

# YUKON WATER BOARD

Pursuant to the *Waters Act* and *Waters Regulation*, the Yukon Water Board hereby grants a Type A water licence for a municipal undertaking to:

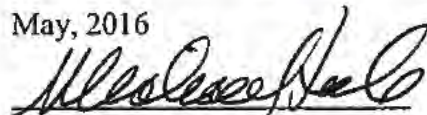
City of Whitehorse  
2121 Second Avenue  
Whitehorse YT Y1A 1C2

**LICENCE NUMBER:** MN93-001      **APPLICATION:** MN93-001-13  
**LICENCE TYPE:** A      **UNDERTAKING:** MUNICIPAL  
**LOCATION:** Yukon River at Whitehorse  
**MAP CO-ORDINATES:** Latitude: 60° 48' 02" N (max)      Longitude: 135° 08'00" W (max)  
Latitude: 60° 47' 02" N (min)      Longitude: 135° 05'00" W (min)  
**PURPOSE:** To obtain, divert, store and alter a flow of water to deposit a waste.  
**AMENDMENT**  
**EFFECTIVE DATE:** The date that the signature of the Chairperson is affixed.  
**EXPIRY DATE:** November 1, 2018

This Licence shall be subject to the restrictions and conditions contained herein and to the restrictions and conditions contained in the *Waters Act* and the *Waters Regulation* made thereunder. This licence shall be deemed to be amendment 9 of licence number MN93-001 and all amendments thereto.

Approved this 11<sup>th</sup> day of

May, 2016


  
Witness



Minister, Executive Council Office  
Government of Yukon

Issued this 11 day of

May, 2016

  
Witness



Chairperson  
Yukon Water Board

## PART A –DEFINITIONS

“Act” means *Waters Act* and any amendments thereto.

“Application” collectively means Water Use Applications MN93-001, MN94-003-1, MN95-002-2, MN01-038-3, MN00-031-4, MN06-061-7, MN08-076-10, MN09-080-11, MN93-001-12 and MN93-001-13 and any additional submissions and/or revisions submitted to the Board by the Licensee, up to the date of the Board’s decision to issue this licence.

“Board” means the Yukon Water Board.

“Inspector” means any person designated as an Inspector under the Act.

“Natural Boundary” means the visible high water mark of any lake, river, stream or other body of water where the presence and action of water is so common and usual and so long continued as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be Natural Boundaries.

“Regulation” means the *Waters Regulation* made under the Act.

“Waste” means any substance as defined in the Act.

“Watercourse” means any stream, lake, pond, river, creek, spring, ravine or swamp whether ordinarily containing water or not.

## PART B –GENERAL CONDITIONS

1. Where there is a discrepancy between the Application and this licence, the conditions of this licence shall prevail.

### Other Laws

2. No condition of this licence limits the applicability of any statutory authority.
3. All construction or installation of works authorized by this licence shall occur on property that the Licensee has the right to enter upon and use for that purpose.

### Correspondence

4. Where any direction, notice, order, or report under this licence is required to be in writing it shall be given:
  - a) To the Licensee, if delivered, or mailed by registered mail, to the address identified on page 1 of this licence, and shall be deemed to have been given to the Licensee on the day it was delivered, or 7 days after the day it was mailed, as the case may be; or

- b) To the Board, if delivered, faxed or mailed by registered mail to the following address:

Yukon Water Board  
Suite 106, 419 Range Road  
Whitehorse YT Y1A 3V1  
Fax: (867) 456-3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

- c) The Board or the Licensee may, by notice in writing, change its address for delivery.

#### Non-Compliance

5. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, subject to the Act, cancel the licence.

#### Spills and Unauthorized Discharges

6. Within 30 days of the effective date of amendment 13 of licence MN93-001, the Licensee shall submit an updated spill contingency plan to the Board. Any revisions to the plan shall be delivered to the Board within 10 days of the revision.
7. The Licensee shall immediately contact the 24-hour Yukon Spill Report telephone number, (867) 667-7244, and implement the most recent spill contingency plan that has been filed with the Board, should a spill or an unauthorized discharge occur. A detailed written report on any such event, including but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be delivered to the Board not later than 10 days after the occurrence.
8. All personnel shall be trained in procedures to be followed and the equipment to be used in the containment of a spill.
9. The spill contingency plan shall be posted on site for the durations of any works.

#### Hazardous Materials

10. A complete inventory of chemicals, fuels, oils, lubricants and other hazardous materials contained in the facilities relating to the water uses authorized by this licence shall be maintained by the Licensee.

#### Fuel Storage and Transfer

11. Fuel, lubricants, hydraulic fluids, coolants and similar substances shall be stored and/or transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in or allowed to be deposited in waters.

**Reports**

12. The Licensee shall provide to the Board one unbound, single-sided, paper copy of all reports required by this licence. All reports must be reproducible by standard photocopier.
13. The Licensee shall upload electronic copies of all reports required by this licence to the Yukon Water Board's online licensing registry, the WATERLINE. Electronic copies shall be submitted in one of the following formats: Word 97 - 2003, Excel 97 - 2003 workbooks, or Adobe .pdf format. Water quality results uploaded to the WATERLINE must be presented in Excel 97-2003.xls format.

**Annual Reports**

14. The Licensee shall submit annual reports to the Board. Annual reports shall cover the period from January 1 to December 31 of each year and shall be submitted to the Board on or before April 1 of the following year.
15. Annual reports shall include the information required by this licence and by the Regulation, including, but not necessarily limited to:
  - a) summaries of all data generated as a result of the monitoring requirements of this licence, including analysis and interpretation by a qualified individual or firm and a discussion of any variances from baseline conditions or from previous years' data; and
  - b) total number of days of wastewater effluent discharge to the Yukon River and the total volume of wastewater deposited.

**Monthly Reports**

16. Unless otherwise specified in this licence, the Licensee shall forward to the Board a copy of all data collected as part of the monitoring programs of this licence. The data shall be forwarded to the Board no more than 30 days after the conclusion of the month in which that data was collected.

**Term of Licence**

17. The term of this licence is from the effective date to November 1, 2018.

**PART C –OPERATING CONDITIONS**

18. The Licensee is hereby authorized to:
  - a) obtain water from Schwatka Lake, upstream of the Whitehorse Rapids Hydroelectric Dam on the Yukon River, and from wells in the Selkirk and Whitehorse aquifers at a total rate not exceeding 20,000 m<sup>3</sup> per day; and
  - b) convey the water via pumps and pipelines; and

- c) store the water in reservoirs; and
- d) use the water for municipal purposes; and
- e) collect and convey sewage to the Crestview, Whitehorse and Livingston Trail sewage treatment facilities; and
- f) store wastewater in the Crestview, Whitehorse and Livingston Trail sewage treatment facilities; and
- g) construct and operate a treated wastewater discharge pipeline and outfall from the Livingston Trail Environmental Control Facility to the Yukon River; and
- h) discharge treated wastewater to the Yukon River from the Livingston Trail Environmental Control Facility; or
- i) discharge treated wastewater to the Pothole Lake from the Livingston Trail Environmental Control Facility; and
- j) discharge treated wastewater to groundwater from the Crestview wastewater treatment facility; and
- k) discharge treated wastewater to the Yukon River from the Whitehorse Sewage Lagoon, once per calendar year, when such discharges are necessary for inspection, maintenance and/or repair of the Whitehorse Sewage Lagoon;
- l) collect, convey and discharge stormwater to the Yukon River through existing stormwater outfalls;
- m) construct sludge drying beds adjacent to the Livingston Trail Environmental Control Facility; and
- n) apply dried sludge to the soil within the Livingston Trail Environmental Control Facility,

as described in the Application, and subject to the conditions of this licence.

- 19. Wastewater from Crestview shall be directed to the Crestview wastewater treatment facility.
- 20. All water supply, sewage collection, sewage treatment, sewage disposal and stormwater systems shall be maintained in good repair and in a manner which is consistent with generally accepted municipal practices for the types of systems being used.
- 21. All wastewater biosolid disposal areas shall be fenced and posted with warning signs.

22. The Licensee may discharge treated municipal wastewater to the Pothole Lake during the period of August 1 to December 15 or to the Yukon River during the period of September 1 to December 15.
23. If the Licensee elects to discharge treated wastewater to the Yukon River in any year, notification shall be provided to the Board no later than July 15 of that year together with evidence of public notice having been made to the same effect.
24. The water level in the Pothole Lake shall be maintained at least two metres below the natural lowest height of land surrounding the lake.
25. Notification, including the name and phone number of the field supervisor, shall be provided to the Board, in writing, 10 days prior to the start of any construction.

## **PART D – LIVINGSTON TRAIL ENVIRONMENTAL CONTROL FACILITY**

### Effluent Quality Standards

26. Treated wastewater discharged from the Livingston Trail Environmental Control Facility to either the Yukon River or the Pothole Lake, shall meet the following effluent quality standards:

<b>Parameter</b>	<b>Maximum Concentration in a Grab Sample</b>
Fecal Coliforms	2000 MPN/100 mL
CBOD <sub>5</sub>	25 mg/L
pH	6-9
Total Suspended Solids	25 mg/L
Oil and Grease	5 mg/L
Un-ionized Ammonia, N at 15°C ±1°C	1.25 mg/L
Acute Toxicity 96-hour LC <sub>50</sub> (100% concentration)*	Non-toxic

Note: \* means non-pH adjusted – reference method EPS 1/RM/13

### Receiving Water Standards

27. The Licensee shall ensure that the receiving water standards specified below are met outside of the initial mixing zones. The fecal coliform, the initial mixing zone is defined as a distance extending 750 metres downstream from the point of discharge to the Yukon River. For all other parameters, the initial mixing zone is defined as a distance extending 300 metres downstream from the point of discharge to the Yukon River.



Parameter	Receiving Water Standard
Fecal Coliform	Concentration not to exceed 200 MPN per 100mL
Dissolved Oxygen	Decrease from a point upstream of the point of discharge to the Yukon River not to exceed 10% and in no case shall the concentration be less than 4 mg/L
Oil and Grease	Concentration not to exceed 1.0 mg/L at the river surface
Organisms	No undesirable change in productivity
Floating solids and scum	Negligible increase
Metals	Negligible increase

### PART E - WHITEHORSE SEWAGE LAGOON

28. Subject to the conditions of this licence, the Licensee is authorized to discharge treated wastewater to the Yukon River from the Whitehorse Sewage Lagoon, once per calendar year, when such discharges are necessary for inspection, maintenance and/or repair of the Whitehorse Sewage Lagoon.
29. Any discharge from the Whitehorse Sewage Lagoon must meet the following effluent quality standards at the point of discharge from the lagoon:

Parameter	Concentration
Fecal Coliforms	2000 MPN/100 mL
CBOD <sub>5</sub>	25 mg/L
pH	6 - 9
Total Suspended Solids	25 mg/L
Oil and Grease	5 mg/L
Un-ionized Ammonia, N at 15°C ± 1°C	1.25 mg/L
Acute Toxicity 96-hour LC <sub>50</sub> (100% concentration)*	Non-toxic

Note: \* means non-pH adjusted – reference method EPS 1/RM/13

30. a) Two weeks prior to any discharge, the Licensee shall conduct a monitoring program at each of the four cells of the Whitehorse Sewage Lagoon. Water shall be collected as depth-integrated composite samples and shall be analyzed for the following parameters:
- Water level
  - pH
  - Temperature (°C)
  - Un-ionized Ammonia-N (mg/L)
  - CBOD<sub>5</sub> (mg/L)
  - Oil & Grease (mg/L)
  - Dissolved O<sub>2</sub> (mg/L)
  - Total Suspended Solids (mg/L)
  - Fecal Coliforms (MPN/100 mL)
  - Total Coliforms (MPN/100 mL)
  - Conductivity (µmhos/cm)
  - Total Phosphate (mg/L as P)
  - ICP Total Metals
  - LC<sub>50</sub> Bioassay (100%)
  - Giardia
- b) ICP Dissolved and Total Metals Analysis shall include Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mn, Mo, Ni, P, K, Se, Si, Ag, Na, Sr, S, Tl, Ti, V, Zn.
31. The Licensee shall notify the Board at least one week prior to any discharge. The notice will include the results of the monitoring program required by this part of this licence, and will include confirmation that notice has also been provided to Fisheries and Oceans Canada and to an Inspector.
32. The Licensee shall install and maintain signage in the vicinity of the discharge from the Whitehorse Sewage Lagoon to the Yukon River. The signage will provide a warning to the public when a discharge is planned.
33. Soils to which dried sludge (biosolids) have been added must not exceed the following criteria:

Parameter	Class B Biosolid Standards*	CSR Soil Standards**
Pathogen reduction	Yes	-
Vector attraction reduction	Yes	-
Fecal coliform (MPN g <sup>-1</sup> dry weight)	<2,000,000	-
Arsenic (µ g/g dry weight)	75	20
Cadmium (µ g/g dry weight)	20	2 (pH<7.0); 2.5 (pH<7.0 to 7.5); 25 (pH<7.5 to 8.0); 150 (pH ≥8.0)
Chromium (µ g/g dry weight)	1,060	60



Cobalt ( $\mu$ g/g dry weight)	150	300
Copper ( $\mu$ g/g dry weight)	2,200	90 (pH,5.0); 100 (pH 5.0 to <5.0); 200 (pH 5.5 to <6.0); 1,500 (pH 6.0 to <6.5); 30,000 (pH $\geq$ 6.5)
Lead ( $\mu$ g/g dry weight)	500	150 (pH <5.5); 250 (pH 5.5 to <6.0); 2,000 (pH 6.0 to <6.5); 40,000 (pH $\geq$ 6.5)
Mercury ( $\mu$ g/g dry weight)	15	150
Molybdenum ( $\mu$ g/g dry weight)	20	40
Nickel ( $\mu$ g/g dry weight)	180	500
Selenium ( $\mu$ g/g dry weight)	14	10
Zinc ( $\mu$ g/g dry weight)	1,850	150 (pH<5.0); 200 (pH 5.0 to <5.5); 300 (pH 5.5 to <6.0); 1,000 (pH 6.0 to <6.5); 7,500 (pH 6.5 to <7.0); 15,000 (pH $\geq$ 7.0)
Foreign Matter	$\leq$ 1% and no sharp matter that can cause injury	-
Number of Samples	3 (each composed of seven subsamples)	1/100m <sup>3</sup> (each composed of five subsamples)

\*Dried Sludge must not exceed these standards to qualify for land application. (Organic Matter Recycling Regulation of B.C. Reg. 18/2002 (R 198/2007), Schedules 1 to 6).

\*\*Soil after land application of biosolids must not exceed these standards. (Contaminated Sites Regulation, OIC 2002/171.)

## PART F –DESIGN, CONSTRUCTION AND MAINTENANCE

34. During the term of this licence, the Licensee shall maintain all works in good order in accordance with sound engineering and environmental practices.
35. Construction and/or maintenance equipment shall be mechanically sound and free of leaks.
36. The Licensee shall submit to the Board final detailed design construction drawings, specifications, quality assurance/ quality control procedures and/or operating procedures

- for the construction of any facilities or structures authorized by this licence, but shall not begin construction until such time as the Board has notified the Licensee to proceed. All such submissions shall be sealed by a Professional Engineer licensed to practice in Yukon. These facilities and structures shall include but not be limited to a treated wastewater discharge pipeline and outfall from the Livingston Trail Environmental Control Facility to the Yukon River.
37. At least 10 days prior to the proposed date of commencement of construction of any structure or facility, the Licensee shall submit to the Board a written notification, together with a detailed construction schedule and the name and contact number(s) of the construction superintendent.
38. During construction, where site conditions require minor design modifications to a structure or facility authorized by this licence, the Licensee shall notify the Board, in advance of implementation, of the details of any modifications or variations from final detailed designs, specifications and quality assurance/quality control procedures previously submitted to the Board. The notice shall include an explanation of the reasons for the change and an assessment of the potential impact on the performance of the structure. The notice shall be sealed by a Professional Engineer licensed to practice in Yukon.
39. All disturbed ground surfaces resulting from construction activities shall be revegetated by planting or seeding.
40. As-constructed (record) drawings and construction reports for all structures and facilities shall be submitted to the Board within 90 days of the completion of construction. Each submission shall be sealed by a Professional Engineer licensed to practice in Yukon.
41. The Licensee shall maintain signage around the perimeters of the Livingston Trail Environmental Control Facility, the Crestview wastewater treatment facility, the Pothole Lake, and along the bank of the Yukon River in the vicinity of monitoring stations YRB-1 and YRB-2 warning the public of the existence of a sewage treatment facility and the potential for diminished surface and groundwater quality.

## **PART G –MONITORING AND SURVEILLANCE**

42. All earthfill water and wastewater storage structures shall be inspected by September 30 of each year of this licence by a Professional Engineer licensed to practice in Yukon. The results of the inspection, including all problems identified, remedial measures proposed, and remedial measures implemented, shall be compiled in a report that shall be submitted to the Board by November 30 of each year.
43. Each year between September 15 and October 15, the bank of the Yukon River extending from a point 200 metres upstream of monitoring station YRB-2 to a point 200 metres downstream of monitoring station YRB-1 shall be inspected by a Professional Engineer licensed to practice in Yukon, for evidence of seepage or instability relating to treated

wastewater discharge to the Pothole Lake. A report on the inspection and any recommended remedial measures shall be submitted to the Board by November 30 of each year.

44. All analyses shall be performed by a laboratory accredited under the International Organization for Standardization ISO/IEC 17025:2005 standard and the accreditation shall include the actual tests being performed by the laboratory.
45. The Licensee shall comply with the monitoring program attached as Schedule A to this licence.

#### **PART H –DECOMMISSIONING**

46. In the event of decommissioning of the undertaking, all structures and appurtenances authorized by this licence shall either be removed or left in stable condition which does not present a risk to people or the environment. Prior to the commencement of decommissioning work, the Licensee shall submit to the Board a final plan for the reclamation of the project site. The plan shall be designed to ensure long-term stability, maintenance and/or replacement of any structures remaining after closure, minimize and/or mitigate environmental impacts, and provide for ongoing monitoring.

**SCHEDULE A**  
**PART 1 – LOCATIONS OF MONITORING STATIONS**

<b>Station</b>	<b>Description</b>
WSL-1	Discharge from Whitehorse Sewage Lagoon at exit location.
WH 1	Raw water supply from Yukon River and Schwatka Lake at the Selkirk pumphouse.
WH 2	Raw water supply from Selkirk Aquifer at the pumphouse.
WH 3	Treated water supply at the Selkirk pumphouse.
WH 4	Discharge from storm sewers at Strickland Street outfall.
WH 5	Influent to Crestview sewage lagoon.
WH 6a	Influent to Marwell lift station.
WH 6b	Influent from upper Porter Creek.
WH 6c	Combined Marwell and Porter Creek influent to Livingston Trail Environmental Control Facility.
WH 7	Treated wastewater from primary cells of the Livingston Trail Environmental Control Facility.
WH 8	Influent to long term storage impoundment at the Livingston Trail Environmental Control Facility.
WH 9a	Water from the long term storage impoundment at the Livingston Trail Environmental Control Facility collected as depth-integrated composite samples at four stations in the impoundment.
WH 9b	Treated wastewater from the discharge manhole at the Livingston Trail Environmental Control Facility.
WH 10	Yukon River immediately upstream of outfall from the Livingston Trail Environmental Control Facility (mid channel).
WH 11	Yukon River approximately 300 metres downstream of outfall from the Livingston Trail Environmental Control Facility (mid channel).
WH 12	Yukon River approximately 750 metres downstream of outfall from the Livingston Trail Environmental Control Facility (mid channel).
WH13	Sludge in the Primary Cell near the point of outflow.
WH14	Sludge/biosolid in the sludge drying bed.
GW-1	Monitoring well approximately 30 metres southeast of the primary anaerobic storage lagoons at the Livingston Trail Environmental Control Facility.
GW-2	Monitoring well southwest of facultative lagoons at the Livingston Trail Environmental Control Facility.
GW-3	Monitoring well southwest of long-term storage impoundment at the Livingston Trail Environmental Control Facility.
GW-4	Monitoring well near northern margin of long-term storage impoundment at the Livingston Trail Environmental Control Facility.
PHL	A site situated within the Pothole Lake at 10280N, 3693.6E, 682.49 m asl.
YRB-1	Monitoring well located in the bed of the Yukon River at the waters edge 850m due south of the Pothole Lake at 9483N, 3896E, 628.09 m asl.
MW-1	Monitoring well located between PHL and Yukon River approximately 500m north-northwest from closest point to Yukon River at 9973.68N, 3734.52E, 682.49 m asl.
MW-2	Monitoring well located between PHL and Yukon River approximately 300m north-northwest from closest point to Yukon River at 9769.43N, 3808.34E, 654.91 m asl.

MW-4a	Monitoring well located between PHL and Yukon River approximately 30m due north from closest point to Yukon River at 9509.4N, 3870.7E, 634.75 m asl.
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**SCHEDULE A**  
**PART 2 – MONITORING SCHEDULE, SAMPLING LOCATIONS AND PARAMETERS**

**Table 1 of 5**

Monitoring Location/Parameter	WH-1	WH-2	WH-3	WH-4	WH-5	WH-6a	WH-6b	WH-6c	WSL-1
Water Level or Flow	D	D	D	-	-	D	D	D	DDD
pH	-	-	-	B	Q(C)	-	-	Q(C)	1xDD
Temperature (°C)	-	-	-	-	Q(C)	-	-	Q(C)	1xDD
Un-ionized Ammonia –N (mg/L)	-	-	-	-	Q(C)	-	-	Q(C)	1xDD
CBOD <sub>5</sub> (mg/L)	-	-	-	-	Q(C)	-	-	Q(C)	1xDD
COD (mg/L)	-	-	-	MS	-	-	-	-	-
Oil & Grease (mg/L)	-	-	-	BMS	Q(C)	-	-	Q(C)	1xDD
Dissolved O <sub>2</sub> (mg/L)	-	-	-	-	-	-	-	-	1xDD
Total Suspended Solids (mg/L)	-	-	-	-	Q(C)	-	-	Q(C)	1xDD
Fecal Coliforms (MPN/100 mL)	-	-	-	B	Q(C)	-	-	Q(C)	1xDD
Total Coliforms (MPN/100 mL)	-	-	-	-	Q(C)	-	-	Q(C)	-
Conductivity (µmhos/cm)	-	-	-	-	Q(C)	-	-	Q(C)	-
Total Phosphate (mg/L as P)	-	-	-	-	Q(C)	-	-	Q(C)	-
Chloride (mg/L)	-	-	-	B	-	-	-	-	-
Total Zinc (mg/L)	-	-	-	B	-	-	-	-	-
Total Copper (mg/L)	-	-	-	B	-	-	-	-	-
Total Cadmium (mg/L)	-	-	-	B	-	-	-	-	-
Total Lead (mg/L)	-	-	-	B	-	-	-	-	-
Phenols (mg/L)	-	-	-	MS	-	-	-	-	-
LC <sub>50</sub> Bioassay (100%)	-	-	-	-	-	-	-	-	1xDD
Giardia	-	-	-	-	Q(C)	-	-	Q(C)	-

**SCHEDULE A**  
**PART 2 – MONITORING SCHEDULE, SAMPLING LOCATIONS AND PARAMETERS**

**Table 2 of 5**

Monitoring Location/Parameter	WH-7	WH-8	WH-9a	WH-9b	WH-10	WH-11	WH-12
Water Level or Flow	-	-	PD	DDD	-	-	-
pH	Q <sub>1</sub>	Q <sub>1</sub>	PD	BW or DD(3)	PDAD	PDAD	-
Temperature (°C)	Q <sub>1</sub>	Q <sub>1</sub>	PD	BW or DD(3)	PDAD	PDAD	-
Un-ionized Ammonia - N (mg/L)	Q <sub>1</sub>	Q <sub>1</sub>	PD	BW or DD(3)	PDAD	PDAD	-
CBOD <sub>5</sub> (mg/L)	Q <sub>1</sub>	Q <sub>1</sub>	PD	BW or DD(3)	-	-	-
Oil & Grease (mg/L)	-	-	PD	DD(3)	-	-	-
Dissolved O <sub>2</sub> (mg/L)	Q <sub>1</sub>	Q <sub>1</sub>	PD	DD(3)	PDAD	PDAD	-
Total Suspended Solids (mg/L)	Q <sub>1</sub>	Q <sub>1</sub>	PD	BW or DD(3)	-	-	-
Fecal Coliforms (MPN/100 mL)	Q <sub>1</sub>	Q <sub>1</sub>	PD	DD(3)	PDAD	PDAD	PDAD
Total Coliforms (MPN/100 mL)	-	-	PD	-	-	-	-
Conductivity (µmhos/cm)	-	-	PD	BW or DD(3)	PDAD	PDAD	-
Total Phosphate (mg/L as P)	Q <sub>1</sub>	Q <sub>1</sub>	PD	DD(3)	PDAD	PDAD	-
Chloride (mg/L)	-	-	-	DD(3)	-	-	-
Nitrate & Nitrite (mg/L)	-	-	-	DD(3)	-	-	-
ICP Total Metals*	-	-	PD	DD(3)	PDAD	PDAD	-
LC <sub>50</sub> Bioassay (100%)	-	-	PD	DD(3)	-	-	-
Giardia	Q <sub>1</sub>	Q <sub>1</sub>	PD	DD(3)	-	-	-

**Table 3 of 5**

Monitoring Location/Parameter	GW-1	GW-2	GW-3	GW-4
pH	TA	TA	TA	TA
Temperature (°C)	TA	TA	TA	TA
Ammonia (mg/L)	TA	TA	TA	TA
BOD (mg/L)	TA	TA	TA	TA
Dissolved O <sub>2</sub> (mg/L)	TA	TA	TA	TA

Monitoring Location/Parameter	GW-1	GW-2	GW-3	GW-4
Fecal Coliforms (MPN/100 ml)	TA	TA	TA	TA
Conductivity (µmhos/cm)	TA	TA	TA	TA
Chloride (mg/L)	TA	TA	TA	TA
Nitrate & Nitrite (mg/L)	TA	TA	TA	TA

Table 4 of 5

Monitoring Location/Parameter	Pothole Lake prior to discharge		Pothole Lake during discharge		Pothole Lake Post Discharge		Groundwater Monitors
	PHL	YRB-1	PHL	YRB-1	PHL	YRB-1	MW1, 2 & 4A
Water Level or Flow	PD	PD	D	1xDD	Q <sub>2</sub>	Q <sub>2</sub>	W/M4
pH	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Temperature (°C)	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Ammonia (mg/L)	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Oil & Grease (mg/L)	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Dissolved O <sub>2</sub>	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Total Suspended Solids (mg/L)	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Total Dissolved Solids (mg/L)	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Fecal Coliforms (MPN/100 ml)	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Chloride (mg/L)	-	PD	-	1xDD	-	Q <sub>2</sub>	Q <sub>1</sub>
Nitrate & Nitrite (mg/L)	-	PD	-	1xDD	-	Q <sub>2</sub>	Q <sub>1</sub>
ICP Dissolved Metals*	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Total Organic Carbon (mg/L)	-	PD	-	1xDD	-	Q <sub>2</sub>	-
Total Phosphate (mg/L as P)	-	PD	-	1xDD	-	Q <sub>2</sub>	-

**Table 5 of 5**

Parameter	Location/Sampling Frequency
Sludge	Sludge elevations shall be monitored annually in the primary treatment cells of the Crestview and Whitehorse wastewater treatment facilities and every five years in the primary treatment cells of the Livingston Trail Environmental Control Facility.
	Dried sludge must be sampled and meet the standards listed in Part E, clause 33, of this Licence prior to removal to land application.

**SCHEDULE A**  
**PART 3 - SAMPLING FREQUENCIES/NOTES**

Key	Frequency
D	Daily
M	Monthly during discharge
Q <sub>1</sub>	Quarterly
Q <sub>2</sub>	Quarterly beginning within 2 weeks after end of discharge
Q(C)	Quarterly (24 hour Composite Sample)
B	During Break-up
PD	Prior to Discharge
PDAD	Prior to, During and After Discharge
1xDD	Once During Discharge
DD(3)	Three Times During Discharge
BW	Every 2 weeks but at least 7 days after any other sample during discharge
DDD	Daily During Discharge
MS	Mid-season and September
BMS	During Break-up, Mid-season and September
TA	Three times per year
W/M4	Weekly during discharge and Monthly for a period of four months after the end of discharge

Note: \* ICP Dissolved and Total Metals Analysis shall include Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mn, Mo, Ni, P, K, Se, Si, Ag, Na, Sr, S, Tl, Ti, V, Zn



## YUKON WATER BOARD

Pursuant to the *Waters Act* and *Waters Regulation*, the Yukon Water Board hereby grants a Type A water licence for a Municipal undertaking to:

**Village of Teslin**  
**Box 130**  
**Teslin YT Y0A 1B0**  
**Fax#: 867-390-2104**

APPLICATION: MN99-025-1 LICENCE NUMBER: MN99-025

AMENDMENT: This licence shall be deemed to be amendment 1 of MN99-025.

LICENCE TYPE: A UNDERTAKING: Municipal

WATER MANAGEMENT AREA: 02 Yukon

LOCATION: Fox Creek and Teslin Lake at Teslin, Yukon

QUANTITY: Water consumption at a rate of 95 m<sup>3</sup>/day or 34,675 m<sup>3</sup>/year.  
 Wastewater deposition at a rate of 225 m<sup>3</sup>/day or 82,125 m<sup>3</sup>/year.

MAP CO-ORDINATES: Latitude: 60° 10' 05" N Longitude: 132° 40' 45" W

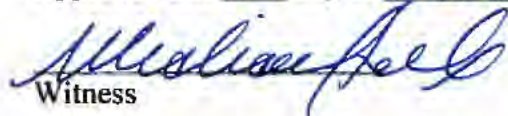
PURPOSE: To obtain, store, and return a flow of water for a municipal undertaking and to operate wastewater and solid waste disposal systems.

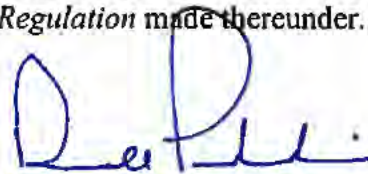
EFFECTIVE DATE: The effective date of this licence is April 27, 2015.

EXPIRY DATE: May 18, 2020

This licence shall be subject to the restrictions and conditions contained herein and to the restrictions and conditions contained in the *Waters Act* and the *Waters Regulation* made thereunder.

Approved this 3<sup>rd</sup> day of November, 2015.

  
 Witness



Minister, Executive Council Office  
 Government of Yukon

Issued this 10<sup>th</sup> day of November, 2015.

  
 Witness



Chairperson  
 Yukon Water Board



## PART A - DEFINITIONS

"Act" means *Waters Act* and any amendments thereto.

"Application" means Water Use Application MN99-025 and MN99-025-1 including any additional submissions and/or revisions submitted to the Yukon Water Board by the Licensee, up to the date of the Board's decision.

"Board" means the Yukon Water Board.

"Inspector" means any person designated as an Inspector under the Act.

"Natural Boundary" means the visible high water mark of any lake, river, stream or other body of water where the presence and action of water is so common and usual and so long continued as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be Natural Boundaries.

"Regulation" means the *Waters Regulation* made under the Act.

"Spill Contingency Plan" means the *Spill Response Plan for Special Wastes* that was submitted as part of the Application and included in Water Use Register MN99-025-1 as exhibit 1.6, and any subsequent revisions.

"Waste" means any substance as defined in the Act.

"Watercourse" means any stream, lake, pond, river, creek, spring, ravine or swamp whether ordinarily containing water or not.

## PART B - GENERAL CONDITIONS

1. The Licensee shall ensure a copy of this Licence is maintained at the site during operations at all times.

### Other Laws

2. No condition of the water use licence limits the applicability of any statutory authority.
3. All works authorized by this licence shall occur on property that the Licensee has the right to enter upon and use for that purpose.

### Correspondence

4. Where any direction, notice, order or report under this licence is required to be in writing, it shall be given:
  - a) To the Licensee, if delivered, faxed or mailed by registered mail, to the address identified on page 1 of this licence, and shall be deemed to have been given to the Licensee on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be; or

- b) To the Board, if delivered, faxed or mailed by registered mail, to the following address:

Yukon Water Board  
Suite 106, 419 Range Road  
Whitehorse YT Y1A 3V1

Fax#: (867) 456-3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

- c) The Board or the Licensee may, by notice in writing, change its address for delivery.

#### Spills and Unauthorized Discharges

5. Where a spill or an unauthorized discharge occurs, that is of a reportable quantity under the *Yukon Spills Regulations*, the Licensee shall immediately contact the 24-hour Yukon Spill Report number, (867) 667-7244 and implement the Spill Contingency Plan. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Board not later than 10 days after the occurrence.
6. The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report.
7. The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the *Yukon Spills Regulations*. The log book shall be made available at the request of an Inspector. The log book shall include, but not necessarily be limited to the:
  - a) date and time of the spill;
  - b) substance spilt or discharged;
  - c) approximate amount spilt or discharged;
  - d) location of the spill;
  - e) distance between the spill or discharge and the nearest Watercourse; and
  - f) remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge.
8. The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report.
9. All personnel shall be trained in procedures to be followed and the equipment to be used in the containment of a spill.
10. The Spill Contingency Plan shall be posted on site for the duration of the works.

#### Hazardous Materials Storage

11. A complete inventory of chemicals, fuels, oils and other hazardous materials that are stored by the Licensee, and their locations, shall be maintained by the Licensee.

Non-Compliance

12. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, subject to the Act, cancel the licence.

Fuel Storage and Transfer

13. Fuel, lubricants, hydraulic fluids, coolants and similar substances shall be stored and/or transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in waters.

Annual Reports

14. On or before the anniversary of the date of issuance of this licence, and for each year during which this licence is in effect, the Licensee shall submit an annual report to the Board. The report shall include the information required by the Regulation including, but not necessarily limited to:
- a) a description of the water use operations carried out during the year reported;
  - b) the quantity of water used each day;
  - c) the hours of pumping for each day;
  - d) data collected according to the requirements of Schedule A of this licence;
  - e) details of the methods, procedures and standards used in the data collection and sample testing;
  - f) an analysis and interpretation of the collected data by an individual qualified to do so;
  - g) a detailed record of the operation of water supply and sewage treatment works, including operational difficulties, significant maintenance work, and modifications;
  - h) monthly quantities of effluent discharged;
  - i) any reclamation to the site;
  - j) copies of all orders, directions and correspondence relating to drinking water sampling or analysis from the Medical Health Officer or from a Health Officer;
  - k) the inspection results, including photographs, repairs or plans for modification required by the physical monitoring program;
  - l) a detailed record of any major maintenance work carried out or planned to be carried out that could have an impact on water;
  - m) details of any work carried out or planned to be carried out under the Sludge Management Plan; and
  - n) any other information or reports required by this licence or the Regulations.

Reports

15. The Licensee shall provide to the Board one unbound, single-sided, paper copy of all reports required by this licence. All reports must be reproducible by standard photocopier.
16. The Licensee shall upload electronic copies of all reports required by this licence to the Yukon Water Board's online licensing registry, Waterline. Electronic copies shall be submitted in one of the following formats: MS Word, MS Excel, or Adobe .pdf format. Water quality results uploaded to Waterline must be presented in MS Excel.

**PART C - OPERATING CONDITIONS***Description of Water Use and Deposit of Waste*

17. The Licensee is hereby authorized to:

- a) obtain water from raw water supply well VOT TW10-2 and an existing raw water supply well known as the 1987 Groundwater Well for municipal purposes at a combined rate not exceeding 95 m<sup>3</sup>/day or 34,675 m<sup>3</sup>/year;
- b) to collect, store and treat sewage in an existing wastewater treatment lagoon facility;
- c) to discharge treated effluent to the Fox Creek wetlands sewage treatment area from June 1 to September 30 each year;
- d) to discharge treated effluent from the Fox Creek wetlands sewage treatment area to the waters of Fox Creek; and
- e) to deposit solid wastes at an existing landfill located 3.0 km south of Teslin along the Alaska Highway,

as described in the Application, and subject to the conditions of this licence. Where there is a discrepancy between the Application and this licence, the conditions of this licence shall prevail.

18. The Licensee shall operate and maintain the water supply, water distribution, sewage collection, sewage treatment and solid waste disposal systems in a manner which is consistent with standard municipal practices.
19. The Licensee shall not operate any solid waste disposal site within 100 horizontal metres of the high water mark of any watercourse or within 1.5 vertical metres of the groundwater table and shall ensure that no waste material enters any watercourse as a result of any solid waste management operation carried out by the Licensee.
20. Operators transporting septage shall be properly trained in the transportation and handling of hazardous substances and shall follow the recommendations of the *Yukon Septage Transportation Guidelines*. Yukon Health and Social Services Standards for Transportation of Sewage or Sewage Disposal Systems Regulations.
21. Waste substances shall be used, transported, stored or disposed of in such a manner that they are not deposited, or allowed to be deposited, into any Watercourse or on any surrounding land, unless authorized by this licence.
22. Except as authorized by this licence, no Waste shall enter any Watercourse as a result of any operation carried out by the Licensee.
23. All disturbed ground surfaces shall be stabilized in such a manner so as to prevent erosion and surface runoff.

*Minor Modifications*

24. Where site conditions require modifications to any drawings for water use or Waste related structures previously submitted to the Board, the Licensee shall submit to the Board a minimum of 10 days prior to the commencement of the construction schedule:



- a) written details of the modifications proposed to be made to the specifications and quality assurance/quality control procedures previously submitted to the Board as part of the Application,
- b) a written detailed construction schedule and the name and contact number(s) of the operator; and
- c) an explanation for the change, including an assessment of the potential impact on the performance of the works.

#### **PART D – PLANS**

- 25. The Licensee shall develop and submit a sludge management plan to the Board 90 days prior to the implementation of the plan.
- 26. Subject to any required assessments, authorizations or approvals, the Licensee shall implement all plans required by this section of this licence.

#### **PART E – EFFLUENT QUALITY OBJECTIVES AND STANDARDS**

- 27. The Licensee shall make every reasonable effort to ensure that effluent discharged at Station T4 complies with the following effluent quality objectives:

<b>Parameter</b>	<b>Maximum Concentration in a Grab Sample</b>
CBOD <sub>5</sub>	45 mg/L
Suspended Solids	60 mg/L
pH	6 - 9
Oil and Grease	5 mg/L
Faecal Coliforms	20,000 counts/100 ml
Ammonia	20 mg/L

- 28. The Licensee shall ensure that effluent discharged from the Fox Creek Wetland Sewage Treatment area meets the following effluent quality standards at Station T5:

<b>Parameter</b>	<b>Maximum Concentration in a Grab Sample</b>
CBOD <sub>5</sub>	15 mg/L
Suspended Solids	15 mg/L
pH	6 - 9
Oil and Grease	not detectable
Faecal Coliforms	200 counts/100 ml
Ammonia	5 mg/L
Bioassay* (LC <sub>50</sub> static 96 hour bioassay – 100% concentration)	non-toxic

\* bioassay using rainbow trout, pH non-adjusted –reference method EPS 1/RM/13



**PART F – MONITORING AND SURVEILLANCE**

29. The Licensee shall comply with the water quality monitoring program and surveillance network program contained in Schedule A of this licence.
30. All data collection and analyses shall be conducted in accordance with the most recent edition of Standard Methods for the Examination of Water and Wastewater, prepared and published jointly by the American Water Works Association and the Water Pollution Control Federation.
31. Laboratory analyses shall be performed by a laboratory accredited under the International Organization for Standardization ISO/IEC 17025:2005 standard and the accreditation must include the actual tests being performed by the laboratory.

**PART G - SITE DECOMMISSIONING AND RESTORATION**

32. The Licensee shall develop a decommissioning plan for the closure of the municipal water facility and wastewater treatment facility, and submit the plan to the Board 1 year prior to the commencement of decommissioning activities. The plan shall include, but not necessarily be limited to a schedule and cost for completion of decommissioning and reclamation activities. As part of each annual report, the Licensee shall report on the status of the decommissioning plan.
  33. During the term of the licence, the Licensee shall submit to the Board a plan for any well proposed to be decommissioned.
  34. All disturbed ground surfaces shall be regraded in a manner which is consistent with the topography of the site and which prevents erosion and surface runoff from carrying sediment into any Watercourse. Where soil conditions permit, disturbed areas shall be re-vegetated with appropriate reclamation seeds and/or plant species that are native in Yukon.
  35. All hazardous materials shall be disposed in accordance with the provisions of the *Special Waste Regulations* of the *Environment Act* of the Yukon Territory and shall include a description of the disposal as part of the annual report.
-

**SCHEDULE A****MONITORING AND SURVEILLANCE REQUIREMENTS****1. LOCATIONS OF SAMPLING STATIONS**

<b><u>Sampling Station</u></b>	<b><u>Description</u></b>
T1	Raw water supply at 1987 Groundwater Well.
T1a	Raw water supply at VOT TW10-2.
T2	Treated Water Supply.
T3	Raw sewage influent to sewage lagoon.
T4	Effluent from secondary cell of sewage lagoon.
T5	Outlet from the Fox Creek Wetland Sewage Treatment Area to Fox Creek.
T6	Fox Creek 50 m downstream of the Fox Creek Wetland Sewage Treatment Area.
T7	Fox Creek 50 m upstream of the Fox Creek Wetland Sewage Treatment Area.
T8	Groundwater monitoring well MW1 as identified in the report entitled <u>Installation of Monitoring Wells for Wetland Treatment System</u> , Klohn Leonoff, January 1991.

**2. MONITORING SCHEDULE**

a) Station T8 shall be sampled once every two years for the following parameters:

Nitrite	Nitrate
Chloride	Potassium
Sodium	Sulphate
Total Alkalinity	Total Hardness

b) Stations T1, T1a, T2, T3, T4, T5, T6, and T7 shall be sampled as specified in Table A-1.

**TABLE A-1**

<b>Station Analysis</b>	<b>T1</b>	<b>T1a</b>	<b>T2</b>	<b>T3</b>	<b>T4</b>	<b>T5</b>	<b>T6</b>	<b>T7</b>
Faecal Coliforms					M	M	M	M
Total Coliforms						M	M	M
Dissolved Oxygen							M	M
Conductivity					M	M	M	M
Temperature					M	M	M	
CBOD <sub>5</sub>					M	M	M	
Suspended Solids					M	M	M	
pH					M	M	M	M
Oil and Grease					M	M	M	
Phosphorus					M	M		
Ammonia					M	M	M	
Bioassay						A		
Flow Rate	D	D	D	D	D		M	M

**LEGEND**

D = Daily

M = Monthly during discharge period

A = Once per year during discharge period