

Waters Act

SCHEDULE 4 APPLICATION

If Amendment or Renewal: Licence # MS 02-203

1. NAME: ICY Waters Ltd

PERMANENT MAILING ADDRESS:

Box 21351 Stn Main
Whitehorse
Yukon
Y1A 6R7

MS08-275

TELEPHONE: 867 668 7012 FAX: 668 7062 EMAIL: jluca@icywaters.com

3. SEASONAL MAILING ADDRESS (if different from permanent) From _____ to _____
(Date) (Date)

TELEPHONE: _____ FAX: _____

4. LOCATION OF UNDERTAKING: FISH LAKE Rd, Whitehorse

WATER SOURCE McIntyre + Porter Creek Tributary of _____

WASTE DEPOSIT: N/A (Describe location, attach map, indicate location of waste deposit)

5. QUANTITY OF WATER TO BE USED: 49248 m³/day. 6. PROPOSED EXPIRY DATE: April 30th 2034

- 7. TYPE OF UNDERTAKING
- Industrial _____
- Placer Mining _____
- Quartz Mining _____
- Municipal _____
- Power _____
- Agriculture _____
- Conservation _____
- Recreational _____
- Miscellaneous _____
- (attach description) ✓

- 8. WATER USE
- To obtain water ✓
- To divert water ✓
- To store/alter flow of water ✓
- To modify the bed or bank of a watercourse _____
- To cross a watercourse _____
- To deposit waste ✓
- Other (attach description) _____

9. OTHER PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (attach list)

10. NAME, ADDRESS, TELEPHONE AND FAX NUMBER OF AGENT OR ALTERNATE CONTACT

Signature [Signature]

Date December 12th 2008

Application Fee Amount \$30.00

FOR OFFICE USE ONLY
Receipt No: 659509

Water Use Deposit Amount _____

Receipt No: _____

MLUR Amount _____
YG (YWB-IV) 03/2003

Receipt No: _____ MLVR No. _____

Requested Amendments
IWL Water Use License MS02-203

A. Effluent Quality Standards:

Change wording for Total Phosphorous ("TP") parameter in condition 23 from "0.18 mg/l" to "0.12 mg/l".

Rationale:

To support the above request, IWL concentrated on the remarks made by the Water Board in the "Effluent Quality Limits" of the "Reasons for Decision MS02-203" Document, pages 3-5: "It was not at all clear to the board what the basis was for a limit of 0.065mg/l" and "It was also not clear to the board what the negative impacts of the current phosphorous discharges from IWL on the aquatic system, or what level of phosphorous discharges would in fact result in significant negative impacts." The board then directed that "the total phosphorous limit will reduce from 0.18mg/l to 0.065mg/l on May 1st 2009 unless IWL submits an application for amendment of the limit based on the use of the CCME¹ guideline."

Since the Water Board's decision back in 2005, IWL has conducted an extensive study of the water systems around its location using the CCME guideline. A full report from this study accompanies this Amendment Application. From its exhaustive research, IWL has concluded the following:

1. TP occurs naturally throughout the Yukon, in widely fluctuating levels.
Please refer to Appendix A for further commentary and supporting data.
2. In the Yukon, there is no correlation between TP and algae growth. This is because the defining factor for algal growth in this region is predominantly temperature.
Please refer to Appendix B for a detailed discussion regarding this finding.
3. TP in IWL's inflow waters is more than sufficient to maximize algae growth downstream. IWL's contribution of TP is having negligible additional effect on downstream algal growth.
Please refer to Appendix C for supporting data.
4. IWL is not causing a significant downstream impact, as defined by the CCME. The CCME indicates that a change in trophic status constitutes a downstream impact.

¹ The CCME guideline document is the Canadian Council of Ministers of the Environment Ecosystem Health, Science Based Solutions, Canadian Guidance Framework for the Management of Phosphorous in Freshwater Systems ("CCME").

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The trophic status of PHP has not changed.
Please refer to Appendix D for a detailed discussion.

Further to the CCME-based study, it must be noted that IWL continues to work on reducing its TP production. TP is a measure of economic success: TP is produced from fish feces, wasted fish food, and dead fish. Fish food releases three times as much TP as feces, and dead fish even greater amounts. Therefore, it is in IWL's best economic interests to minimize and eradicate fish mortality and wasted feed. Business economics go hand-in-hand with environmental stewardship.

Despite the goal to reduce TP production, during summer and peak feeding seasons, IWL TP output can still approach 0.12 mg/l above background. (Please refer to Appendix E for IWL's historical data.)

B. Effluent Quality Standards:

Retain wording for Total Phosphorous parameter as it appears in condition 23: **"above background as measured at stations PS-1 and PS-3, respectively"**.

Rationale:

IWL feels it should be responsible for the TP its operations produce. However, "above background" is a necessary requirement to take into account the TP measured in the inflow water.

IWL regularly experiences scouring events in its inflow waters. A scour occurs when the water flow cuts into the bed or banks of the system and collects sediment. Heavy rain, floods, thaws and variable flows from YECL operations are the prevalent causes. They can last anywhere from a few hours to weeks. As a result of these events, exceptionally high suspended solids and TP appear in the water system, courtesy of the geology above IWL.

A single scouring event can put enough TP into the system to equal over 25% of IWL's *annual* feed usage. Please refer to Appendix F for a case study of one such event. Clearly, IWL cannot be held responsible for the exceptionally high TP that exists in the natural water system.

MS02-203 allows for suspended solids to be measured "above background". IWL is requesting that the same is allowed for TP (the other sampling parameter adversely affected by spate events).

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C. Monitoring Requirements:

Remove PS-4 from Monitoring Schedule A.

Rationale:

PS-4 is on a ditch dug by YECL in the 1950s to divert water from Porter Creek springs to MacIntyre Creek and Pump House Pond ("PHP"), for use in electricity generation below PHP. The ditch empties into the third tank farm settlement pond upstream of PS5a.

This ditch has a very low flow rate; the volume of water is insignificant compared to the volume passing through settlement pond 3 from IWL's tank farm.

Overall, PS-4 adds very little to our understanding of the MacIntyre Creek system. IWL believes the sampling effort would be better employed by replacing this site with a new site at the PHP dam wall (see Amendment "E" below).

D. Monitoring Requirements:

Add new sampling site "PS-8: Pump House Pond wall" (GPS coordinates: 08V 491037 6734548) to Schedule B.

Rationale:

Events at PHP have been the source of any complaints regarding this system. Therefore, PHP should be monitored and sampled for Total Phosphorous, Suspended Solids, Temperature, Oxygen, Total Nitrate, pH, and Ammonia at the same time as the other sampling sites.

E. Monitoring Requirements:

Remove monitoring parameter "Total Dissolved Phosphorous" from Schedule B.

Rationale:

Total Dissolved Phosphorous ("TDP") was added as a sampling requirement in MS02-203, but no limits were specified. IWL, Yukon Government-Environment and the CCME agree that TP is the vital parameter when studying phosphorous in all of its forms. Therefore, IWL believes sampling for TDP to be unnecessary.

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F. Monitoring Requirements:

Remove requirement to measure Flow at PS-1, PS-3, PS-4, PS-6 and PS-7 from Schedule B.

Rationale:

IWL believes the requirement to measure flows at these sites are unnecessary, given the Water Board's comments in its Reasons for Decision Document: "the board has determined flow measurements shall be taken at the two outflow locations, PS2b and PS-5a." and "...the board is satisfied that no further requirement is warranted." IWL believes it should measure the flow of water it is using. Thus, flow measuring at these other sites, if required, should not be the responsibility of IWL.

Appendices: please see original application

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