200	4.9	G03L8-001/2
N Caribou Lk/GSA4	68.5.59	132.43.28	19,904,098	1,659,473	4000	4000	0.24	G03L8-002
Hill Lk/GSA5/62	67.58.55	132.33.3	11,760,140	2,218,579	1200	1200	0.05	G03L8-002 G04L8-001
GSA6/63	67.59.15	132.27.1	10,022,152	25,170	4000	1000	4	G04L8-001
Woodbridge Lk/GSA7/75	67.52.40	132.9.59	6,789,957	11,481,151	4000	2000	0.01	G04L8-001
GSA17/101	67.24.23	130.34.31	265,766	27,177	n/a	200	0.7	n/a
GSA18/103	67.19.30	130.25.5	594,325	104,332	n/a	2000	1.9	n/a
SKG1/104	67.18.42	130.23.20	135,662	32,712	Unavailable	1000	3	S03L1-017
SKG2x/105	67.13.57	130.10.37	2,393,023	843,629	Unavailable	4000	0.5	S03L1-017
SKG4	67.5.25	130.0.16	113,565	15,795	Unavailable	500	3.2	S03L1-017
I-08/SKG5	67.2.32	129.59.41	1,710,985	2,532,833	Unavailable	4000	0.2	S03L1-018
SKG19	66.33.20	129.2.31	661,013	280,743	Unavailable	4000	1.4	S03L1-017
SKG25/140	66.17.41	128.31.30	692,781	139,870	Unavailable	4000	2.9	S03L1-017
SKG24	66.18.60	128.35.34	828,391	8,219	Unavailable	400	4.9	S03L1-017
<p>NOTES:</p> <p><sup>1</sup> ADD</p> <p><sup>2</sup> Data for previously surveyed lakes from Applied Aquatic Research (2003)</p> <p><sup>3</sup> Surveyed available winter volume considers 1.5 m ice thickness</p> <p><sup>4</sup> Previously approved winter water withdrawal volumes obtained from referenced water licenses; 'n/a' represents water sources previously applied for as part of the Mackenzie Gas Project; 'unavailable' implies the withdrawal volumes were not specified in the reference water license(s)</p>								

**Table 1-3 Proposed Water Withdrawals for Horizontal Directional Drilling**

KP	Coordinates	Watercourse Name	WSC Hydrometric Station	Station Record	Approximate HDD Timing	Mean Daily Discharge (m <sup>3</sup> /s)	7Q10 (m <sup>3</sup> /s)	Volume Required for HDD (m <sup>3</sup> /s)	Percentage of Mean Daily Discharge	Percentage of 7Q10
68.8	61.7422, -121.2235	Liard River	10ED002 (near the mouth)	1972-2012	June	7,550	3,760	0.0004	<1	<1
					July	5,810	2,770	0.0004	<1	<1
170.3	62.1417, -122.5301	Mackenzie River	10GC001 (at Fort Simpson)	1960-2012	May	10,500	3,700	0.0006	<1	<1
					June	14,500	9,830	0.0006	<1	<1
558.8	64.9092, -125.5980	Great Bear River	10JC003 (at Outlet of Great Bear Lake)	1961-2013	February	513	432	0.0003	<1	<1
					March	501	426	0.0003	<1	<1
802.6	66.3168, -128.5354	Hare Indian River	10LD004 (near Fort Good Hope)	2009-2012	February	14.5	-*	0.0003	<1	<1

NOTES:  
 \* Station record too short for 7Q10 calculation; minimum daily discharge in February at Station 10LD004 is 12.0 m<sup>3</sup>/s, 25%-ile discharge is 12.8 m<sup>3</sup>/s