

November 18, 2011

Mr. Bhabesh Roy, M.A.Sc., P.Eng.
Municipal Planning Engineer
Community Government Services
Baffin Region, Government of Nunavut
P.O. Box 379
Pond Inlet, NU X0A 0S0

Re: OTT-00020702-A0 Wetland Sampling Report
Sewage Lagoon Wetlands, Kimmirut, Nunavut

Dear Mr. Roy:

INTRODUCTION

As per the Terms of Reference within "*Design for rehabilitation of the existing Sewage Lagoon and existing landfill site of the Hamlet of Kimmirut*" for the community of Kimmirut, a site visit was undertaken from September 27 to 29, 2011 by Mr. Robert Renaud, P.Geo., of **exp** Services Inc. (**exp**). As part of the site visit, a water sampling program of the wetlands was undertaken. The following letter summarizes the water sampling program completed at the site.

BACKGROUND

The Hamlet of Kimmirut is located on the southern coast of Baffin Island, approximately 120 km southwest of Iqaluit. The Hamlet is currently discharging untreated wastewater directly into the sea approximately 750 m south of the community and adjacent to the existing solid waste disposal site. In 2001, a new sewage lagoon was constructed approximately 1.5 km to the west of the community but was never operated. An assessment of the existing facility determined that this existing lagoon did not have sufficient capacity to meet the over winter storage requirements of the Hamlet. Thus much of the over winter sewage would accumulate in the form of an ice pack in the gulch downstream of the sewage lagoon. The sewage in the ice pack would be released uncontrolled and without treatment during the spring melt.

The geotechnical investigation of the existing lagoon recommended that the existing earth berm which forms the lagoon be upgraded to provide slope stability and to prevent overtopping and erosion. To meet the requirements of the wetlands assessment that the sewage not be released to the wetlands located south of the lagoon until approximately mid June, at which time the wetlands would be active, **exp** proposed that a second lagoon at the bottom of the gulch be constructed to capture and retain the runoff from the ice pack. The two lagoons will work in series with each other to provide a pre-treatment prior to the sewage being released to the wetlands.

The proposed sewage treatment facility work was completed during the summer of 2011. The sewage lagoon system for Kimmirut now comprises of an upper holding cell, spillway corridor, lower holding cell and wetlands (Figure 1 in Appendix A). The system is designed to treat the municipal sewage

generated over the period of one year prior to decanting. This wastewater treatment system utilizes the sewage lagoons as the main method of treatment, with the downgradient wetlands providing additional treatment prior to the release to the environment.

Wastewater is collected from the holding tanks of each residential and municipal serviced structure within the Hamlet. Suction trucks pump the wastewater out of the holding tanks through an outside service pipe accessible to the truck. With respect to the operation of the new sewage lagoon system, each time the wastewater is trucked and discharged into the lagoon, the truck must back up to a chute on the gravel pad at the lagoon, a valve is opened, and wastewater is discharged through the chute into the lagoon or spillway corridor.

The purpose of the water sampling program was to determine the general quality of the water leaving the wetland prior to the operation of the new sewage lagoon system, to determine baseline water quality. This will aid in determining how efficiently the new sewage lagoon system is operating once it enters service.

SCOPE OF WORK

The scope of work for the water sampling program consisted of the following:

- Collect duplicate water samples from one wetland location - downstream of the lower sewage lagoon.
- Submit the samples for laboratory analysis of metals and inorganic parameters, biological oxygen demand and fecal coliforms.
- Compare the results to the license effluent quality limits.
- Prepare a report documenting the above activities and provide recommendations for further assessment work if required.

SAMPLING PROGRAM

On September 29th, 2011, **exp** visited the site and collected duplicate grab water samples from the wetlands at a location approximately 460 m north of the wetland outlet (KIM-8). The water samples were collected from an open water location with minimal wetland vegetation at the sampling location. The location of the water samples is shown in Photo 1 and in Figure 2 of Appendix A.

The samples were collected into laboratory-supplied bottles and packed into a cooler with ice packs for transport. The samples were submitted for analysis of hardness, ammonia, biological oxygen demand (BOD₅), conductivity, total organic carbon, pH, phenols, total suspended solids (TSS), sulphate, alkalinity, chloride, nitrate, nitrite, metals and fecal coliforms.

A chain of custody form was used to track the samples from the point of collection to the point of analysis. The water samples were submitted to Maxxam Analytics Inc. Maxxam is certified by the Canadian Association for Laboratory Accreditation Inc. (CALA).

RESULTS

Field Observations

The water was clear with no discoloration or odours during the sampling event.

Assessment Criteria

The subject property has a Sewage Disposal Facility license (3BM-KIM0911) which provides effluent quality limits for five chemical parameters. Those parameters are: biological oxygen demand, total suspended solids, fecal coliforms, total oil and grease and pH.

Water Analytical Results

A summary of the water analytical results is presented on Table 1 in Appendix B, along with the effluent quality limits. The laboratory Certificates of Analysis are included in Appendix C.

Based on the analytical results obtained, the water samples had concentrations of the tested parameters that were less than the license effluent quality limits. The TSS concentration in both water samples was less than 10 mg/L indicating that the water was very clear at the sampling location.

The analytical laboratory results presented for samples KIM-8 and KIM-8 (Dup) in Table 1 indicate that both wetland water samples are of similar quality. The geometric mean of the relative percent difference (RPD), between the primary and duplicate water samples, for analytes with concentrations above the laboratory method detection limits (MDL) is approximately 5.7%. As such, it is **exp's** professional opinion that the data collected is of a known quality and representative of the site conditions. As such, it can be relied upon for further interpretation.

It should be noted that the analyte concentrations presented in Table 1 are indicative of very good water quality with no apparent impacts. While the water samples were not collected from the actual wetland outlet (KIM-8), the water quality measured at the sampling location is very good and as such, it is **exp's** professional opinion that the measured water quality of the samples collected for this investigation are representative of the baseline water quality at the wetland outlet (KIM-8).

RECOMMENDATIONS

Exp recommends that the results of this wetland water sampling event be considered representative of the baseline water quality at the wetland outlet (KIM-8). **Exp** also recommends that the results of this wetland water sampling event be used to calibrate the wetlands' ability to treat the sewage effluent.

Exp recommends that the new sewage lagoon system be commissioned and utilized as per the Operations and Maintenance manual as soon as possible.

LIMITATIONS

This report was prepared for the exclusive use of the Government of Nunavut. Any other party without the express written consent of **exp** should not rely upon the contents of this report. Conclusions regarding the environmental conditions at this site are based solely on the extent of observations and the information referenced herein.

Exp has attempted to conduct the services reported herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, express or implied is included or intended in this document.

A water sampling program of this nature is based on a limited sampling of the site. The field observations, chemical analyses, and conclusions are based on information gathered at the specific test locations and can only be extrapolated to a limited area around the test locations. The reported information is believed to provide a reasonable representation of the general environmental conditions

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at the site at the time of the investigation. Should additional information become available concerning this site, such information should be provided to **exp** so that our recommendations may be reviewed and modified as necessary

We thank you for the opportunity of this submission and look forward to assisting the Government of Nunavut in this project. Should you have any questions, please feel free to contact either of the undersigned.

Yours truly,

exp Services Inc.



Robert Renaud, M.Sc., P. Geo.
Senior Geoscientist
Earth and Environment Group



Mark McCalla, B.Sc.
Senior Environmental Scientist
Earth and Environment Group

Attachments:

Appendix A: Figures

Appendix B: Analytical Summary Tables

Appendix C: Laboratory Certificates of Analysis

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Appendix A: Figures & Photographs



Figure 1: Site Plan

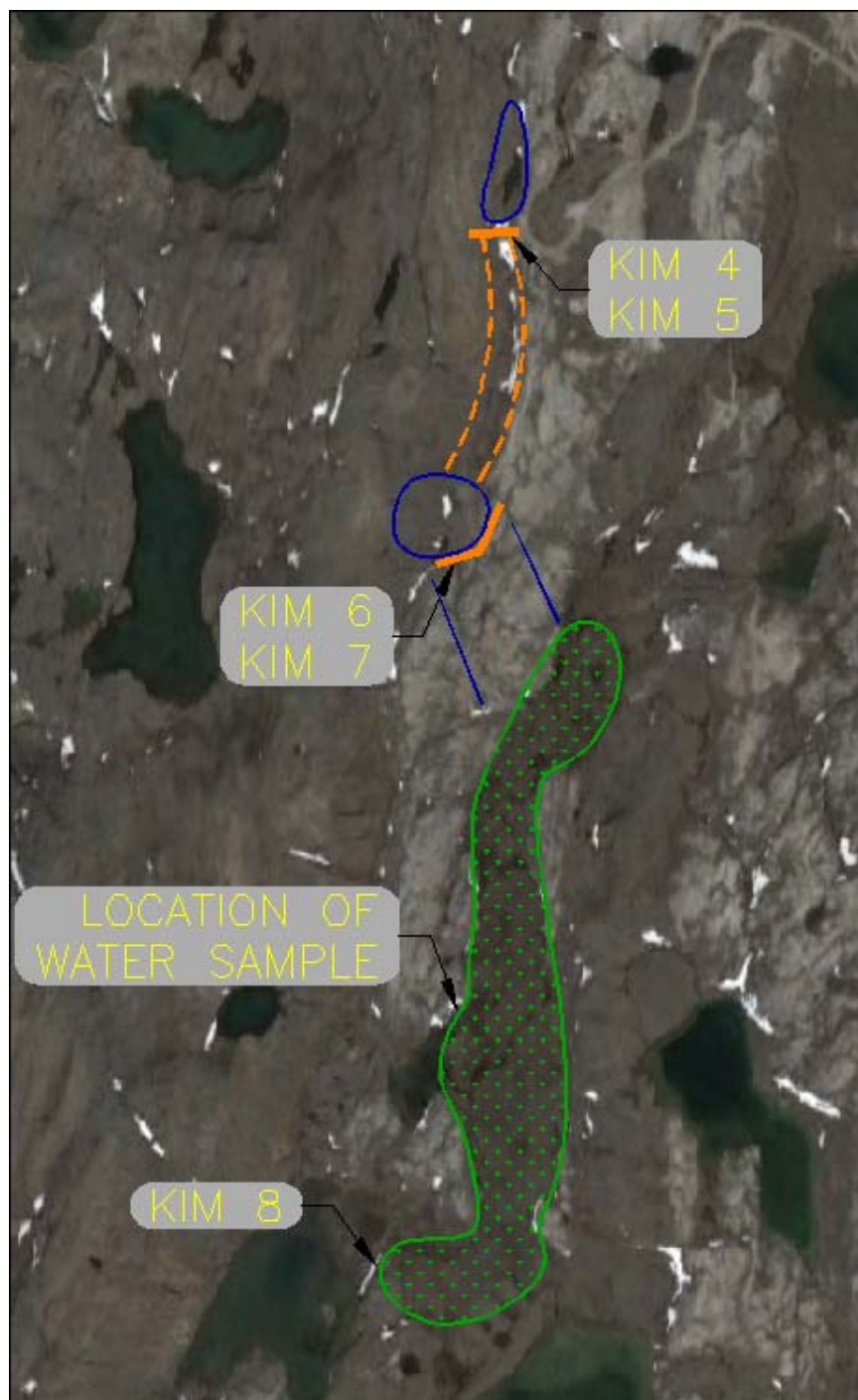


Figure 2: Sampling Locations

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Photo 1: Location of Water Sample

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Appendix B: Analytical Summary Tables

Table 1: Baseline Wetland Sampling Results
Kimmirut, Nunavut

Sample ID	Sewage Disposal ¹ Licence Effluent Limits	Units	KIM-8	KIM-8 (Dup)
			Wetland	Wetland
Sampling Date			29-Sep-2011	29-Sep-2011
Mercury (Hg)	NV	µg/L	<0.1	<0.1
Total Aluminum (Al)	NV	µg/L	20	<5
Total Arsenic (As)	NV	µg/L	<1	<1
Total Cadmium (Cd)	NV	µg/L	<0.1	<0.1
Total Calcium (Ca)	NV	µg/L	35000	37000
Total Chromium (Cr)	NV	µg/L	<5	<5
Total Cobalt (Co)	NV	µg/L	<0.5	<0.5
Total Copper (Cu)	NV	µg/L	<1	<1
Total Iron (Fe)	NV	µg/L	130	<100
Total Lead (Pb)	NV	µg/L	<0.5	<0.5
Total Magnesium (Mg)	NV	µg/L	8700	9400
Total Manganese (Mn)	NV	µg/L	3	3
Total Nickel (Ni)	NV	µg/L	2	1
Total Potassium (K)	NV	µg/L	680	730
Total Sodium (Na)	NV	µg/L	5400	5900
Total Zinc (Zn)	NV	µg/L	<5	<5
Hardness (CaCO ₃)	NV	mg/L	110	110
Total Ammonia-N	NV	mg/L	<0.05	<0.05
Total BOD	120	mg/L	<2	<2
Conductivity	NV	µmho/cm	266	266
Total Organic Carbon (TOC)	NV	mg/L	1.5	1.3
pH	6.0 - 9.0	pH	7.94	7.93
Phenols-4AAP	NV	mg/L	<0.001	<0.001
Total Suspended Solids	180	mg/L	<10	<10
Dissolved Sulphate (SO ₄)	NV	mg/L	39	39
Alkalinity (Total as CaCO ₃)	NV	mg/L	80	79
Dissolved Chloride (Cl)	NV	mg/L	7	6
Nitrite (N)	NV	mg/L	<0.01	<0.01
Nitrate (N)	NV	mg/L	<0.1	<0.1
Nitrate + Nitrite	NV	mg/L	<0.1	<0.1
Fecal coliform	1000000	CFU/100mL	<10	<10
Total Oil and Grease	No visible sheen	mg/L	NA	NA

1. Sewage Disposal Licence 3BM-KIM0911

Underline - exceeds the waste disposal licence

NV - no value listed in criteria

NA - not analyzed

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Appendix C: Laboratory Certificates of Analysis

Your Project #: OTT-00020702-A0
Your C.O.C. #: 28298701, 282987-01-01

Attention: Rob Renaud

exp.
100-2650 Queensview Drive
Ottawa, ON
K2B 8H6

Report Date: 2011/10/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1F2632

Received: 2011/09/30, 23:58

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Alkalinity	2	N/A	2011/10/04	CAM SOP-00448	SM 2320B
Biochemical Oxygen Demand (BOD)	2	N/A	2011/10/06	CAM SOP-00427	APHA 5210B
Chloride by Automated Colourimetry	2	N/A	2011/10/06	CAM SOP-00463	SM 4500 Cl E
Conductivity	2	N/A	2011/10/04	CAM SOP-00448	SM 2510
Hardness (calculated as CaCO ₃)	2	N/A	2011/10/06	CAM SOP 00102	SM 2340 B
Mercury in Water by CVAA	2	2011/10/04	2011/10/04	CAM SOP-00453	EPA 7470
Total Metals Analysis by ICPMS	1	N/A	2011/10/06	CAM SOP-00447	EPA 6020
Total Metals Analysis by ICPMS	1	N/A	2011/10/07	CAM SOP-00447	EPA 6020
Fecal coliform, (CFU/100mL)	2	N/A	2011/10/01	CAM SOP-00552	SM 9222D
Ammonia-N	1	N/A	2011/10/06	CAM SOP-00441	US GS I-2522-90
Ammonia-N	1	N/A	2011/10/11	CAM SOP-00441	US GS I-2522-90
Nitrate (NO ₃) and Nitrite (NO ₂) in Water	2	N/A	2011/10/05	CAM SOP-00440	SM 4500 NO ₃ /NO ₂ B
pH	2	N/A	2011/10/04	CAM SOP-00448	SM 4500H
Phenols (4AAP)	2	N/A	2011/10/04	CAM SOP-00444	MOE ROPHEN-E3179
Sulphate by Automated Colourimetry	2	N/A	2011/10/06	CAM SOP-00464	EPA 375.4
Total Organic Carbon (TOC)	1	N/A	2011/10/06	CAM SOP-00446	SM 5310B
Total Organic Carbon (TOC)	1	N/A	2011/10/07	CAM SOP-00446	SM 5310B
Total Suspended Solids	2	N/A	2011/10/04	CAM SOP-00428	SM 2540D

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

* Results relate only to the items tested.

(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

JULIE CLEMENT, Ottawa Customer Service

Email: JClement@maxxam.ca

Phone# (613) 274-3549

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

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Maxxam Job #: B1F2632
Report Date: 2011/10/11

exp.
Client Project #: OTT-00020702-A0

RESULTS OF ANALYSES OF WATER

Maxxam ID		LC5852	LC5852		LC5853	LC5853		
Sampling Date		2011/09/29 10:00	2011/09/29 10:00		2011/09/29 10:15	2011/09/29 10:15		
	Units	KIM-8	KIM-8 Lab-Dup	QC Batch	KIM-8 (DUP)	KIM-8 (DUP) Lab-Dup	RDL	QC Batch
Calculated Parameters								
Hardness (CaCO ₃)	mg/L	110		2634159	110		1	2634159
Inorganics								
Total Ammonia-N	mg/L	<0.05		2639252	<0.05		0.05	2637761
Total BOD	mg/L	<2		2633953	<2		2	2633953
Conductivity	umho/cm	266		2636259	266		1	2636259
Total Organic Carbon (TOC)	mg/L	1.5		2639187	1.3		0.2	2638832
pH	pH	7.94		2636258	7.93			2636258
Phenols-4AAP	mg/L	<0.001		2635158	<0.001		0.001	2635158
Total Suspended Solids	mg/L	<10	<10	2635737	<10		10	2635737
Dissolved Sulphate (SO ₄)	mg/L	39		2636708	39	39	1	2636708
Alkalinity (Total as CaCO ₃)	mg/L	80		2636249	79		1	2636249
Dissolved Chloride (Cl)	mg/L	7		2636705	6	6	1	2636705
Nitrite (N)	mg/L	<0.01		2636571	<0.01	<0.01	0.01	2636571
Nitrate (N)	mg/L	<0.1		2636571	<0.1	0.1	0.1	2636571
Nitrate + Nitrite	mg/L	<0.1		2636571	<0.1	0.1	0.1	2636571

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B1F2632
Report Date: 2011/10/11

exp.
Client Project #: OTT-00020702-A0

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		LC5852	LC5853		
Sampling Date		2011/09/29 10:00	2011/09/29 10:15		
	Units	KIM-8	KIM-8 (DUP)	RDL	QC Batch
Metals					
Mercury (Hg)	mg/L	<0.0001	<0.0001	0.0001	2636037
Total Aluminum (Al)	ug/L	20	<5	5	2639325
Total Arsenic (As)	ug/L	<1	<1	1	2639325
Total Cadmium (Cd)	ug/L	<0.1	<0.1	0.1	2639325
Total Calcium (Ca)	ug/L	35000	37000	200	2639325
Total Chromium (Cr)	ug/L	<5	<5	5	2639325
Total Cobalt (Co)	ug/L	<0.5	<0.5	0.5	2639325
Total Copper (Cu)	ug/L	<1	<1	1	2639325
Total Iron (Fe)	ug/L	130	<100	100	2639325
Total Lead (Pb)	ug/L	<0.5	<0.5	0.5	2639325
Total Magnesium (Mg)	ug/L	8700	9400	50	2639325
Total Manganese (Mn)	ug/L	3	3	2	2639325
Total Nickel (Ni)	ug/L	2	1	1	2639325
Total Potassium (K)	ug/L	680	730	200	2639325
Total Sodium (Na)	ug/L	5400	5900	100	2639325
Total Zinc (Zn)	ug/L	<5	<5	5	2639325

MICROBIOLOGY (WATER)

Maxxam ID		LC5852	LC5852	LC5853		
Sampling Date		2011/09/29 10:00	2011/09/29 10:00	2011/09/29 10:15		
	Units	KIM-8	KIM-8 Lab-Dup	KIM-8 (DUP)	RDL	QC Batch
Microbiological						
Fecal coliform	CFU/100mL	<10	<10	<10	N/A	2634175

N/A = Not Applicable

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Maxxam Job #: B1F2632
Report Date: 2011/10/11

exp.
Client Project #: OTT-00020702-A0

Test Summary

Maxxam ID LC5852
Sample ID KIM-8
Matrix Water

Collected 2011/09/29
Shipped
Received 2011/09/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Alkalinity	PH	2636249	N/A	2011/10/04	YOGESH PATEL
Biochemical Oxygen Demand (BOD)	BOD	2633953	N/A	2011/10/06	FRANK ZHANG
Chloride by Automated Colourimetry	AC	2636705	N/A	2011/10/06	DEONARINE RAMNARINE
Conductivity	COND	2636259	N/A	2011/10/04	YOGESH PATEL
Hardness (calculated as CaCO3)		2634159	N/A	2011/10/06	AUTOMATED STATCHK
Mercury in Water by CVAA	CVAA	2636037	2011/10/04	2011/10/04	MAGDALENA CARLOS
Total Metals Analysis by ICPMS	ICP/MS	2639325	N/A	2011/10/07	JOHN BOWMAN
Fecal coliform, (CFU/100mL)	PL	2634175	N/A	2011/10/01	KRISHNARL SUNTHARESAN
Ammonia-N	LACH/NH4	2639252	N/A	2011/10/11	CHRIS LI
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	2636571	N/A	2011/10/05	HELEN HE
pH	PH	2636258	N/A	2011/10/04	YOGESH PATEL
Phenols (4AAP)	TECH/PHEN	2635158	N/A	2011/10/04	BRAMDEO MOTIRAM
Sulphate by Automated Colourimetry	AC	2636708	N/A	2011/10/06	DEONARINE RAMNARINE
Total Organic Carbon (TOC)	TOCV/NDIR	2639187	N/A	2011/10/07	CHARLES OPOKU-WARE
Total Suspended Solids	SLDS	2635737	N/A	2011/10/04	TEJPRATAP MISHRA

Maxxam ID LC5852 Dup
Sample ID KIM-8
Matrix Water

Collected 2011/09/29
Shipped
Received 2011/09/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Fecal coliform, (CFU/100mL)	PL	2634175	N/A	2011/10/02	KRISHNARL SUNTHARESAN
Total Suspended Solids	SLDS	2635737	N/A	2011/10/04	TEJPRATAP MISHRA

Maxxam Job #: B1F2632
Report Date: 2011/10/11

exp.
Client Project #: OTT-00020702-A0

Test Summary

Maxxam ID LC5853
Sample ID KIM-8 (DUP)
Matrix Water

Collected 2011/09/29
Shipped
Received 2011/09/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Alkalinity	PH	2636249	N/A	2011/10/04	YOGESH PATEL
Biochemical Oxygen Demand (BOD)	BOD	2633953	N/A	2011/10/06	FRANK ZHANG
Chloride by Automated Colourimetry	AC	2636705	N/A	2011/10/06	DEONARINE RAMNARINE
Conductivity	COND	2636259	N/A	2011/10/04	YOGESH PATEL
Hardness (calculated as CaCO3)		2634159	N/A	2011/10/06	AUTOMATED STATCHK
Mercury in Water by CVAA	CVAA	2636037	2011/10/04	2011/10/04	MAGDALENA CARLOS
Total Metals Analysis by ICPMS	ICP/MS	2639325	N/A	2011/10/06	JOHN BOWMAN
Fecal coliform, (CFU/100mL)	PL	2634175	N/A	2011/10/01	KRISHNARL SUNTHARESAN
Ammonia-N	LACH/NH4	2637761	N/A	2011/10/06	ALINA DOBREANU
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	2636571	N/A	2011/10/05	HELEN HE
pH	PH	2636258	N/A	2011/10/04	YOGESH PATEL
Phenols (4AAP)	TECH/PHEN	2635158	N/A	2011/10/04	BRAMDEO MOTIRAM
Sulphate by Automated Colourimetry	AC	2636708	N/A	2011/10/06	DEONARINE RAMNARINE
Total Organic Carbon (TOC)	TOCV/NDIR	2638832	N/A	2011/10/06	CHARLES OPOKU-WARE
Total Suspended Solids	SLDS	2635737	N/A	2011/10/04	TEJPRATAP MISHRA

Maxxam ID LC5853 Dup
Sample ID KIM-8 (DUP)
Matrix Water

Collected 2011/09/29
Shipped
Received 2011/09/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Chloride by Automated Colourimetry	AC	2636705	N/A	2011/10/06	DEONARINE RAMNARINE
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	2636571	N/A	2011/10/05	HELEN HE
Sulphate by Automated Colourimetry	AC	2636708	N/A	2011/10/06	DEONARINE RAMNARINE

Maxxam Job #: B1F2632
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exp.
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Package 1	2.0°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Maxxam Job #: B1F2632
Report Date: 2011/10/11

exp.
Client Project #: OTT-00020702-A0

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2633953	Total BOD	2011/10/06					<2	mg/L	NC	25	106	85 - 115
2634175	Fecal coliform	2011/10/02							NC	N/A		
2635158	Phenols-4AAP	2011/10/04	103	75 - 125	98	75 - 125	<0.001	mg/L	NC	25		
2635737	Total Suspended Solids	2011/10/04					<10	mg/L	NC	25	101	85 - 115
2636037	Mercury (Hg)	2011/10/04	93	75 - 125	99	80 - 120	<0.0001	mg/L	NC	25		
2636249	Alkalinity (Total as CaCO ₃)	2011/10/04					<1	mg/L	1.4	25	98	85 - 115
2636259	Conductivity	2011/10/04					<1	umho/cm	0.09	25	103	85 - 115
2636571	Nitrite (N)	2011/10/05	104	80 - 120	102	85 - 115	<0.01	mg/L	NC	25		
2636571	Nitrate (N)	2011/10/05	101	80 - 120	98	85 - 115	<0.1	mg/L	NC	25		
2636705	Dissolved Chloride (Cl)	2011/10/06	102	75 - 125	105	80 - 120	<1	mg/L	3.4	20		
2636708	Dissolved Sulphate (SO ₄)	2011/10/06	NC	75 - 125	101	80 - 120	<1	mg/L	0.9	25		
2637761	Total Ammonia-N	2011/10/06	100	80 - 120	104	85 - 115	<0.05	mg/L	1.8	20		
2638832	Total Organic Carbon (TOC)	2011/10/06	96	80 - 120	87	80 - 120	<0.2	mg/L	2.7	20		
2639187	Total Organic Carbon (TOC)	2011/10/07	90	80 - 120	93	80 - 120	<0.2	mg/L	0.7	20		
2639252	Total Ammonia-N	2011/10/11	100	80 - 120	99	85 - 115	<0.05	mg/L	NC	20		
2639325	Total Aluminum (Al)	2011/10/06	108	80 - 120	104	85 - 115	<5	ug/L	NC	20		
2639325	Total Arsenic (As)	2011/10/06	96	80 - 120	96	85 - 115	<1	ug/L	NC	20		
2639325	Total Cadmium (Cd)	2011/10/06	100	80 - 120	100	85 - 116	<0.1	ug/L	NC	20		
2639325	Total Calcium (Ca)	2011/10/06	101	80 - 120	101	85 - 115	<200	ug/L	NC	20		
2639325	Total Chromium (Cr)	2011/10/06	99	80 - 120	98	85 - 115	<5	ug/L	NC	20		
2639325	Total Cobalt (Co)	2011/10/06	99	80 - 120	97	85 - 115	<0.5	ug/L	NC	20		
2639325	Total Copper (Cu)	2011/10/06	98	80 - 120	96	85 - 115	<1	ug/L	NC	20		
2639325	Total Iron (Fe)	2011/10/06	99	80 - 120	98	85 - 115	<100	ug/L	NC	20		
2639325	Total Lead (Pb)	2011/10/06	96	80 - 120	94	85 - 115	<0.5	ug/L	NC	20		
2639325	Total Magnesium (Mg)	2011/10/06	107	80 - 120	106	85 - 115	<50	ug/L	NC	20		
2639325	Total Manganese (Mn)	2011/10/06	100	80 - 120	100	85 - 115	<2	ug/L	NC	20		
2639325	Total Nickel (Ni)	2011/10/06	96	80 - 120	94	85 - 115	<1	ug/L	NC	20		
2639325	Total Potassium (K)	2011/10/06	102	80 - 120	99	85 - 115	<200	ug/L	NC	20		
2639325	Total Sodium (Na)	2011/10/06	109	80 - 120	108	85 - 115	<100	ug/L	4.5	20		
2639325	Total Zinc (Zn)	2011/10/06	100	80 - 120	98	85 - 115	<5	ug/L	NC	20		

N/A = Not Applicable

RPD = Relative Percent Difference

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B1F2632

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Cristina Carriere", written over a horizontal line.

CRISTINA CARRIERE, Scientific Services

A handwritten signature in black ink, starting with "K." followed by a stylized name, written over a horizontal line.

KRISHNARE SUNTHARESAN, Senior Analyst

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campbell Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free: 800-653-6266 Fax: (905) 817-5779 www.maxxam.ca

CHAIN OF CUSTODY

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name: #17497 exp.	Company Name: exp	Quotation #: B13974			
Contact Name: Accounts Payable	Contact Name: Rob Renaud / Steve Burden	P.O. #:			
Address: 100-2650 Queensview Drive	Address:	Project #: OTT-00020702-A0			
Ottawa ON K2B 8H6		Project Name:			
Phone: (613)688-1899 Fax: (613)225-7337	Phone: 613-688-1899 Fax:	Site #:			
Email: accounting.ottawa@exp.com; CentralServices@exp	Email: Robert.Renaud@exp.com	Sampled By:			

30-Sep-11 23:58
JULIE CLEMENT
B1F2632
DES ENV-825

Page of

Only:

BOTTLE ORDER #:

282987

PROJECT MANAGER:

JULIE CLEMENT

Regulation 153 (2011)		Other Regulations		SPECIAL INSTRUCTIONS		ANALYSIS REQUESTED (Please be specific):										TURNAROUND TIME (TAT) REQUIRED:			
<input type="checkbox"/> Table 1 <input type="checkbox"/> Table 2 <input type="checkbox"/> Table 3 <input type="checkbox"/> Table		<input type="checkbox"/> Res/Park <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC		<input checked="" type="checkbox"/> CCME <input type="checkbox"/> Reg. 558 <input type="checkbox"/> MISA <input type="checkbox"/> PWQO <input type="checkbox"/> Other		<input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> Municipality		Regulated Drinking Water? (Y/N) Metals Field Filtered? (Y/N) Alkalinity, pH Ammonia-N, TOC Biochemical Oxygen Demand (BOD) Anions: Cl, NO2/NO3, SO4 Fecal Coliforms Phenols (4AAP) Total Metals, Mercury TSS, Conductivity Hardness (calculated as CaCO3)										PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: (will be applied if Rush TAT is not specified). Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: Time Required: Rush Confirmation Number: (call lab for #)	

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	Alkalinity, pH	Ammonia-N, TOC	Biochemical Oxygen Demand (BOD)	Anions: Cl, NO2/NO3, SO4	Fecal Coliforms	Phenols (4AAP)	Total Metals, Mercury	TSS, Conductivity	Hardness (calculated as CaCO3)	# of Bottles	Comments
1	KIM-8	Sept 29/11	10:00	W			✓	✓	✓	✓	✓	✓	✓	✓	✓	8	
2	KIM-8 (dup)	Sept 29/11	10:15	W			✓	✓	✓	✓	✓	✓	✓	✓	✓	8	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

*RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time:	# Jars Used and	Laboratory Use Only											
Rob Renaud / Rob Renaud		11/09/30		Josh Freeman		2011/09/30	18:10	Not Submitted	Time Sensitive	Temperature (°C) on Receipt	<table border="1"> <tr> <td>Custody Seal</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Present</td> <td></td> <td>✓</td> </tr> <tr> <td>Intact</td> <td></td> <td>✓</td> </tr> </table>	Custody Seal	Yes	No	Present		✓	Intact		✓
Custody Seal	Yes	No																		
Present		✓																		
Intact		✓																		