



REQUEST FOR PROPOSAL (RFP)
OPERATION OF WATER TREATMENT PLANT AND LOW LIFT PUMPING
FACILITY

And

OVERALL RESPONSIBLE OPERATOR AND OPERATOR IN CHARGE FOR CLASS
1 WATER DISTRIBUTION SYSTEM AND CLASS 1 SEWAGE SYSTEM

Below is a summary of submitted questions along with the Township's responses.

1. Chemicals

- a. *"Section 12.2.3 Chemical of the RFP states "Ordering shall be the responsibility of the Proponent, with the understanding that the Municipality and Proponent will work together on maximizing savings for the Municipality." Please clarify if chemical costs are to be included in the Price Proposal."*
- b. *"It is understood the Proponent will be responsible for placing chemical orders. Please clarify whether or not the Proponent is also responsible for chemical costs incurred (ie. will be included in the Proponent's Annual Fee)."*

Response: Chemical costs will be the responsibility of the municipality, outside of the contract. Management of ordering and inventory of chemicals will be the responsibility of the operator (successful proponent). All invoices will be sent directly to the municipality.

2. Outside Services

- a. *"Section 12.2.6 Outside Services of the RFP does not identify lab costs as an outside service. Please clarify if third-party lab sample analysis costs are to be included in the Price Proposal."*
- b. *"Neither of these sections specifically references Accredited Laboratory Services for water and wastewater analysis. Please clarify whether Accredited Laboratory Service expenses will be the responsibility of the Proponent. If these are the Proponent's responsibility, please provide a schedule of lead testing in accordance with O.Reg. 170/03, Schedule 15.1, which will be required for the duration of the 5---year contract term."*

Response: The municipality has always paid for laboratory costs and will continue to do so.

3. *"In regards to sections 9.2 Effective Management and 10.3 General Description of Services, there are presently no Operators-in-Training (OITs) operating the Terrace Bay facilities. Please clarify if a proponent's proposal does not meet "a level of service that is at least commensurate with that currently provided... "and "use trained and certified operators" that the proponent's proposal will be rejected."*

Response: The Township expects that operational staff would be qualified to the level necessary to comply with the legislative requirements in the operation of our systems.

4. Residuals Management



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- a. *"In regards to section 11.5.3 Residuals Management of the RFP and as per the Site Visit, can Terrace Bay please clarify if the Township will maintain responsibility of safe disposal of any and all solid and liquid waste materials produced by the water and wastewater treatment processes?"*

- b. *"If the proponent is to be responsible for the safe disposal of any and all solid and liquid waste materials produced by the water and waste treatment processes, please provide estimates of the annual volume of solid or liquid waste that is anticipated to require disposal and any disposal sites (landfill, drying beds) owned by the Municipality which would be accessible to the Proponent."*

Response: The Township will maintain responsibility of safe disposal of any and all solid and liquid waste materials produced by the Water and Wastewater Treatment Process(s).

5. Insurance and Liability

- a. *"Regarding section 11.4.7 Insurance, can Terrace Bay provide the most recent Replacement Value of the Township property assets to be insured?"*

- b. *"To obtain an insurance premium quote for this item, proponents will require a list of all property to be included, legal addresses, descriptions and an estimated replacement cost for each."*

Response: Please see the attached .pdf document entitled "Appendix G - Replacement Cost Values for Water Treatment and Pump house Assets for Insurance Purposes" for replacement cost values.

6. *Section 12.2 Base Proposal of the RFP states "The Base Proposal shall include a fixed price for the overall operating, maintenance and management for each separate water and wastewater facility ... " Can the Township clarify if it wants a separate price for the water treatment, distribution, lagoon, and collection systems or separate prices for the operations and maintenance of the water treatment plant and low lift pumps and for the ORO/OIC of water distribution, wastewater treatment, and collection systems?*

Response: A Separate price for operation and maintenance of the Water Treatment Plant and Low Lift Pumps and a Separate price for Overall Responsible Operator (ORO) and Operator in Charge (OIC) of the water distribution, wastewater treatment and collection systems.

7. General Description of Services



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- a. *Section 10.3 General Description of Services states that the successful Proponent will "provide combined operator coverage of one (1) fully trained, certified and dedicated operator, Monday to Friday and physical inspections only on Saturday, Sunday and holidays." Current regulation does not require physical inspections of water facilities on weekends. Is it the preference of the Township that these weekend inspections be included, given the potential for additional labour costs?*
- b. *Please confirm whether the Municipality intends the facilities to be physically inspected (visited) on Saturday, Sunday and holidays. With only one full-time operator, Employment Standards Act mandatory weekly or bi-weekly rest periods would require relief staff from outside of Terrace Bay to provide regular weekend coverage if physical plant inspections are required Saturday, Sunday and holidays. This would have a material impact on proponent cost submissions (travel, accommodations, meals/disbursements).*

Response: The Township would like to see costs provided both with and without weekend coverage.

8. Section 1.4 Mandatory Site Visit of the RFP states "Failure to attend the site visit may result in disqualification of any submitted proposal." Now that the Site Visit has occurred, can the Township confirm that it will only accept proposals from those organizations that were in attendance at the Mandatory Site Visit?

Response: The Township can confirm that it will currently only accept proposals from those organizations that were in attendance at the Mandatory Site Visit.

9. "Can the Township please clarify how many copies of the base and alternate pricing proposals are to be submitted in the separate envelope?"

Response: Please submit five (5) copies of the base and alternate pricing proposals.

10. *In regards to the proposal irrevocable date, section 1.2 Covering Letter (page 14) identifies submissions must include a statement identifying May 31, 2015 as the last day for the proposal to remain effective. However, on page 24, section 13.3 (last paragraph on the page) it indicates December 31, 2015 as the irrevocable date. Can Terrace Bay please clarify the irrevocable date required to be included in the cover letter?*

Response: The date on page 24, section 13.3 should read May 31, 2015. The correct date for the Covering Letter as identified in the question above is also May 31, 2015.

11. "Please indicate which of the facilities currently have stand-alone, third-party owned, both or neither type of SCADA/Automation."



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Response: The SCADA and Remote Monitoring System the Low Lift Pump Station and Water Treatment Plant are owned by the Municipality. This is an error in the RFP document on our part.

12. *“Please provide a copy of the most recent O.Reg. 170/03 Section 11 – Annual Report and Schedule 22 – Summary Report for Municipalities with respect to the Drinking Water System.”*

Response: Please see the attached .pdf documents entitled “Appendix H - O.Reg. 170 - 2014 Section 11 Annual Report for the Terrace Bay Drinking-Water System” and “Appendix I - 2014 Annual Summary Report for the Terrace Bay Drinking-Water System”

13. *“Please provide a copy of the most recent Annual Performance Report provided to the Ministry in accordance with C of A 5305---4S8NBW with respect to the municipal sewage works.”*

Response: Please see the attached .pdf document entitled “Appendix J - 2013 Wastewater Monitoring and Sanitary System Report, C of A No. 5305-4S8NBW, Township of Terrace Bay”

Appendix G - Replacement Cost Values for Water Treatment and Pumphouse Assets for Insurance Purposes

Asset ID	Import ID	Category	Address	Asset Name	Historical Cost	In-Service Date	2014 Replacement Cost (using CPI)	
WTP Buildings								
6	150007-A1	BUILDINGS	Water Treatment Plant 11 Beaver Creek Road STREY PT CPR BALLAST PIT STREY RP 55R11640 PT PART 1 RP 55R11735 PARTS 1 4 AND 5 PCL 27090	TERRACE BAY WATER TREATMENT PLANT, STRUCTURE	\$ 3,059,300.00	2006-07-01	\$ 3,544,858.62	
7	150007-A2	BUILDINGS		TERRACE BAY WATER TREATMENT PLANT, ROOF COVERING	\$ 452,600.00	2006-07-01	\$ 524,434.68	
8	150007-A3	BUILDINGS		TERRACE BAY WATER TREATMENT PLANT, INTERIOR FINISHES	\$ 1,598,900.00	2006-07-01	\$ 1,882,868.81	
9	150007-A4	BUILDINGS		TERRACE BAY WATER TREATMENT PLANT, HVAC	\$ 67,500.00	2006-07-01	\$ 78,213.30	
10	150007-A5	BUILDINGS		TERRACE BAY WATER TREATMENT PLANT, ELECTRICAL	\$ 428,300.00	2006-07-01	\$ 496,277.89	
11	150007-A6	BUILDINGS		TERRACE BAY WATER TREATMENT PLANT, PLUMBING	\$ 175,500.00	2006-07-01	\$ 203,354.59	
					\$ 5,782,100.00		\$ 6,730,007.89	
WTP Computers								
941		COMPUTER			Scada System - WTP	\$ 39,395.00	2012-07-01	\$ 40,985.08
					\$ 39,395.00		\$ 40,985.08	
WTP Equip.								
608	250008	MACHINERY & EQUIPMENT		BACKFLOW PREVENTER	\$ 11,520.00	2006-07-01	\$ 13,348.40	
613	250016	MACHINERY & EQUIPMENT		CONTROLLER, AUTOMATIC VALVE, 12"	\$ 29,760.00	2006-07-01	\$ 34,483.38	
614	250017	MACHINERY & EQUIPMENT		CONTROLLER, AUTOMATIC VALVE, 8"	\$ 18,240.00	2006-07-01	\$ 21,134.97	
615	250020	MACHINERY & EQUIPMENT		FILTER, PRESSURE, 840PGM	\$ 142,080.00	2006-07-01	\$ 164,630.31	
618	250032	MACHINERY & EQUIPMENT		MIXER, CHEMICAL, GROUP OF 2	\$ 9,220.00	2006-07-01	\$ 10,683.36	
619	250033	MACHINERY & EQUIPMENT		MIXER, STATIC, MOTIONLESS, 10"	\$ 4,320.00	2006-07-01	\$ 5,005.65	
620	250044	MACHINERY & EQUIPMENT		PUMP, CHEMICAL FEED, GROUP OF 9	\$ 17,280.00	2006-07-01	\$ 20,022.61	
621	250045	MACHINERY & EQUIPMENT		PUMP, VERTICAL TURBINE, SUBMERSIBLE, VIT-CT 10", 1000GPM, 75HP, 1780RPM	\$ 43,200.00	2006-07-01	\$ 50,056.51	
622	250046	MACHINERY & EQUIPMENT		PUMP, VERTICAL TURBINE, SUBMERSIBLE, VIT-CT 10", 1000GPM, 75HP, 1780RPM	\$ 43,200.00	2006-07-01	\$ 50,056.51	
623	250047	MACHINERY & EQUIPMENT		PUMP, VERTICAL TURBINE, SUBMERSIBLE, VIT-CT 10", 1000GPM, 75HP, 1780RPM	\$ 43,200.00	2006-07-01	\$ 50,056.51	
624	250048	MACHINERY & EQUIPMENT		PUMP, VERTICAL TURBINE, SUBMERSIBLE, VIT-CT 10", 500GPM, 40HP, 1780RPM	\$ 26,110.00	2006-07-01	\$ 30,254.06	
625	250049	MACHINERY & EQUIPMENT		PUMP, VERTICAL TURBINE, SUBMERSIBLE, VIT-CT 10", 500GPM, 40HP, 1780RPM	\$ 26,110.00	2006-07-01	\$ 30,254.06	
626	250050	MACHINERY & EQUIPMENT		PUMP, VERTICAL TURBINE, SUBMERSIBLE, VIT-CT 10", 720GPM, 25HP, 1770RPM	\$ 18,340.00	2006-07-01	\$ 21,250.84	
627	250051	MACHINERY & EQUIPMENT		PUMP, VERTICAL TURBINE, SUBMERSIBLE, VIT-CT 10", 720GPM, 25HP, 1770RPM	\$ 18,340.00	2006-07-01	\$ 21,250.84	
628	250052	MACHINERY & EQUIPMENT		PUMP, VERTICAL TURBINE, SUBMERSIBLE, VIT-CT 6", 100GPM, 10HP, 1760RPM	\$ 11,900.00	2006-07-01	\$ 13,788.72	
630	250054	MACHINERY & EQUIPMENT		TANK, PLASTIC, GROUP OF 4, 240 GALLONS EACH	\$ 3,840.00	2006-07-01	\$ 4,449.47	
635	250059	MACHINERY & EQUIPMENT		UNIT, ULTRAVIOLET, 12"	\$ 120,000.00	2006-07-01	\$ 139,045.87	
636	250060	MACHINERY & EQUIPMENT		UNIT, ULTRAVIOLET, 12"	\$ 120,000.00	2006-07-01	\$ 139,045.87	
934	250058	MACHINERY & EQUIPMENT		TURBIDIMETER ANALYZER - Turbidity Analyzers from E&H to Hach.	\$ 13,575.00	2011-07-01	\$ 14,228.40	
609	250012	MACHINERY & EQUIPMENT		CONTROL PANEL, MCC1, 7.5' X 10' X 1.5'	\$ 90,050.00	2006-07-01	\$ 104,342.34	
610	250013	MACHINERY & EQUIPMENT		CONTROL PANEL, PLC, 6' X 5' X 1.5'	\$ 36,000.00	2006-07-01	\$ 41,713.76	
611	250014	MACHINERY & EQUIPMENT		CONTROL PANEL, UV, 4' X 3' X 1.5'	\$ 32,260.00	2006-07-01	\$ 37,380.17	
612	250015	MACHINERY & EQUIPMENT		CONTROL PANEL, UV, 4' X 3' X 1.5'	\$ 32,260.00	2006-07-01	\$ 37,380.17	
616	250023	MACHINERY & EQUIPMENT		GENERATOR, PROPANE, 12 CYLINDER, 480KW, 3 PHASE	\$ 171,170.00	2006-07-01	\$ 198,337.35	
617	250029	MACHINERY & EQUIPMENT		HOIST, OVERHEAD	\$ 14,400.00	2006-07-01	\$ 16,685.50	
631	250055	MACHINERY & EQUIPMENT		TANK, PROPANE WITH VAPORIZER (ELECTRIC GENERATING), 20'L X	\$ 125,000.00	2006-07-01	\$ 144,839.45	
632	250056	MACHINERY & EQUIPMENT		TANK, PROPANE WITH VAPORIZER (ELECTRIC GENERATING), 20'L X	\$ 125,000.00	2006-07-01	\$ 144,839.45	
					\$ 1,346,375.00		\$ 1,558,564.53	
PUMPHOUSE Bldgs. & Equip.								
829		BUILDINGS	Raw Water Pumping Station	Pumphouse Building	\$ 1,448,520.00	2009-07-01	\$ 1,609,042.01	
834		MACHINERY & EQUIPMENT	STREY PT LOC JK 300 RP 55R13405 PART 4	Machinery/Equipment Inside Pumphouse - Various Components/Equipment Inside the Pumphouse	\$ 797,750.00	2009-07-01	\$ 886,155.01	
					\$ 2,246,270.00		\$ 2,495,197.02	
					\$ 9,414,140.00		\$ 10,824,754.52	



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

101 King Street, 2nd Floor- Unit D
P.O. Box 819
Longlac, Ontario. P0T 2A0
Tel: 807 876-1141
Fax: 807 876-2560

February 10, 2015

Mayor Jody Davis and Council
The Corporation of the Township of Terrace Bay
P.O. Box 40
TERRACE BAY, Ontario
POT 2W0

Re: O. Regulation 170 - 2014 Section 11 Annual Report for the Terrace Bay Drinking-Water System

Ontario's Drinking-Water Systems Regulation (O.Reg. 170/03), made under the *Safe Drinking Water Act, 2002*, requires that the owner of a drinking water system prepare an annual report on the operation of the system and the quality of its water.

The annual report must cover the period of January 1st to December 31st in a year and *must be prepared not later than February 28th* of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2014 Annual Report for the Terrace Bay Drinking-Water System.

Pursuant to the legislative requirements, Section 11 (6): the annual report must:

- (a) contain a brief description of the drinking-water system, including a list of water treatment chemicals used by the system during the period covered by the report;
- (b) summarize any reports made to the Ministry under subsection 18 (1) of the Act or section 16-4 of Schedule 16 during the period covered by the report;
- (c) summarize the results of tests required under this Regulation, or an approval or order, including an OWRA order, during the period covered by the report and, if tests required under this Regulation in respect of a parameter were not required during that period, summarize the most recent results of tests of that parameter;
- (d) describe any corrective actions taken under Schedule 17 or 18 during the period covered by the report;
- (e) describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment; and
- (f) in the case of a large municipal residential system or a small municipal residential system, include a statement of where a report prepared under Schedule 22 will be available for inspection under subsection 12 (4). O. Reg. 170/03, s. 11 (6)

In addition, Section 11 (7) gives the direction that a copy of an annual report for the system is given, without charge, to every person who requests a copy and be made available for inspection by any member of the public during normal business hours. The report should be made available at the office of the municipality, or at a location that is accessible to the users of the water system.

Yours truly,

A handwritten signature in blue ink, appearing to read "Gordon Williams", with a stylized, cursive script.

Gordon Williams
Northern Regional Manager

Copy to: John Hall – CAO
Terry Hanley – Public Works Supervisor
Operations Staff – Terrace Bay WTP

2014 Section 11 Annual Report

Terrace Bay Drinking-Water System

February 2015



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Section 11 ANNUAL REPORT

Drinking-Water System Number:	250001769
Drinking-Water System Name:	Terrace Bay Water Treatment Plant
Drinking-Water System Owner:	The Corporation of the Township of Terrace Bay
Drinking-Water System Category:	Large Municipal Residential Drinking Water-System
Period being reported:	January 1 – December 31, 2014

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [] No [X]</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Township of Terrace Bay 1 Selkirk Ave. P.O. Box 40 Terrace Bay, ON POT 2W0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; padding: 2px; width: 100px; margin: 5px 0;">N/A</div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; padding: 2px; width: 100px; margin: 5px 0;">N/A</div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
N/A	

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [] No []



Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method – Community Television Channel

Describe your Drinking-Water System

The raw water intake for the low lift pumping station is located in Jackfish Channel on Lake Superior. The intake line is a 170 m long, 300 mm diameter line located 75 m west of the intake for Terrace Bay Pulp.

The low lift-pump station houses three pumps and is located approximately 50 m west of the mill pump house. The water is pumped to the Terrace Bay Water Treatment Plant via a 250 mm diameter pipe 2.5 km long.

There are 4 identical standby ground water wells located adjacent to the low lift pump station for emergency situations. Each well is 250 mm in diameter, 17 m deep and equipped with a submersible pump. The stand by wells discharge into the wet well of the low lift pump station.

The low lift pump station has a 150 kW propane powered generator for emergency standby power and is located as a stand alone unit in a weather proof enclosure.

Water Treatment Plant:

Raw water entering the plant is directed to four (4) slow sand filter units, each with a 1.2 m thickness of filter sand; 600 mm gravel and perforated pipe under drain system. Filtered water then passes through two (2) ultraviolet disinfection units (one duty, one standby) providing a minimum ultraviolet dosage of 40 millijoules/cm² at a peak flow rate of 45 L/s. UV water entering the reservoir feed pipe is injected with a sodium hypochlorite solution.

In July 2013, a phosphate blend corrosion inhibitor feed system was installed and commissioned. The system consists of two chemical metering pumps, storage drum, feed tubing and injection point to inject Carus 8600 for corrosion control.

Chlorinated water is then directed to an underground 5193 m³ concrete reservoir, consisting of 4 interconnecting chambers, with baffles, providing chlorine contact time.

There is a 480 kW propane generator, providing emergency standby power for the water treatment plant, disinfection process and high lift pumps; this allows for the production and distribution of potable water during a power loss.



List all water treatment chemicals used over this reporting period

- | |
|---|
| <ul style="list-style-type: none"> - Sodium Hypochlorite - Carus 8600 |
|---|

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

Install	Repair	Replace	Description	Expense
	X		Overhead Cranes Deficiencies repairs	\$450.54
	X		Troubleshooting VFD at Low Lift Station	\$1284.34
	X		Troubleshooting VFD at Low Lift Station	\$370.38
	X		Restoring Internet connection	\$905.77
X			Storage shelving for Electrical room	\$1425.35
		X	Replace VFD at Low lift Station	\$16,800.00
X			Hydrant Back Flow Preventer	\$877.68

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Jan-8-2014	Other Observation – loss of pressure, water main leak	<20	psi	Leak repaired, section flushed, chlorine residual (0.85 mg/L) and pressure restored. Microbiological samples taken	Jan-13-2014
May-21-2014	Other Observation – loss of data	215	min	Communication link checked and reset	Jun-6-2014
Jun-10-2014	Other Observation – loss of pressure, water main leak	<20	psi	Leak repaired, pressure restored and microbiological samples taken	Jun-13-2014



Jun-25-2014	Other observation – loss of pressure, water main leak	<20	psi	Leak repaired, pressure restored and microbiological samples taken	Jul-4-2014
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Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	52	0 - 8	<1 - 89	N/A	N/A
Treated	55	0	0	52	0 - 2
Distribution	119	0	0	53	0 - 280

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity		
Raw	245	0 – 1.18 NTU
Filter #1	8760	0.03 – 3.38 NTU
Filter #2	8760	0 – 0.54 NTU
Filter #3	8760	0 – 1.26 NTU
Filter #4	8760	0.03 - 2 NTU
Chlorine		
Treated	8760	0.39 – 2.11 mg/L
Distribution	487	0.22 – 1.37 mg/L
Fluoride (If the DWS provides fluoridation)	N/A	N/A

NOTE: For continuous monitors use 8760 as the number of samples.

NOTE: Record the unit of measure if it is not milligrams per litre.



Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
N/A				

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Jan-6-2014	<0.6	µg/L	No
Arsenic	Jan-6-2014	<1.0	µg/L	No
Barium	Jan-6-2014	<10.0	µg/L	No
Boron	Jan-6-2014	<50.0	µg/L	No
Cadmium	Jan-6-2014	<0.1	µg/L	No
Chromium	Jan-6-2014	<1.0	µg/L	No
*Lead	Refer to Summary Table Below			
Mercury	Jan-6-2014	<0.1	µg/L	No
Selenium	Jan-6-2014	<1.0	µg/L	No
Sodium	Jan-6-2014	3.46	mg/L	No
Uranium	Jan-6-2014	<2.0	µg/L	No
Fluoride	Jan-6-2014	<0.030	mg/L	No
Nitrite	Jan-6-2014	<0.020	mg/L	No
	Apr-14-2014	<0.020	mg/L	No
	Jul-2-2014	<0.020	mg/L	No
	Oct-14-2014	<0.020	mg/L	No
Nitrate	Jan-6-2014	0.353	mg/L	No
	Apr-14-2014	0.385	mg/L	No
	Jul-2-2014	0.357	mg/L	No
	Oct-14-2014	0.339	mg/L	No

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems



Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	250	<1.0 – 32.7 µg/L	24
Distribution	24	<1.0 µg/L	0

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	Jan-06-2014	<0.1	µg/L	No
Aldicarb	Jan-06-2014	<1.0	µg/L	No
Aldrin + Dieldrin	Jan-06-2014	<0.4	µg/L	No
Atrazine + N-dealkylated metabolites	Jan-06-2014	<0.1	µg/L	No
Azinphos-methyl	Jan-06-2014	<0.1	µg/L	No
Bendiocarb	Jan-06-2014	<0.2	µg/L	No
Benzene	Jan-06-2014	<0.5	µg/L	No
Benzo(a)pyrene	Jan-06-2014	<0.01	µg/L	No
Bromoxynil	Jan-06-2014	<0.2	µg/L	No
Carbaryl	Jan-06-2014	<0.2	µg/L	No
Carbofuran	Jan-06-2014	<0.2	µg/L	No
Carbon Tetrachloride	Jan-06-2014	<0.5	µg/L	No
Chlordane (Total)	Jan-06-2014	<0.3	µg/L	No
Chlorpyrifos	Jan-06-2014	<0.1	µg/L	No
Cyanazine	Jan-06-2014	<0.1	µg/L	No
Diazinon	Jan-06-2014	<0.1	µg/L	No
Dicamba	Jan-06-2014	<0.2	µg/L	No
1,2-Dichlorobenzene	Jan-06-2014	<0.5	µg/L	No
1,4-Dichlorobenzene	Jan-06-2014	<0.5	µg/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Jan-06-2014	<0.4	µg/L	No
1,2-Dichloroethane	Jan-06-2014	<0.5	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan-06-2014	<0.5	µg/L	No
Dichloromethane	Jan-06-2014	<5.0	µg/L	No
2-4 Dichlorophenol	Jan-06-2014	<0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan-06-2014	<0.2	µg/L	No
Diclofop-methyl	Jan-06-2014	<0.2	µg/L	No
Dimethoate	Jan-06-2014	<0.1	µg/L	No
Dinoseb	Jan-06-2014	<0.2	µg/L	No
Diquat	Jan-06-2014	<1.0	µg/L	No



Diuron	Jan-06-2014	<1.0	µg/L	No
Glyphosate	Jan-06-2014	<5.0	µg/L	No
Heptachlor + Heptachlor Epoxide	Jan-06-2014	<0.2	µg/L	No
Lindane (Total)	Jan-06-2014	<0.1	µg/L	No
Malathion	Jan-06-2014	<0.1	µg/L	No
Methoxychlor	Jan-06-2014	<0.1	µg/L	No
Metolachlor	Jan-06-2014	<0.1	µg/L	No
Metribuzin	Jan-06-2014	<0.1	µg/L	No
Monochlorobenzene	Jan-06-2014	<0.5	µg/L	No
Paraquat	Jan-06-2014	<1.0	µg/L	No
Parathion	Jan-06-2014	<0.1	µg/L	No
Pentachlorophenol	Jan-06-2014	<0.5	µg/L	No
Phorate	Jan-06-2014	<0.1	µg/L	No
Picloram	Jan-06-2014	<0.2	µg/L	No
Polychlorinated Biphenyls(PCB)	Jan-06-2014	<0.035	µg/L	No
Prometryne	Jan-06-2014	<0.1	µg/L	No
Simazine	Jan-06-2014	<0.1	µg/L	No
THM (NOTE: show latest annual average)	Oct-14-2014	35.0	µg/L	No
	2014 Average	22.4	µg/L	No
Temephos	Jan-06-2014	<0.1	µg/L	No
Terbufos	Jan-06-2014	<0.2	µg/L	No
Tetrachloroethylene	Jan-06-2014	<0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan-06-2014	<0.5	µg/L	No
Triallate	Jan-06-2014	<0.1	µg/L	No
Trichloroethylene	Jan-06-2014	<0.5	µg/L	No
2,4,6-Trichlorophenol	Jan-06-2014	<0.5	µg/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Jan-06-2014	<0.2	µg/L	No
Trifluralin	Jan-06-2014	<0.1	µg/L	No
Vinyl Chloride	Jan-06-2014	<0.2	µg/L	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
Lead (plumbing) 13 samples *	5.1 – 32.7	µg/L	January 29 2014
Lead (plumbing) 13 samples *	5.3 – 10.8	µg/L	February 26 2014
Lead (distribution)	11.8	µg/L	February 27 2014
Lead (plumbing) 11 samples *	6.5 – 16.3	µg/L	April 2 2014
Lead (plumbing) 10 samples *	5.2 – 10.0	µg/L	April 30 2014



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Lead (plumbing) 14 samples *	5.5 – 15.3	µg/L	May 28 2014
Lead (plumbing) 18 samples *	5.3 – 23.7	µg/L	July 9 2014

* Individual sample results available at town office upon request



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

101 King Street, 2nd Floor- Unit A
P.O. Box 819
Longlac, Ontario. P0T 2A0
Tel: 807 876-1141
Fax: 807 876-2560

March 17, 2015

Mayor Jody Davis and Council
The Corporation of the Township of Terrace Bay
P.O. Box 40
TERRACE BAY, Ontario.
P0T 2W0

Re: 2014 Annual Summary Report for the Terrace Bay Drinking-Water System

Ontario's Drinking-Water Systems Regulation (O.Reg.170/03), made under the *Safe Drinking Water Act, 2002*, requires that the owner of a drinking water system prepare an annual summary for municipalities on the operation of the system and the quality of its water.

The annual summary must cover the period of January 1st to December 31st in a year and must *be prepared not later than March 31st* of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2014 Annual Summary for the Terrace Bay Drinking-Water System.

Pursuant to the legislative requirements, *Schedule 22 Summary Reports for Municipalities*, the annual summary must:

- (a) list the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report; and,
 - (b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure."
- O. Reg. 170/03 s. 22 (2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement."

-O. Reg. 170/03 s. 22 (3)

In addition, Section 12 (1) - 4 - gives the direction that a copy of the annual summary for the system is given, without charge, to every person who requests a copy and be made available for inspection by any member of the public during normal business hours. The reports should be made available at the office of the municipality, or at a location that is accessible to the users of the water system.

This report was prepared by the Ontario Clean Water Agency on behalf of the Township of Terrace Bay and is based on information kept on record by OCWA at the Terrace Bay WTP. The report covers the period January 1st to December 31st 2014.

Yours truly,



Gordon Williams
Regional Manager
Northern Ontario

Copy to: John Hall – CAO
Terry Hanley – Public Works Supervisor
Operations Staff – Terrace Bay WTP

2014 Schedule 22 Annual Summary Report

Terrace Bay Drinking-Water System

March 2015



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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SECTION 1: INTRODUCTION

This report is a summary of water quality information for the Terrace Bay Drinking-Water System, published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of January 1st to December 31st 2014. The Terrace Bay Drinking-Water System is categorized as a Large Municipal Residential Drinking Water System.

This report is prepared by The Ontario Clean Water Agency on behalf of the Corporation of the Township of Terrace Bay. A copy of the Summary Report is to be provided to the members of the municipal council by March 31st 2015.

SECTION 2: WHAT DOES THE REPORT CONTAIN

"The report must,

- (a) list the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report; and,
- (b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure."

- O. Reg. 170/03 s. 22 (2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement."

-O. Reg. 170/03 s. 22 (3)

SECTION 3: DAILY FLOW RATES

In accordance with the *Municipal Drinking Water Licence 237-101 Schedule C: System – Specific Conditions 1.0 Performance Limits*, the Terrace Bay drinking-water system shall not be operated to exceed the rated capacity for maximum flow rate from the treatment subsystem to the distribution system of **3888 m³ / day**.

The drinking-water system may be operated temporarily at a rate above the rated capacity where necessary for:

- i) the purposes of fighting a large fire or,
- ii) the maintenance of the drinking-water system

The Terrace Bay Drinking-Water facility operated below the rated capacity of 3888 m³ / day in 2014. The average monthly raw flow rate was 50042.3 m³; the average raw daily flow rate was 1645.23 m³, with a maximum raw daily flow rate of 2768.00 m³.

In 2014, the average monthly treated flow rate was 42380.70 m³; the average daily treated flow rate was 1393.34 m³; and the maximum daily treated flow rate for the year was 2306.0 m³ representing 84.2 % of the allowable daily volume.

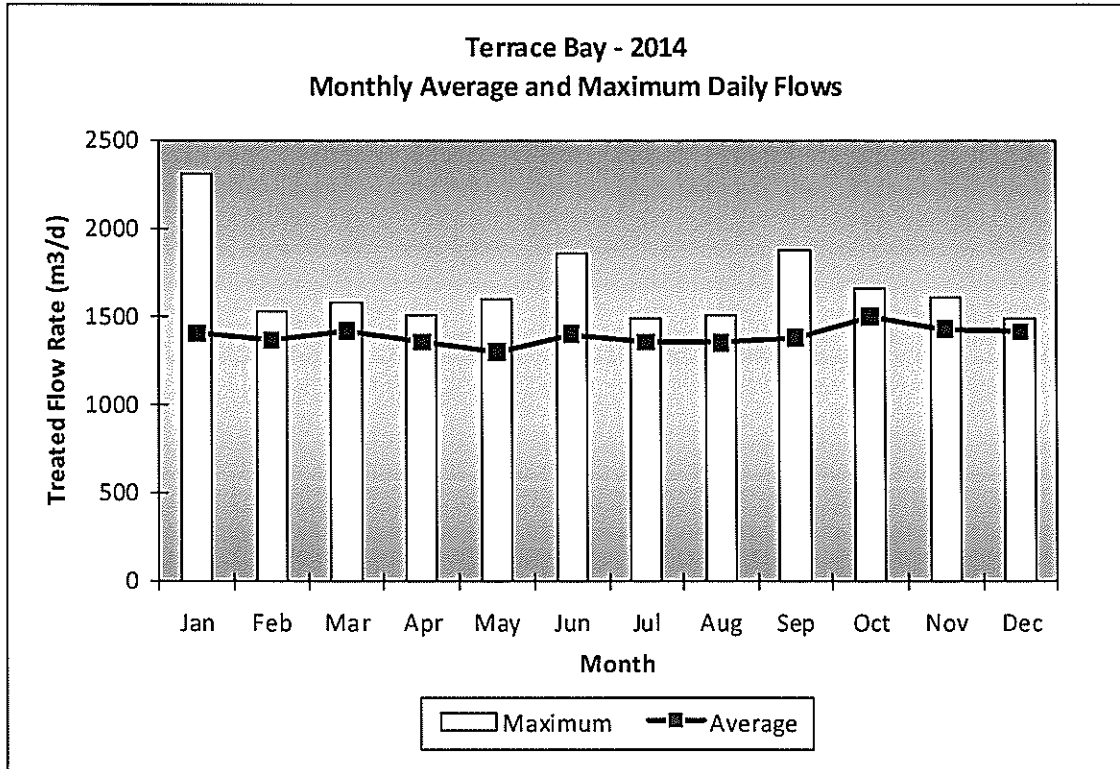
A summary of raw and treated flows, including maximum raw flow into the treatment system as well as treated average, maximum and total flow rates are included in the tables below.

The quantity of raw water supplied during the reporting period did not exceed the terms and conditions of the *Permit to Take Water* nor did the flows directed to the treatment system exceed the rated capacity for this system.

Monthly Raw & Treated Flow Rates for 2014

Month	Average Daily Raw Flow Rate (m³/d)	Maximum Daily Raw Flow Rate (m³/d)	Average Daily Treated Flow Rate (m³/d)	Maximum Daily Treated Flow Rate (m³/d)	Total Monthly Treated Flow Rate (m³/d)
January	1725.85	2768.0	1409.16	2306.0	43684.0
February	1706.07	2200.0	1368.89	1527.0	38329.0
March	1698.45	1902.0	1420.26	1576.0	44028.0
April	1637.00	1984.0	1358.67	1507.0	40760.0
May	1609.00	2079.0	1304.19	1603.0	40430.0
June	1709.10	2250.0	1402.30	1858.0	42069.0
July	1582.42	2047.0	1360.16	1487.0	42165.0
August	1561.57	1930.0	1355.35	1515.0	42016.0
September	1585.90	2504.0	1385.53	1876.0	41566.0
October	1728.45	2225.0	1502.57	1661.0	456579.7
November	1590.43	2051.0	1432.73	1613.0	42982.0
December	1613.74	2288.0	1418.05	1489.7	43959.7
	2014 Total Treated Flows (m³)				508568.4

Comparison of Treated Monthly Average and Maximum Flows for 2014



SECTION 4: SYSTEM FAILURES AND CORRECTIONS

The Ministry of Environment conducted an *announced* inspection of the Terrace Bay Water Treatment facility on December 17 and 18 2014. A summary of the findings and status of all *Non-Compliance with Regulatory Requirements and Actions Required* are outlined in the following table.

Item #	Work Required Item	Action Being Taken to Address Item	Status
1	<p>Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was not performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and/or was not recording data with the prescribed format.</p> <p>The operator indicated that data readings are being made at one minute intervals.</p> <p>On May 21, 2014, the ORO reported a loss of data due to a communication failure with the device that links the PLC with the SCADA. Data was lost from 06:27 to 10:02.</p> <p>Records in the logbook indicate that the operator monitored the plant operation during this time period but did not manually record any readings from the continuous monitoring equipment.</p> <p>Action(s) Required: During times when electronic data recording fails, manual records of regulatory parameters that are monitored by operators, within the required timeframes, must be recorded to meet the requirements of O. Reg. 170/03.required.</p> <p>SLOW SAND FILTRATION:</p> <p>A second slow sand filter effluent quality study could be undertaken to evaluate the presence of a biological layer over a filter cycle.</p> <p>Consideration should be given to finding a method to remove the fine sediment before it reaches the slow sand filters. This in turn may enable longer filter runs and promote the development of a biological layer on the filters.</p> <p>The Township of Terrace Bay is encouraged to explore any funding/grant opportunities that would provide funds to improve the operation or monitoring of the slow sand filters.</p> <p>FILTER 3 FLOW HIGH ALARM: At the time of the site inspection, a review of alarms for January 10, 2013, revealed a "FILTER 3 FLOW HIGH ALARM". This alarm could not be explained by the OIC. The ORO, who had been operating the system at the time of the alarm, was not available at that time during the discussions regarding this alarm. Following the site inspection, discussions with operating staff indicate that an answer is not yet available to explain the alarm.</p> <p>UPDATE: Following a review of the draft inspection report, the operating authority reports that the alarm has been investigated. No further action is required.</p>	No further action required	Complete
2	<p>The operations and maintenance manuals did not contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.</p> <p>As discussed previously in this inspection report, operators routinely operate the slow sand filters without all four filters in-service at times other than when maintenance is being completed on a filter. A Standard Operating Procedure (SOP) is not available that directs operators on this activity. Given the biological nature of slow sand filters, the filters are normally only removed from service for maintenance and then returned to continued operation once maintenance is completed. A number of the operating procedures need to be updated. For example, the SOP for "Propane Generator Failure"</p>	The municipality is having their engineers re-write the SOP for Slow Sand Filter Maintenance to include the requested information. The remaining SOPs are being reviewed and updated.	In progress

Item #	Work Required Item	Action Being Taken to Address Item	Status
	<p>was issued on November 23, 2010. Since that time there have been failures of the propane generator and new, relevant information is available that should be added to the operating procedure.</p> <p>Action(s) Required: SLOW SAND FILTERS</p> <p>A SOP is needed to provide direction to operators on the duration of time that the slow sand filters can remain out-of-service and methods to ensure that the filter has ripened and a biological layer maintained after being out-of-service. By February 6, 2015, the Township of Terrace Bay is requested to provide a date for the completion of the Standard Operating Procedure that provides direction to operators if leaving slow sand filters out ofservice and direction for operators on returning filters to service with means of ensuring that the filter has ripened and a biological layer maintained.</p> <p>UPDATING</p> <p>The operating authority had recently noted that some of the operating procedures require updating. At the time of the inspection there was no timeframe for the initiation or completion of this work. By February 6, 2015, the Township of Terrace Bay is requested to provide a date for the initiation of the updating of the procedures and a target date for when they hope to complete the revisions. UPDATE:</p> <p>Following a review of the draft inspection report, OCWA confirmed that a review of the SOP's has begun and the completion date for the revisions/updating is June 30, 2015.</p>		
3	<p>The following instance(s) of non-compliance were also noted during the inspection:</p> <p>SLOW SAND FILTER RECORDS</p> <p>Actions related to the operation of the filters are recorded in the logbook. As well, sheets were initiated for each filter as a "Maintenance Log", however minimal information has been recorded on these sheets. A review of filter flows, maintenance and operation of the filters indicates that although record keeping for the Terrace Bay Water Treatment Plant is generally well done, all activities associated with the operation of the filters is not being recorded. During the course of the inspection this was discussed with the ORO. Records that keep better track of the cycling of the filters is important to ensure that filters are not out-ofservice for unnecessary lengths of time. Recording of filter activities also must include these events where equipment is remotely taken in and out of service.</p> <p>TURBIDITY DATA</p> <p>Turbidity data, on days when the filters were not operating, is removed from the electronic record (PDC). Some of the turbidity data was reviewed during the inspection process and it was found that data had been removed on days when the filters were in operation. The operators must ensure that this does not happen.</p> <p>Action(s) Required: By February 6, 2015, OCWA is requested to provide a letter confirming what actions are being taken to ensure that all activities related to the operation and maintenance of the filters is being recorded and to ensure that the filters do not remain out-of-service for an unnecessary length of time.</p> <p>By February 6, 2015, OCWA is requested to provide a letter confirming what actions are taken to ensure all turbidity data during periods of filter operation are included in turbidity records. UPDATE: Following a review of the draft inspection report OCWA provided a letter stating that</p>	<p>The change has been made to the Wonderware programming to collect and record only the data during filter operation.</p>	Complete

Item #	Work Required Item	Action Being Taken to Address Item	Status
	Outpost 5 has been configured so it will not record data when a filter has been taken off-line.		

The final 2014 inspection rating record for the Terrace Bay Drinking-Water System was 93.3 %.

SECTION 5: CONCLUSION

In the reporting year of 2014, there were four adverse water quality incident (AWQI) reports filed as summarized below.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
8-Jan-14	Other observation - Loss of pressure - Water main leak	< 20	PSI	Leak repaired, section flushed, chlorine residual (0.85 mg/L) and pressure restored, microbiological samples taken and absent results received	13-Jan-14
21-May-14	Other observation - Loss of data	215	min	Communication link checked and reset	6-Jun-14
10-Jun-14	Other observation - Loss of pressure - Water main leak	< 20	PSI	Microbiological samples taken and absent results received	13-Jun-14
25-Jun-14	Other observation - Loss of pressure - Water main leak	187	ug/l	Microbiological samples taken and absent results received	4-Jul-14

For the operating year of 2014, the Terrace Bay Drinking-Water System was able to meet the demand of water use within the town without exceeding the Municipal Drinking Water Licence and Permit to Take Water.

**Appendix J - 2013 Wastewater Monitoring and Sanitary System Report,
C of A No. 5305-4S8NBW, Township of Terrace Bay**

April 28, 2014

File No. 13-0560-002



Suite 301A
1001 William Street
Thunder Bay,
Ontario
P7B 6M1
807.623.2195
fax: 807.473.5671
www.kgsgroup.com

Township of Terrace Bay
12 Simcoe Plaza
P.O. Box 40
Terrace Bay, Ontario
P0T 2W0

ATTENTION: Mr. Terry Hanley
Public Works Superintendent

RE: 2013 Wastewater Monitoring and Sanitary System Report
C of A No. 5305-4S8NBW - Township of Terrace Bay

Dear Mr. Hanley:

Kontzamanis Graumann Smith MacMillan Inc. (KGS Group) is pleased to provide the Township of Terrace Bay with this Wastewater Monitoring and Sanitary System Report for 2013. This report meets the requirements of Certificate of Approval (C of A) No. 5305-4S8NBW which is included as Appendix A.

1.0 METHODOLOGY

In 2013, the Township of Terrace Bay Public Works staff conducted a sewage effluent and groundwater quality monitoring program that consisted of monitoring daily flow rates at the Terrace Heights wastewater treatment plant, obtaining raw water samples from the wastewater treatment plant and collecting groundwater samples from monitoring wells located at the east and west exfiltration lagoons. All samples were submitted for laboratory analysis of ammonia-N, carbonaceous BOD (CBOD₅), nitrate-N, nitrite-N, total phosphorus and total suspended solids (TSS).

Figure 1 shows the location of the exfiltration lagoons, while Figures 2 and 3 are site plans for the east and west exfiltration lagoons respectively. Laboratory certificates of analysis are presented in Appendix B.

2.0 RESULTS AND DISCUSSION

2.1 WASTEWATER FLOW

Flow data for the Terrace Heights wastewater treatment plant are presented in Table 1.

The average daily flows for 2013 were well below 100,000 Imperial gallons per day (Igpd) (454 m³/day), the maximum licensed flow, and were in the order of 37,000 to 76,000 Igpd. Average and maximum daily flows from 2004 to 2013 are presented graphically in Figure 4.

Wastewater flow in 2013 was elevated from historical norms with a total annual flow of 21,953,129 gallons. This volume exceeded all previously recorded annual flows with the exception of 2004. Similarly, average daily flows have increased from a 2010-2012 average of 45,712 Igpd to 60,012 Igpd in 2013. The data is presented graphically in Figure 5.

2.2 EFFLUENT WASTEWATER

Results for effluent wastewater are presented in Table 2 and graphically in Figure 6. CBOD₅, total phosphorous and ammonia results for 2013 were decreased from 2012 values. Total suspended solids, nitrate and nitrite were all similar to historic results, indicating a general consistency in the effluent wastewater quality. The Ontario Ministry of the Environment parameter objectives for the sewage treatment facility are 200 mg/L for CBOD₅ and 125 mg/L for TSS. Neither parameter exceeded these allowable concentrations in 2013.

2.3 MAINTENANCE

Maintenance activities that were undertaken in 2013 consisted of the following:

- Daily system overview with daily cleaning of screens in the chamber.
- Sludge and scum removal.
- Sample collection.
- Routine building maintenance.

The Township of Terrace Bay contracted the sample collection and operation activities of the wastewater system to a certified operator. The Township also contracted the removal of accumulated sludge from the sedimentation basins to a local certified sludge hauler.

2.4 GROUNDWATER QUALITY

Groundwater quality results for the east and west exfiltration lagoons are presented in Tables 3 and 4 and graphically in Figures 7-12. Groundwater monitoring well locations are shown in Figures 2 and 3.

As in past years there is a general decline in CBOD₅ and ammonia in down gradient groundwater as compared to effluent wastewater. Concentrations of total suspended solids at the majority of groundwater wells were elevated as compared to the effluent. Impacts to down gradient water quality are evident from increased concentrations of phosphorus, nitrate and nitrite observed at some of the groundwater wells as compared to the effluent wastewater.

At the east lagoon the attenuation of parameters was most pronounced at the furthest down gradient well MW-12. Groundwater trends overtime in this area include increased concentrations of phosphorous and nitrate at MW-7 and MW-6 with only slightly increased ammonia concentrations observed at the furthest down gradient well MW-12. Total suspended solids have increased over time at all wells in this area.

At the west lagoon groundwater trends overtime include increased concentrations of phosphorous (MW-8, MW-9 and MW-13), nitrite (MW-8 and MW-13), CBOD₅ (MW-8), ammonia (MW-9) and nitrate (MW-13). Total suspended solids have increased over time at all wells in this area.

At both the east and west lagoons, there is a significant reduction in CBOD₅ through the soil matrix, resulting in non-detectable or near non-detectable levels in groundwater. Both ammonia and phosphorus are readily adsorbed onto soil particles and should be available to local vegetation. As soils have a limited capacity to absorb and store nutrients, the elevated phosphorous concentrations measured in groundwater at MW-7, MW-9 and MW-13 in 2013 may have been a result of the capacity of the soil to absorb phosphorous being exceeded. Excess phosphorous under these conditions will dissolve and move more freely within groundwater. The higher concentrations of nitrate in groundwater wells when compared to effluent is likely due to nitrification of ammonia by nitrifying bacteria in the aerobic layer of the exfiltration lagoon or soil. The elevated concentrations of TSS in groundwater samples as compared to effluent is likely related to groundwater sampling methods and likely does not reflect impacts to groundwater as a result of the lagoons operations.

3.0 SUMMARY AND CONCLUSIONS

An increase in wastewater flow was observed in 2013 however the overall performance of the sedimentation basin was within the prescribed effluent limits of 200 mg/L CBOD₅, 125 mg/L TSS and 100,000 lgpd (454 m³/day).

Attenuation of target parameters in groundwater is generally occurring between the lagoons and the down gradient wells however elevated nitrate, nitrite and phosphorous parameters were present at some down gradient wells. Additional attenuation is expected to occur within the aquifer prior to discharging to Lake Superior. The subsurface filtration within the silty sand deposits of the area likely precludes microbiological impacts reaching Lake Superior and the Township of Terrace Bay's beach area.

Maintenance activities consisted of routine operational and building maintenance duties. Sample collection and sludge removal was conducted by a contracted certified sludge hauler.

4.0 RECOMMENDATIONS

The following recommendations are proposed for the operation of the Terrace Heights sedimentation system:

- Continue sewage treatment effluent sampling in 2014 to continue to assess the effectiveness of the filtered effluent treatment system.
- Continue daily flow monitoring at the Terrace Heights Wastewater Treatment Plant in 2014.
- Continue routine maintenance activities in 2014.
- Continue the groundwater monitoring program in 2014 as in 2013 for the analysis of ammonia, nitrates, nitrites and total phosphorous. The analysis of total suspended solids in groundwater is not a requirement at the site.
- The Township should sample the stream east of the west lagoon to determine if there is any degradation of water quality due to seepage of impacted groundwater. Samples should be taken upstream and downstream of the west lagoon.

5.0 STATEMENT OF LIMITATIONS AND CONDITIONS

This report has been prepared for The Township of Terrace Bay to whom this report has been addresses and any use a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. KGS Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions undertaken based on this report.

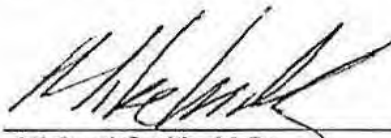
We trust that the above meets with the Township's requirements. KGS Group appreciates the opportunity to have been of service on this project.

Prepared By:



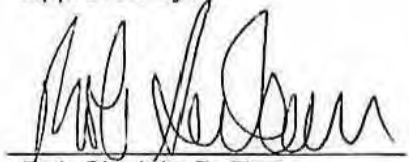
Gary Crewdson, Hon. B.Sc.
Environmental Scientist

Reviewed By:



Michael Smith, M.Sc.
Sr. Environmental Scientist

Approved By:



Rob Sinclair, P. Eng.
Manager Env. Services

GC/sla
/Enclosure

TABLES

**TABLE 1
EFFLUENT FLOW RATE READINGS
TERRACE BAY SEWAGE TREATMENT PLANT**

Year	Month	Flow (Imperial Gallons)				
		Total Monthly Flow	Daily Average Flow	Highest Daily Flow	Total Yearly Flow	Average Daily Flow for the Year
2004	Jan	1,629,919.00	52,578.03	-	23,545,557.41	64,153.18
	Feb	1,442,450.20	51,516.08	-		
	Mar	1,724,551.70	55,630.70	-		
	Apr	2,297,862.58	76,595.42	-		
	May	2,407,915.20	77,674.68	-		
	Jun	2,260,854.80	75,361.83	-		
	Jul	2,428,513.80	78,339.15	-		
	Aug	2,351,351.40	75,850.05	-		
	Sep	2,414,493.60	80,483.12	-		
	Oct	2,613,870.70	84,318.41	-		
	Nov	2,399,215.50	79,973.85	-		
	Dec	1,896,800.60	61,187.12	-		
2007	Jan	1,431,674.20	46,183.04	56,989.99	21,205,638.80	58,006.00
	Feb	1,201,885.70	42,924.49	46,095.40		
	Mar	1,431,980.80	46,192.93	56,454.98		
	Apr	1,586,677.90	52,889.26	63,115.66		
	May	1,879,351.00	60,624.23	66,973.20		
	Jun	2,027,233.10	67,574.44	76,353.54		
	Jul	2,135,147.90	68,875.74	79,953.21		
	Aug	1,867,748.40	60,249.95	68,273.38		
	Sep	1,890,474.60	63,015.82	75,802.46		
	Oct	2,334,859.40	75,318.05	89,958.50		
	Nov	1,810,159.60	60,338.65	67,837.65		
	Dec	1,608,446.20	51,885.36	67,106.50		
2008	Jan	1,464,818.40	47,252.21	57,182.46	20,758,947.35	56,726.20
	Feb	1,290,554.90	44,501.89	48,547.57		
	Mar	1,359,492.40	43,854.59	48,944.73		
	Apr	1,919,351.90	63,978.40	85,815.46		
	May	2,255,465.50	72,756.95	84,624.13		
	Jun	2,315,861.60	77,195.39	125,489.70		
	Jul	2,253,262.60	72,685.89	98,259.43		
	Aug	1,917,340.24	61,849.69	68,125.47		
	Sep	1,809,383.30	60,312.78	71,189.89		
	Oct	1,245,621.50	40,181.34	66,616.06		
	Nov	1,581,231.30	52,707.71	61,961.99		
	Dec	1,346,563.71	43,437.54	49,356.83		
2009	Jan	1,334,226.60	43,039.57	48,898.50	19,764,849.70	54,158.83
	Feb	1,335,391.50	47,692.55	58,652.10		
	Mar	1,558,727.20	50,281.62	66,438.62		
	Apr	2,022,461.00	67,415.37	81,563.03		
	May	1,983,916.30	63,997.30	78,342.55		
	Jun	1,545,375.80	51,512.53	59,092.96		
	Jul	1,601,461.50	51,660.05	65,983.65		
	Aug	1,776,518.30	57,307.04	77,522.79		
	Sep	1,868,498.40	62,283.28	79,316.92		
	Oct	1,575,145.20	50,811.14	55,926.90		
	Nov	1,738,355.60	57,945.19	65,942.77		
	Dec	1,424,772.30	45,960.40	57,511.26		
2010	Jan	1,188,493.68	38,338.51	56,817.40	15,322,837.68	41,928.10
	Feb	957,070.90	34,181.10	37,423.89		
	Mar	1,301,449.40	41,982.24	47,130.83		
	Apr	1,298,206.80	43,273.56	48,276.96		
	May	1,207,222.50	38,942.66	44,188.56		
	Jun	1,107,597.40	36,919.91	44,604.63		
	Jul	1,402,339.70	45,236.76	50,317.90		
	Aug	1,435,185.10	46,296.29	55,319.61		
	Sep	1,443,137.00	48,104.57	69,395.31		
	Oct	1,342,153.20	43,295.26	49,337.72		
	Nov	1,307,214.10	43,573.80	74,604.10		
	Dec	1,332,767.90	42,992.51	66,346.90		
2011	Jan	1,029,590.60	33,212.60	43,387.87	16,940,785.32	46,357.75
	Feb	981,660.32	35,059.30	39,066.19		
	Mar	1,155,378.50	37,270.27	44,487.90		
	Apr	1,568,678.50	52,289.28	66,144.40		
	May	1,716,365.50	55,366.63	63,442.85		
	Jun	1,557,121.20	51,904.04	59,023.40		
	Jul	1,653,874.70	53,350.79	61,845.67		
	Aug	1,619,175.00	52,231.45	56,364.11		
	Sep	1,475,167.10	49,172.24	57,221.24		
	Oct	1,494,370.20	48,205.49	55,432.23		
	Nov	1,371,977.00	45,733.23	52,305.74		
	Dec	1,317,426.70	42,487.64	46,043.36		
2012	Jan	1,199,981.90	38,709.09	48,476.31	17,891,055.90	48,851.50
	Feb	1,106,994.80	38,172.23	46,915.29		
	Mar	1,536,727.80	49,571.86	71,929.76		
	Apr	1,592,740.20	53,091.34	62,311.92		
	May	1,732,469.00	55,886.10	65,119.31		
	Jun	1,670,623.00	55,687.43	64,438.24		
	Jul	1,709,610.90	55,148.74	63,691.22		
	Aug	1,560,406.90	50,335.71	59,900.16		
	Sep	1,387,787.80	46,259.59	56,429.81		
	Oct	1,449,762.30	46,766.53	69,738.38		
	Nov	1,509,563.80	50,318.79	56,568.06		
	Dec	1,434,387.50	46,270.56	50,858.21		
2013	Jan	1,281,059.80	41,324.51	62,108.61	21,953,129.00	60,012.21
	Feb	1,043,548.30	37,269.58	42,866.25		
	Mar	1,152,009.00	37,161.58	46,998.96		
	Apr	1,481,836.40	49,394.55	74,286.47		
	May	2,344,309.40	75,622.88	95,843.74		
	Jun	2,088,614.60	69,620.49	80,828.12		
	Jul	2,186,733.80	70,539.80	93,863.67		
	Aug	2,359,863.80	76,124.64	85,148.24		
	Sep	2,275,757.40	75,858.58	92,902.26		
	Oct	2,254,481.60	72,725.21	82,011.60		
	Nov	1,941,961.80	64,732.06	74,480.86		
	Dec	1,542,953.10	49,772.68	55,986.12		

Notes:
 ** = No Data

**TABLE 2
EFFLUENT
ANALYTICAL RESULTS
TERRACE BAY SEWAGE TREATMENT PLANT**

Date	Parameter (mg/L)					
	CBOD ₅	Total Suspended Solids	Total Phosphorus	Ammonia as N	Nitrate as N	Nitrite as N
27-Mar-03	88	176	3.26	18.0	<0.03	<0.02
23-Jun-03	102	28	2.90	16.1	<0.03	<0.02
24-Sep-03	203	40	2.67	19.2	<0.03	<0.02
20-Oct-03	51	36	1.29	5.96	0.32	0.03
12-May-03	97	30	2.92	16.5	<0.03	<0.03
5-May-04	56	40	2.39	13.8	<0.03	<0.02
19-Jul-04	69	24	2.54	14.1	<0.1 ⁽¹⁾	<0.1 ⁽¹⁾
25-Aug-04	68	22	2.79	16.6	<0.03	<0.02
27-Oct-04	31	26	1.66	14.9	<0.03	<0.02
29-May-07	25	25	2.31	17.0	<0.03	0.14
24-Jul-07	76	30	2.31	13.3	<0.03	<0.02
29-Aug-07	88	42	3.39	16.6	<0.03	<0.02
29-Oct-07	46	28	2.24	13.2	<0.03	<0.02
9-May-08	32	26.4	1.77	9.33	<0.03	<0.02
28-Jul-08	47	24.0	2.33	13.5	<0.03	<0.02
14-Aug-08	125	42.0	3.34	16.6	<0.03	<0.02
29-Oct-08	108	92.4	3.99	16.5	<0.03	<0.02
7-May-09	35.6	27.2	2.00	11.8	<0.03	<0.02
7-Jul-09	89.8	83.8	3.51	17.9	<0.03	<0.1 ⁽¹⁾
17-Aug-09	66.7	52.8	3.52	18.6	<0.03	<0.02
29-Oct-09	43.2	28.8	2.19	16.0	<0.03	<0.02
31-May-10	65.9	22.5	2.97	20	<0.03	<0.02
28-Jul-10	172	42.5	4.62	24.6	<0.03	<0.02
12-Aug-10	241	38.4	3.86	20.1	<0.03	<0.1 ⁽¹⁾
25-Oct-10	68.9	59	3.42	20.3	<0.1 ⁽¹⁾	<0.1 ⁽¹⁾
30-May-11	69	33.9	2.50	17.3	<0.03	<0.2 ⁽¹⁾
23-Jun-11	96.2	68	3.36	20.5	<0.03	<0.1 ⁽¹⁾
30-Aug-11	51.8	69.4	3.36	19.4	<0.03	<0.2 ⁽¹⁾
19-Oct-11	48.8	30.2	1.66	18.3	<0.03	<0.2
23-May-12	43.5	18.4	2.22	12.4	<0.03	<0.02
4-Jul-12	121	23.2	2.81	14.5	<0.03	0.046
23-Aug-12	80.6	71.2	4.09	26.3	<0.03	0.167
18-Oct-12	31.6	28	2.76	19.7	<0.03	<0.02
27-May-13	45	20.8	1.5	10.3	<0.03	<0.020
26-Jun-13	59	29.4	2.41	14.3	<0.03	0.025
28-Aug-13	56	43	2.74	15.1	<0.03	<0.020
30-Oct-13	27	30.3	1.96	11.7	0.032	<0.020

Notes:

1. Detection limit adjusted for sample matrix effects

**TABLE 3
EAST LAGOON GROUNDWATER QUALITY
TERRACE BAY SEWAGE TREATMENT PLANT**

Monitoring Well	Date	Parameter (mg/L)					
		CBOD ₅	Total Suspended Solids	Total Phosphorus	Ammonia as N	Nitrate as N	Nitrite as N
MW6	27-Mar-03	-	-	1.75	12.7	0.39	<0.02
	23-Jun-03	-	-	1.03	8.63	1.78	<0.02
	24-Sep-03	-	-	1.37	17.2	<0.03	<0.02
	20-Oct-03	-	-	0.67	12.6	7.58	<0.02
	5-Dec-03	-	-	0.661	9.02	1.45 ⁽¹⁾	-
	22-Mar-04	8	60	2.31	9.3	<0.03	<0.02
	16-Jun-04	<2	46	0.365	4.19	8.03	0.26
	22-Sep-04	3	14	0.541	5.3	2.44	<0.02
	8-Dec-04	<2	20	0.605	7.62	14.8	<0.02
	22-Mar-07	5	3	0.279	2.13	0.1	<0.02
	27-Jun-07	3	<2	0.065	2.07	20.7	0.17
	27-Sep-07	<2	<2	0.138	1.2	0.62	<0.02
	11-Dec-07	<2	<2	0.167	1.09	7.78	<0.02
	26-Mar-08	2	-	0.12	3.26	-	-
	28-Mar-08	-	<2	-	-	1.75	<0.02
	25-Jun-08	<2	<2	0.091	3.8	6.62	<0.02
	23-Sep-08	<2	<2	0.032	0.05	1.31	<0.02
	17-Nov-08	3	<2	0.116	0.79	2.22	<0.02
	6-Apr-09	<2	<3	0.0157	0.127	<0.03	<0.02
	9-Jun-09	<2	3.4	0.172	0.202	7.29	<0.02
	24-Sep-09	2.7	<2	0.14	0.407	24.7	<0.02
	7-Dec-09	<2	<2	0.177	3.27	<0.03	<0.02
	31-Mar-10	2.1	<2	0.231	2.61	0.04	<0.02
	28-Jun-10	<2	2.2	0.05	0.087	<0.03	<0.02
	30-Sep-10	<2	4.4	0.079	0.901	0.344	<0.02
	1-Dec-10	<2	2.5	0.0129	0.508	1.44	<0.1 ⁽³⁾
	30-Mar-11	<2	<2	0.0599	0.521	<0.030	<0.02
	23-Jun-11	<2	3.1	0.0917	0.116	0.835	<0.02 ⁽³⁾
	30-Aug-11	<2	<2	0.099	0.173	8.09	<0.020
	1-Dec-11	<2	<2	0.0361	0.381	<0.030	<0.020
	22-Mar-12	<2	3.3	0.0267	0.545	<0.03	<0.02
	4-Jul-12	<2	37.9	0.516	0.051	10.3	0.023
	20-Sep-12	2.3	17.2	0.211	0.644	3.49	<0.02
21-Nov-12	2.9	22.6	1.05	5.05	5.16	<0.02	
27-Mar-13	4.9	20.4	0.764	0.567	0.086	<0.020	
26-Jun-13	<2.0	75.6	1.48	0.065	5.84	<0.020	
18-Sep-13	<2.0 ⁽⁴⁾	70.6	0.458	0.104	25.1	<0.040 ⁽³⁾	
20-Nov-13	<2.0	36.2	0.369	0.151	8.12	0.035	
MW7	27-Mar-03	-	-	1.79	<0.07	1.18	<0.02
	23-Jun-03	-	-	2.73	3.47	4.15	0.75
	24-Sep-03	-	-	6.17	5.15	2.99	<0.02
	20-Oct-03	-	-	4.15	4.19	2.23	0.03
	5-Dec-03	-	-	0.912	10.6	0.48 ⁽¹⁾	-
	22-Mar-04	4	64	2.34	5.75	<0.03	<0.02
	16-Jun-04	4	24	2.58	6.44	<0.03	<0.02
	22-Sep-04	<2	36	2.31	7.32	7.02	0.08
	8-Dec-04	4	26	3.89	7.58	<0.03	<0.02
	22-Mar-07	3	2	1.83	15.5	<0.03	<0.02
	27-Jun-07	<2	<2	1.02	5.76	4.29	<0.02
	27-Sep-07	3	<2	1.89	8.17	0.72	<0.02
	11-Dec-07	<2	6	1.89	6.36	<0.03	<0.02
	26-Mar-08	<2	-	2.04	14.1	-	-
	28-Mar-08	-	<2	-	-	0.07	<0.02
	25-Jun-08	<2	<2	1.49	5.18	0.2	<0.02
	23-Sep-08	16 ⁽²⁾	<2	2.65	15.1	<0.03	<0.02
	17-Nov-08	<2	2.6	2.79	14.3	0.32	<0.02
	6-Apr-09	2.2	5.9	0.913	4.15	8.23	0.105
	9-Jun-09	16.7	13.6	2.75	14.3	0.145	<0.02
	24-Sep-09	<2	4.9	2.23	18.9	9.5	<0.02
	7-Dec-09	<2	4.4	1.2	11.7	10.4	<0.02
	31-Mar-10	<2	37.5	2.29	17.6	0.069	<0.02
	28-Jun-10	<2	8.2	1.49	21.6	0.741	<0.02
	30-Sep-10	2	2.5	0.35	8.15	16	<0.02
	1-Dec-10	<2	17.8	0.935	12.1	<0.03	<0.1 ⁽³⁾
	30-Mar-11	2.2	13.4	1.44	13.2	0.438	<0.02
	23-Jun-11	<2	12	0.886	1.85	0.293	<0.02
	30-Aug-11	<2	3.9	1.85	16.9	0.981	<0.020
	1-Dec-11	<2	20.5	3.98	15.6	0.034	<0.020
	22-Mar-12	<2	9.6	1.02	14.2	12.1	0.048
	4-Jul-12	8	14.6	3.36	5.45	<0.03	<0.02
	20-Sep-12	5.8	26.2	5.04	22.5	0.094	0.104
21-Nov-12	2	20.2	3.24	22.1	1.53	0.04	
27-Mar-13	5	51.6	6.36	18.3	0.077	<0.020	
26-Jun-13	2	26.9	1.49	2.54	0.109	0.071	
18-Sep-13	5.7 ⁽⁴⁾	37.4	4.76	18.6	<0.030	<0.020	
20-Nov-13	2.9	46.4	4.19	13.3	<0.030	<0.020	

**TABLE 3
EAST LAGOON GROUNDWATER QUALITY
TERRACE BAY SEWAGE TREATMENT PLANT**

Monitoring Well	Date	Parameter (mg/L)					
		CBOD ₅	Total Suspended Solids	Total Phosphorus	Ammonia as N	Nitrate as N	Nitrite as N
MW12	17-Nov-08	<2	6.5	0.444	6.77	0.16	<0.02
	6-Apr-09	<2	<3	0.513	10.9	20.8	0.386
	9-Jun-09	<2	7.1	0.768	10.5	2.63	<0.02
	24-Sep-09	<2	<2	0.645	8.86	3.33	<0.02
	7-Dec-09	<2	<2	0.109	6.19	1.54	<0.02
	31-Mar-10	<2	<2	0.183	12.8	13.1	<0.02
	28-Jun-10	<2	<2	0.0694	11.3	13.4	<0.02
	30-Sep-10	<2	<2	0.112	4.07	10	<0.02
	1-Dec-10	<2	<2	0.113	4.46	1.98	<0.1 ⁽³⁾
	30-Mar-11	<2	<2	0.123	4.1	3.1	<0.02
	23-Jun-11	<2	2.2	0.127	1.41	8.49	<0.02
	30-Aug-11	<2	2.2	0.101	1.36	2.22	<0.020
	1-Dec-11	<2	<2	0.125	1.78	0.631	<0.020
	22-Mar-12	<2	<2	0.0859	15	11.2	0.151
	4-Jul-12	<2	12.7	0.129	1.73	1.66	0.058
	20-Sep-12	<2	25.6	0.11	1.78	14.3	0.07
	21-Nov-12	<2	12.7	0.187	0.354	1.16	<0.02
	27-Mar-13	2.2	17.4	0.143	7.96	1.63	0.117
	26-Jun-13	<2	17.3	0.337	4.32	1.69	0.02
	18-Sep-13	<2 ⁽⁴⁾	15	0.169	1.37	2.92	<0.020
20-Nov-13	<2.0	12	0.121	0.491	2.13	<0.020	

Notes:

"-" = No Data

1. Value Reported as combined Nitrate-Nitrite Nitrogen
2. Result of repeat analysis: Missed dilution
3. Detection limit adjusted for sample matrix effects
4. BOD qualification: Lab control outside standard 85 - 115% objective. Samples could not be rerun due to hold time expiry.

**TABLE 4
WEST LAGOON GROUNDWATER QUALITY
TERRACE BAY SEWAGE TREATMENT PLANT**

Monitoring Well	Date	Parameter (mg/L)						
		CBOD ₅	Total Suspended Solids	Total Phosphorus	Ammonia as N	Nitrate as N	Nitrite as N	
MW8	23-Jun-03	-	-	0.543	2.2	0.03	<0.02	
	24-Sep-03	-	-	1.21	2.66	0.52	<0.02	
	20-Oct-03	-	-	1.5	2.32	2.31	0.03	
	5-Dec-03	-	-	1.49	3.01	0.87 ⁽²⁾	-	
	22-Mar-04	3	1520	4.44	6.84	0.77	<0.02	
	16-Jun-04	3	32	1.84	9.22	0.58	<0.02	
	22-Sep-04	<2	86	0.682	1.6	2.49	<0.02	
	8-Dec-04	<2	20	0.686	4.3	1.57	<0.02	
	22-Mar-07	<2	<2	0.178	0.15	<0.03	<0.02	
	27-Jun-07	<2	<2	0.316	0.09	3.29	<0.02	
	27-Sep-07	<2	<2	0.227	1.83	15.5	<0.02	
	11-Dec-07	<2	<2	0.277	0.98	1.61	<0.02	
	26-Mar-08	2	-	0.429	2.99	-	-	
	28-Mar-08	-	<2	-	-	3.54	<0.02	
	25-Jun-08	<2	<2	0.603	0.99	0.72	<0.02	
	23-Sep-08	<2	<2	0.681	5.28	2.79	<0.02	
	17-Nov-08	<2	<2	0.323	0.77	2.6	<0.02	
	6-Apr-09	<2	<3	0.198	0.536	3.17	<0.02	
	9-Jun-09	<2	<2	0.175	0.067	2.92	<0.02	
	24-Sep-09	<2	<2	0.134	0.161	18.3	<0.02	
	7-Dec-09	<2	2.2	0.184	0.314	3.55	<0.02	
	31-Mar-10	<2	<2	0.843	0.243	0.968	<0.02	
	28-Jun-10	<2	5.8	1.93	5.05	0.086	<0.02	
	30-Sep-10	<2	<2	0.268	3.81	11.8	<0.02	
	1-Dec-10	<2	<2	0.165	0.281	3.3	<0.1 ⁽⁴⁾	
	30-Mar-11	<2	2.5	0.148	2.04	0.882	<0.02	
	23-Jun-11	<2	<2	0.295	0.497	1.83	<0.02	
	30-Aug-11	<2	2.2	0.421	4.02	10.1	<0.020	
	1-Dec-11	<2	<2	0.175	0.672	10.7	<0.020	
	22-Mar-12	<2	<2	0.339	0.288	1.62	<0.02	
	4-Jul-12	<2	16.1	0.704	0.732	9.1	0.02	
	20-Sep-12	<2	26.6	0.611	0.9	12.2	0.175	
	21-Nov-12	<2	18.7	0.545	0.727	7.21	<0.02	
	27-Mar-13	4.2	88.6	0.727	1.97	1.24	0.648	
	26-Jun-13	<2.0	2.2	0.469	0.166	6.11	0.022	
	18-Sep-13	<2.0 ⁽⁵⁾	33.4	0.443	0.175	15.9	<0.020	
	20-Nov-13	16.6	38.4	2.31	1.57	0.148	<0.020	
	MW9	27-Mar-03 ⁽¹⁾	-	-	-	-	-	-
		23-Jun-03	-	-	2.32	3.65	0.64	2.32
		24-Sep-03	-	-	2.26	5.47	0.1	2.26
20-Oct-03		-	-	3.5	9.06	0.03	3.5	
5-Dec-03		-	-	6.59	8.89	<0.03	6.59	
22-Mar-04		<2	5	0.207	0.47	9.42	0.207	
16-Jun-04		42	36	3.92	11.7	<0.03	3.92	
22-Sep-04		<2	64	1.58	1.1	9.77	1.58	
8-Dec-04		3	218	1.99	8.31	<0.03	1.99	
22-Mar-07		<2	<2	0.65	5.4	3.2	<0.02	
27-Jun-07		<2	<2	0.365	5.99	10.4	0.11	
27-Sep-07		<2	<2	0.391	0.3	8.25	<0.02	
11-Dec-07		<2	<2	0.266	1.17	1.93	<0.02	
26-Mar-08		<2	-	0.05	4.39	-	-	
28-Mar-08		-	<2	-	-	3.54	<0.02	
25-Jun-08		<2	<2	0.597	0.4	2.61	0.07	
23-Sep-08		<2	<2	0.311	1.89	10.5	<0.02	
17-Nov-08		<2	<2	0.554	0.11	2.95	<0.02	
6-Apr-09		<2	3.4	0.355	0.032	8.3	<0.02	
9-Jun-09		<2	<2	0.5	<0.02	5.56	<0.02	
24-Sep-09		<2	<2	0.158	0.161	18.3	<0.02	
7-Dec-09		<2	<2	0.181	0.388	1.98	<0.02	
31-Mar-10		-	<2	0.432	0.368	4.45	<0.02	
28-Jun-10		<2	<2	0.606	0.276	3.51	<0.02	
30-Sep-10		<2	3.1	0.366	1.86	8.03	<0.02	
1-Dec-10		<2	2	0.578	4.09	4.52	<0.1 ⁽⁴⁾	
30-Mar-11		<2	<2	0.957	3.16	4.66	<0.10 ⁽¹⁾	
23-Jun-11		4.1	34.2	4.95	4.54	<0.030	<0.02	
30-Aug-11		<2	<2	1.12	4.6	1.23	<0.020	
1-Dec-11		<2	<2	0.431	7.24	2.02	<0.020	
22-Mar-12		<2	<2	0.604	4.16	1.17	0.07	
4-Jul-12		3.3	143	3.87	0.748	0.886	<0.02	
20-Sep-12		2.2	23.7	2.14	7.67	0.989	0.031	
21-Nov-12		<2	50.4	7.88	3.48	4.6	0.101	
27-Mar-13		2.1	30.8	9.74	11.1	0.274	0.187	
26-Jun-13		<2.0	23.1	3.53	6.53	0.816	0.054	
18-Sep-13		2.2 ⁽⁵⁾	80.5	7.98	1.54	5.56	0.098	
20-Nov-13		3	32.1	0.508	2.44	2.84	0.058	

**TABLE 4
WEST LAGOON GROUNDWATER QUALITY
TERRACE BAY SEWAGE TREATMENT PLANT**

Monitoring Well	Date	Parameter (mg/L)					
		CBOD ₅	Total Suspended Solids	Total Phosphorus	Ammonia as N	Nitrate as N	Nitrite as N
MW10	27-Mar-03 ⁽¹⁾	-	-	-	-	-	-
	23-Jun-03	-	-	4.26	0.4	0.08	4.26
	24-Sep-03 ⁽¹⁾	-	-	-	-	-	-
	20-Oct-03	-	-	3.11	6.56	0.98	3.11
	5-Dec-03	-	-	4.91	6.57	0.87	4.91
	22-Mar-04	5	150	5.34	1.42	18.1	5.34
	16-Jun-04	38	1850	6.04	9.17	<0.03	6.04
	22-Sep-04	<2	1620	3.13	3.2	4.2	3.13
	8-Dec-04	<2	4760	7.69	8.19	<0.03	7.69
	22-Mar-07	3	<2	1.05	12.6	0.11	<0.02
	27-Jun-07	<2	15	0.512	6.99	0.03	<0.02
	27-Sep-07	<2	9	2.15	9.79	0.28	<0.02
	11-Dec-07	<2	4	1.96	8.76	0.38	<0.02
	26-Mar-08	<2	-	0.075	5.35	-	-
	28-Mar-08	-	<2	-	-	3.4	<0.02
	25-Jun-08	2	7.4	0.675	1.52	<0.03	<0.02
	23-Sep-08	<2	5.8	0.628	9.27	0.07	<0.02
	17-Nov-08	<2	5	0.705	4.47	0.66	<0.02
	6-Apr-09	<2	<3	0.154	1.61	0.109	<0.02
	9-Jun-09	<2	<2	0.36	0.323	0.748	<0.02
	24-Sep-09	<2	6.9	0.671	3.28	0.038	<0.02
	7-Dec-09	<2	2.3	0.135	1.7	0.108	<0.02
	31-Mar-10	<2	<2	0.0172	<0.02	19.4	<0.4 ⁽⁴⁾
	28-Jun-10	<2	<2	0.0644	<0.02	2.19	<0.02
	30-Sep-10	<2	2	0.0727	0.03	5.3	<0.02
	1-Dec-10	<2	<2	0.0764	0.049	2.1	<0.1 ⁽⁴⁾
	30-Mar-11	<2	<2	0.05	0.021	6.5	<0.10 ⁽¹⁾
	23-Jun-11	<2	<2	0.102	<0.020	1.13	<0.02
	30-Aug-11	<2	<2	0.0741	<0.020	3.33	<0.020
	1-Dec-11	<2	<2	0.0781	0.0042	4.48	<0.020
22-Mar-12	<2	<2	0.124	0.058	3.32	<0.02	
4-Jul-12	<2	112	1.17	<0.02	1.36	<0.02	
20-Sep-12	<2	165	0.576	0.024	6.12	<0.02	
21-Nov-12	<2	48.3	0.44	<0.02	6.3	<0.02	
27-Mar-13	2	118	0.225	0.039	3.93	<0.020	
26-Jun-13	<2.0	183	0.449	0.021	2.85	<0.020	
18-Sep-13	<2.0 ⁽⁵⁾	73.2	0.481	0.033	2.91	<0.020	
20-Nov-13	<2.0	50.5	1.57	0.037	2.8	<0.020	
MW13	17-Nov-08	3	2	2.64	13.7	0.66	<0.02
	6-Apr-09	9.5	<3	2.7	20.2	0.311	<0.02
	9-Jun-09	4.7	<2	3.55	22.3	0.265	<0.02
	24-Sep-09	<2	5.3	3.47	22.5	0.907	<0.02
	7-Dec-09	10.5 ⁽³⁾	<2	1.77	7.11	0.312	<0.02
	31-Mar-10	9.1	10.6	4.28	10.4	0.502	<0.02
	28-Jun-10	2.4	6.4	4.34	20.8	0.116	<0.02
	30-Sep-10	3.2	4.1	3.24	19.4	0.567	<0.02
	1-Dec-10	6.7	3.7	2.26	12	0.364	<0.1 ⁽⁴⁾
	30-Mar-11	26.8	9.3	4.29	13.3	<0.030	<0.020
	23-Jun-11	<2.0	12	3.76	18	1.09	<0.1 ⁽⁴⁾
	30-Aug-11	<2	13.4	2.88	15	0.244	<0.020
	1-Dec-11	<2	5.6	1.91	10.1	<0.030	<0.020
	22-Mar-12	11	6.8	3.64	13.1	<0.03	<0.02
	4-Jul-12	2.6	14.6	1.49	18.5	4.63	<0.02
	20-Sep-12	<2	52	17.9	4.28	35	0.927
	21-Nov-12	<2	2.8	0.247	0.247	20.7	0.136
	27-Mar-13	4.9	33.8	1.23	3.62	<0.030	0.05
	26-Jun-13	5.1	43.2	12.4	3.96	4.53	0.219
	18-Sep-13	<2.0 ⁽⁵⁾	81.1	1.46	3.28	27.8	0.772
20-Nov-13	2.5	61.2	0.155	0.532	24.2	0.334	

Notes:

"-" = No Data

1. Missing information from lab reports.
2. Value Reported as combined Nitrate-Nitrite Nitrogen
3. Result of repeat analysis - Laboratory missed dilution
4. Detection limit adjusted for sample matrix effects
5. BOD qualification: Lab control outside standard 85 - 115% objective. Samples could not be rerun due to hold time expiry.

FIGURES



LEGEND:

MW1 MONITORING WELL

NOTES:

1. REFERENCE IMAGE SOURCE: GOOGLE MAP 2007



SCALE: 1:6000 METRIC 24"x36"
 1:12000 METRIC 11"x17"

0	14/04/25	ISSUED WITH FINAL REPORT	TG
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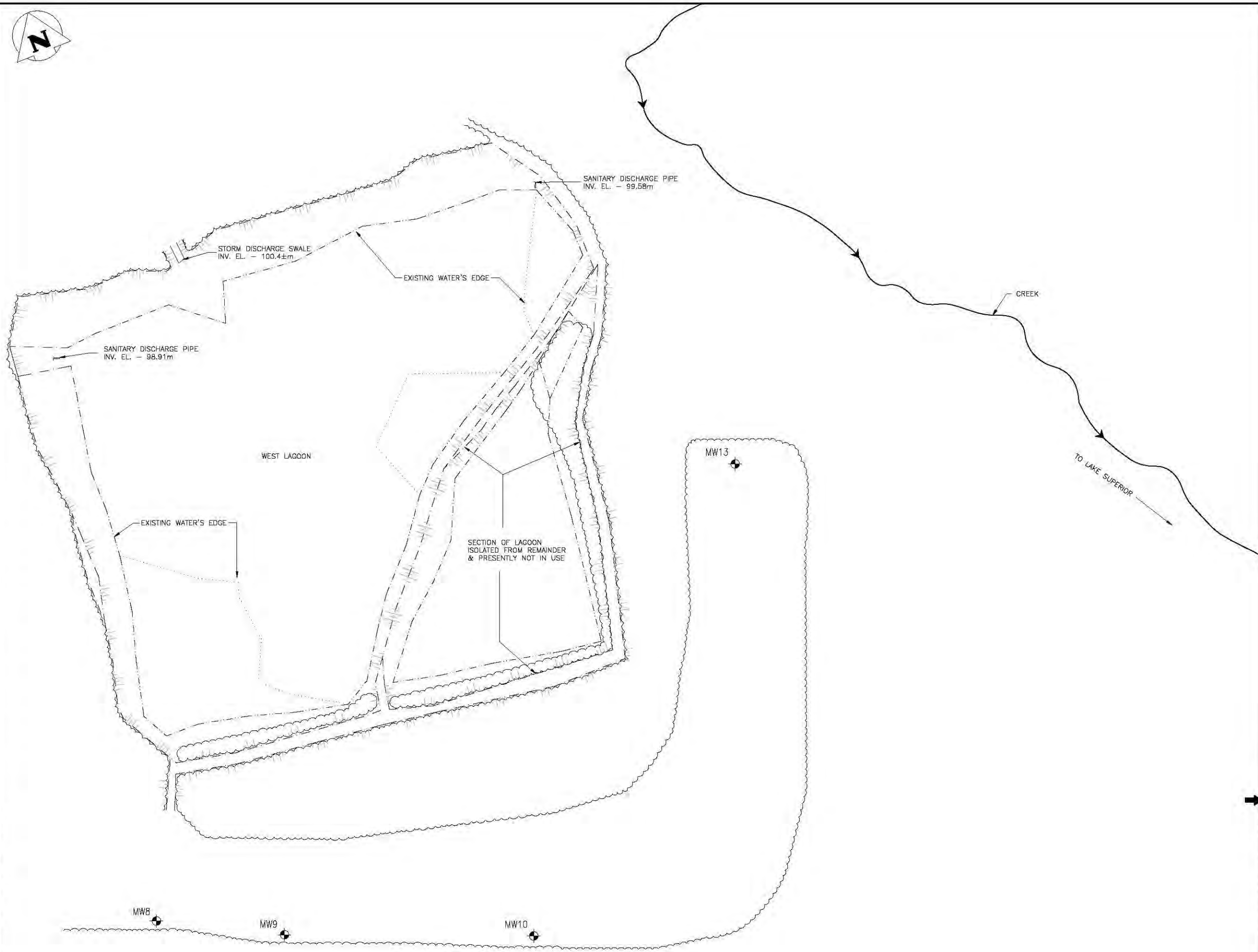
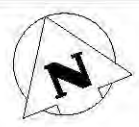
KGS GROUP CONSULTING ENGINEERS	THE CORPORATION OF THE TOWNSHIP OF TERRACE BAY
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2013 WASTEWATER MONITORING AND SANITARY SYSTEM REPORT
 13-0560-002

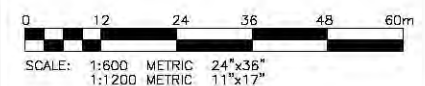
SITE PLAN

APRIL 2014	FIGURE 1	REV: 0
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File Name: P:\Projects\2013\13-0560-002\dwg\env\13-0560-002_FIG 2-REV 0.dwg - Tab: FIGURE 2 Plotted By: Williamson 04/24/2014 [Thu 11:08am]
 24"x36" PLOT SCALE: 1:1120 METRIC SCALE: 1:2400



- LEGEND:**
- MWB MONITORING WELL
 - TREELINE
 - TOE OF BERM
 - TOP OF BERM
 - WATER'S EDGE



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13-0560-002

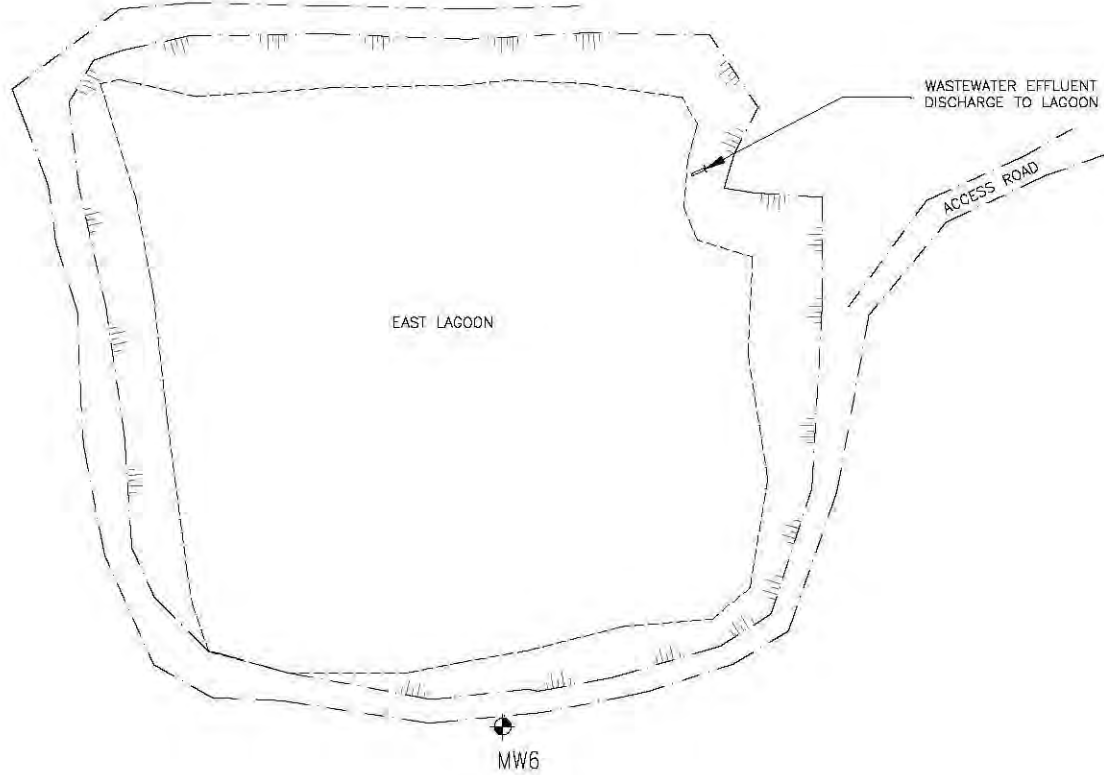
WEST LAGOON - SITE PLAN

APRIL 2014	FIGURE 2	REV 0
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File Name: P:\Projects\2013\13-0560-002\swg\env\13-0560-002_FIG_3-REV_0.dwg -- Tab: FIGURE 3 Plotted By: TWilliamson 04/24/2014 [Thu 11:38am]
 17"x22" PLOT SCALE: 1:1 8.5"x11" PLOT SCALE: 1:2



MW7



EAST LAGOON

WASTEWATER EFFLUENT
DISCHARGE TO LAGOON

ACCESS ROAD

MW6

MW12

LEGEND:

- MW6 MONITORING WELL
- - - - - TOP OF BERM
- TOE OF BERM AND WATER'S EDGE



SCALE: 1:500 METRIC 24"x36"
1:1000 METRIC 11"x17"

	0	14/04/25	ISSUED WITH FINAL REPORT	TG
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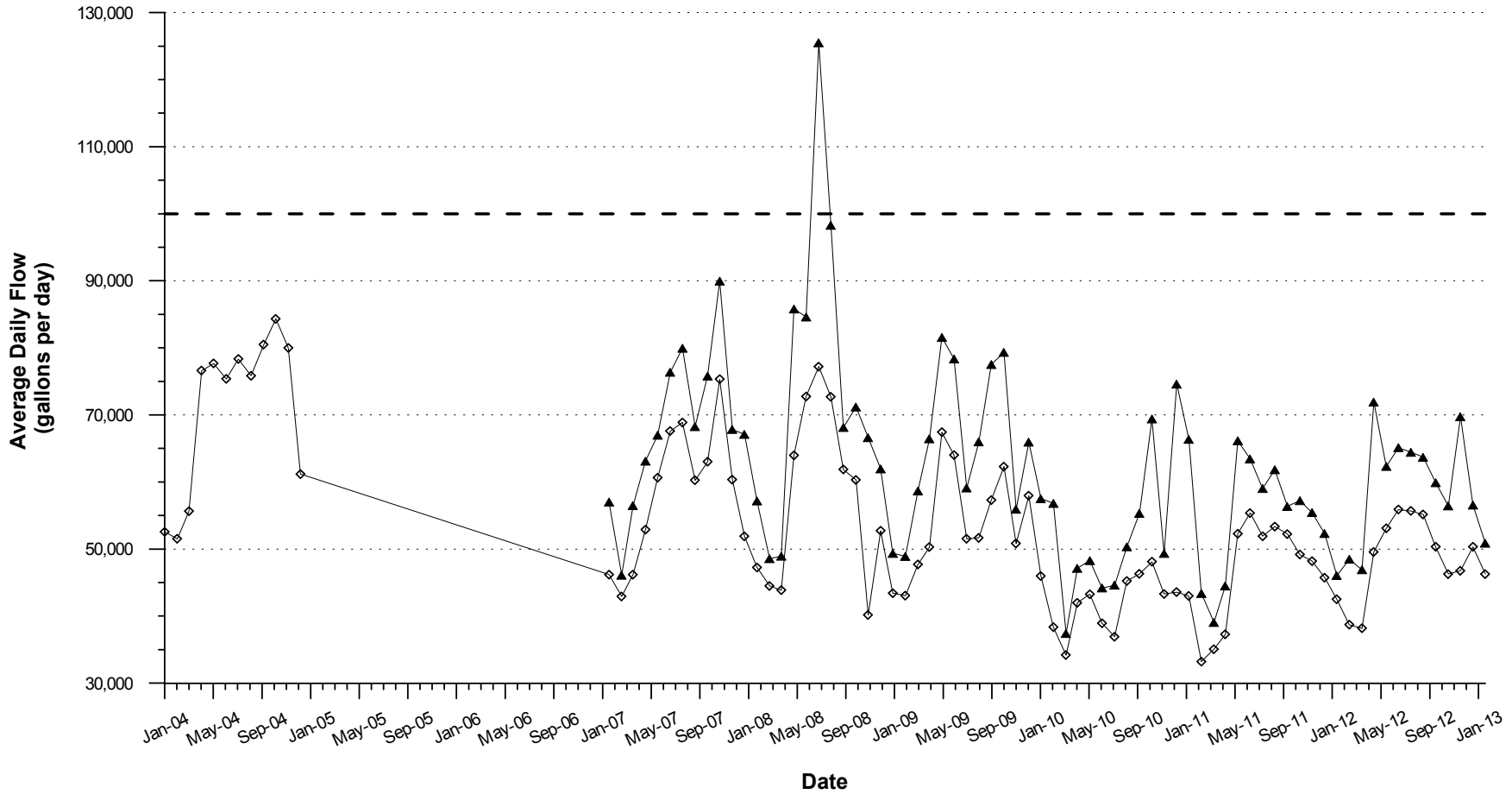
2013 WASTEWATER MONITORING AND
SANITARY SYSTEM REPORT
13-0560-002

EAST LAGOON - SITE PLAN

APRIL 2014

FIGURE 3

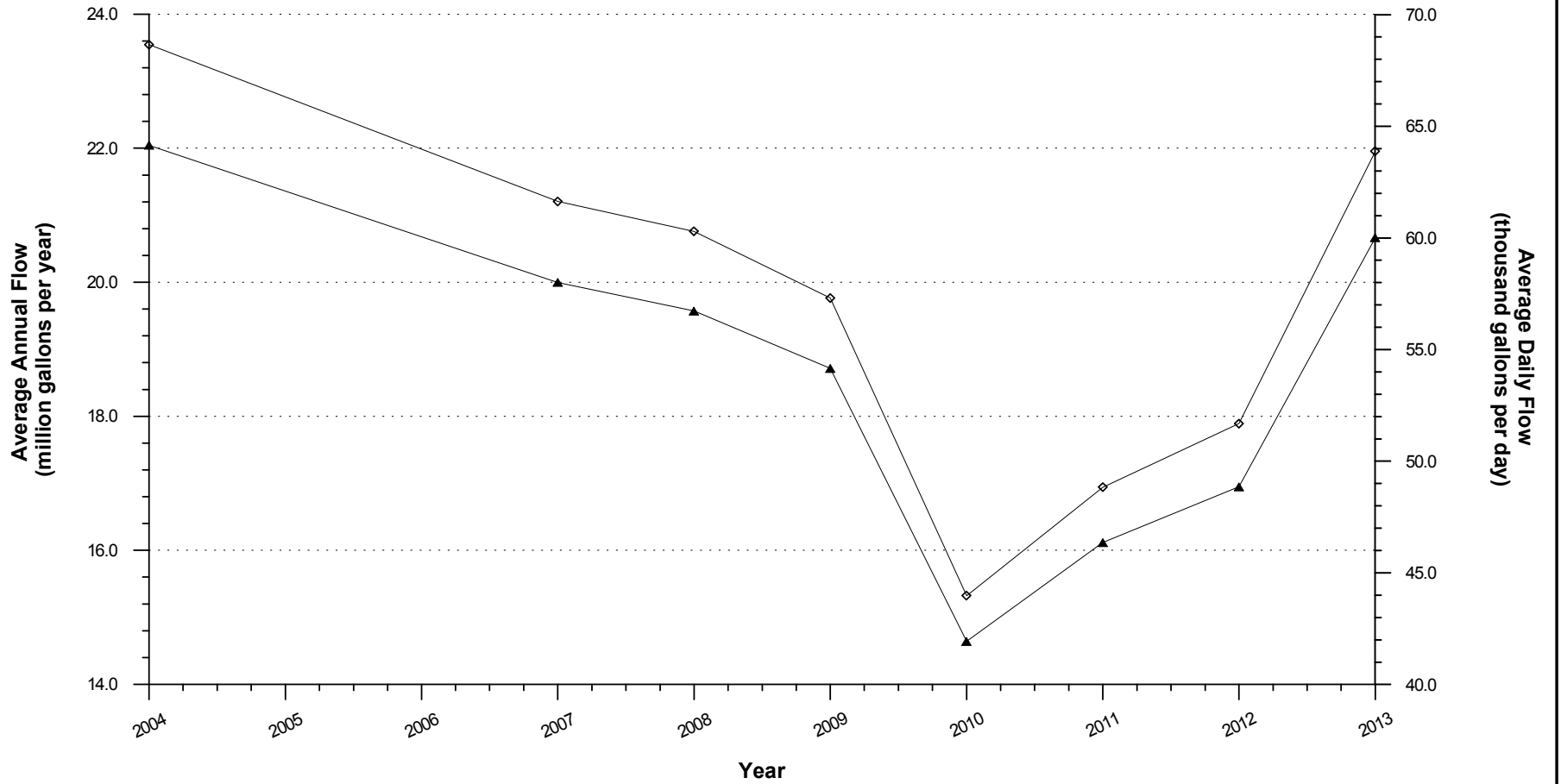
REV: 0



LEGEND

- - - Maximum Licensed Flow (100,000 gpd)
- ◇ Average Daily Flow
- ▲ Maximum Daily Flow

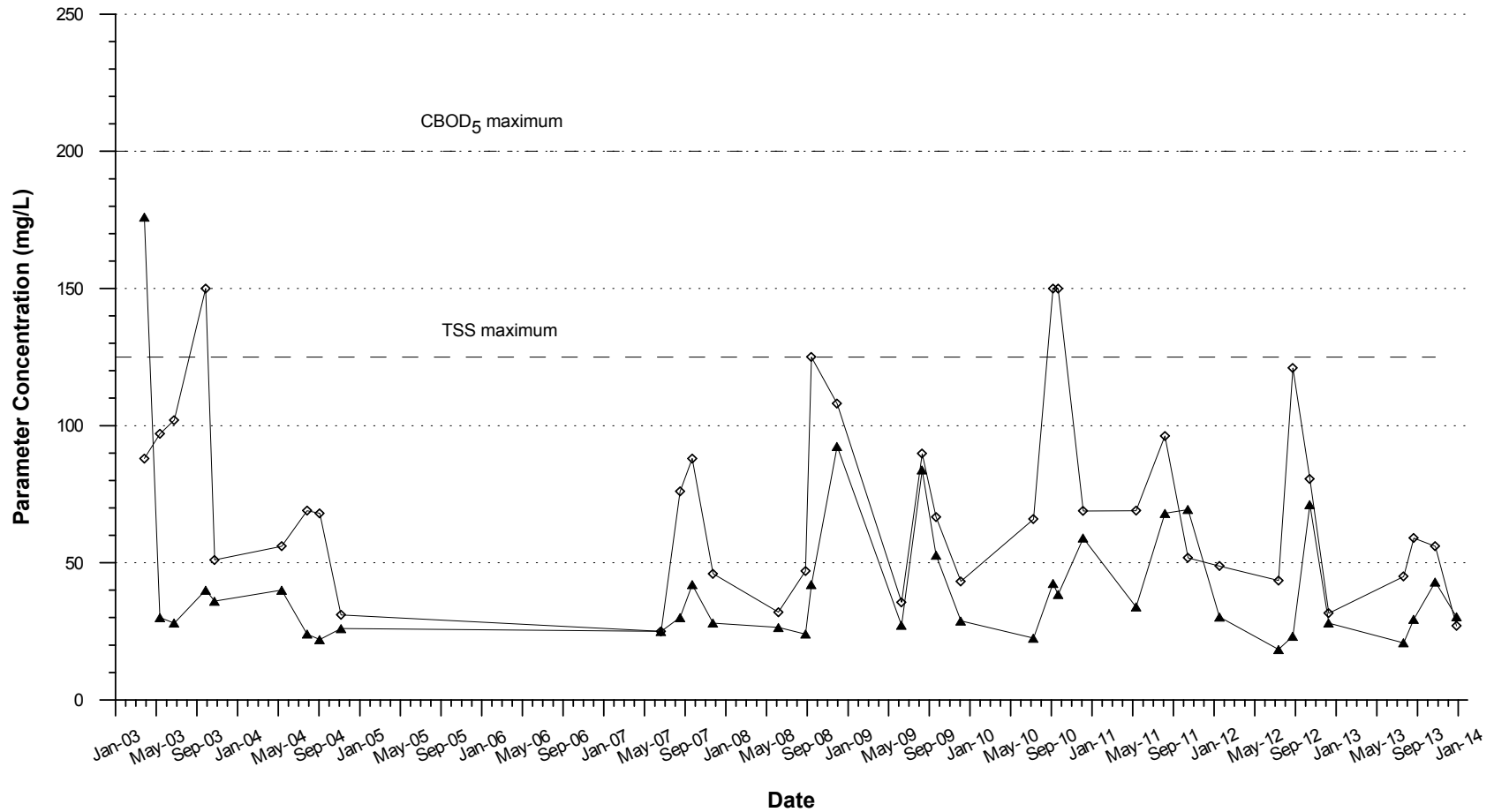
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		TOWNSHIP OF TERRACE BAY 2013 SANITARY SYSTEM REPORT	
AVERAGE AND MAXIMUM DAILY WASTEWATER FLOW			
APRIL 2014		FIGURE 4	
			REV 0



LEGEND

- ◇— Average Annual Flow
- ▲— Average Daily Flow

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TOWNSHIP OF TERRACE BAY 2013 SANITARY SYSTEM REPORT			
AVERAGE ANNUAL AND DAILY WASTEWATER FLOW			
APRIL 2014		FIGURE 5	REV 0




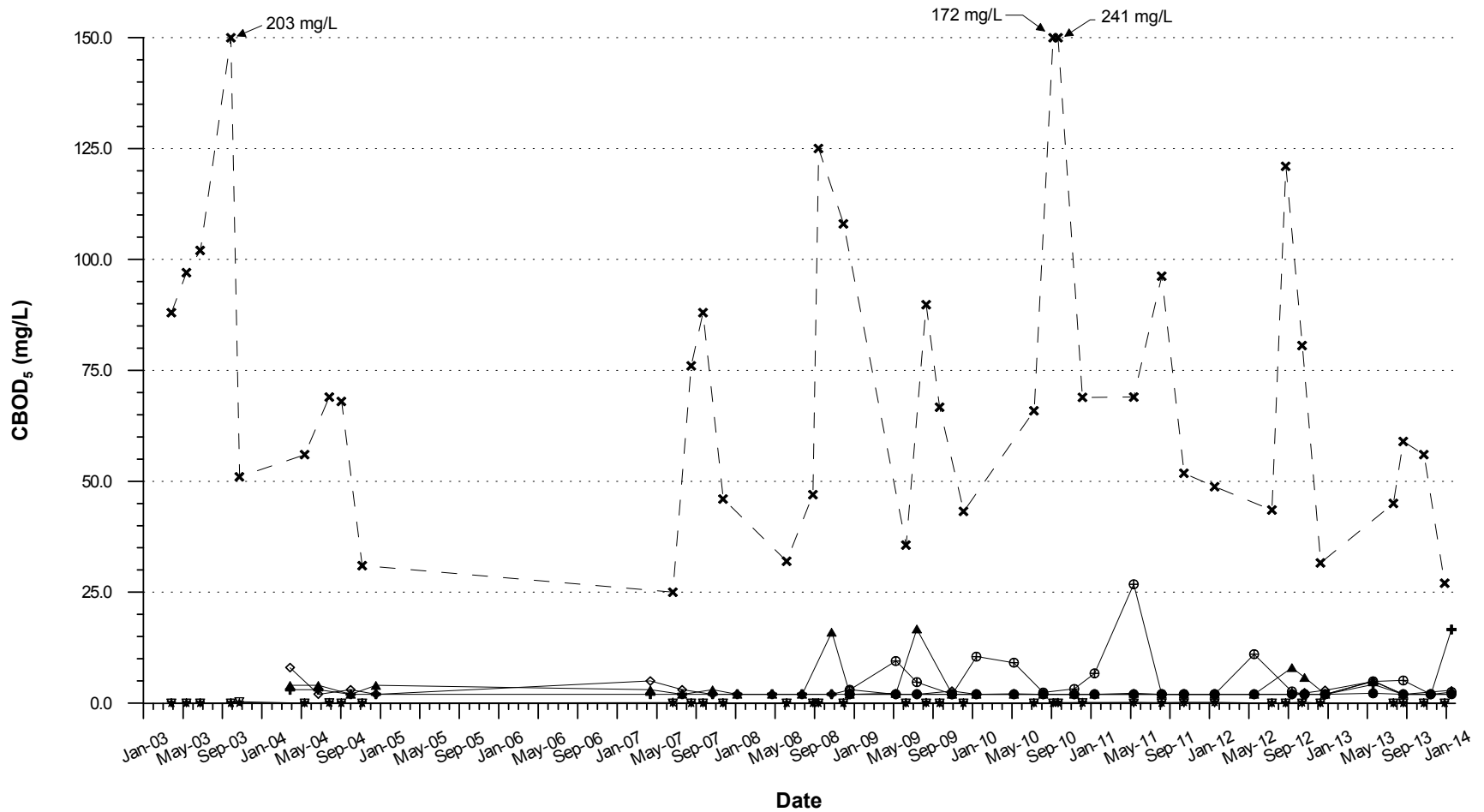
LEGEND

- ◇ CBOD5
- ▲ Total Suspended Solids

NOTES:

1. Effluent discharge criteria:
 - - - 200 mg/L CBOD₅
 - - - 125 mg/L TSS

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TOWNSHIP OF TERRACE BAY 2013 SANITARY SYSTEM REPORT			
CBOD5 AND TOTAL SUSPENDED SOLIDS IN WASTEWATER EFFLUENT			
APRIL 2014		FIGURE 6	
			REV 0




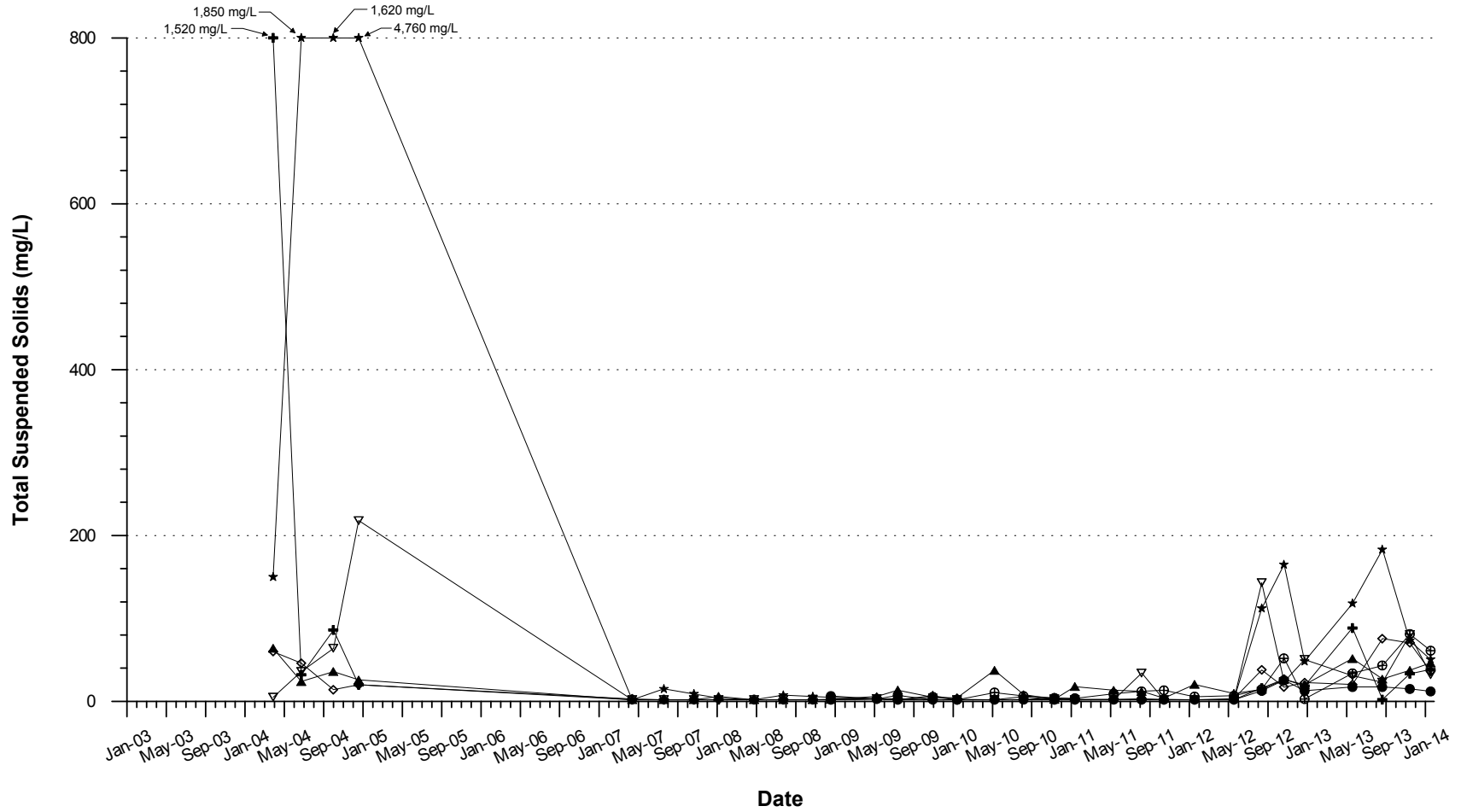
LEGEND

- x — Effluent
- ◇ — MW6 (East Lagoon)
- ▲ — MW7 (East Lagoon)
- ● — MW12 (East Lagoon)
- + — MW8 (West Lagoon)
- ▽ — MW9 (West Lagoon)
- ★ — MW10 (West Lagoon)
- ⊕ — MW13 (West Lagoon)

NOTES:

1. Values below detection were plotted at detection limit (2 mg/L)

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TOWNSHIP OF TERRACE BAY 2013 SANITARY SYSTEM REPORT			
EAST AND WEST LAGOONS CBOD5 IN GROUNDWATER			
APRIL 2014		FIGURE 7	
		0	




LEGEND

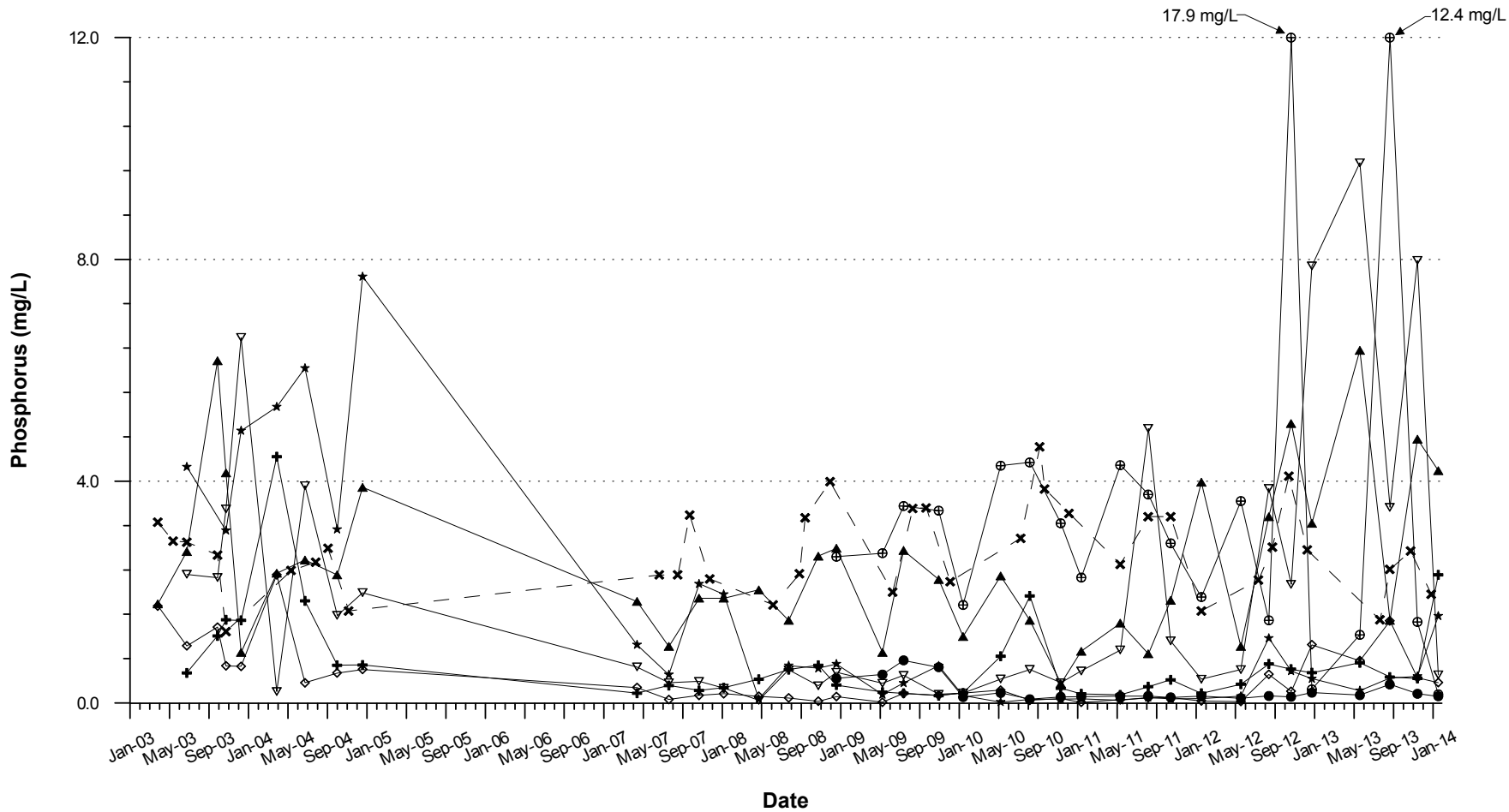
- ✕ — Effluent
- ◇ — MW6 (East Lagoon)
- ▲ — MW7 (East Lagoon)
- ● — MW12 (East Lagoon)
- + — MW8 (West Lagoon)
- ▽ — MW9 (West Lagoon)
- ★ — MW10 (West Lagoon)
- ⊕ — MW13 (West Lagoon)

NOTES:

1. Values below detection were plotted at detection limit (2 mg/L) with the exception of April 2009, when the detection limit = 3 mg/L


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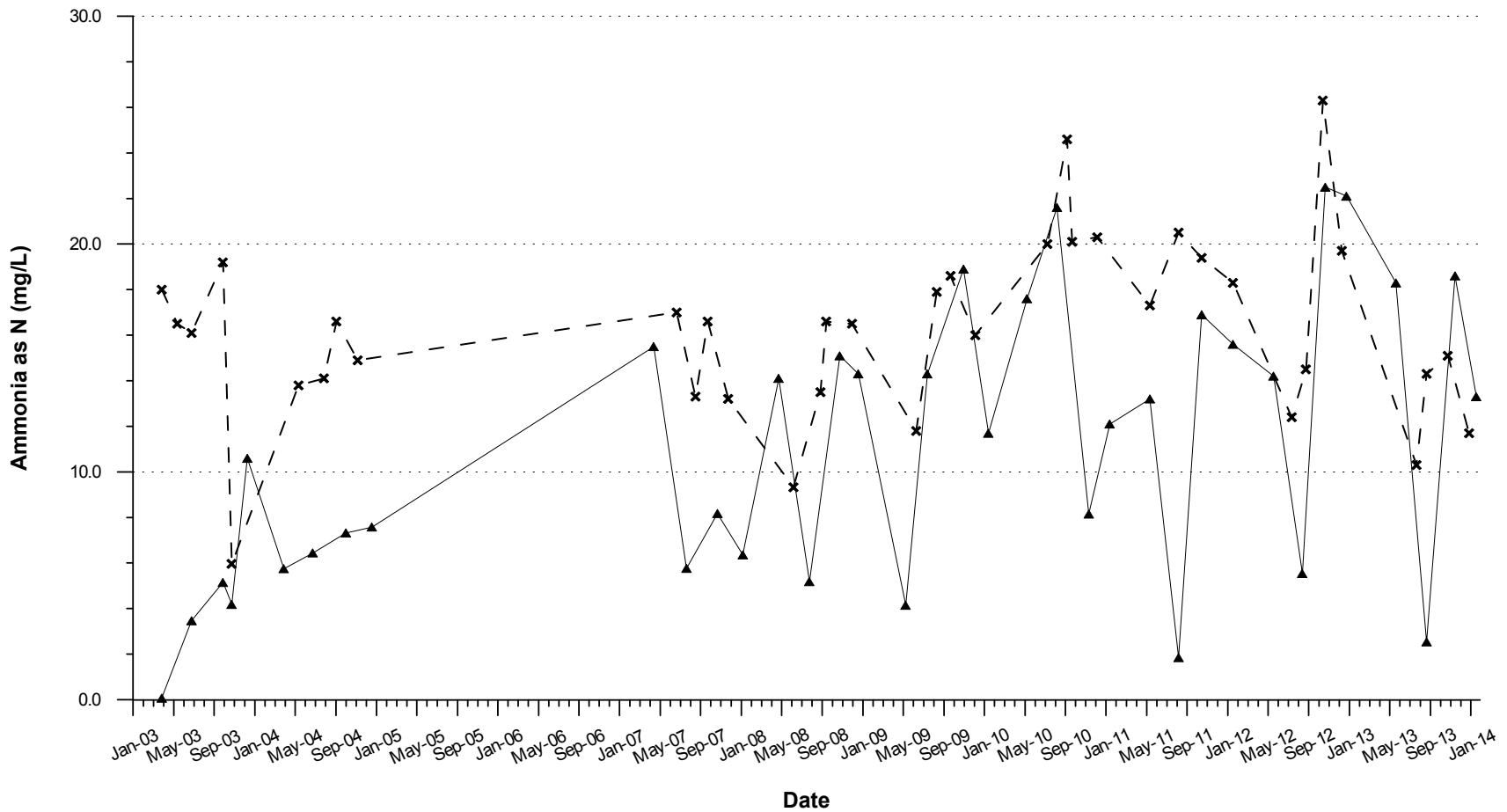
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EAST AND WEST LAGOONS - TOTAL SUSPENDED SOLIDS IN GROUNDWATER			
APRIL 2014	FIGURE 8	REV	0



LEGEND

- x — Effluent
- ◇ — MW6 (East Lagoon)
- ▲ — MW7 (East Lagoon)
- ● — MW12 (East Lagoon)
- + — MW8 (West Lagoon)
- ▼ — MW9 (West Lagoon)
- ★ — MW10 (West Lagoon)
- ⊕ — MW13 (West Lagoon)

0	14/04/25	ISSUED WITH FINAL REPORT	MS
NO.	YYMMDD	DESCRIPTION	BY
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TOWNSHIP OF TERRACE BAY 2013 SANITARY SYSTEM REPORT			
EAST AND WEST LAGOONS PHOSPHORUS IN GROUNDWATER			
APRIL 2014		FIGURE 9	REV 0




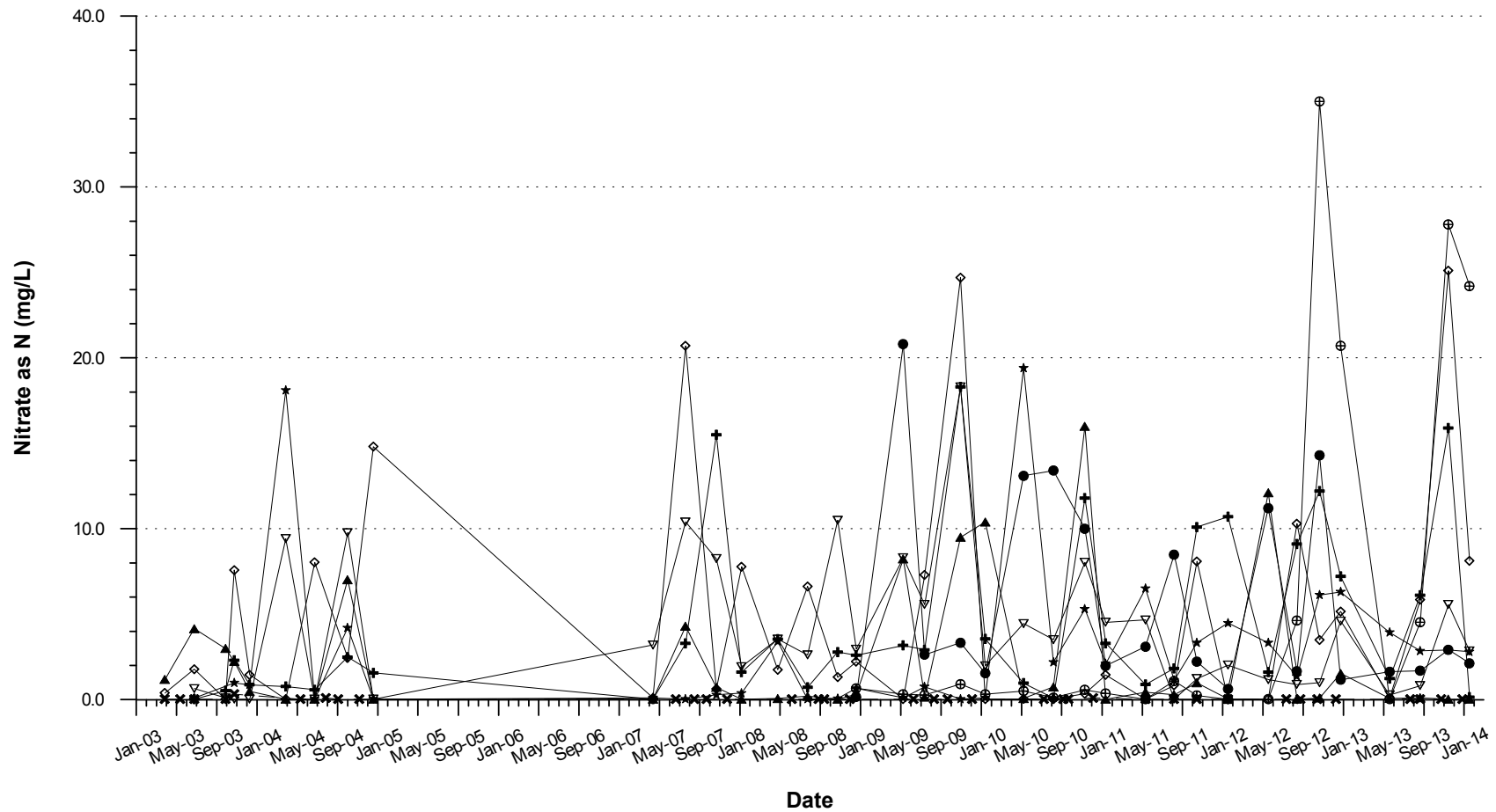
LEGEND

- x — Effluent
- ◊ — MW6 (East Lagoon)
- ▲ — MW7 (East Lagoon)
- ● — MW12 (East Lagoon)
- + — MW8 (West Lagoon)
- ▽ — MW9 (West Lagoon)
- ★ — MW10 (West Lagoon)
- ⊕ — MW13 (West Lagoon)

NOTES:

1. Values below detection were plotted at detection limit (0.02 mg/L) with the exception of March 2003, when the detection limit = 0.07 mg/L

0	14/04/25	ISSUED WITH FINAL REPORT	MS
NO.	YYMMDD	DESCRIPTION	BY
REVISIONS / ISSUE			
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CONSULTING ENGINEERS			
TOWNSHIP OF TERRACE BAY 2013 SANITARY SYSTEM REPORT			
EAST AND WEST LAGOONS AMMONIA IN GROUNDWATER			
APRIL 2014		FIGURE 10	
			REV. 0




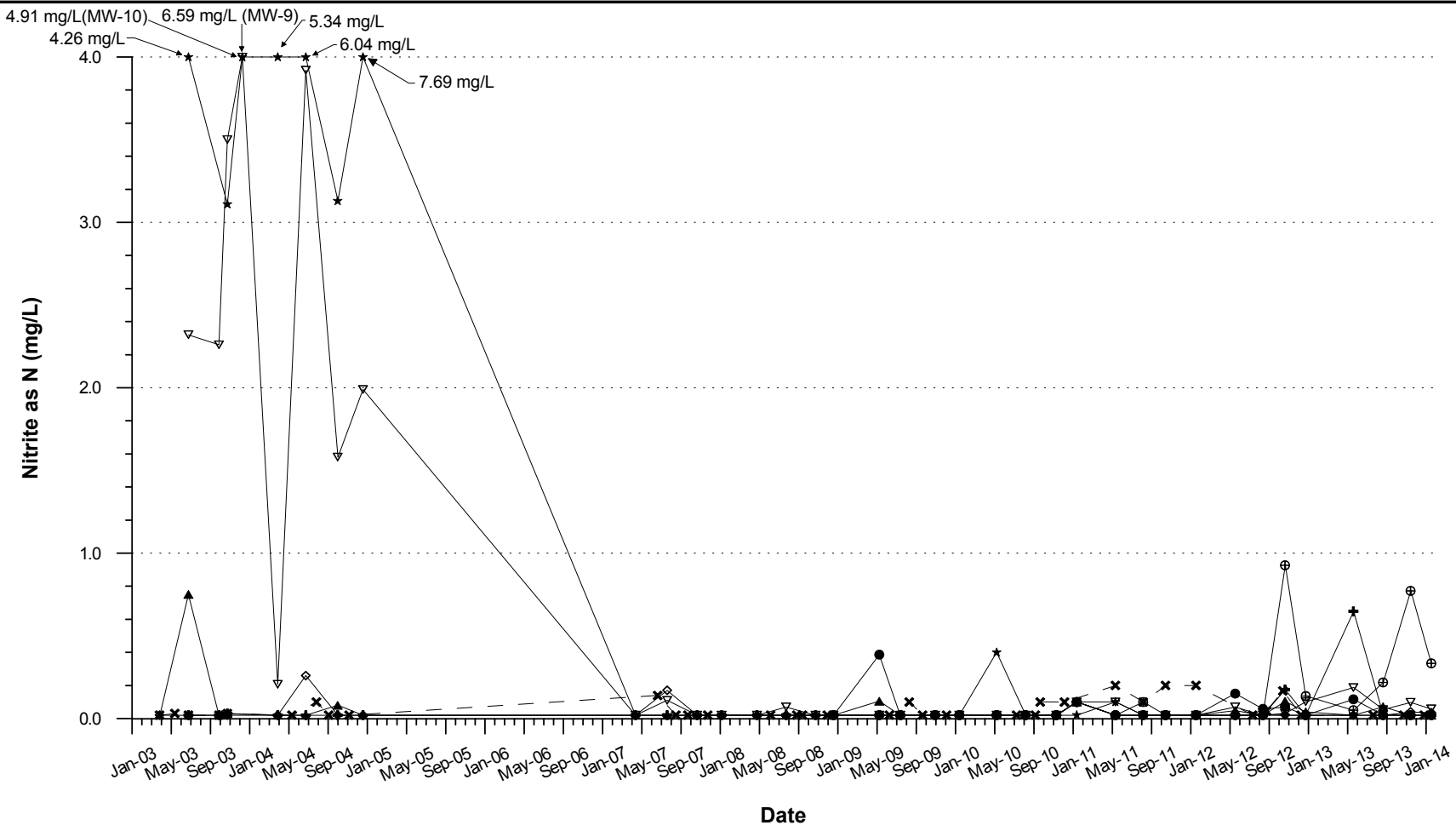
LEGEND

- x — Effluent
- ◇ — MW6 (East Lagoon)
- ▲ — MW7 (East Lagoon)
- ● — MW12 (East Lagoon)
- + — MW8 (West Lagoon)
- ▽ — MW9 (West Lagoon)
- ★ — MW10 (West Lagoon)
- ⊕ — MW13 (West Lagoon)

NOTES:

1. Values below detection were plotted at detection limit (0.03 mg/L) with the exception of July 2004 and October 2010, when the detection limit = 0.1 mg/L

0	14/04/25	ISSUED WITH FINAL REPORT	MS
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TOWNSHIP OF TERRACE BAY 2013 SANITARY SYSTEM REPORT			
EAST AND WEST LAGOONS NITRATE IN GROUNDWATER			
APRIL 2014		FIGURE 11	
			REV 0




LEGEND

- * — Effluent
- ◊ — MW6 (East Lagoon)
- ▲ — MW7 (East Lagoon)
- ● — MW12 (East Lagoon)
- + — MW8 (West Lagoon)
- ▼ — MW9 (West Lagoon)
- ★ — MW10 (West Lagoon)
- ⊕ — MW13 (West Lagoon)

NOTES:

1. Values below detection were plotted at detection limit (0.02 mg/L) with the exception of when the limit is adjusted for sample matrix effects (0.4, 0.2 or 0.1 mg/L)

0	14/04/25	ISSUED WITH FINAL REPORT	MS
NO.	YYMMDD	DESCRIPTION	BY
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KGS GROUP CONSULTING ENGINEERS		THE CORPORATION OF THE TOWNSHIP OF TERRACE BAY 	
TOWNSHIP OF TERRACE BAY 2013 SANITARY SYSTEM REPORT			
EAST AND WEST LAGOONS NITRITE IN GROUNDWATER			
APRIL 2014		FIGURE 12	
			REV 0

APPENDICES

APPENDIX A
CERTIFICATE OF APPROVAL



Ontario

Ministry
of the
Environment

Ministère
de
l'Environnement

AMENDED CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 5305-4S8NBW

The Corporation of the Township of Terrace Bay
12 Simcoe Plaza, P.O. Box 40,
Terrace Bay, Ontario
P0T 2W0

Site Location: Part 9, Plan 55R-3612, in the Corporation of the Township of Terrace Bay,
District of Thunder Bay

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

decommissioning of the existing extended aeration sewage treatment plant by eliminating mechanical and electrical works and retaining the aeration, clarifier and chlorine contact tanks as primary sedimentation for sewage treatment capable of handling 454 m³/d (100,000 IGPd) prior to discharging effluent to the exfiltration lagoon;

all in accordance with the Application of Municipal and Private Water and Sewage Works, Ministry of the Environment, Communal Sewage Inspection Report, Township of Terrace Bay, dated October 22, 1999 and a study report entitled "Abandonment of the Existing Sewage Treatment Plant", dated July 24, 1998, as prepared by Wardrop Engineering Inc.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

- (a) "certificate" means this entire certificate of approval document, issued in accordance with Section 53 of the Ontario Water Resources Act;
- (b) "Director" means any Ministry employee appointed by the Minister pursuant the Section 5 of the Ontario Water Resources Act;
- (c) "Ministry" means the Ontario Ministry of the Environment;
- (d) "District Manager" means the District Manager of the Thunder Bay District Office;
- (e) "Regional Director" means the Regional Director of the Northern Region of the Ministry;
- (f) "Owner" means the Corporation of the Township of Terrace Bay;
- (g) "BOD₅" means five day carbonaceous biochemical oxygen demand measured in an unfiltered sample;
- (h) "m³/d" means cubic metres per day;
- (i) "Igpd" means Imperial gallons per day;
- (j) "L/d" means litres per day;
- (k) "mg/L" means milligramms per litre.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. PERFORMANCE

1.1 The Owner shall ensure that the average daily flow of sewage into the sewage system does not exceed 454,000 L/d for any period of time greater than one (1) calendar month.

2. MONITORING, RECORDING AND REPORTING

2.1 The Owner shall ensure that the following monitoring program is carried out during the operation of the works:

(a) Daily quantities of effluent being disposed of through the exfiltration disposal system shall be measured or estimated, and recorded.

(b) Grab samples of effluent ahead of the exfiltration disposal lagoon shall be collected for a period of one year (4 samples) during the operation of the works and analyzed for at least the following parameters during the months of May, July, August and October.

Effluent to Exfiltration Lagoon Parameter

- CBOD₅
- Suspended Solids
- Total Phosphorus
- (Ammonia + Ammonium) Nitrogen
- Nitrates
- Nitrites

(c) A monitoring well shall be established by the Owner at a location agreed upon by the District Manager, approximately 40m down-gradient of the exfiltration disposal lagoon system or at the property limit.

Grab samples of groundwater shall be collected from the monitoring well for a period of three (3) years after the issuance of this amended Certificate for the operation of the works and analyzed for at least the following parameters at the indicated frequency:

<u>Groundwater Parameter</u>	<u>Minimum Frequency</u>
(Ammonia + Ammonium) Nitrogen	quarterly
Nitrates	quarterly
Nitrites	quarterly
Total Phosphorus	quarterly

(d) The sampling and analyses required by clauses (b) and (c) above shall be performed in accordance with the Ministry's Procedure F-10-1 (formerly Policy No. 08-06); "Procedure for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only)", Ministry of Environment and Energy, December 31, 1994; or as described in the American Public Health Association's publication "Standard Methods for Examination of Water and Wastewater", 20th Edition, 1998, or a more recently published edition.

2.2 The Owner shall retain for a minimum of three years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this certificate.

3. OPERATION AND MAINTENANCE

3.1 The Owner shall use best effort to operate the sewage treatment facilities with the objective that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent ahead of the subsurface disposal system:

<u>Effluent to Exfiltration Lagoon Parameters</u>	<u>Concentration</u>
CBOD ₅	200 mg/L
Suspended Solids	125 mg/L

3.2 Based on the operational objectives stipulated above in Condition 4.1, the Owner shall prepare an operation and maintenance manual and a complete set of the record drawings, incorporating any amendments made from time to time, shall be kept by the Owner for as long as the sewage works are kept in operation.

Upon request, the Owner shall make the manual and record drawings available for inspection by the Ministry personnel.

4. REPORTING

4.1 The Owner shall prepare, and upon request, submit it to the District Manager, annual performance reports for the

sewage system. The first such report shall cover the year 2001 period of operation of the sewage works and shall be prepared within the following ninety (90) calendar days. Each subsequent annual report shall be prepared within ninety (90) calendar days following the completion of the calendar year being reported upon. The reports shall contain the following information in a format acceptable to the District Manager:

- (a) a tabulation of all monitoring, analytical results and interpretation of data obtained during the reporting period, including sampling/monitoring locations and dates;
- (b) a tabulation of daily volumes of effluent disposed of through the subsurface disposal system during the reporting period;
- (c) a record of system maintenance undertaken during the reporting period; and
- (d) an account of any environmental and operating problems encountered at the site and the mitigative measures taken during the reporting period.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1.1 is included to ensure that the flow of sewage to the sewage system is within the approved treatment capacity of the works.
2. Conditions 2.1 and 2.2 relating to monitoring and recording the quality and quantity of treated effluent discharged to the exfiltration lagoon, and the quality of the groundwater are required to enable the Owner to evaluate the performance of the works and to ensure that it is operated and maintained at a level which is consistent with the design objectives and other requirements of this certificate.
3. Conditions 3.1 through 3.2 are included to ensure that the works will be operated and maintained in a manner enabling compliance with the terms and conditions of this certificate, such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented.
4. Conditions 4.1 and 4.2 are included to ensure that all pertinent information is available for the evaluation of the performance of the sewage works.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 3-1339-75-006 issued on November 6, 1975 and its amendment issued on September 13, 1983..

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

CONTENT COPY OF ORIGINAL

This Notice must be served upon:

The Secretary*
Environmental Appeal Board
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 53, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Appeal Board's requirements for an appeal can be obtained directly from the Board at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 22nd day of December, 2000

Mohamed Dhalla, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

PF/
c: District Manager, MOE Thunder Bay - District
M. Heather Adams, Township of Terrace Bay

APPENDIX B
LABORATORY CERTIFICATES OF ANALYSIS



TERRACE BAY, TOWNSHIP OF
ATTN: TERRY HANLEY
TWSP OF TERRACE BAY
PO BOX 40, 1 SELKIRK AVE.
TERRACE BAY ON P0T 2W0

Date Received: 28-MAY-13
Report Date: 05-JUN-13 15:45 (MT)
Version: FINAL

Client Phone: 807-825-9016

Certificate of Analysis

Lab Work Order #: L1307498
Project P.O. #: NOT SUBMITTED
Job Reference: T4RC-0027
C of C Numbers:
Legal Site Desc:

Christine Paradis
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID				
Grouping	Analyte	L1307498-1 GRAB 27-MAY-13 10:25 TERRACE BAY SEWAGE TREATMENT PLANT			
WATER					
Physical Tests	Total Suspended Solids (mg/L)	20.8			
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	10.3			
	Nitrate and Nitrite as N (mg/L)	<0.030			
	Nitrate (as N) (mg/L)	<0.030			
	Nitrite (as N) (mg/L)	<0.020			
	Phosphorus (P)-Total (mg/L)	1.50			
Aggregate Organics	BOD Carbonaceous (mg/L)	45			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Ammonia, Total (as N)	MS-B	L1307498-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-CBOD-TB	Water	Carbonaceous BOD	APHA 5210 B-5 day Incub.-O2 electrode
ETL-N2N3-TB	Water	Calculate from NO2 + NO3	Calculation
NH3-COL-TB	Water	Ammonia by Discrete Analyzer	APHA 4500-NH3 G. (modified)
		Ammonia in aqueous matrices is analyzed using discrete analyzer with colourimetric detection.	
NO2-IC-TB	Water	Anions by Ion Chromatography	EPA 300.1 (modified)
		Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.	
NO3-IC-TB	Water	Anions by Ion Chromatography	EPA 300.1 (modified)
		Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.	
P-T-COL-TB	Water	Total Phosphorus by Discrete Analyzer	APHA 4500-P B, F, G (modified)
		Phosphorus in aqueous matrices is analyzed using discrete Analyzer with colourimetric detection.	
SOLIDS-TOTSUS-TB	Water	Total Suspended Solids	APHA 2540 D (modified)
		Aqueous matrices are analyzed using gravimetry	

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
TB	ALS ENVIRONMENTAL - THUNDER BAY, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



L1307498

Report To: TERRY HANLEY	Report Format / Distribution: <input checked="" type="checkbox"/> Standard Other (specify):	Service Requested (Rush for routine analysis subject to availability): <input checked="" type="checkbox"/> Regular (Default)
Company: TOWNSHIP OF TERRACE BAY	<input checked="" type="checkbox"/> PDF <input type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax	Priority (Specify Date Required --) Surcharges apply
Contact: TERRY HANLEY	Email 1:	Emergency (1 Business Day) - 100% Surcharge
Address: BOX 40 #1 SELKIRK AVE TERRACE BAY, ONT P0T 2W0	Email 2:	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone: 507-825-4016 Fax: 507-825-1182	Analysis Request	

Invoice To: Same as Report? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Client / Project Information	Please indicate below Filtered, Preserved or both (F, P, F/P)			
THE QUESTIONS BELOW MUST BE ANSWERED FOR WATER SAMPLES (circle Yes or No)	Job #:	CBODS SOLIDS ROUTINE NUTRIENTS	SOLIDS	ROUTINE	NUTRIENTS
Are any samples taken from a regulated DW System? Yes <input checked="" type="checkbox"/> No	PO / AFE:				
If yes, an authorized Drinking Water COC MUST be used for this submission.	LSD:				
Is the water sampled intended to be potable for human consumption? Yes <input checked="" type="checkbox"/> No	Quote #: T4RC-0027				

Lab Work Order # (lab use only)	ALS Contact:	Sampler: L. Guide
---------------------------------	--------------	--------------------------

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	CBODS	SOLIDS	ROUTINE	NUTRIENTS	Number of Containers
	TERRACE BAY SEWAGE TREATMENT PLANT 07/05/15	10:25 AM	GRAB		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4



Special Instructions / Regulations / Hazardous Details

Reg 153 Table 1 2 3 TCLP MISA PWQO OTHER (please specify):
 Circle one - Note drinking water samples MUST USE DW Chain of Custody

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
 By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)				Observations: Yes / No ? If Yes add Sig.
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:		
			AS	May 28/15	11:15	12.8c	AS	May 28/15	11:30		



TERRACE BAY, TOWNSHIP OF
ATTN: TERRY HANLEY
TWSP OF TERRACE BAY
PO BOX 40, 1 SELKIRK AVE.
TERRACE BAY ON P0T 2W0

Date Received: 29-AUG-13
Report Date: 10-SEP-13 14:03 (MT)
Version: FINAL

Client Phone: 807-825-9016

Certificate of Analysis

Lab Work Order #: L1355524
Project P.O. #: NOT SUBMITTED
Job Reference: T4RC-0027
C of C Numbers:
Legal Site Desc:

Christine Paradis
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID				
	L1355524-1 WATER 28-AUG-13 14:00 TERRACE BAY SEWAGE TREATMENT PLANT				
Grouping	Analyte				
WATER					
Physical Tests	Total Suspended Solids (mg/L)	43.0			
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	15.1			
	Nitrate and Nitrite as N (mg/L)	<0.030			
	Nitrate (as N) (mg/L)	<0.030			
	Nitrite (as N) (mg/L)	<0.020			
	Phosphorus (P)-Total (mg/L)	2.74			
Aggregate Organics	BOD Carbonaceous (mg/L)	56			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Ammonia, Total (as N)	B	L1355524-1
Matrix Spike	Ammonia, Total (as N)	MS-B	L1355524-1
Matrix Spike	Ammonia, Total (as N)	MS-B	L1355524-1
Matrix Spike	Ammonia, Total (as N)	MS-B	L1355524-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-CBOD-TB	Water	Carbonaceous BOD	APHA 5210 B-5 day Incub.-O2 electrode
ETL-N2N3-TB	Water	Calculate from NO2 + NO3	Calculation
NH3-COL-TB	Water	Ammonia by Discrete Analyzer	APHA 4500-NH3 G. (modified)
Ammonia in aqueous matrices is analyzed using discrete analyzer with colourimetric detection.			
NO2-IC-TB	Water	Anions by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
NO3-IC-TB	Water	Anions by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
P-T-COL-TB	Water	Total Phosphorus by Discrete Analyzer	APHA 4500-P B, F, G (modified)
Phosphorus in aqueous matrices is analyzed using discrete Analyzer with colourimetric detection.			
SOLIDS-TOTSUS-TB	Water	Total Suspended Solids	APHA 2540 D (modified)
Aqueous matrices are analyzed using gravimetry			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
TB	ALS ENVIRONMENTAL - THUNDER BAY, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



L1355524

Report To: TERRY HANLEY	Report Format / Distribution: <input checked="" type="checkbox"/> Standard Other (specify): PDF Excel Digital <input checked="" type="checkbox"/> Fax	Service Requested (Rush for routine analysis subject to availability): <input checked="" type="checkbox"/> Regular (Default) Priority (Specify Date Required --) Surcharges apply Emergency (1 Business Day) - 100% Surcharge For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Company: TOWNSHIP OF TERRACE BAY	Email 1:	Analysis Request
Contact: TERRY HANLEY	Email 2:	
Address: BOX 40 #1 SELKIRK AVE TERRACE BAY, ONT P0T 2W0		
Phone: 807-825-9016 Fax: 807-825-1182		

Invoice To Same as Report? <input checked="" type="radio"/> Yes <input type="radio"/> No	Client / Project Information	Please indicate below Filtered, Preserved or both (F, P, F/P)										Number of Containers
THE QUESTIONS BELOW MUST BE ANSWERED FOR WATER SAMPLES (circle Yes or No)	Job #:											
Are any samples taken from a regulated DW System? Yes <input checked="" type="radio"/> No <input type="radio"/>	PO / AFE:											
If yes, an authorized Drinking Water COC MUST be used for this submission.	LSD:											
Is the water sampled intended to be potable for human consumption? Yes <input checked="" type="radio"/> No <input type="radio"/>	Quote #: T4RC-0027											

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	C	B	F	P	F/P	F	P	F/P	Number of Containers
	TERRACE BAY SEWAGE TREATMENT PLANT	28/08/13	2:00 PM	GRAB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4



Special Instructions / Regulations / Hazardous Details
Reg 153 Table 1 2 3 TCLP MISA PWOO OTHER (please specify):
Circle one - Note drinking water samples MUST USE DW Chain of Custody

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)				SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observed:	Signature:
			Jrb.	29/08/13	16:00	8.9 °C	Jrb.	29/08/13	16:05	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	



TERRACE BAY, TOWNSHIP OF
ATTN: TERRY HANLEY, WPCP
TWSP OF TERRACE BAY
PO BOX 40, 1 SELKIRK AVE.
TERRACE BAY ON P0T 2W0

Date Received: 01-NOV-13
Report Date: 11-NOV-13 10:48 (MT)
Version: FINAL

Client Phone: 807-825-9016

Certificate of Analysis

Lab Work Order #: L1386430
Project P.O. #: NOT SUBMITTED
Job Reference: T4RC-0027
C of C Numbers:
Legal Site Desc:

Christine Paradis
Account Manager

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ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1386430-1 WATER 30-OCT-13 14:00 TERRACE BAY SEWAGE TREATMENT PLANT/EFFLUENT			
Grouping	Analyte				
WATER					
Physical Tests	Total Suspended Solids (mg/L)	30.3			
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	11.7			
	Nitrate (as N) (mg/L)	0.032			
	Nitrite (as N) (mg/L)	<0.020			
	Phosphorus (P)-Total (mg/L)	1.96			
Aggregate Organics	BOD Carbonaceous (mg/L)	27			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Ammonia, Total (as N)	MS-B	L1386430-1
Matrix Spike	Ammonia, Total (as N)	MS-B	L1386430-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-CBOD-TB	Water	Carbonaceous BOD	APHA 5210 B-5 day Incub.-O2 electrode
NH3-COL-TB	Water	Ammonia by Discrete Analyzer Ammonia in aqueous matrices is analyzed using discrete analyzer with colourimetric detection.	APHA 4500-NH3 G. (modified)
NO2-IC-TB	Water	Anions by Ion Chromatography Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.	EPA 300.1 (modified)
NO3-IC-TB	Water	Anions by Ion Chromatography Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.	EPA 300.1 (modified)
P-T-COL-TB	Water	Total Phosphorus by Discrete Analyzer Phosphorus in aqueous matrices is analyzed using discrete Analyzer with colourimetric detection.	APHA 4500-P B, F, G (modified)
SOLIDS-TOTSUS-TB	Water	Total Suspended Solids Aqueous matrices are analyzed using gravimetry	APHA 2540 D (modified)

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
TB	ALS ENVIRONMENTAL - THUNDER BAY, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

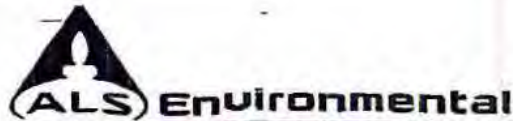
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



L1386430

Report To: TERRY HANLEY	Report Format / Distribution: <input checked="" type="checkbox"/> Standard Other (specify):	Service Requested (Rush for routine analysis subject to availability): <input checked="" type="checkbox"/> Regular (Default)
Company: TOWNSHIP OF TERRACE BAY	PDF Excel Digital <input checked="" type="checkbox"/> Fax	Priority (Specify Date Required → →) Surcharges apply
Contact: TERRY HANLEY	Email 1:	Emergency (1 Business Day) - 100% Surcharge
Address: BOX 40 #1 SELKIRK AVE TERRACE BAY, ONTARIO P0T 2W0	Email 2:	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone: 607-825-9016 Fax: 607-825-1182		Analysis Request

Invoice To: Same as Report? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Client / Project Information	Please indicate below Filtered, Preserved or both (F, P, F/P)																				
THE QUESTIONS BELOW MUST BE ANSWERED FOR WATER SAMPLES (circle Yes or No)	Job #:																					
Are any samples taken from a regulated DW System? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	PO / AFE:																					
If yes, an authorized Drinking Water COC MUST be used for this submission.	LSD:																					
Is the water sampled intended to be potable for human consumption? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Quote #: T4RC-0027																					

Lab Work Order # (lab use only)	ALS Contact:	Sampler: <i>[Signature]</i>																				
Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	CBOD	ROUTINE	SOLIDS	NUTRIENTS														
	TERRACE BAY SEWAGE TREATMENT PLANT/EFFLUENT	30/10/13	2:00PM	GRAB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														



L1386430-COFC

Special Instructions / Regulations / Hazardous Details

Reg 153 Table 1 2 3 TCLP MISA PWQO OTHER (please specify):
 Circle one - Note drinking water samples MUST USE DW Chain of Custody

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
 By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy. *SEE SIF*

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)				Observations
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:		Yes / No If Yes add SIF
			<i>BS</i>	<i>NOV 1/13</i>	<i>11:00</i>	<i>9.9 °C</i>	<i>BS</i>	<i>NOV 1/13</i>	<i>11:00</i>		<input checked="" type="checkbox"/>



TERRACE BAY, TOWNSHIP OF
ATTN: Terry Hanley
W#250001769
P0 BOX 40, 1 SELKIRK AVE.
TERRACE BAY ON P0T 2W0

Date Received: 28-MAR-13
Report Date: 04-APR-13 14:34 (MT)
Version: FINAL

Client Phone: 807-825-9016

Certificate of Analysis

Lab Work Order #: L1283669
Project P.O. #: NOT SUBMITTED
Job Reference: GW MONITORING LAGOONS
C of C Numbers:
Legal Site Desc:

CHRISTINE PARADIS
Account Manager

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Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1283669-1	L1283669-2	L1283669-3	L1283669-4	L1283669-5	
Description	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	
Sampled Date	27-MAR-13	27-MAR-13	27-MAR-13	27-MAR-13	27-MAR-13	
Sampled Time	08:30	09:00	09:30	10:30	11:00	
Client ID	MW6 STP LAGOON	MW7 STP LAGOON	MW12 STP LAGOON	MW8 BEACH ROAD LAGOON	MW9 BEACH ROAD LAGOON	
Grouping	Analyte					
WATER						
Physical Tests	Total Suspended Solids (mg/L)	20.4	51.6	17.4	88.6	30.8
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.567	18.3	7.96	1.97	11.1
	Nitrate (as N) (mg/L)	0.086	0.077	1.63	1.24	0.274
	Nitrite (as N) (mg/L)	<0.020	<0.020	0.117	0.648	0.187
	Phosphorus (P)-Total (mg/L)	0.764	6.36	0.143	0.727	9.74
Aggregate Organics	BOD Carbonaceous (mg/L)	4.9	5.0	2.2	4.2	2.1

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1283669-6	L1283669-7		
	Description	GROUNDWATER	GROUNDWATER		
	Sampled Date	27-MAR-13	27-MAR-13		
	Sampled Time	11:30	12:00		
	Client ID	MW10 BEACH ROAD LAGOON	MW13 BEACH ROAD LAGOON		
Grouping	Analyte				
WATER					
Physical Tests	Total Suspended Solids (mg/L)	118	33.8		
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.039	3.62		
	Nitrate (as N) (mg/L)	3.93	<0.030		
	Nitrite (as N) (mg/L)	<0.020	0.050		
	Phosphorus (P)-Total (mg/L)	0.225	1.23		
Aggregate Organics	BOD Carbonaceous (mg/L)	2.0	4.9		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Ammonia, Total (as N)	MS-B	L1283669-1, -2, -3, -4, -5, -6, -7

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-CBOD-TB	Water	Carbonaceous BOD	APHA 5210 B-5 day Incub.-O2 electrode
NH3-COL-TB	Water	Ammonia by Discrete Analyzer Ammonia in aqueous matrices is analyzed using discrete analyzer with colourimetric detection.	APHA 4500-NH3 G. (modified)
NO2-IC-TB	Water	Anions by Ion Chromatography Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.	EPA 300.1 (modified)
NO3-IC-TB	Water	Anions by Ion Chromatography Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.	EPA 300.1 (modified)
P-T-COL-TB	Water	Total Phosphorus by Discrete Analyzer Phosphorus in aqueous matrices is analyzed using discrete Analyzer with colourimetric detection.	APHA 4500-P B, F, G (modified)
SOLIDS-TOTSUS-TB	Water	Total Suspended Solids Aqueous matrices are analyzed using gravimetry	APHA 2540 D (modified)

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
TB	ALS ENVIRONMENTAL - THUNDER BAY, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Company: Township of Terrace Bay		Regulatory Information				Both questions below must answered for water samples													
Contact: Terry Hanley		<input type="checkbox"/> Reg. 513 (<input type="checkbox"/> Reg 511 Amend) Table:				Are any samples taken from a regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No													
Address: Box 40 1 Selkirk Ave. Terrace Bay ON P0T 2W0		Record of Site Condition <input type="checkbox"/> Yes <input type="checkbox"/> No				If yes, an authorized DW COC must be used:													
Phone: 807-825-9016 Fax: 807-825-1182		PWQO: <input type="checkbox"/> MISA <input type="checkbox"/> MMR <input type="checkbox"/> CCMB <input type="checkbox"/>				Is the water sampled intended for human consumption? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No													
Email: t.hanley@terracebay.ca		Guideline Required:				Analysis Request													
Project: GW Monitoring Lagoons PO:		TELP Regulation 558: <input type="checkbox"/> Other:				Please indicate below Filtered, Preserved or both (F, P, F/P)													
Quote #: T4RC-0027		Service Requested				P													
Invoice To:		<input checked="" type="checkbox"/> Regular TAT (7 Days)																	
Company:		<input type="checkbox"/> Priority TAT 50% Surcharge (3-5 Days)																	
Contact:		<input type="checkbox"/> Emergency TAT 100% Surcharge (1-2 Days)																	
Address:		Specify Date Required:																	
Email:		All TAT quoted material is in business days which exclude statutory holidays and weekends. Samples received past 3:00pm or Saturday/Sunday begin the next day.																	
Account Manager		Sampler: <i>[Signature]</i>		Date		Time		Sample Type		CBOD		T. Phos, Ammonia		NO ₂ , NO ₃ , TSS		NUTRIENTS		L1283669-COFC	
Sample #		Sample Identification (This description will appear on the report)																	
								GW		x		x		x					
		MW6 STP Lagoon		27/03/13		8:30AM		GW		x		x		x		x		4	
		MW7 STP Lagoon		27/03/13		9:00AM		GW		x		x		x		x		4	
		MW12 STP Lagoon		27/03/13		9:30AM		GW		x		x		x		x		4	
		MW8 Beach Road Lagoon		27/03/13		10:30AM		GW		x		x		x		x		4	
		MW9 Beach Road Lagoon		27/03/13		11:00AM		GW		x		x		x		x		4	
		MW10 Beach Road Lagoon		27/03/13		11:30AM		GW		x		x		x		x		4	
		MW13 Beach Road Lagoon		27/03/13		12:00PM		GW		x		x		x		x		4	
Special Instructions/Comments																			
DO NOT FILTER ANY SAMPLES																			
SHIPMENT RELEASE (client use) SHIPMENT RECEPTION (lab use only) SHIPMENT VERIFICATION (lab use only)																			
Released by:		Date & Time		Received by:		Date & Time		Temp		Cooling Initiated		Verified by:		Date & Time		Observations:			
				<i>[Signature]</i>		28-MAR-13 1020		2.4		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<i>[Signature]</i>		28-MAR-13 1020		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes add SIF			



** Failure to complete all portions of this form may delay analysis. **TAT may vary dependant on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs. Any known or suspected hazards relating to a sample must be noted on the chain of custody in the comments section. By use of the form the user acknowledges and agrees with the Terms and Conditions as specified on the back page.

#1 2.4 #2 2.4



TERRACE BAY, TOWNSHIP OF
ATTN: TERRY HANLEY
TWSP OF TERRACE BAY
P.O. BOX 40, 1 SELKIRK AVE.
TERRACE BAY ON P0T 2W0

Date Received: 28-JUN-13
Report Date: 05-JUL-13 05:43 (MT)
Version: FINAL

Client Phone: 807-825-9016

Certificate of Analysis

Lab Work Order #: L1324149
Project P.O. #: NOT SUBMITTED
Job Reference: GW MONITORING LAGOONS
C of C Numbers:
Legal Site Desc:

C. Paradis

Christine Paradis
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1324149-1 GW 26-JUN-13 09:00 SEWAGE TREATMENT PLANT	L1324149-2 GW 26-JUN-13 09:30 MW6 STP LAGOON	L1324149-3 GW 26-JUN-13 10:00 MW7 STP LAGOON	L1324149-4 GW 26-JUN-13 10:30 MW12 STP LAGOON	L1324149-5 GW 26-JUN-13 11:00 MW8 BEACH ROAD LAGOON
Grouping	Analyte					
WATER						
Physical Tests	Total Suspended Solids (mg/L)	29.4	75.6	26.9	17.3	2.2
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	14.3	0.065	2.54	4.32	0.166
	Nitrate (as N) (mg/L)	<0.030	5.84	0.109	1.69	6.11
	Nitrite (as N) (mg/L)	0.025	<0.020	0.071	0.020	0.022
	Phosphorus (P)-Total (mg/L)	2.41	1.48	1.49	0.337	0.469
Aggregate Organics	BOD Carbonaceous (mg/L)	59	<2.0	2.0	<2.0	<2.0

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1324149-6	L1324149-7	L1324149-8		
	Description	GW	GW	GW		
	Sampled Date	26-JUN-13	26-JUN-13	26-JUN-13		
	Sampled Time	11:30	12:00	12:30		
	Client ID	MW9 BEACH ROAD LAGOON	MW10 BEACH ROAD LAGOON	MW13 BEACH ROAD LAGOON		
Grouping	Analyte					
WATER						
Physical Tests	Total Suspended Solids (mg/L)	23.1	183	43.2		
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	6.53	0.021	3.96		
	Nitrate (as N) (mg/L)	0.816	2.85	4.53		
	Nitrite (as N) (mg/L)	0.054	<0.020	0.219		
	Phosphorus (P)-Total (mg/L)	3.53	0.449	12.4		
Aggregate Organics	BOD Carbonaceous (mg/L)	<2.0	<2.0	5.1		

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Ammonia, Total (as N)	B	L1324149-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Ammonia, Total (as N)	MS-B	L1324149-1, -2, -3, -4, -5, -6, -7, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CBOD-ONT-WP	Water	CBOD with Ontario's 96 hour holding time	APHA 5210 B
A sample of water is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at beginning and end of incubation provides a measure of Biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis.			
NH3-COL-TB	Water	Ammonia by Discrete Analyzer	APHA 4500-NH3 G. (modified)
Ammonia in aqueous matrices is analyzed using discrete analyzer with colourimetric detection.			
NO2-IC-TB	Water	Anions by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
O3-IC-TB	Water	Anions by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
P-T-COL-TB	Water	Total Phosphorus by Discrete Analyzer	APHA 4500-P B, F, G (modified)
Phosphorus in aqueous matrices is analyzed using discrete Analyzer with colourimetric detection.			
SOLIDS-TOTSUS-TB	Water	Total Suspended Solids	APHA 2540 D (modified)
Aqueous matrices are analyzed using gravimetry			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
TB	ALS ENVIRONMENTAL - THUNDER BAY, ONTARIO, CANADA
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

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mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

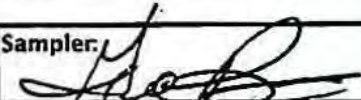
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

JNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Company: Township of Terrace Bay		Information			Both questions below must answered for water samples																																																											
Contact: Terry Hanley		<input type="checkbox"/> O. Reg 153 (O. Reg 511 Amend) Table:			Are any samples taken from a regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																																											
Address: Box 40 1 Selkirk Ave. Terrace Bay ON P0T 2W0		Record of Site Condition <input type="checkbox"/> Yes <input type="checkbox"/> No			If yes, an authorized DW COC must be used.																																																											
Phone: 807-825-9016 Fax: 807-825-1182		PWQO <input type="checkbox"/> MISA <input type="checkbox"/> MMER <input type="checkbox"/> CCME <input type="checkbox"/>			Is the water sampled intended for human consumption? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																																											
Email: t.hanley@terracebay.ca		Guideline Required:			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="10">Analysis Request</th> </tr> <tr> <th colspan="10">Please indicate below Filtered, Preserved or both (F, P, F/P)</th> </tr> <tr> <th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th rowspan="2">Number of Containers</th> </tr> <tr> <th>CBOD</th><th>T. Phos, Ammonia</th><th>NO₂, NO₃, TSS</th><th>NUTRIENTS</th><th></th><th></th><th></th><th></th><th></th><th></th> </tr> </thead> <tbody> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>								Analysis Request										Please indicate below Filtered, Preserved or both (F, P, F/P)																				Number of Containers	CBOD	T. Phos, Ammonia	NO ₂ , NO ₃ , TSS	NUTRIENTS																	
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Project: GW Monitoring Lagoons PO:		TCLP Regulation 558 <input type="checkbox"/> Other:																																																														
Quote #		Service Requested																																																														
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Account Manager		Sampler: 																																																														
Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	CBOD	T. Phos, Ammonia	NO ₂ , NO ₃ , TSS	NUTRIENTS									Number of Containers																																															
	Sewage Treatment Plant	06/26/13	9:00AM	GW	x	x	x	x									4																																															
	MW6 STP Lagoon	06/26/13	9:30AM	GW	x	x	x	x									4																																															
	MW7 STP Lagoon	06/26/13	10:00AM	GW	x	x	x	x									4																																															
	MW12 STP Lagoon	06/26/13	10:30AM	GW	x	x	x	x									4																																															
	MW8 Beach Road Lagoon	06/26/13	11:00AM	GW	x	x	x	x									4																																															
	MW9 Beach Road Lagoon	06/26/13	11:30AM	GW	x	x	x	x									4																																															
	MW10 Beach Road Lagoon	06/26/13	12:00PM	GW	x	x	x	x									4																																															
	MW13 Beach Road Lagoon	06/26/13	12:30PM	GW	x	x	x	x									4																																															
Special Instructions // Comments																																																																
DO NOT FILTER ANY SAMPLES																																																																
SHIPMENT RELEASE (client use)						SHIPMENT RECEPTION (lab use only)						SHIPMENT VERIFICATION (lab use only)																																																				
Released by:		Date & Time		Received by:		Date & Time		Temp		Cooling Initiated		Verified by:		Date & Time		Observations: Yes / No? If Yes add 'IF'																																																
				BS.		28 Jun 13 9:35		9.5		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		BS.		28 Jun 13 9:40																																																		

** Failure to complete all portions of this form may delay analysis. ** TAT may vary dependant on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs. Any known or suspected hazards relating to a sample must be noted on the chain of custody in the comments section. By use of the form the user acknowledges and agrees with the Terms and Conditions as specified on the back page.



TERRACE BAY, TOWNSHIP OF
ATTN: TERRY HANLEY
TWSP OF TERRACE BAY
P.O. BOX 40, 1 SELKIRK AVE.
TERRACE BAY ON P0T 2W0

Date Received: 19-SEP-13
Report Date: 27-SEP-13 08:07 (MT)
Version: FINAL

Client Phone: 807-825-9016

Certificate of Analysis

Lab Work Order #: L1365143
Project P.O. #: NOT SUBMITTED
Job Reference: GW MONTIORING LAGOONS
C of C Numbers:
Legal Site Desc:

Christine Paradis
Account Manager

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ADDRESS: 1081 Barton Street, Thunder Bay, ON P7B 5N3 Canada | Phone: +1 807 623 6463 | Fax: +1 807 623 7598
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1365143-1	L1365143-2	L1365143-3	L1365143-4	L1365143-5
	Description	GW	GW	GW	GW	GW
	Sampled Date	18-SEP-13	18-SEP-13	18-SEP-13	18-SEP-13	18-SEP-13
	Sampled Time	09:30	10:00	10:30	11:30	12:00
	Client ID	MW6 STP LAGOON	MW7 STP LAGOON	MW12 STP LAGOON	MW8 BEACH ROAD LAGOON	MW9 BEACH ROAD LAGOON
Grouping	Analyte					
WATER						
Physical Tests	Total Suspended Solids (mg/L)	70.6	37.4	15.0	33.4	80.5
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.104	18.6	1.37	0.175	1.54
	Nitrate (as N) (mg/L)	25.1	<0.030	2.92	15.9	5.56
	Nitrite (as N) (mg/L)	<0.040 ^{DLA}	<0.020	<0.020	<0.020	0.098
	Phosphorus (P)-Total (mg/L)	0.458	4.76	0.169	0.443	7.98
Aggregate Organics	BOD Carbonaceous (mg/L)	<2.0 ^{BODQ}	5.7 ^{BODQ}	<2.0 ^{BODQ}	<2.0 ^{BODQ}	2.2 ^{BODQ}

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1365143-6	L1365143-7			
Description	GW	GW			
Sampled Date	18-SEP-13	18-SEP-13			
Sampled Time	12:30	11:00			
Client ID	MW10 BEACH ROAD LAGOON	MW13 BEACH ROAD LAGOON			
Grouping	Analyte				
WATER					
Physical Tests	Total Suspended Solids (mg/L)	73.2	81.1		
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.033	3.28		
	Nitrate (as N) (mg/L)	2.91	27.8		
	Nitrite (as N) (mg/L)	<0.020	0.772		
	Phosphorus (P)-Total (mg/L)	0.481	1.46		
Aggregate Organics	BOD Carbonaceous (mg/L)	<2.0 ^{BOD₅}	<2.0 ^{BOD₅}		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.
DLA	Detection Limit Adjusted For required dilution

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-CBOD-TB	Water	Carbonaceous BOD	APHA 5210 B-5 day Incub.-O2 electrode
NH3-COL-TB	Water	Ammonia by Discrete Analyzer	APHA 4500-NH3 G. (modified)
Ammonia in aqueous matrices is analyzed using discrete analyzer with colourimetric detection.			
NO2-IC-TB	Water	Anions by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
NO3-IC-TB	Water	Anions by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
P-T-COL-TB	Water	Total Phosphorus by Discrete Analyzer	APHA 4500-P B, F, G (modified)
Phosphorus in aqueous matrices is analyzed using discrete Analyzer with colourimetric detection.			
SOLIDS-TOTSUS-TB	Water	Total Suspended Solids	APHA 2540 D (modified)
Aqueous matrices are analyzed using gravimetry			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
TB	ALS ENVIRONMENTAL - THUNDER BAY, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

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mg/L - milligrams per litre.

< - Less than.

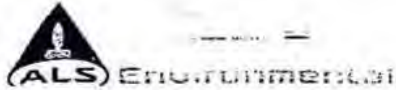
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

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UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



L1365143-COFC

Company: Township of Terrace Bay		Information		Both questions below must answered for water samples																	
Contact: Terry Hanley		Amend) Table:		Are any samples taken from a regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																	
Address: Box 40 1 Selkirk Ave. Terrace Bay ON P0T 2W0		Record of Site Condition <input type="checkbox"/> Yes <input type="checkbox"/> No		If yes, an authorized DW COC must be used.																	
Phone: 807-825-9016 Fax: 807-825-1182		PWQO <input type="checkbox"/> MISA <input type="checkbox"/> MMER <input type="checkbox"/> CCME <input type="checkbox"/>		Is the water sampled intended for human consumption? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																	
Email: t.hanley@terracebay.ca		Guideline Required:		Analysis Request																	
Project: GW Monitoring Lagoons PO:		TCLP Regulation 558 <input type="checkbox"/> Other:																			
Quote #		Service Requested		Please indicate below Filtered, Preserved or both (F, P, F/P)																	
Invoice To: Same as Report: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Regular TAT (7 Days)		CBOD	T. Phos, Ammonia	NO2, NO3, TSS	NUTRIENTS	P									Number of Containers				
Company:		<input type="checkbox"/> Priority TAT 50% Surcharge (3-5 Days)																			
Contact:		<input type="checkbox"/> Emergency TAT 100% Surcharge (1-2 Days)																			
Address:		Specify Date Required:																			
Email:		All TAT quoted material is in business days which exclude statutory holidays and weekends. Samples received past 3:00pm or Saturday/Sunday begin the next day.																			
Account Manager		Sampler: <i>GENE ROSS</i>																			
Sample #	Sample Identification (This description will appear on the report)			Date	Time	Sample Type															
	MW6 STP Lagoon			18/09/13	9:30AM	GW	x	x	x	x										4	
	MW7 STP Lagoon			18/09/13	10:00AM	GW	x	x	x	x										4	
	MW12 STP Lagoon			18/09/13	10:30AM	GW	x	x	x	x										4	
	MW8 Beach Road Lagoon			18/09/13	11:30AM	GW	x	x	x	x										4	
	MW9 Beach Road Lagoon			18/09/13	12:00PM	GW	x	x	x	x										4	
	MW10 Beach Road Lagoon			18/09/13	12:30PM	GW	x	x	x	x										4	
	MW13 Beach Road Lagoon			18/09/13	11:00AM	GW	x	x	x	x										4	
Special Instructions / Comments																					
*** DO NOT FILTER ANY SAMPLES ***																					
SHIPMENT RELEASE (client use)						SHIPMENT RECEPTION (lab use only)						SHIPMENT VERIFICATION (lab use only)									
Released by:	Date & Time	Received by:	Date & Time	Temp	Cooling Initiated <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Verified by:	Date & Time	Observations: Yes / No? If Yes add #													
		<i>CS</i>	19-sep-13 4:45	12.7		<i>CS</i>	19-sep-13														

** Failure to complete all portions of this form may delay analysis. ** TAT may vary dependant on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs. Any known or suspected hazards relating to a sample must be noted on the chain of custody in the comments section. By use of the form the user acknowledges and agrees with the Terms and Conditions as specified on the back page.

11:00