CITY OF VANCOUVER

CITY CLERK'S DEPARTMENT
Access to Information

File No.: 04-1000-20-2017-451

December 6, 2017

s.22(1)

Dear s.22(1)

Re: **Request for Access to Records under the Freedom of Information and Protection of Privacy Act (the "Act")**

I am responding to your request of November 14, 2017 for:

> **Sewage discharge monitoring reports for the following properties from May 1, 2017 to November 14, 2017:**
>
> 1. **2889 East 1st; and**
> 2. **1615 Renfrew Street.**

All responsive records are attached.

Please note: the November 2017 records requested have not yet been received by Environmental Protection. Please resubmit this part of your request in 30 business days.

Under section 52 of the Act you may ask the Information & Privacy Commissioner to review any matter related to the City's response to your request, within 30 business days from the date of this letter. You can request a review by writing to: Office of the Information & Privacy Commissioner, Email: info@oipc.bc.ca, Tel: 250-387-5629 and providing: 1) the request number (#04-1000-20-2017-451); 2) a copy of this letter; 3) a copy of your original request; and 4) the reason you're requesting a review.

Please do not hesitate to contact the Freedom of Information Office at foi@vancouver.ca if you have any questions.

Yours truly,

Barbara J. Van Fraassen, BA
Director, Access to Information & Privacy

Barbara.vanfraassen@vancouver.ca
453 W. 12th Avenue Vancouver BC V5Y 1V4
Phone: 604 .873.7999
Fax: 604.873.7419

Encl.

:AA

Keystone Environmental Ltd.
Discharge Sampling

Keystone Environmental

PROJECT #:	12737	Sampler:	Holmes	DATE:	Jun 27/17
WEATHER:	Sunny 18°C	Time Onsite:	10 00	Time Offsite:	10-45

Project Manager JAY Phone
Site Super Mike Phone Check in: Y/N
Others on Site:

Changes since previous visit:	

	Hazard	Mitigation
Last Minute Risk Assessments:	Cars	
	People	
	Machine	
Near Misses or Incidents		

PPE Hardhat ✓ Hi Vis ✓ Glasses ✓
Gloves Steel Toes Other

Site Activity Demolition Excavation Forming ✓
Concrete pouring Other

Sampling:	Metro Van: ✓	COR:	Other:	Flowmeter 18120 Gal L m3 x10 x100
	Grab	Sampling Port ✓	End of Hose	Flowrate gpm lps
	pH 7.3 @ 11°C	Turbidity		

Colour: ✓

Turbidity: Colourless (1) 2 3 4 5 6 7 8 9 10

Sheen: Y / (N) Odour: Y / (N) Photographs taken (Y) / N

Copy of Permit on Site: (Y) / N
Discharge to correct connection: (Y) / N Sanitary / Storm
All components of system Present: (Y) / N

Samples collected
- (BTEX)
- (PAH)
- Laboratory: (MOG)
- Maxxam (TSS/pH)
- ALS (T. metals)
- AGAT Other:

System Components (as per permit)
- (Surge tanks)
- (pH adjustment)
- (Floc/Coag addition)
- Bag filter Sand
- (GAC)
- (Flowmeter)

Comments	
Signed	

Keystone Environmental

Sample Submission Checklist

Project #: 12732 | Sampler(s): LI
Phase #: S&A | Project Manager: IVT Reviewed ☐
Site Address: Renfrew & 1st | Sample Collection Date: Jun 27/16
Client: Thind | Sample Submission Date: 1.

Laboratory: Maxxam ALS Caro Agat Other:

COC ID#:	K01752		
# of samples:	1		
Sample media:	Water		
Has correct contact information and project number/name been included?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Do field sample IDs match recorded sample IDs?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Are the recorded sample IDs complete, correct, and legible?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Do field sample dates match recorded sample dates?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Are the recorded sample dates complete, correct, and legible?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Do field sample media match recorded sample media?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Is the recorded sample media complete, correct, and legible?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Have correct analytical parameters been selected?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Has pump information been reported correctly (air samples only)?	☐ Yes ☐ No ☑ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Have correct standards/guidelines been selected?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Has desired turnaround time been selected?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Have correct number of containers been listed?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Has COC been signed and dated?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Have samples been submitted within approved holding times and temperatures?	☑ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Have duplicate samples (10% ratio) been submitted and matching samples documented?	☐ Yes ☐ No ☑ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
Have field or equipment blanks been submitted/documented?	☐ Yes ☐ No ☑ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a
If samples are for legal purposes, is custody seal intact?	☐ Yes ☐ No ☑ n/a	☐ Yes ☐ No ☐ n/a	☐ Yes ☐ No ☐ n/a

Comments:	

K 017562

Maxxam
A Bureau Veritas Group Company

CHAIN OF CUSTODY RECORD

BBY FCD-00077/07

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Page _____ of _____

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name: Same	Quotation #:	☐ Regular TAT 5 days (Most analyses)
Contact Name: Judy Toi	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 12732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location:	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: jtoi@keystoneenviro.com	Email: jholmes@keystoneenviro.com	Sampled By: Holmes	Date Required:

Regulatory Criteria	Special Instructions
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Cooler
☐ YK CSR Soil ☐ YK CSR Water	☐ Ship Sample Bottles (Please Specify)
☐ CCME (Specify) ☑ Other (Specify) M.O.	
☐ Drinking Water ☐ BC Water Quality	

Rush Confirmation #:

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

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEXS / VPH	BTEX / F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	MW	MW	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	DS17-6	17/6/27	10 30	water	✓		✓							✓	✓				7	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Analysis Requested: ☐ MTBE; ☐ VOC / BTEXS / VPH; ☐ VOC / BTEX / F1; ☐ LEPH/HEPH/PAH; ☐ F2 - F4; ☐ TEH; ☐ Preserved?; ☐ Filtered?; ☐ Preserved?; ☐ Filtered?; ☐ Field Preserved?; ☐ Field Preserved?; ☐ Sulphate; ☐ Fluoride; ☐ COD; ☐ BOD; ☐ TDS; ☐ Alkalinity; ☐ Conductivity; ☐ Ammonia; ☐ Nitrate; ☐ Nitrite

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
NA		17,18

COOLING MEDIA PRESENT Y / N

COMMENTS

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
	17/6/27	11 15	Laurel Berthier	2017/06/27	11:15	

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732-54
Your C.O.C. #: K004460

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/05/10
Report #: R2380907
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B733680
Received: 2017/05/04, 12:53

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	1	2017/05/04	2017/05/06	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	1	2017/05/05	2017/05/06	BBY8SOP-00010/11/12	PBM BC Lab Manual
Hardness Total (calculated as CaCO3)	1	N/A	2017/05/10	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/05/08	2017/05/09	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/05/04	2017/05/05	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/05/08	2017/05/09	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/05/10	BBY WI-00033	Auto Calc
pH Water (1)	1	N/A	2017/05/06	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/05/09	2017/05/10	BBY6SOP-00034	SM 22 2540 D
Field pH	1	2017/05/09	2017/05/10		
Volatile HC-BTEX	1	N/A	2017/05/06	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 8 Burbidge Street, Coquitlam, British Columbia, Canada V3K 7B2 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 12732-54
Your C.O.C. #: K004460

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/05/10
Report #: R2380907
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B733680

Received: 2017/05/04, 12:53

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604)639-2602

==========

This report has been generated and distributed using a secure automated process.
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 Analytics International Corporation o/a Maxxam Analytics 8 Burbidge Street, Coquitlam, British Columbia, Canada V3K 7B2 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	**DS17-5**	**RDL**	**QC Batch**
Field Parameters				
Field pH	pH	7.0	N/A	ONSITE
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8621028
Physical Properties				
pH	pH	8.15		8622177
Physical Properties				
Total Suspended Solids	mg/L	<4.0	4.0	8624236

RDL = Reportable Detection Limit
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics 8575 Lougheed Hwy, Burnaby, BC Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	**DS17-5**	**RDL**	**QC Batch**
Industrial				
BTEX Total	ug/L	26.0	0.40	8620775
RDL = Reportable Detection Limit				

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Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	**DS17-5**	**RDL**	**QC Batch**
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8620065
Benzene	ug/L	4.9	0.40	8621714
Toluene	ug/L	8.8	0.40	8621714
Ethylbenzene	ug/L	<0.40	0.40	8621714
m & p-Xylene	ug/L	8.0	0.40	8621714
o-Xylene	ug/L	4.4	0.40	8621714
Styrene	ug/L	<0.40	0.40	8621714
Xylenes (Total)	ug/L	12	0.40	8621714
VH C6-C10	ug/L	<300	300	8621714
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	103		8621714
4-Bromofluorobenzene (sur.)	%	92		8621714
D4-1,2-Dichloroethane (sur.)	%	104		8621714
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics 8075 Control Ave, Burnaby, BC, Canada V5A 4S6 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	DS17-5	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	131	0.50	8620056
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	35.7	3.0	8623461
Total Arsenic (As)	ug/L	0.92	0.10	8623461
Total Boron (B)	ug/L	<50	50	8623461
Total Cadmium (Cd)	ug/L	0.010	0.010	8623461
Total Chromium (Cr)	ug/L	<1.0	1.0	8623461
Total Cobalt (Co)	ug/L	<0.20	0.20	8623461
Total Copper (Cu)	ug/L	1.12	0.50	8623461
Total Iron (Fe)	ug/L	65	10	8623461
Total Lead (Pb)	ug/L	1.17	0.20	8623461
Total Manganese (Mn)	ug/L	32.9	1.0	8623461
Total Molybdenum (Mo)	ug/L	3.2	1.0	8623461
Total Nickel (Ni)	ug/L	<1.0	1.0	8623461
Total Selenium (Se)	ug/L	0.21	0.10	8623461
Total Silver (Ag)	ug/L	<0.020	0.020	8623461
Total Zinc (Zn)	ug/L	<5.0	5.0	8623461
RDL = Reportable Detection Limit				

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Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	DS17-5	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	0.37	0.10	8620337
High Molecular Weight PAH`s	ug/L	<0.050	0.050	8620337
Total PAH	ug/L	0.37	0.10	8620337
Quinoline	ug/L	<0.020	0.020	8623183
Naphthalene	ug/L	0.26	0.10	8623183
2-Methylnaphthalene	ug/L	0.11	0.10	8623183
Acenaphthylene	ug/L	<0.050	0.050	8623183
Acenaphthene	ug/L	<0.050	0.050	8623183
Fluorene	ug/L	<0.050	0.050	8623183
Phenanthrene	ug/L	<0.050	0.050	8623183
Anthracene	ug/L	<0.010	0.010	8623183
Acridine	ug/L	<0.050	0.050	8623183
Fluoranthene	ug/L	<0.020	0.020	8623183
Pyrene	ug/L	<0.020	0.020	8623183
Benzo(a)anthracene	ug/L	<0.010	0.010	8623183
Chrysene	ug/L	<0.020	0.020	8623183
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8623183
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8623183
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8623183
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8623183
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8623183
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8623183
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	120		8623183
D8-ACENAPHTHYLENE (sur.)	%	111		8623183
D8-NAPHTHALENE (sur.)	%	91		8623183
D9-Acridine (sur.)	%	126		8623183
TERPHENYL-D14 (sur.)	%	117		8623183
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics, Burnaby, BC, Canada, V5A 4E6 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	14.0°C

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8621714	1,4-Difluorobenzene (sur.)	2017/05/06	103	70 - 130	102	70 - 130	107	%		
8621714	4-Bromofluorobenzene (sur.)	2017/05/06	90	70 - 130	89	70 - 130	88	%		
8621714	D4-1,2-Dichloroethane (sur.)	2017/05/06	98	70 - 130	102	70 - 130	106	%		
8623183	D10-ANTHRACENE (sur.)	2017/05/09	102	60 - 130	124	60 - 130	113	%		
8623183	D8-ACENAPHTHYLENE (sur.)	2017/05/09	105	50 - 130	111	50 - 130	100	%		
8623183	D8-NAPHTHALENE (sur.)	2017/05/09	90	50 - 130	89	50 - 130	80	%		
8623183	D9-Acridine (sur.)	2017/05/09	115	50 - 130	118	50 - 130	111	%		
8623183	TERPHENYL-D14 (sur.)	2017/05/09	91	60 - 130	120	60 - 130	109	%		
8621028	Oil & Grease (mineral/synthetic)	2017/05/05			93	70 - 130	<2.0	mg/L		
8621714	Benzene	2017/05/06	113	70 - 130	113	70 - 130	<0.40	ug/L	4.6	30
8621714	Ethylbenzene	2017/05/06	107	70 - 130	107	70 - 130	<0.40	ug/L	3.2	30
8621714	m & p-Xylene	2017/05/06	109	70 - 130	105	70 - 130	<0.40	ug/L	3.9	30
8621714	o-Xylene	2017/05/06	102	70 - 130	102	70 - 130	<0.40	ug/L	3.0	30
8621714	Styrene	2017/05/06	98	70 - 130	98	70 - 130	<0.40	ug/L	NC	30
8621714	Toluene	2017/05/06	103	70 - 130	102	70 - 130	<0.40	ug/L	3.8	30
8621714	VH C6-C10	2017/05/06			108	70 - 130	<300	ug/L	15	30
8621714	Xylenes (Total)	2017/05/06					<0.40	ug/L	3.8	30
8622177	pH	2017/05/06			102	97 - 103			0.36	N/A
8623183	2-Methylnaphthalene	2017/05/09	96	50 - 130	100	50 - 130	<0.10	ug/L	NC	40
8623183	Acenaphthene	2017/05/09	106	50 - 130	111	50 - 130	<0.050	ug/L	NC	40
8623183	Acenaphthylene	2017/05/09	100	50 - 130	105	50 - 130	<0.050	ug/L	NC	40
8623183	Acridine	2017/05/09	117	50 - 130	123	50 - 130	<0.050	ug/L	NC	40
8623183	Anthracene	2017/05/09	123	60 - 130	128	60 - 130	<0.010	ug/L	NC	40
8623183	Benzo(a)anthracene	2017/05/09	102	60 - 130	110	60 - 130	<0.010	ug/L	NC	40
8623183	Benzo(a)pyrene	2017/05/09	90	60 - 130	105	60 - 130	<0.0050	ug/L	NC	40
8623183	Benzo(b&j)fluoranthene	2017/05/09	96	60 - 130	112	60 - 130	<0.030	ug/L	NC	40
8623183	Benzo(g,h,i)perylene	2017/05/09	89	60 - 130	105	60 - 130	<0.050	ug/L	NC	40
8623183	Benzo(k)fluoranthene	2017/05/09	97	60 - 130	114	60 - 130	<0.050	ug/L	NC	40
8623183	Chrysene	2017/05/09	104	60 - 130	113	60 - 130	<0.020	ug/L	NC	40
8623183	Dibenz(a,h)anthracene	2017/05/09	88	60 - 130	103	60 - 130	<0.0030	ug/L	NC	40
8623183	Fluoranthene	2017/05/09	113	60 - 130	115	60 - 130	<0.020	ug/L	NC	40

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Maxxam Job #: B733680
Report Date: 2017/05/10

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8623183	Fluorene	2017/05/09	99	50 - 130	105	50 - 130	<0.050	ug/L	NC	40
8623183	Indeno(1,2,3-cd)pyrene	2017/05/09	91	60 - 130	106	60 - 130	<0.050	ug/L	NC	40
8623183	Naphthalene	2017/05/09	93	50 - 130	98	50 - 130	<0.10	ug/L	NC	40
8623183	Phenanthrene	2017/05/09	100	60 - 130	106	60 - 130	<0.050	ug/L	NC	40
8623183	Pyrene	2017/05/09	114	60 - 130	102	60 - 130	<0.020	ug/L	NC	40
8623183	Quinoline	2017/05/09	107	50 - 130	115	50 - 130	<0.020	ug/L	NC	40
8623461	Total Aluminum (Al)	2017/05/10	122 (1)	80 - 120	115	80 - 120	<3.0	ug/L	54 (1)	20
8623461	Total Arsenic (As)	2017/05/10	107	80 - 120	100	80 - 120	<0.10	ug/L	3.2	20
8623461	Total Boron (B)	2017/05/10	115	80 - 120	107	80 - 120	<50	ug/L	3.5	20
8623461	Total Cadmium (Cd)	2017/05/10	93	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
8623461	Total Chromium (Cr)	2017/05/10	95	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
8623461	Total Cobalt (Co)	2017/05/10	93	80 - 120	98	80 - 120	<0.20	ug/L	1.3	20
8623461	Total Copper (Cu)	2017/05/10	86	80 - 120	97	80 - 120	<0.50	ug/L	6.8	20
8623461	Total Iron (Fe)	2017/05/10	128 (1)	80 - 120	107	80 - 120	<10	ug/L	55 (1)	20
8623461	Total Lead (Pb)	2017/05/10	92	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
8623461	Total Manganese (Mn)	2017/05/10	NC	80 - 120	98	80 - 120	<1.0	ug/L	1.2	20
8623461	Total Molybdenum (Mo)	2017/05/10	NC	80 - 120	100	80 - 120	<1.0	ug/L	3.9	20
8623461	Total Nickel (Ni)	2017/05/10	92	80 - 120	98	80 - 120	<1.0	ug/L	0.067	20
8623461	Total Selenium (Se)	2017/05/10	105	80 - 120	97	80 - 120	<0.10	ug/L	0.17	20
8623461	Total Silver (Ag)	2017/05/10	93	80 - 120	104	80 - 120	<0.020	ug/L	NC	20
8623461	Total Zinc (Zn)	2017/05/10	82	80 - 120	94	80 - 120	<5.0	ug/L	NC	20

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Maxxam Job #: B733680
Report Date: 2017/05/10

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8624236	Total Suspended Solids	2017/05/10	108	80 - 120	105	80 - 120	<4.0	mg/L	4.2	20

N/A = Not Applicable

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

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

Dijana Bradaric

Dijana Bradaric, BBY Customer Service

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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.

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Maxxam

4606 Canada Way, Burnaby, BC Canada V5G 1K5 Ph: 604 734 7276 To

Maxxam Job#: B733680_COC

AIN OF CUSTODY RECORD

Page: 1 of 1

K 004460

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Keystone Environmental Ltd.
Contact Name: Judy Tai
Address: #320 4400 Dominion Street
Burnaby, BC PC: V5G 4G3
Phone / Fax#: Ph: (604) 430-0671 Fax: (604) 430-0672
E-mail: jtai@keystoneenviro.com

Report To:

Company Name: Same
Contact Name:
Address:
PC:
Ph: Fax:
E-mail: jholmes@keystoneenviro.com
gyes

PO #:
Quotation #:
Project # : 12732 - 54
Proj. Name:
Location:
Sampled By: holmes

REGULATORY REQUIREMENTS SERVICE REQUESTED:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☑ Other M.V.
- ☐ DRINKING WATER

- ☑ Regular Turn Around Time (TAT) (5 days for most tests)
- ☐ RUSH (Please contact the lab)
  - ☐ 1 Day ☐ 2 Day ☐ 3 Day
  - Date Required:

Special Instructions:

Return Cooler ☐ Ship Sample Bottles (please specify) ☐

No LL Hg. Report Total BTEX
Field pH = 7.0

ANALYSIS REQUESTED

	Sample Identification	Lab Identification	Sample Type	Date/Time Sampled	BTEX/VPH	VOC/VPH	EPH	PAH	CCME-PHC (Fractions 1-4 Plus BTEX)	CCME-PHC (Fractions 2-4)	CCME BTEX (Fraction 1 Plus BTEX)	PCB	Phenols by 4AAP	TOG	SWOG	Dissolved Metals	Totals Metals Field Acidified?	Nitrate	Chloride	Total Suspended Solids-TSS	pH	BOD	COD	Coliform, Total & E.coli	Asbestos	# of containers	HOLD
1	DS17-5		Water	May 4/17 1200																					7	
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Ammonia, Sulphate, TDS, Alkalinity, Fecal, Nitrite, Fluoride, Conductivity, Field Filtered?, Field Acidified?, MTBE, TEH, LEPH/HEPH, Phenols by GCMS, N, Y, MV Metals

Samples are from a Drinking Water Source? NO
Does source supply multiple households? NO

Laboratory Use Only

*Relinquished by:	Date (YY/MM/DD):	Time:	Received by:	Date (YY/MM/DD):	Time:	Time Sensitive	Temperature on Receipt (°C)	Custody Seal Intact on Cooler?
	17/5/4	1245	AUGUSTIN ANCAMAO	17/05/04	12:53	☐	14, 13, 15 16.6 -43 JUST SAMPLED	NA Yes ☐ No ☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Your C.O.C. #: K017562

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/07/04
Report #: R2406575
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B751811
Received: 2017/06/27, 11:15

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH, VH, F1 SIM/MS	1	2017/06/28	2017/06/30	BBY8SOP-00010/11/12	PBM BC Lab Manual m
Hardness Total (calculated as CaCO3)	1	N/A	2017/06/30	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/06/29	2017/06/30	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/06/28	2017/06/29	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/06/29	2017/06/30	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/07/04	BBY WI-00033	Auto Calc
pH Water (1)	1	2017/06/28	2017/06/29	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/06/29	2017/06/30	BBY6SOP-00034	SM 22 2540 D
Volatile HC-BTEX	1	N/A	2017/06/30	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Maxxam Analytics International Corporation acting as Maxxam Analytics 8575 Lougheed Hwy, Burnaby, British Columbia, V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 12732
Your C.O.C. #: K017562

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/07/04
Report #: R2406575
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B751811
Received: 2017/06/27, 11:15

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604)639-2602
==========
This report has been generated and distributed using a secure automated process.
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Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RJ6638		
Sampling Date		2017/06/27 10:30		
COC Number		K017562		
	UNITS	**DS17-6**	**RDL**	**QC Batch**
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8679522
Physical Properties				
pH	pH	8.27		8680097
Physical Properties				
Total Suspended Solids	mg/L	<4.0	4.0	8680610
RDL = Reportable Detection Limit				

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Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		RJ6638		
Sampling Date		2017/06/27 10:30		
COC Number		K017562		
	UNITS	DS17-6	RDL	QC Batch
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8677029
Benzene	ug/L	<0.40	0.40	8678813
Toluene	ug/L	<0.40	0.40	8678813
Ethylbenzene	ug/L	<0.40	0.40	8678813
m & p-Xylene	ug/L	<0.40	0.40	8678813
o-Xylene	ug/L	<0.40	0.40	8678813
Styrene	ug/L	<0.40	0.40	8678813
Xylenes (Total)	ug/L	<0.40	0.40	8678813
VH C6-C10	ug/L	<300	300	8678813
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	112		8678813
4-Bromofluorobenzene (sur.)	%	111		8678813
D4-1,2-Dichloroethane (sur.)	%	124		8678813
RDL = Reportable Detection Limit				

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Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		RJ6638		
Sampling Date		2017/06/27 10:30		
COC Number		K017562		
	UNITS	DS17-6	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	196	0.50	8677361
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	9.4	3.0	8680437
Total Arsenic (As)	ug/L	2.17	0.10	8680437
Total Boron (B)	ug/L	<50	50	8680437
Total Cadmium (Cd)	ug/L	<0.010	0.010	8680437
Total Chromium (Cr)	ug/L	<1.0	1.0	8680437
Total Cobalt (Co)	ug/L	0.92	0.20	8680437
Total Copper (Cu)	ug/L	<0.50	0.50	8680437
Total Iron (Fe)	ug/L	45	10	8680437
Total Lead (Pb)	ug/L	<0.20	0.20	8680437
Total Manganese (Mn)	ug/L	792	1.0	8680437
Total Molybdenum (Mo)	ug/L	9.9	1.0	8680437
Total Nickel (Ni)	ug/L	<1.0	1.0	8680437
Total Selenium (Se)	ug/L	<0.10	0.10	8680437
Total Silver (Ag)	ug/L	<0.020	0.020	8680437
Total Zinc (Zn)	ug/L	<5.0	5.0	8680437
RDL = Reportable Detection Limit				

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Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		RJ6638		
Sampling Date		2017/06/27 10:30		
COC Number		K017562		
	UNITS	DS17-6	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	0.21	0.10	8677028
High Molecular Weight PAH`s	ug/L	<0.050	0.050	8677028
Total PAH	ug/L	0.21	0.10	8677028
Quinoline	ug/L	<0.020	0.020	8679868
Naphthalene	ug/L	0.21	0.10	8679868
2-Methylnaphthalene	ug/L	<0.10	0.10	8679868
Acenaphthylene	ug/L	<0.050	0.050	8679868
Acenaphthene	ug/L	<0.050	0.050	8679868
Fluorene	ug/L	<0.050	0.050	8679868
Phenanthrene	ug/L	<0.050	0.050	8679868
Anthracene	ug/L	<0.010	0.010	8679868
Acridine	ug/L	<0.050	0.050	8679868
Fluoranthene	ug/L	<0.020	0.020	8679868
Pyrene	ug/L	<0.020	0.020	8679868
Benzo(a)anthracene	ug/L	<0.010	0.010	8679868
Chrysene	ug/L	<0.020	0.020	8679868
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8679868
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8679868
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8679868
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8679868
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8679868
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8679868
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	86		8679868
D8-ACENAPHTHYLENE (sur.)	%	89		8679868
D8-NAPHTHALENE (sur.)	%	65		8679868
TERPHENYL-D14 (sur.)	%	87		8679868
RDL = Reportable Detection Limit				

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Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	17.7°C

Results relate only to the items tested.

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Maxxam Job #: B751811
Report Date: 2017/07/04

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8678813	1,4-Difluorobenzene (sur.)	2017/06/30	97	70 - 130	98	70 - 130	107	%		
8678813	4-Bromofluorobenzene (sur.)	2017/06/30	101	70 - 130	94	70 - 130	100	%		
8678813	D4-1,2-Dichloroethane (sur.)	2017/06/30	112	70 - 130	95	70 - 130	104	%		
8679868	D10-ANTHRACENE (sur.)	2017/06/29	92	60 - 130	91	60 - 130	92	%		
8679868	D8-ACENAPHTHYLENE (sur.)	2017/06/29	95	50 - 130	94	50 - 130	94	%		
8679868	D8-NAPHTHALENE (sur.)	2017/06/29	86	50 - 130	85	50 - 130	86	%		
8679868	TERPHENYL-D14 (sur.)	2017/06/29	93	60 - 130	92	60 - 130	94	%		
8678813	Benzene	2017/06/30	115	70 - 130	94	70 - 130	<0.40	ug/L	NC	30
8678813	Ethylbenzene	2017/06/30	113	70 - 130	99	70 - 130	<0.40	ug/L	NC	30
8678813	m & p-Xylene	2017/06/30	105	70 - 130	89	70 - 130	<0.40	ug/L	NC	30
8678813	o-Xylene	2017/06/30	113	70 - 130	95	70 - 130	<0.40	ug/L	NC	30
8678813	Styrene	2017/06/30	116	70 - 130	102	70 - 130	<0.40	ug/L	NC	30
8678813	Toluene	2017/06/30	108	70 - 130	86	70 - 130	<0.40	ug/L	23	30
8678813	VH C6-C10	2017/06/30			88	70 - 130	<300	ug/L		
8678813	Xylenes (Total)	2017/06/30					<0.40	ug/L	NC	30
8679522	Oil & Grease (mineral/synthetic)	2017/06/29			95	70 - 130	<2.0	mg/L		
8679868	2-Methylnaphthalene	2017/06/29	90	50 - 130	89	50 - 130	<0.10	ug/L	NC	40
8679868	Acenaphthene	2017/06/29	93	50 - 130	93	50 - 130	<0.050	ug/L	NC	40
8679868	Acenaphthylene	2017/06/29	93	50 - 130	92	50 - 130	<0.050	ug/L	NC	40
8679868	Acridine	2017/06/29	102	50 - 130	104	50 - 130	<0.050	ug/L	NC	40
8679868	Anthracene	2017/06/29	95	60 - 130	97	60 - 130	<0.010	ug/L	NC	40
8679868	Benzo(a)anthracene	2017/06/29	91	60 - 130	91	60 - 130	<0.010	ug/L	NC	40
8679868	Benzo(a)pyrene	2017/06/29	101	60 - 130	104	60 - 130	<0.0050	ug/L	NC	40
8679868	Benzo(b&j)fluoranthene	2017/06/29	97	60 - 130	98	60 - 130	<0.030	ug/L	NC	40
8679868	Benzo(g,h,i)perylene	2017/06/29	89	60 - 130	95	60 - 130	<0.050	ug/L	NC	40
8679868	Benzo(k)fluoranthene	2017/06/29	104	60 - 130	101	60 - 130	<0.050	ug/L	NC	40
8679868	Chrysene	2017/06/29	90	60 - 130	91	60 - 130	<0.020	ug/L	NC	40
8679868	Dibenz(a,h)anthracene	2017/06/29	97	60 - 130	103	60 - 130	<0.0030	ug/L	NC	40
8679868	Fluoranthene	2017/06/29	97	60 - 130	96	60 - 130	<0.020	ug/L	NC	40
8679868	Fluorene	2017/06/29	92	50 - 130	92	50 - 130	<0.050	ug/L	NC	40
8679868	Indeno(1,2,3-cd)pyrene	2017/06/29	95	60 - 130	100	60 - 130	<0.050	ug/L	NC	40

Maxxam Job #: B751811
Report Date: 2017/07/04

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8679868	Naphthalene	2017/06/29	84	50 - 130	86	50 - 130	<0.10	ug/L	0.34	40
8679868	Phenanthrene	2017/06/29	91	60 - 130	88	60 - 130	<0.050	ug/L	NC	40
8679868	Pyrene	2017/06/29	98	60 - 130	98	60 - 130	<0.020	ug/L	NC	40
8679868	Quinoline	2017/06/29	113	50 - 130	115	50 - 130	<0.020	ug/L	NC	40
8680097	pH	2017/06/29			102	97 - 103				
8680437	Total Aluminum (Al)	2017/06/30	101	80 - 120	104	80 - 120	<3.0	ug/L	10	20
8680437	Total Arsenic (As)	2017/06/30	102	80 - 120	101	80 - 120	<0.10	ug/L	0.66	20
8680437	Total Boron (B)	2017/06/30	94	80 - 120	95	80 - 120	<50	ug/L	NC	20
8680437	Total Cadmium (Cd)	2017/06/30	104	80 - 120	104	80 - 120	<0.010	ug/L	13	20
8680437	Total Chromium (Cr)	2017/06/30	102	80 - 120	107	80 - 120	<1.0	ug/L	NC	20
8680437	Total Cobalt (Co)	2017/06/30	102	80 - 120	107	80 - 120	<0.20	ug/L	NC	20
8680437	Total Copper (Cu)	2017/06/30	101	80 - 120	104	80 - 120	<0.50	ug/L	0.22	20
8680437	Total Iron (Fe)	2017/06/30	118	80 - 120	109	80 - 120	<10	ug/L	2.3	20
8680437	Total Lead (Pb)	2017/06/30	98	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
8680437	Total Manganese (Mn)	2017/06/30	94	80 - 120	99	80 - 120	<1.0	ug/L	1.9	20
8680437	Total Molybdenum (Mo)	2017/06/30	NC	80 - 120	102	80 - 120	<1.0	ug/L	0.22	20
8680437	Total Nickel (Ni)	2017/06/30	100	80 - 120	109	80 - 120	<1.0	ug/L	2.0	20
8680437	Total Selenium (Se)	2017/06/30	108	80 - 120	104	80 - 120	<0.10	ug/L	8.5	20
8680437	Total Silver (Ag)	2017/06/30	108	80 - 120	111	80 - 120	<0.020	ug/L	NC	20
8680437	Total Zinc (Zn)	2017/06/30	107	80 - 120	108	80 - 120	<5.0	ug/L	NC	20
8680610	Total Suspended Solids	2017/06/30	93	80 - 120	96	80 - 120	<4.0	mg/L	9.7	20

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

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

Andy Lu, Ph.D., P.Chem., Scientific Specialist

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K 017562

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CHAIN OF CUSTODY RECORD

BBY FCD-00077/07

Page _____ of _____

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name: Same	Quotation #:	☐ Regular TAT 5 days (Most analyses)
Contact Name: Judy Tai	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 12732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location:	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: jtai@keystoneenviro.com	Email: shalmes@keystoneenviro.com	Sampled By: Holmes	Date Required:

Regulatory Criteria	Special Instructions
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Cooler
☐ YK CSR Soil ☐ YK CSR Water	☐ Ship Sample Bottles (Please Specify)
☐ CCME (Specify) ☑ Other (Specify) M.V.	
☐ Drinking Water ☐ BC Water Quality	

Rush Confirmation #:

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

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEXS / VPH	BTEX / F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	M.V. metals	MOE			# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	DS17-6	17/6/27	10 30	water																	7	
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Analysis Requested	LABORATORY USE ONLY
MTBE ☐	CUSTODY SEAL Y / N (N)
VOC / BTEXS / VPH ☐	Present / Intact
VOC / BTEX / F1 ☐	COOLER TEMPERATURES
LEPH/HEPH/PAH ☐	MA / 17,8,8
F2 - F4 ☐	
TEH ☐	
EPH ☐	
Preserved? ☐	
Filtered? ☐	
Dissolved Metals ☐	
Preserved? ☐	
Filtered? ☐	
Dissolved Mercury ☐	
Field Preserved? ☐	
Total Metals ☐	
Field Preserved? ☐	
Total Mercury ☐	
Sulphate ☐	
COD ☐	
Fluoride ☐	
BOD ☐	
TDS ☐	
Conductivity ☐	
Alkalinity ☐	
Ammonia ☐	
Nitrate ☐	
Nitrite ☐	
M.V. metals ☐	
MOE ☐	
COOLING MEDIA PRESENT Y / N (N)	
COMMENTS	

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
	17/6/27	11 15	Laurel Berthier	2017/06/27	11:15

B751811_COC

COC-1027 Keystone

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K012319

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/07/18
Report #: R2414474
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B756799
Received: 2017/07/11, 17:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	1	2017/07/11	2017/07/17	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	1	2017/07/14	2017/07/14	BBY8SOP-00010/11/12	PBM BC Lab Manual m
Hardness Total (calculated as CaCO3)	1	N/A	2017/07/17	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/07/14	2017/07/15	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/07/12	2017/07/13	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/07/14	2017/07/15	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/07/17	BBY WI-00033	Auto Calc
pH Water (1)	1	2017/07/14	2017/07/15	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/07/17	2017/07/18	BBY6SOP-00034	SM 22 2540 D
Field pH	1	N/A	2017/07/17		
Volatile HC-BTEX	1	N/A	2017/07/17	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K012319

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/07/18
Report #: R2414474
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B756799
Received: 2017/07/11, 17:30

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604)639-2602

==========

This report has been generated and distributed using a secure automated process.
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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	**DS17-7**	**RDL**	**QC Batch**
Field Parameters				
Field pH	pH	7.12	N/A	ONSITE
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8693212
Physical Properties				
pH	pH	8.30		8695830
Physical Properties				
Total Suspended Solids	mg/L	<4.0	4.0	8697249

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	DS17-7	RDL	QC Batch
Industrial				
BTEX Total	ug/L	461	0.40	8691256
RDL = Reportable Detection Limit				

Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	DS17-7	RDL	QC Batch
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8690943
Benzene	ug/L	89	0.40	8695110
Toluene	ug/L	210	0.40	8695110
Ethylbenzene	ug/L	4.6	0.40	8695110
m & p-Xylene	ug/L	100	0.40	8695110
o-Xylene	ug/L	56	0.40	8695110
Styrene	ug/L	<0.40	0.40	8695110
Xylenes (Total)	ug/L	160	0.40	8695110
VH C6-C10	ug/L	470	300	8695110
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	107		8695110
4-Bromofluorobenzene (sur.)	%	97		8695110
D4-1,2-Dichloroethane (sur.)	%	100		8695110
RDL = Reportable Detection Limit				

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	DS17-7	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	216	0.50	8691447
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	11.5	3.0	8695061
Total Arsenic (As)	ug/L	1.92	0.10	8695061
Total Boron (B)	ug/L	<50	50	8695061
Total Cadmium (Cd)	ug/L	0.013	0.010	8695061
Total Chromium (Cr)	ug/L	<1.0	1.0	8695061
Total Cobalt (Co)	ug/L	0.95	0.20	8695061
Total Copper (Cu)	ug/L	3.05	0.50	8695061
Total Iron (Fe)	ug/L	248	10	8695061
Total Lead (Pb)	ug/L	0.97	0.20	8695061
Total Manganese (Mn)	ug/L	620	1.0	8695061
Total Molybdenum (Mo)	ug/L	24.2	1.0	8695061
Total Nickel (Ni)	ug/L	<1.0	1.0	8695061
Total Selenium (Se)	ug/L	<0.10	0.10	8695061
Total Silver (Ag)	ug/L	<0.020	0.020	8695061
Total Zinc (Zn)	ug/L	14.0	5.0	8695061
RDL = Reportable Detection Limit				

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	DS17-7	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	1.6	0.10	8690810
High Molecular Weight PAH`s	ug/L	<0.050	0.050	8690810
Total PAH	ug/L	1.6	0.10	8690810
Quinoline	ug/L	<0.020	0.020	8695389
Naphthalene	ug/L	1.4	0.10	8695389
2-Methylnaphthalene	ug/L	0.24	0.10	8695389
Acenaphthylene	ug/L	<0.050	0.050	8695389
Acenaphthene	ug/L	<0.050	0.050	8695389
Fluorene	ug/L	<0.050	0.050	8695389
Phenanthrene	ug/L	<0.050	0.050	8695389
Anthracene	ug/L	<0.010	0.010	8695389
Acridine	ug/L	<0.050	0.050	8695389
Fluoranthene	ug/L	<0.020	0.020	8695389
Pyrene	ug/L	<0.020	0.020	8695389
Benzo(a)anthracene	ug/L	<0.010	0.010	8695389
Chrysene	ug/L	<0.020	0.020	8695389
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8695389
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8695389
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8695389
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8695389
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8695389
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8695389
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	100		8695389
D8-ACENAPHTHYLENE (sur.)	%	102		8695389
D8-NAPHTHALENE (sur.)	%	99		8695389
TERPHENYL-D14 (sur.)	%	99		8695389
RDL = Reportable Detection Limit				

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	13.7°C

Results relate only to the items tested.

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Maxxam Job #: B756799
Report Date: 2017/07/18

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8695110	1,4-Difluorobenzene (sur.)	2017/07/14	102	70 - 130	103	70 - 130	105	%		
8695110	4-Bromofluorobenzene (sur.)	2017/07/14	97	70 - 130	88	70 - 130	93	%		
8695110	D4-1,2-Dichloroethane (sur.)	2017/07/14	98	70 - 130	95	70 - 130	101	%		
8695389	D10-ANTHRACENE (sur.)	2017/07/17	103	60 - 130	113	60 - 130	102	%		
8695389	D8-ACENAPHTHYLENE (sur.)	2017/07/17	100	50 - 130	115	50 - 130	103	%		
8695389	D8-NAPHTHALENE (sur.)	2017/07/17	107	50 - 130	100	50 - 130	98	%		
8695389	TERPHENYL-D14 (sur.)	2017/07/17	116	60 - 130	120	60 - 130	105	%		
8693212	Oil & Grease (mineral/synthetic)	2017/07/13			90	70 - 130	<2.0	mg/L		
8695061	Total Aluminum (Al)	2017/07/15	NC	80 - 120	113	80 - 120	<3.0	ug/L	6.3	20
8695061	Total Arsenic (As)	2017/07/15	98	80 - 120	99	80 - 120	<0.10	ug/L	0.76	20
8695061	Total Boron (B)	2017/07/15	104	80 - 120	103	80 - 120	<50	ug/L	NC	20
8695061	Total Cadmium (Cd)	2017/07/15	93	80 - 120	98	80 - 120	<0.010	ug/L	NC	20
8695061	Total Chromium (Cr)	2017/07/15	99	80 - 120	99	80 - 120	<1.0	ug/L	1.9	20
8695061	Total Cobalt (Co)	2017/07/15	96	80 - 120	98	80 - 120	<0.20	ug/L	NC	20
8695061	Total Copper (Cu)	2017/07/15	94	80 - 120	100	80 - 120	<0.50	ug/L	0.40	20
8695061	Total Iron (Fe)	2017/07/15	NC	80 - 120	112	80 - 120	<10	ug/L	9.5	20
8695061	Total Lead (Pb)	2017/07/15	97	80 - 120	100	80 - 120	<0.20	ug/L	0.46	20
8695061	Total Manganese (Mn)	2017/07/15	NC	80 - 120	99	80 - 120	<1.0	ug/L	0.97	20
8695061	Total Molybdenum (Mo)	2017/07/15	NC	80 - 120	103	80 - 120	<1.0	ug/L	0.81	20
8695061	Total Nickel (Ni)	2017/07/15	94	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
8695061	Total Selenium (Se)	2017/07/15	96	80 - 120	105	80 - 120	<0.10	ug/L	17	20
8695061	Total Silver (Ag)	2017/07/15	99	80 - 120	105	80 - 120	<0.020	ug/L	NC	20
8695061	Total Zinc (Zn)	2017/07/15	86	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
8695110	Benzene	2017/07/14	101	70 - 130	97	70 - 130	<0.40	ug/L	NC	30
8695110	Ethylbenzene	2017/07/14	97	70 - 130	98	70 - 130	<0.40	ug/L	NC	30
8695110	m & p-Xylene	2017/07/14	95	70 - 130	96	70 - 130	<0.40	ug/L	NC	30
8695110	o-Xylene	2017/07/14	94	70 - 130	83	70 - 130	<0.40	ug/L	NC	30
8695110	Styrene	2017/07/14	103	70 - 130	91	70 - 130	<0.40	ug/L	NC	30
8695110	Toluene	2017/07/14	97	70 - 130	95	70 - 130	<0.40	ug/L	NC	30
8695110	VH C6-C10	2017/07/14			107	70 - 130	<300	ug/L	NC	30
8695110	Xylenes (Total)	2017/07/14					<0.40	ug/L	NC	30

Maxxam Job #: B756799
Report Date: 2017/07/18

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8695389	2-Methylnaphthalene	2017/07/15	86	50 - 130	72	50 - 130	<0.10	ug/L	NC	40
8695389	Acenaphthene	2017/07/15	94	50 - 130	88	50 - 130	<0.050	ug/L	NC	40
8695389	Acenaphthylene	2017/07/15	88	50 - 130	82	50 - 130	<0.050	ug/L	NC	40
8695389	Acridine	2017/07/15	94	50 - 130	74	50 - 130	<0.050	ug/L	NC	40
8695389	Anthracene	2017/07/15	95	60 - 130	82	60 - 130	<0.010	ug/L	NC	40
8695389	Benzo(a)anthracene	2017/07/15	88	60 - 130	70	60 - 130	<0.010	ug/L	NC	40
8695389	Benzo(a)pyrene	2017/07/15	90	60 - 130	84	60 - 130	<0.0050	ug/L	NC	40
8695389	Benzo(b&j)fluoranthene	2017/07/15	90	60 - 130	81	60 - 130	<0.030	ug/L	NC	40
8695389	Benzo(g,h,i)perylene	2017/07/15	91	60 - 130	77	60 - 130	<0.050	ug/L	NC	40
8695389	Benzo(k)fluoranthene	2017/07/15	89	60 - 130	86	60 - 130	<0.050	ug/L	NC	40
8695389	Chrysene	2017/07/15	99	60 - 130	73	60 - 130	<0.020	ug/L	NC	40
8695389	Dibenz(a,h)anthracene	2017/07/15	96	60 - 130	84	60 - 130	<0.0030	ug/L	NC	40
8695389	Fluoranthene	2017/07/15	102	60 - 130	77	60 - 130	<0.020	ug/L	NC	40
8695389	Fluorene	2017/07/15	93	50 - 130	83	50 - 130	<0.050	ug/L	NC	40
8695389	Indeno(1,2,3-cd)pyrene	2017/07/15	94	60 - 130	81	60 - 130	<0.050	ug/L	NC	40
8695389	Naphthalene	2017/07/15	85	50 - 130	66	50 - 130	<0.10	ug/L	NC	40
8695389	Phenanthrene	2017/07/15	93	60 - 130	83	60 - 130	<0.050	ug/L	NC	40
8695389	Pyrene	2017/07/15	105	60 - 130	89	60 - 130	<0.020	ug/L	NC	40
8695389	Quinoline	2017/07/15	108	50 - 130	86	50 - 130	<0.020	ug/L	NC	40
8695830	pH	2017/07/15			101	97 - 103				
8697249	Total Suspended Solids	2017/07/18	112	80 - 120	102	80 - 120	<4.0	mg/L		

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

VALIDATION SIGNATURE PAGE

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

Andy Lu, Ph.D., P.Chem., Scientific Specialist

Dijana Bradaric

Dijana Bradaric, BBY Customer Service

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.

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Maxxam

4606 Canada Way, Burnaby, BC Canada V5G

386

B756799_COC

CHAIN OF CUSTODY RECORD

Page: 1 of 1

K 012319

Invoice To: Require Report? Yes [X] No [ ]

Company Name: Keystone Environmental Ltd.
Contact Name: Judy Tai
Address: #320-4400 Dominion Street
Burnaby, BC PC: V5G 4G3
Phone / Fax#: Ph: (604) 430-0671 Fax: (604) 430-0672
E-mail jtai@keystoneenvironmental.ca

Company Name:
Contact Name: Same
Address:
PC:
Ph: Fax:
Phone / Fax#:
E-mail ggyn@keystoneenvironmental.ca
dholmes@keystoneenvironmental.ca

PO #:	
Quotation #:	
Project # :	12732
Proj. Name:	
Location:	1615 Renfrew St
Sampled By:	Garth Yu

REGULATORY REQUIREMENTS SERVICE REQUESTED:

- [ ] CSR
- [ ] CCME
- [ ] BC Water Quality
- [X] Other MetroVan
- [ ] DRINKING WATER
- [X] Regular Turn Around Time (TAT) (5 days for most tests)
- [ ] RUSH (Please contact the lab)
- [ ] 1 Day [ ] 2 Day [ ] 3 Day

Date Required:

Special Instructions:

Return Cooler [ ] Ship Sample Bottles (please specify) [ ]

field pH: 7.17 @ 23.7°C
Report total BTEX. Take pH from TSS bottle.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification	Sample Type	Date/Time Sampled	BTEX/VPH	VOC/VPH	EPH	PAH	CCME-PHC (Fractions 1-4 Plus BTEX)	CCME-PHC (Fractions 2-4)	CCME BTEX (Fraction 1 Plus BTEX)	PCB	Phenols by 4AAP	TOG	Phenols by GCMS	SWOG	Dissolved Metals	Field Filtered?	Field Acidified?	Metals Metals Field Acidified?	Nitrate	Nitrite	Chloride	Fluoride	Sulphate	Total Suspended Solids-TSS	pH	Conductivity	Alkalinity	BOD	COD	Coliform, Total & E.coli	Fecal	Asbestos	# of containers	HOLD
					MTBE		TEH	LEPH/HEPH						MOG		SWOG		Y	Y	N	Ammonia		Sulphate		TDS		Conductivity	Alkalinity				Fecal			
1	DJ17-7		water	July 11/17 15:15hrs	X			X						X		X				X					X	X									1	
2																																				
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				
11																																				
12																																				

Samples are from a Drinking Water Source? NO
Does source supply multiple households? NO

*Relinquished by:	Date (YY/MM/DD):	Time:	Received by:	Date (YY/MM/DD):	Time:	Time Sensitive	Temperature on Receipt (°C)	Custody Seal Intact on Cooler?
Garth Yu	17/07/11	1725	Kevin Chong	2017/07/11	17:30	✓	14, 14, 13	Yes / No

Laboratory Use Only

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

COC-1027-Keystone

Maxxam International Corporation o/a Maxxam Analytics

Just SAMPLED

NA

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K018241

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/09/01
Report #: R2438075
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B771897
Received: 2017/08/23, 17:50

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	2	2017/09/01	2017/09/01	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	2	2017/08/27	2017/08/28	BBY8SOP-00010/11/12	BC Lab Manual 2017 m
Hardness Total (calculated as CaCO3)	1	N/A	2017/08/28	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	1	N/A	2017/08/29	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2017/08/24	2017/08/28	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2017/08/24	2017/08/29	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (total)	2	2017/08/25	2017/08/28	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	2	2017/08/24	2017/08/25	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	2	2017/08/26	2017/08/26	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	2	N/A	2017/08/28	BBY WI-00033	Auto Calc
pH Water (1)	1	2017/08/25	2017/08/25	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/08/28	2017/08/29	BBY6SOP-00034	SM 22 2540 D
Field pH	1	N/A	2017/08/28		
Volatile HC-BTEX	2	N/A	2017/08/28	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Maxxam Analytics International Corporation, Maxxam Analytics, 8575 Lougheed Hwy, Burnaby, British Columbia, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

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Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O C. #: K018241

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/09/01
Report #: R2438075
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB # B771897
Received 2017/08/23, 17 50

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

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

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604)639-2602

==========

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.

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RU5415	RU5416		
Sampling Date		2017/08/23 05:05	2017/08/15 03:15		
COC Number		K018241	K018241		
	UNITS	DISCHARGE	INFLUENT	RDL	QC Batch
Field Parameters					
Field pH	pH	6.85		N/A	ONSITE
OIL & GREASE					
Oil & Grease (mineral/synthetic)	mg/L	<2.0	<2.0	2.0	8738115
Physical Properties					
pH	pH	7.98			8738082
Physical Properties					
Total Suspended Solids	mg/L	5.3		4.0	8740936
RDL = Reportable Detection Limit					

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		RU5415	RU5416		
Sampling Date		2017/08/23 05:05	2017/08/15 03:15		
COC Number		K018241	K018241		
	UNITS	DISCHARGE	INFLUENT	RDL	QC Batch
Industrial					
BTEX Total	ug/L	235	413	0.40	8745474
RDL = Reportable Detection Limit					

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		RU5415	RU5416		
Sampling Date		2017/08/23 05:05	2017/08/15 03:15		
COC Number		K018241	K018241		
	UNITS	DISCHARGE	INFLUENT	RDL	QC Batch
Volatiles					
VPH (VHW6 to 10 - BTEX)	ug/L	<300	<300	300	8736869
Benzene	ug/L	49	110	0.40	8739814
Toluene	ug/L	33	75	0.40	8739814
Ethylbenzene	ug/L	0.49	<0.40	0.40	8739814
m & p-Xylene	ug/L	67	130	0.40	8739814
o-Xylene	ug/L	86	100	0.40	8739814
Styrene	ug/L	<0.40	<0.40	0.40	8739814
Xylenes (Total)	ug/L	150	230	0.40	8739814
VH C6-C10	ug/L	<300	560	300	8739814
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	109	108		8739814
4-Bromofluorobenzene (sur.)	%	99	104		8739814
D4-1,2-Dichloroethane (sur.)	%	122	121		8739814
RDL = Reportable Detection Limit					

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

CSR TOTAL METALS (NO CV-HG) IN WATER

Maxxam ID		RU5415		RU5416		
Sampling Date		2017/08/23 05:05		2017/08/15 03:15		
COC Number		K018241		K018241		
	UNITS	DISCHARGE	QC Batch	INFLUENT	RDL	QC Batch
Calculated Parameters						
Total Hardness (CaCO3)	mg/L	234	8736498	182	0.50	8736498
Total Metals by ICPMS						
Total Aluminum (Al)	ug/L	17.2	8738896	190	3.0	8738275
Total Antimony (Sb)	ug/L	<0.50	8738896	<0.50	0.50	8738275
Total Arsenic (As)	ug/L	2.06	8738896	1.46	0.10	8738275
Total Barium (Ba)	ug/L	50.9	8738896	45.7	1.0	8738275
Total Beryllium (Be)	ug/L	<0.10	8738896	<0.10	0.10	8738275
Total Bismuth (Bi)	ug/L	<1.0	8738896	<1.0	1.0	8738275
Total Boron (B)	ug/L	<50	8738896	<50	50	8738275
Total Cadmium (Cd)	ug/L	0.010	8738896	0.022	0.010	8738275
Total Chromium (Cr)	ug/L	<1.0	8738896	4.0	1.0	8738275
Total Cobalt (Co)	ug/L	0.64	8738896	0.54	0.20	8738275
Total Copper (Cu)	ug/L	2.99	8738896	3.77	0.50	8738275
Total Iron (Fe)	ug/L	1660	8738896	1420	10	8738275
Total Lead (Pb)	ug/L	1.10	8738896	0.67	0.20	8738275
Total Lithium (Li)	ug/L	<2.0	8738896	2.6	2.0	8738275
Total Manganese (Mn)	ug/L	326	8738896	86.3	1.0	8738275
Total Mercury (Hg)	ug/L	<0.050	8738896	<0.050	0.050	8738275
Total Molybdenum (Mo)	ug/L	8.1	8738896	3.2	1.0	8738275
Total Nickel (Ni)	ug/L	1.3	8738896	<1.0	1.0	8738275
Total Selenium (Se)	ug/L	<0.10	8738896	0.40	0.10	8738275
Total Silicon (Si)	ug/L	15100	8738896	17900	100	8738275
Total Silver (Ag)	ug/L	<0.020	8738896	<0.020	0.020	8738275
Total Strontium (Sr)	ug/L	496	8738896	393	1.0	8738275
Total Thallium (Tl)	ug/L	<0.010	8738896	<0.010	0.010	8738275
Total Tin (Sn)	ug/L	<5.0	8738896	<5.0	5.0	8738275
Total Titanium (Ti)	ug/L	<5.0	8738896	6.2	5.0	8738275
Total Uranium (U)	ug/L	0.69	8738896	0.52	0.10	8738275
Total Vanadium (V)	ug/L	<5.0	8738896	8.0	5.0	8738275
Total Zinc (Zn)	ug/L	12.2	8738896	12.7	5.0	8738275
Total Zirconium (Zr)	ug/L	<0.10	8738896	0.15	0.10	8738275
RDL = Reportable Detection Limit						

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

CSR TOTAL METALS (NO CV-HG) IN WATER

Maxxam ID		RU5415		RU5416		
Sampling Date		2017/08/23 05:05		2017/08/15 03:15		
COC Number		K018241		K018241		
	UNITS	DISCHARGE	QC Batch	INFLUENT	RDL	QC Batch
Total Calcium (Ca)	mg/L	65.2	8736499	49.8	0.050	8736499
Total Magnesium (Mg)	mg/L	17.4	8736499	14.0	0.050	8736499
Total Potassium (K)	mg/L	7.26	8736499	14.5	0.050	8736499
Total Sodium (Na)	mg/L	30.5	8736499	40.5	0.050	8736499
Total Sulphur (S)	mg/L	8.7	8736499	11.0	3.0	8736499
RDL = Reportable Detection Limit						

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		RU5415	RU5416		
Sampling Date		2017/08/23 05:05	2017/08/15 03:15		
COC Number		K018241	K018241		
	UNITS	DISCHARGE	INFLUENT	RDL	QC Batch
Polycyclic Aromatics					
Low Molecular Weight PAH`s	ug/L	0.21	0.90	0.10	8736709
High Molecular Weight PAH`s	ug/L	<0.050	<0.050	0.050	8736709
Total PAH	ug/L	0.21	0.90	0.10	8736709
Quinoline	ug/L	<0.020	0.17	0.020	8739152
Naphthalene	ug/L	0.21	0.56	0.10	8739152
2-Methylnaphthalene	ug/L	<0.10	0.16	0.10	8739152
Acenaphthylene	ug/L	<0.050	<0.050	0.050	8739152
Acenaphthene	ug/L	<0.050	<0.050	0.050	8739152
Fluorene	ug/L	<0.050	<0.050	0.050	8739152
Phenanthrene	ug/L	<0.050	<0.050	0.050	8739152
Anthracene	ug/L	<0.010	<0.010	0.010	8739152
Acridine	ug/L	<0.050	<0.050	0.050	8739152
Fluoranthene	ug/L	<0.020	<0.020	0.020	8739152
Pyrene	ug/L	<0.020	<0.020	0.020	8739152
Benzo(a)anthracene	ug/L	<0.010	<0.010	0.010	8739152
Chrysene	ug/L	<0.020	<0.020	0.020	8739152
Benzo(b&j)fluoranthene	ug/L	<0.030	<0.030	0.030	8739152
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	0.050	8739152
Benzo(a)pyrene	ug/L	<0.0050	<0.0050	0.0050	8739152
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	0.050	8739152
Dibenz(a,h)anthracene	ug/L	<0.0030	<0.0030	0.0030	8739152
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	0.050	8739152
Surrogate Recovery (%)					
D10-ANTHRACENE (sur.)	%	92	91		8739152
D8-ACENAPHTHYLENE (sur.)	%	93	92		8739152
D8-NAPHTHALENE (sur.)	%	92	91		8739152
TERPHENYL-D14 (sur.)	%	87	84		8739152
RDL = Reportable Detection Limit					

Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	11.3°C
Package 2	21.0°C

Revised Report (Version: 2): Total BTEX requested as per Judy Tai (GP5).

CSR TOTAL METALS (NO CV-HG) IN WATER Comments

Matrix Spike Elements by CRC ICPMS (total): RDL raised due to concentration over linear range, sample dilution required

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B771897
Report Date: 2017/09/01

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8739152	D10-ANTHRACENE (sur.)	2017/08/26	107	50 - 140	98	50 - 140	100	%		
8739152	D8-ACENAPHTHYLENE (sur.)	2017/08/26	104	50 - 140	96	50 - 140	100	%		
8739152	D8-NAPHTHALENE (sur.)	2017/08/26	99	50 - 140	97	50 - 140	97	%		
8739152	TERPHENYL-D14 (sur.)	2017/08/26	101	50 - 140	96	50 - 140	91	%		
8739814	1,4-Difluorobenzene (sur.)	2017/08/28	97	70 - 130	114	70 - 130	120	%		
8739814	4-Bromofluorobenzene (sur.)	2017/08/28	96	70 - 130	112	70 - 130	99	%		
8739814	D4-1,2-Dichloroethane (sur.)	2017/08/28	106	70 - 130	118	70 - 130	119	%		
8738082	pH	2017/08/25			101	97 - 103			1.7	20
8738115	Oil & Grease (mineral/synthetic)	2017/08/25			92	70 - 130	<2.0	mg/L		
8738275	Total Aluminum (Al)	2017/08/28	105	80 - 120	111	80 - 120	<3.0	ug/L		
8738275	Total Antimony (Sb)	2017/08/28	111	80 - 120	96	80 - 120	<0.50	ug/L		
8738275	Total Arsenic (As)	2017/08/28	110	80 - 120	99	80 - 120	<0.10	ug/L		
8738275	Total Barium (Ba)	2017/08/28	NC	80 - 120	99	80 - 120	<1.0	ug/L		
8738275	Total Beryllium (Be)	2017/08/28	107	80 - 120	100	80 - 120	<0.10	ug/L		
8738275	Total Bismuth (Bi)	2017/08/28	96	80 - 120	100	80 - 120	<1.0	ug/L		
8738275	Total Boron (B)	2017/08/28	NC	80 - 120	101	80 - 120	<50	ug/L		
8738275	Total Cadmium (Cd)	2017/08/28	110	80 - 120	99	80 - 120	<0.010	ug/L		
8738275	Total Chromium (Cr)	2017/08/28	99	80 - 120	96	80 - 120	<1.0	ug/L		
8738275	Total Cobalt (Co)	2017/08/28	96	80 - 120	97	80 - 120	<0.20	ug/L		
8738275	Total Copper (Cu)	2017/08/28	93	80 - 120	96	80 - 120	<0.50	ug/L		
8738275	Total Iron (Fe)	2017/08/28	NC	80 - 120	107	80 - 120	<10	ug/L	0.41	20
8738275	Total Lead (Pb)	2017/08/28	98	80 - 120	99	80 - 120	<0.20	ug/L		
8738275	Total Lithium (Li)	2017/08/28	102	80 - 120	99	80 - 120	<2.0	ug/L		
8738275	Total Manganese (Mn)	2017/08/28	NC	80 - 120	99	80 - 120	<1.0	ug/L		
8738275	Total Mercury (Hg)	2017/08/28	110	80 - 120	98	80 - 120	<0.050	ug/L		
8738275	Total Molybdenum (Mo)	2017/08/28	112	80 - 120	98	80 - 120	<1.0	ug/L		
8738275	Total Nickel (Ni)	2017/08/28	97	80 - 120	96	80 - 120	<1.0	ug/L		
8738275	Total Selenium (Se)	2017/08/28	108	80 - 120	103	80 - 120	<0.10	ug/L		
8738275	Total Silicon (Si)	2017/08/28					<100	ug/L		
8738275	Total Silver (Ag)	2017/08/28	105	80 - 120	104	80 - 120	<0.020	ug/L		
8738275	Total Strontium (Sr)	2017/08/28	NC	80 - 120	95	80 - 120	<1.0	ug/L		

Maxxam Job #: B771897
Report Date: 2017/09/01

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8738275	Total Thallium (Tl)	2017/08/28	101	80 - 120	100	80 - 120	<0.010	ug/L		
8738275	Total Tin (Sn)	2017/08/28	96	80 - 120	98	80 - 120	<5.0	ug/L		
8738275	Total Titanium (Ti)	2017/08/28	101	80 - 120	92	80 - 120	<5.0	ug/L		
8738275	Total Uranium (U)	2017/08/28	98	80 - 120	96	80 - 120	<0.10	ug/L		
8738275	Total Vanadium (V)	2017/08/28	97	80 - 120	96	80 - 120	<5.0	ug/L		
8738275	Total Zinc (Zn)	2017/08/28	NC	80 - 120	100	80 - 120	<5.0	ug/L		
8738275	Total Zirconium (Zr)	2017/08/28					<0.10	ug/L		
8738896	Total Aluminum (Al)	2017/08/28	112	80 - 120	112	80 - 120	<3.0	ug/L	NC	20
8738896	Total Antimony (Sb)	2017/08/28	103	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
8738896	Total Arsenic (As)	2017/08/28	108	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
8738896	Total Barium (Ba)	2017/08/28	100	80 - 120	102	80 - 120	<1.0	ug/L	0.79	20
8738896	Total Beryllium (Be)	2017/08/28	102	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
8738896	Total Bismuth (Bi)	2017/08/28	98	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
8738896	Total Boron (B)	2017/08/28	108	80 - 120	101	80 - 120	<50	ug/L	NC	20
8738896	Total Cadmium (Cd)	2017/08/28	104	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
8738896	Total Chromium (Cr)	2017/08/28	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
8738896	Total Cobalt (Co)	2017/08/28	95	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
8738896	Total Copper (Cu)	2017/08/28	91	80 - 120	98	80 - 120	<0.50	ug/L	0.38	20
8738896	Total Iron (Fe)	2017/08/28	104	80 - 120	109	80 - 120	<10	ug/L	3.5	20
8738896	Total Lead (Pb)	2017/08/28	97	80 - 120	99	80 - 120	<0.20	ug/L	1.2	20
8738896	Total Lithium (Li)	2017/08/28	NC	80 - 120	101	80 - 120	<2.0	ug/L	0.059	20
8738896	Total Manganese (Mn)	2017/08/28	NC	80 - 120	101	80 - 120	<1.0	ug/L	0.34	20
8738896	Total Mercury (Hg)	2017/08/28	102	80 - 120	97	80 - 120	<0.050	ug/L	NC	20
8738896	Total Molybdenum (Mo)	2017/08/28	104	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
8738896	Total Nickel (Ni)	2017/08/28	93	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
8738896	Total Selenium (Se)	2017/08/28	111	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
8738896	Total Silicon (Si)	2017/08/28					<100	ug/L	1.5	20
8738896	Total Silver (Ag)	2017/08/28	107	80 - 120	110	80 - 120	<0.020	ug/L	NC	20
8738896	Total Strontium (Sr)	2017/08/28	NC	80 - 120	98	80 - 120	<1.0	ug/L	0.24	20
8738896	Total Thallium (Tl)	2017/08/28	99	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
8738896	Total Tin (Sn)	2017/08/28	103	80 - 120	102	80 - 120	<5.0	ug/L	NC	20

Maxxam Job #: B771897
Report Date: 2017/09/01

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8738896	Total Titanium (Ti)	2017/08/28	100	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
8738896	Total Uranium (U)	2017/08/28	100	80 - 120	96	80 - 120	<0.10	ug/L	3.9	20
8738896	Total Vanadium (V)	2017/08/28	99	80 - 120	97	80 - 120	<5.0	ug/L	NC	20
8738896	Total Zinc (Zn)	2017/08/28	79 (1)	80 - 120	102	80 - 120	<5.0	ug/L	5.5	20
8738896	Total Zirconium (Zr)	2017/08/28					<0.10	ug/L	5.6	20
8739152	2-Methylnaphthalene	2017/08/26	90	50 - 140	82	50 - 140	<0.10	ug/L	NC	40
8739152	Acenaphthene	2017/08/26	93	50 - 140	87	50 - 140	<0.050	ug/L	NC	40
8739152	Acenaphthylene	2017/08/26	92	50 - 140	85	50 - 140	<0.050	ug/L	NC	40
8739152	Acridine	2017/08/26	96	50 - 140	96	50 - 140	<0.050	ug/L	NC	40
8739152	Anthracene	2017/08/26	99	50 - 140	90	50 - 140	<0.010	ug/L	NC	40
8739152	Benzo(a)anthracene	2017/08/26	95	50 - 140	85	50 - 140	<0.010	ug/L	NC	40
8739152	Benzo(a)pyrene	2017/08/26	90	50 - 140	86	50 - 140	<0.0050	ug/L	NC	40
8739152	Benzo(b&j)fluoranthene	2017/08/26	92	50 - 140	87	50 - 140	<0.030	ug/L	NC	40
8739152	Benzo(g,h,i)perylene	2017/08/26	76	50 - 140	82	50 - 140	<0.050	ug/L	NC	40
8739152	Benzo(k)fluoranthene	2017/08/26	96	50 - 140	87	50 - 140	<0.050	ug/L	NC	40
8739152	Chrysene	2017/08/26	105	50 - 140	93	50 - 140	<0.020	ug/L	NC	40
8739152	Dibenz(a,h)anthracene	2017/08/26	80	50 - 140	87	50 - 140	<0.0030	ug/L	NC	40
8739152	Fluoranthene	2017/08/26	92	50 - 140	91	50 - 140	<0.020	ug/L	NC	40
8739152	Fluorene	2017/08/26	91	50 - 140	87	50 - 140	<0.050	ug/L	NC	40
8739152	Indeno(1,2,3-cd)pyrene	2017/08/26	79	50 - 140	85	50 - 140	<0.050	ug/L	NC	40
8739152	Naphthalene	2017/08/26	95	50 - 140	91	50 - 140	<0.10	ug/L	NC	40
8739152	Phenanthrene	2017/08/26	96	50 - 140	91	50 - 140	<0.050	ug/L	NC	40
8739152	Pyrene	2017/08/26	93	50 - 140	91	50 - 140	<0.020	ug/L	NC	40
8739152	Quinoline	2017/08/26	105	50 - 140	82	50 - 140	<0.020	ug/L	NC	40
8739814	Benzene	2017/08/28	105	70 - 130	113	70 - 130	<0.40	ug/L	NC	30
8739814	Ethylbenzene	2017/08/28	104	70 - 130	103	70 - 130	<0.40	ug/L	NC	30
8739814	m & p-Xylene	2017/08/28	100	70 - 130	101	70 - 130	<0.40	ug/L	NC	30
8739814	o-Xylene	2017/08/28	100	70 - 130	97	70 - 130	<0.40	ug/L	NC	30
8739814	Styrene	2017/08/28	104	70 - 130	111	70 - 130	<0.40	ug/L	NC	30
8739814	Toluene	2017/08/28	96	70 - 130	107	70 - 130	<0.40	ug/L	NC	30
8739814	VH C6-C10	2017/08/28			99	70 - 130	<300	ug/L	NC	30

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Maxxam Job #: B771897
Report Date: 2017/09/01

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8739814	Xylenes (Total)	2017/08/28					<0.40	ug/L	NC	30
8740936	Total Suspended Solids	2017/08/29	108	80 - 120	97	80 - 120	<4.0	mg/L	4.5	20

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

VALIDATION SIGNATURE PAGE

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

Andy Lu, Ph.D., P.Chem., Scientific Specialist

Rob Reinert, B.Sc., Scientific Specialist

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 Analytics International Corporation o/a Maxxam Analytics 8-4606 Agar Drive Richmond, British Columbia, Canada V6W 1E6 Telephone(604) 734-7276 Fax(604) 731-2386

K 018241

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CHAIN OF CUSTODY RECORD

BBY FCD-00077/07

Page 1 of 1

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name:	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Judy Tai	Contact Name: same	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 12732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location: 1615 Renfrew St	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: jtai@keystoneenvironmental.com	Email: emarcy@keystoneenvironmental.com	Sampled By: Eva Marcy	Date Required:

Regulatory Criteria	Special Instructions
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Cooler
☐ YK CSR Soil ☐ YK CSR Water	☐ Ship Sample Bottles (Please Specify)
☐ CCME (Specify) ☐ Other (Specify)	
☐ Drinking Water ☑ BC Water Quality	

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

Rush Confirmation #:

LABORATORY USE ONLY

CUSTODY SEAL Y / N NM | Present NM | Intact NM | COOLER TEMPERATURES 11, 12, 11 / 20, 21, 22 | NOTE, 1 COOLER, BUT COOLER TEMP DIFFERENT FOR DIFF. DATES

COOLING MEDIA PRESENT Y / N

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEXS / VPH	BTEX / F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	Oil + grease hydrocarbon	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Discharge	2017/08/23	5:05	SW	/		/				/			/	/		/	7		field pH 6.85
2	Influent	2017/08/15	3:15	SW	/		/				/			/	/		/	6		
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Eva Marcy emarcy	2017/08/23	5:50 pm	KEVIN CHOW	2017/08/23	17:50

B771897_COC

COC-1027 Keystone

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K017529

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/09/30
Report #: R2452721
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B783597
Received: 2017/09/26, 16:53

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	1	2017/09/27	2017/09/29	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	1	2017/09/28	2017/09/28	BBY8SOP-00010/11/12	BC Lab Manual 2017 m
Hardness Total (calculated as CaCO3)	1	N/A	2017/09/29	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/09/28	2017/09/29	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/09/28	2017/09/29	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/09/27	2017/09/28	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/09/29	BBY WI-00033	Auto Calc
pH Water (1)	1	2017/09/28	2017/09/29	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/09/28	2017/09/29	BBY6SOP-00034	SM 22 2540 D
Field pH	1	2017/09/28	2017/09/29		
Volatile HC-BTEX	1	N/A	2017/09/29	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation, Maxxam Analytics, 8575 Lougheed Hwy, Burnaby, British Columbia, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K017529

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/09/30
Report #: R2452721
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B783597
Received: 2017/09/26, 16:53

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Megan Smith, Project Manager
Email: msmith@maxxam.ca
Phone# (604) 734 7276

==========

This report has been generated and distributed using a secure automated process.
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.

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB2400		
Sampling Date		2017/09/26 15:30		
COC Number		K017529		
	UNITS	**DISCHARGE**	**RDL**	**QC Batch**
Field Parameters				
Field pH	pH	7.2	N/A	ONSITE
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8774683
Physical Properties				
pH	pH	8.31		8774526
Physical Properties				
Total Suspended Solids	mg/L	<4.0	4.0	8774063

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		SB2400		
Sampling Date		2017/09/26 15:30		
COC Number		K017529		
	UNITS	**DISCHARGE**	**RDL**	**QC Batch**
Industrial				
BTEX Total	ug/L	53.5	0.40	8773303
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics 8575 Lougheed Hwy, Burnaby, BC, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		SB2400		
Sampling Date		2017/09/26 15:30		
COC Number		K017529		
	UNITS	DISCHARGE	RDL	QC Batch
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8772163
Benzene	ug/L	14	0.40	8774429
Toluene	ug/L	4.8	0.40	8774429
Ethylbenzene	ug/L	<0.40	0.40	8774429
m & p-Xylene	ug/L	17	0.40	8774429
o-Xylene	ug/L	18	0.40	8774429
Styrene	ug/L	<0.40	0.40	8774429
Xylenes (Total)	ug/L	35	0.40	8774429
VH C6-C10	ug/L	<300	300	8774429
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	83		8774429
4-Bromofluorobenzene (sur.)	%	94		8774429
D4-1,2-Dichloroethane (sur.)	%	95		8774429
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a MA xxam Analytics 8575 Lougheed Hwy, Burnaby, BC, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

CSR TOTAL METALS (NO CV-HG) IN WATER

Maxxam ID		SB2400	SB2400		
Sampling Date		2017/09/26 15:30	2017/09/26 15:30		
COC Number		K017529	K017529		
	UNITS	DISCHARGE	DISCHARGE Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	235		0.50	8772260
Total Metals by ICPMS					
Total Aluminum (Al)	ug/L	23.6	21.8	3.0	8774719
Total Arsenic (As)	ug/L	2.59	2.62	0.10	8774719
Total Boron (B)	ug/L	<50	<50	50	8774719
Total Cadmium (Cd)	ug/L	0.018	0.016	0.010	8774719
Total Chromium (Cr)	ug/L	<1.0	<1.0	1.0	8774719
Total Cobalt (Co)	ug/L	0.76	0.75	0.20	8774719
Total Copper (Cu)	ug/L	4.71 (1)	3.54 (2)	0.50	8774719
Total Iron (Fe)	ug/L	1280	1310	10	8774719
Total Lead (Pb)	ug/L	0.59	0.59	0.20	8774719
Total Manganese (Mn)	ug/L	237	242	1.0	8774719
Total Molybdenum (Mo)	ug/L	3.8	3.8	1.0	8774719
Total Nickel (Ni)	ug/L	2.7	2.7	1.0	8774719
Total Selenium (Se)	ug/L	<0.10	<0.10	0.10	8774719
Total Silver (Ag)	ug/L	<0.020	<0.020	0.020	8774719
Total Zinc (Zn)	ug/L	32.6	31.6	5.0	8774719

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

(1) Duplicate RPD for (Copper) above control limit - (10% of analytes failure allowed).

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		SB2400		
Sampling Date		2017/09/26 15:30		
COC Number		K017529		
	UNITS	DISCHARGE	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	<0.10	0.10	8772160
High Molecular Weight PAH`s	ug/L	<0.050	0.050	8772160
Total PAH	ug/L	<0.10	0.10	8772160
Quinoline	ug/L	<0.020	0.020	8772715
Naphthalene	ug/L	<0.10	0.10	8772715
2-Methylnaphthalene	ug/L	<0.10	0.10	8772715
Acenaphthylene	ug/L	<0.050	0.050	8772715
Acenaphthene	ug/L	<0.050	0.050	8772715
Fluorene	ug/L	<0.050	0.050	8772715
Phenanthrene	ug/L	<0.050	0.050	8772715
Anthracene	ug/L	<0.010	0.010	8772715
Acridine	ug/L	<0.050	0.050	8772715
Fluoranthene	ug/L	<0.020	0.020	8772715
Pyrene	ug/L	<0.020	0.020	8772715
Benzo(a)anthracene	ug/L	<0.010	0.010	8772715
Chrysene	ug/L	<0.020	0.020	8772715
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8772715
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8772715
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8772715
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8772715
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8772715
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8772715
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	92		8772715
D8-ACENAPHTHYLENE (sur.)	%	90		8772715
D8-NAPHTHALENE (sur.)	%	75		8772715
TERPHENYL-D14 (sur.)	%	86		8772715
RDL = Reportable Detection Limit				

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	20.3°C

Results relate only to the items tested.

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Maxxam Job #: B783597
Report Date: 2017/09/30

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8772715	D10-ANTHRACENE (sur.)	2017/09/28	90	50 - 140	93	50 - 140	107	%		
8772715	D8-ACENAPHTHYLENE (sur.)	2017/09/28	88	50 - 140	92	50 - 140	103	%		
8772715	D8-NAPHTHALENE (sur.)	2017/09/28	77	50 - 140	80	50 - 140	92	%		
8772715	TERPHENYL-D14 (sur.)	2017/09/28	87	50 - 140	94	50 - 140	103	%		
8774429	1,4-Difluorobenzene (sur.)	2017/09/28	83	70 - 130	78	70 - 130	107	%		
8774429	4-Bromofluorobenzene (sur.)	2017/09/28	89	70 - 130	90	70 - 130	120	%		
8774429	D4-1,2-Dichloroethane (sur.)	2017/09/28	94	70 - 130	84	70 - 130	120	%		
8772715	2-Methylnaphthalene	2017/09/28	77	50 - 140	78	50 - 140	<0.10	ug/L	NC	40
8772715	Acenaphthene	2017/09/28	84	50 - 140	86	50 - 140	<0.050	ug/L	NC	40
8772715	Acenaphthylene	2017/09/28	84	50 - 140	86	50 - 140	<0.050	ug/L	NC	40
8772715	Acridine	2017/09/28	99	50 - 140	100	50 - 140	<0.050	ug/L	NC	40
8772715	Anthracene	2017/09/28	86	50 - 140	93	50 - 140	<0.010	ug/L	NC	40
8772715	Benzo(a)anthracene	2017/09/28	78	50 - 140	86	50 - 140	<0.010	ug/L	NC	40
8772715	Benzo(a)pyrene	2017/09/28	66	50 - 140	90	50 - 140	<0.0050	ug/L	NC	40
8772715	Benzo(b&j)fluoranthene	2017/09/28	67	50 - 140	89	50 - 140	<0.030	ug/L	NC	40
8772715	Benzo(g,h,i)perylene	2017/09/28	45 (1)	50 - 140	82	50 - 140	<0.050	ug/L	NC	40
8772715	Benzo(k)fluoranthene	2017/09/28	67	50 - 140	89	50 - 140	<0.050	ug/L	NC	40
8772715	Chrysene	2017/09/28	77	50 - 140	84	50 - 140	<0.020	ug/L	NC	40
8772715	Dibenz(a,h)anthracene	2017/09/28	48 (1)	50 - 140	86	50 - 140	<0.0030	ug/L	NC	40
8772715	Fluoranthene	2017/09/28	83	50 - 140	86	50 - 140	<0.020	ug/L	NC	40
8772715	Fluorene	2017/09/28	80	50 - 140	83	50 - 140	<0.050	ug/L	NC	40
8772715	Indeno(1,2,3-cd)pyrene	2017/09/28	46 (1)	50 - 140	84	50 - 140	<0.050	ug/L	NC	40
8772715	Naphthalene	2017/09/28	76	50 - 140	77	50 - 140	<0.10	ug/L	NC	40
8772715	Phenanthrene	2017/09/28	84	50 - 140	86	50 - 140	<0.050	ug/L	NC	40
8772715	Pyrene	2017/09/28	85	50 - 140	89	50 - 140	<0.020	ug/L	NC	40
8772715	Quinoline	2017/09/28	110	50 - 140	110	50 - 140	<0.020	ug/L	NC	40
8774063	Total Suspended Solids	2017/09/29	104	80 - 120	101	80 - 120	<4.0	mg/L	7.1	20
8774429	Benzene	2017/09/28	100	70 - 130	92	70 - 130	<0.40	ug/L	NC	30
8774429	Ethylbenzene	2017/09/28	119	70 - 130	119	70 - 130	<0.40	ug/L	NC	30
8774429	m & p-Xylene	2017/09/28	110	70 - 130	111	70 - 130	<0.40	ug/L	NC	30
8774429	o-Xylene	2017/09/28	111	70 - 130	111	70 - 130	<0.40	ug/L	NC	30

Maxxam Job #: B783597
Report Date: 2017/09/30

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8774429	Styrene	2017/09/28	107	70 - 130	109	70 - 130	<0.40	ug/L	NC	30
8774429	Toluene	2017/09/28	92	70 - 130	98	70 - 130	<0.40	ug/L	2.8	30
8774429	VH C6-C10	2017/09/28			101	70 - 130	<300	ug/L	NC	30
8774429	Xylenes (Total)	2017/09/28					<0.40	ug/L	NC	30
8774526	pH	2017/09/29			101	97 - 103			0.73	20
8774683	Oil & Grease (mineral/synthetic)	2017/09/29			96	65 - 135	<2.0	mg/L		
8774719	Total Aluminum (Al)	2017/09/29	107	80 - 120	106	80 - 120	<3.0	ug/L	7.6	20
8774719	Total Arsenic (As)	2017/09/29	95	80 - 120	93	80 - 120	<0.10	ug/L	1.2	20
8774719	Total Boron (B)	2017/09/29	90	80 - 120	97	80 - 120	<50	ug/L	NC	20
8774719	Total Cadmium (Cd)	2017/09/29	97	80 - 120	97	80 - 120	<0.010	ug/L	12	20
8774719	Total Chromium (Cr)	2017/09/29	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
8774719	Total Cobalt (Co)	2017/09/29	95	80 - 120	96	80 - 120	<0.20	ug/L	0.13	20
8774719	Total Copper (Cu)	2017/09/29	81	80 - 120	99	80 - 120	<0.50	ug/L	28 (1)	20
8774719	Total Iron (Fe)	2017/09/29	NC	80 - 120	105	80 - 120	<10	ug/L	2.9	20
8774719	Total Lead (Pb)	2017/09/29	98	80 - 120	96	80 - 120	<0.20	ug/L	0.34	20
8774719	Total Manganese (Mn)	2017/09/29	NC	80 - 120	96	80 - 120	<1.0	ug/L	2.1	20
8774719	Total Molybdenum (Mo)	2017/09/29	NC	80 - 120	96	80 - 120	<1.0	ug/L	1.3	20
8774719	Total Nickel (Ni)	2017/09/29	94	80 - 120	100	80 - 120	<1.0	ug/L	2.6	20
8774719	Total Selenium (Se)	2017/09/29	95	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
8774719	Total Silver (Ag)	2017/09/29	101	80 - 120	102	80 - 120	<0.020	ug/L	NC	20
8774719	Total Zinc (Zn)	2017/09/29	NC	80 - 120	101	80 - 120	<5.0	ug/L	3.3	20

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

VALIDATION SIGNATURE PAGE

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

Dijana Bradaric

Dijana Bradaric, BBY Customer Service

Rob Reinert, B.Sc., Scientific Specialist

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.

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K 017529

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CHAIN OF CUSTODY RECORD

BBY FCD-00077/07

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Page _____ of _____

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name: same as invoice	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Judy Tai	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 12732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location: 1615 Renfrew St.	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: jtai@keystonenvironmental.ca	Email:	Sampled By: Kareena Gill / Garth	Date Required:

Regulatory Criteria	Special Instructions
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Cooler
☐ YK CSR Soil ☐ YK CSR Water	☐ Ship Sample Bottles (Please Specify)
☐ CCME (Specify) ☑ Other (Specify) Metro Van	
☐ Drinking Water ☐ BC Water Quality	

Rush Confirmation #:

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

Analysis Requested

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEX/VPH	BTEX/F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	MDG	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Discharge	2017/09/26	15:30	Water	✓		✓				✓			✓	✓		✓	8		Report Total BTEX
2																				Field PH 7.2 @ 23°C
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
NA		20, 20, 21

COOLING MEDIA PRESENT Y / N

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Kareena Gill / Kareena Gill	2017/09/26	16:50	GLORIA CHAN	2017/09/26	16:53

B783597_COC

COC-1027 Keystone

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Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST.
Your C.O.C. #: K018622

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/10/18
Report #: R2462398
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B790932
Received: 2017/10/16, 18:36

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	1	2017/10/16	2017/10/18	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	1	N/A	2017/10/17	BBY8SOP-00010/11/12	BC Lab Manual 2017 m
Hardness Total (calculated as CaCO3) (1)	1	N/A	2017/10/17	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/10/17	2017/10/17	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/10/17	2017/10/18	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/10/17	2017/10/17	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/10/18	BBY WI-00033	Auto Calc
pH Water (2)	1	2017/10/17	2017/10/17	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/10/17	2017/10/18	BBY6SOP-00034	SM 22 2540 D
Volatile HC-BTEX	1	N/A	2017/10/18	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your Project #: 12732
Site Location: 1615 RENFREW ST.
Your C.O.C. #: K018622

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/10/18
Report #: R2462398
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B790932
Received: 2017/10/16, 18:36

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Nancy Niklis, Project Manager
Email: NNiklis@maxxam.ca
Phone# (604) 734 7276
==========
This report has been generated and distributed using a secure automated process.
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.

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Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	**INFLUENT**	**RDL**	**QC Batch**
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8796441
Physical Properties				
pH	pH	8.48		8796677
Physical Properties				
Total Suspended Solids	mg/L	61 (1)	11	8795953

RDL = Reportable Detection Limit
(1) RDL raised due to sample matrix interference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 8575 Lougheed Hwy, Burnaby, BC, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	INFLUENT	RDL	QC Batch
Industrial				
BTEX Total	ug/L	6.06	0.40	8795479
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics 8575 Lougheed Hwy, Burnaby, BC, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	**INFLUENT**	**RDL**	**QC Batch**
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8794492
Benzene	ug/L	1.0	0.40	8796280
Toluene	ug/L	2.5	0.40	8796280
Ethylbenzene	ug/L	<0.40	0.40	8796280
m & p-Xylene	ug/L	1.5	0.40	8796280
o-Xylene	ug/L	1.1	0.40	8796280
Styrene	ug/L	<0.40	0.40	8796280
Xylenes (Total)	ug/L	2.5	0.40	8796280
VH C6-C10	ug/L	<300	300	8796280
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	106		8796280
4-Bromofluorobenzene (sur.)	%	106		8796280
D4-1,2-Dichloroethane (sur.)	%	120		8796280
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a MA xxam Analytics Burnaby, BC, Canada V5G 1K6 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

CSR TOTAL METALS (NO CV-HG) IN WATER

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	INFLUENT	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	76.0	0.50	8795339
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	1420	3.0	8795997
Total Arsenic (As)	ug/L	4.33	0.10	8795997
Total Boron (B)	ug/L	55	50	8795997
Total Cadmium (Cd)	ug/L	0.036	0.010	8795997
Total Chromium (Cr)	ug/L	12.9	1.0	8795997
Total Cobalt (Co)	ug/L	2.61	0.20	8795997
Total Copper (Cu)	ug/L	26.0	0.50	8795997
Total Iron (Fe)	ug/L	1750	10	8795997
Total Lead (Pb)	ug/L	1.54	0.20	8795997
Total Manganese (Mn)	ug/L	48.1	1.0	8795997
Total Molybdenum (Mo)	ug/L	4.0	1.0	8795997
Total Nickel (Ni)	ug/L	4.1	1.0	8795997
Total Selenium (Se)	ug/L	0.78	0.10	8795997
Total Silver (Ag)	ug/L	0.034	0.020	8795997
Total Zinc (Zn)	ug/L	103	5.0	8795997
RDL = Reportable Detection Limit				

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Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	INFLUENT	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	0.12	0.10	8794239
High Molecular Weight PAH`s	ug/L	0.084	0.050	8794239
Total PAH	ug/L	0.21	0.10	8794239
Quinoline	ug/L	0.12	0.020	8795660
Naphthalene	ug/L	<0.10	0.10	8795660
2-Methylnaphthalene	ug/L	<0.10	0.10	8795660
Acenaphthylene	ug/L	<0.050	0.050	8795660
Acenaphthene	ug/L	<0.050	0.050	8795660
Fluorene	ug/L	<0.050	0.050	8795660
Phenanthrene	ug/L	<0.050	0.050	8795660
Anthracene	ug/L	<0.010	0.010	8795660
Acridine	ug/L	<0.050	0.050	8795660
Fluoranthene	ug/L	0.061	0.020	8795660
Pyrene	ug/L	0.023	0.020	8795660
Benzo(a)anthracene	ug/L	<0.010	0.010	8795660
Chrysene	ug/L	<0.020	0.020	8795660
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8795660
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8795660
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8795660
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8795660
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8795660
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8795660
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	108		8795660
D8-ACENAPHTHYLENE (sur.)	%	108		8795660
D8-NAPHTHALENE (sur.)	%	97		8795660
TERPHENYL-D14 (sur.)	%	123		8795660
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby, BC, Canada V5G 1K6 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.3°C

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790932
Report Date: 2017/10/18

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8795660	D10-ANTHRACENE (sur.)	2017/10/17	101	50 - 140	112	50 - 140	110	%		
8795660	D8-ACENAPHTHYLENE (sur.)	2017/10/17	103	50 - 140	104	50 - 140	104	%		
8795660	D8-NAPHTHALENE (sur.)	2017/10/17	103	50 - 140	105	50 - 140	101	%		
8795660	TERPHENYL-D14 (sur.)	2017/10/17	100	50 - 140	107	50 - 140	113	%		
8796280	1,4-Difluorobenzene (sur.)	2017/10/17	100	70 - 130	98	70 - 130	100	%		
8796280	4-Bromofluorobenzene (sur.)	2017/10/17	99	70 - 130	101	70 - 130	104	%		
8796280	D4-1,2-Dichloroethane (sur.)	2017/10/17	105	70 - 130	105	70 - 130	104	%		
8795660	2-Methylnaphthalene	2017/10/17	NC	50 - 140	97	50 - 140	<0.10	ug/L	NC	40
8795660	Acenaphthene	2017/10/17	NC	50 - 140	98	50 - 140	<0.050	ug/L	1.7	40
8795660	Acenaphthylene	2017/10/17	97	50 - 140	98	50 - 140	<0.050	ug/L	NC	40
8795660	Acridine	2017/10/17	97	50 - 140	98	50 - 140	<0.050	ug/L	NC	40
8795660	Anthracene	2017/10/17	96	50 - 140	101	50 - 140	<0.010	ug/L	NC	40
8795660	Benzo(a)anthracene	2017/10/17	92	50 - 140	95	50 - 140	<0.010	ug/L	NC	40
8795660	Benzo(a)pyrene	2017/10/17	86	50 - 140	95	50 - 140	<0.0050	ug/L	15	40
8795660	Benzo(b&j)fluoranthene	2017/10/17	91	50 - 140	95	50 - 140	<0.030	ug/L	NC	40
8795660	Benzo(g,h,i)perylene	2017/10/17	80	50 - 140	95	50 - 140	<0.050	ug/L	NC	40
8795660	Benzo(k)fluoranthene	2017/10/17	88	50 - 140	104	50 - 140	<0.050	ug/L	NC	40
8795660	Chrysene	2017/10/17	89	50 - 140	93	50 - 140	<0.020	ug/L	NC	40
8795660	Dibenz(a,h)anthracene	2017/10/17	82	50 - 140	97	50 - 140	<0.0030	ug/L	NC	40
8795660	Fluoranthene	2017/10/17	97	50 - 140	100	50 - 140	<0.020	ug/L	12	40
8795660	Fluorene	2017/10/17	NC	50 - 140	98	50 - 140	<0.050	ug/L	1.6	40
8795660	Indeno(1,2,3-cd)pyrene	2017/10/17	81	50 - 140	96	50 - 140	<0.050	ug/L	NC	40
8795660	Naphthalene	2017/10/17	NC	50 - 140	105	50 - 140	<0.10	ug/L	1.7	40
8795660	Phenanthrene	2017/10/17	NC	50 - 140	100	50 - 140	<0.050	ug/L	NC	40
8795660	Pyrene	2017/10/17	100	50 - 140	102	50 - 140	<0.020	ug/L	19	40
8795660	Quinoline	2017/10/17	109	50 - 140	105	50 - 140	<0.020	ug/L	NC	40
8795953	Total Suspended Solids	2017/10/18	105	80 - 120	98	80 - 120	<4.0	mg/L	NC	20
8795997	Total Aluminum (Al)	2017/10/17	103	80 - 120	109	80 - 120	<3.0	ug/L	17	20
8795997	Total Arsenic (As)	2017/10/17	105	80 - 120	99	80 - 120	<0.10	ug/L	12	20
8795997	Total Boron (B)	2017/10/17	93	80 - 120	92	80 - 120	<50	ug/L	2.6	20
8795997	Total Cadmium (Cd)	2017/10/17	94	80 - 120	97	80 - 120	<0.010	ug/L	17	20

Maxxam Job #: B790932
Report Date: 2017/10/18

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8795997	Total Chromium (Cr)	2017/10/17	100	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
8795997	Total Cobalt (Co)	2017/10/17	98	80 - 120	103	80 - 120	<0.20	ug/L	2.4	20
8795997	Total Copper (Cu)	2017/10/17	93	80 - 120	109	80 - 120	<0.50	ug/L	2.7	20
8795997	Total Iron (Fe)	2017/10/17	98	80 - 120	118	80 - 120	<10	ug/L	5.7	20
8795997	Total Lead (Pb)	2017/10/17	92	80 - 120	97	80 - 120	<0.20	ug/L	NC	20
8795997	Total Manganese (Mn)	2017/10/17	NC	80 - 120	100	80 - 120	<1.0	ug/L	2.5	20
8795997	Total Molybdenum (Mo)	2017/10/17	NC	80 - 120	97	80 - 120	<1.0	ug/L	0.84	20
8795997	Total Nickel (Ni)	2017/10/17	92	80 - 120	103	80 - 120	<1.0	ug/L	3.0	20
8795997	Total Selenium (Se)	2017/10/17	102	80 - 120	106	80 - 120	<0.10	ug/L	7.4	20
8795997	Total Silver (Ag)	2017/10/17	100	80 - 120	106	80 - 120	<0.020	ug/L	NC	20
8795997	Total Zinc (Zn)	2017/10/17	90	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
8796280	Benzene	2017/10/17	111	70 - 130	109	70 - 130	<0.40	ug/L	NC	30
8796280	Ethylbenzene	2017/10/17	109	70 - 130	112	70 - 130	<0.40	ug/L	NC	30
8796280	m & p-Xylene	2017/10/17	103	70 - 130	106	70 - 130	<0.40	ug/L	NC	30
8796280	o-Xylene	2017/10/17	103	70 - 130	105	70 - 130	<0.40	ug/L	NC	30
8796280	Styrene	2017/10/17	100	70 - 130	103	70 - 130	<0.40	ug/L	NC	30
8796280	Toluene	2017/10/17	104	70 - 130	105	70 - 130	<0.40	ug/L	NC	30
8796280	VH C6-C10	2017/10/17			117	70 - 130	<300	ug/L	NC	30
8796280	Xylenes (Total)	2017/10/17					<0.40	ug/L	NC	30
8796441	Oil & Grease (mineral/synthetic)	2017/10/18			92	65 - 135	<2.0	mg/L		
8796677	pH	2017/10/17			101	97 - 103			0.36	20

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

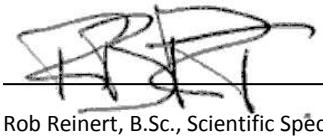
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

VALIDATION SIGNATURE PAGE

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



Rob Reinert, B.Sc., Scientific Specialist

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 Analytics International Corporation o/a Maxxam Analytics 8-4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

K 018622

Maxxam
A Bureau Veritas Group Company

CHAIN OF CUSTODY RECORD

BBY FCD-00077/07
Page 1 of 1

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name:	Quotation #:	☐ Regular TAT 5 days (Most analyses)
Contact Name: Judy Tai	Contact Name: Same	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 13732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location: 1615 Renfrew St.	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☒ 1 Day ☐ 3 Days
Email: jtai@keystoneenvironmental.ca	Email: gjia@keystoneenvironmental.ca	Sampled By: Garth Yu	Date Required:

Regulatory Criteria	Special Instructions
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Cooler
☐ YK CSR Soil ☐ YK CSR Water	☐ Ship Sample Bottles (Please Specify)
☐ CCME (Specify) ☒ Other (Specify) Metro Van	
☐ Drinking Water ☐ BC Water Quality	

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

Analysis Requested: MTBE; VOC/BTEXS/VPH; VOC/BTEX/F1; LEPH/HEPH/PAH; F2-F4; TEH; Preserved?; Filtered?; Dissolved Metals; Preserved?; Filtered?; Dissolved Mercury; Field Preserved?; Total Metals; Field Preserved?; Total Mercury; Sulphate; Fluoride; Chloride; COD; BOD; TDS; Alkalinity; Conductivity; pH; Ammonia; Nitrate; Nitrite; Mineral Oil and Grease; # OF CONTAINERS SUBMITTED; HOLD - DO NOT ANALYZE

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEXS/VPH	BTEX/F1	PAH	EPH	Total Metals	TSS	pH	Mineral Oil and Grease	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Influent	2017/10/16	1430	water	X		X		X	X	X	X	7		Report total BTEX
2															
3	Discharge	2017/10/16	1430	water	X		X		X	X	X	X	7	X	-hold Discharge
4															
5															
6															
7															
8															
9															
10															

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
		9, 9, 10
N/A		

COOLING MEDIA PRESENT Y / N

COMMENTS

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Garth Yu	2017/10/16	1830	Eva Sykora EVA SYKORA	2017/10/16	18:36

B790932_COC

COC-1027 Keystone

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: June 30, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	May 2017
Total Monthly Discharge Volume:	2,095.00 m^3
Number of Days of Discharge to Sewer:	30
Maximum Daily Flow:	139.70 m^3/d
Limit:	500.00 m^3/d

Sampling Date: May 04 2017

Discharge Volume on Day of Sampling:	69.80 m^3

Sampling Set: Grab

Sampling Start Time:	12:00 PM

Sampling Results

Parameter:	pH
Sample Result:	7 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	< 4 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00037 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.026 mg/L

Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0357 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00092 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.00001 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	< 0.0002 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.00112 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	0.065 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.00117 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.0329 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0032 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	0.00021 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	< 0.005 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
May 31 2017 01:50 PM	B733680V1-R2017-05-10_15-37-16_R006.pdf

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: July 31, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	June 2017
Total Monthly Discharge Volume:	1,587.00 m^3
Number of Days of Discharge to Sewer:	27
Maximum Daily Flow:	117.56 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Jun 27 2017

Discharge Volume on Day of Sampling:	117.56 m^3

Sampling Set: Grab

Sampling Start Time:	10:30 AM
Comments:	The reported pH is the field pH, see attached field notes.

Sampling Results

Parameter:	pH
Sample Result:	7.3 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	< 4 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00021 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	< 0.0016 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0094 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00217 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	< 0.00001 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00092 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	< 0.0005 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	0.045 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	< 0.0002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.792 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0099 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	< 0.005 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Jul 18 2017 10:09 AM	B751811V1-R2017-07-04_12-16-20_R006.pdf
Jul 18 2017 10:20 AM	12732_20170628095933.pdf

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: August 31, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	July 2017
Total Monthly Discharge Volume:	556.75 m^3
Number of Days of Discharge to Sewer:	31
Maximum Daily Flow:	35.92 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Jul 11 2017

Discharge Volume on Day of Sampling:	18.00 m^3

Sampling Set: Grab

Sampling Start Time:	03:15 PM

Sampling Results

Parameter:	pH
Sample Result:	7.12 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	< 4 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.0016 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.461 mg/L

Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0115 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00192 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.000013 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00095 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.00305 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	0.248 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.00097 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.62 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0242 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	0.014 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Jul 19 2017 08:36 AM	B756799V1-R2017-07-18_16-55-47_R006.pdf

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: September 30, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	August 2017
Total Monthly Discharge Volume:	271.63 m^3
Number of Days of Discharge to Sewer:	23
Maximum Daily Flow:	23.63 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Aug 23 2017

Discharge Volume on Day of Sampling:	11.81 m^3

Sampling Set: Grab

Sampling Start Time:	05:05 PM
Comments:	Discharge results.

Sampling Results

Parameter:	pH
Sample Result:	6.85 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	5.3 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00021 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.235 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0172 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00206 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.00001 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00064 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.00299 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	1.66 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.0011 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.326 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0081 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	0.0013 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	0.0122 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Sep 07 2017 03:28 PM	B771897V2R-R2017-09-01_10-11-44_R006.pdf

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: October 31, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	September 2017
Total Monthly Discharge Volume:	480.00 m^3
Number of Days of Discharge to Sewer:	21
Maximum Daily Flow:	28.24 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Sep 26 2017

Discharge Volume on Day of Sampling:	14.11 m^3

Sampling Set: Grab

Sampling Start Time:	03:00 PM

Sampling Results

Parameter:	pH
Sample Result:	7.2 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	< 4 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.0535 mg/L

Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0236 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00259 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.000018 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00076 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.00471 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	1.28 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.00059 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.237 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0038 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	0.0027 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	0.0326 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Oct 27 2017 11:05 AM	B783597V1-R2017-09-30_14-30-57_R006.pdf

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: November 30, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	October 2017
Total Monthly Discharge Volume:	373.00 m^3
Number of Days of Discharge to Sewer:	31
Maximum Daily Flow:	24.09 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Oct 16 2017

Discharge Volume on Day of Sampling:	12.00 m^3
Comments:	Influent sample

Sampling Set: Grab

Sampling Start Time:	02:30 PM
Comments:	Influent sample

Sampling Results

Parameter:	pH
Sample Result:	8.48 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	61 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00021 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.00606 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	1.42 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00433 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	0.055 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.000036 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	0.0129 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00261 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.026 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	1.75 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.00154 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.0481 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.004 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	0.0041 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	0.00078 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	0.000034 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	0.103 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Nov 10 2017 09:17 AM	B790932V1-R2017-10-18_17-24-22_R006.pdf

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☑ NO ☐

Date: June 1, 2017 Time: morning Stage of Construction: parking levels construction

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: partly cloudy and dry at 18°C 24 hrs Prior to Inspection: intermittent rain at 15°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super:

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
General Contractor	Thind Properties Ltd. - Timothy McGowan	timothy@thind.ca
Earthworks Contractor	DNS Bulldozing - DJ	dj@dnsbulldozing.com
Sustainability Consultant		
Architect		

New Items Requiring Immediate Attention/Action

1.

2.

3.

Action must be complete by:

Outstanding Issues From Last Inspection	Done (Y/N)	Done (Y/N)	Comments Why Not Done
1.			
2.			
3.			
4.			
5.			

Key Observation & Recommendations

1. Sediment Filtration System

Location: At southwest corner of site on Renfrew St. - Canadian Dewatering Filtration System.

General Comments: Treatment system includes settlement tanks, Floc tubes, pH treatment and additonal sand filter. System also includes carbon system for environmental treatment. Sample taken on this visit.

Photos:

Recommended Actions:

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway should be regularly monitored and swept when it becomes soiled as a result of from work on site. Appeared to be some concrete spillage in the laneway.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday. Spill protection basin during concrete pours.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Appropriate catch basins are protected.

Photos: Yes

Recommended Actions: Clean/replaced when clogged or in disrepair.

4. Run-off Control

Location: Sump/well system.

General Comments: Runoff collected/pumped to sump for primary filtration before being pumped to water treatment system for final filtration and discharge to combined sanitary/storm system.

Photos:

Recommended Actions: Monitor system and service/maintain regularly.

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos:

Recommended Actions:

6. Others

Location: Laneway - Concrete Pours and Site Vehicles

General Comments: Site personnel are responsible for ensuring that measures are in place

to prevent high pH liquids from entering catch basins during site concrete pours.

Photos:

Recommended Actions:

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
January 12, 2017	1:15 p.m.	no precipitation	discharge tank	8.21	1.02
Feb. 7-17	afternoon	no precipitation	discharge tank	7.47	0.84
February 17, 2017	afternoon	no precipitation	discharge tank	8.05	1.31
March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☐ NO ☐

Date: June 28, 2017 Time: afternoon Stage of Construction: column pours above parking

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: clear and warm at 20°C 24 hrs Prior to Inspection: clear and warm at 21°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super:

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
General Contractor	Thind Properties Ltd. - Timothy McGowan	timothy@thind.ca
Earthworks Contractor	DNS Bulldozing - DJ	dj@dnsbulldozing.com
Sustainability Consultant		
Architect		

New Items Requiring Immediate Attention/Action

1. Concrete pours being undertaken without proper spill containment equipment.
2.
3.

Action must be complete by:

Outstanding Issues From Last Inspection	Done (Y/N)	Done (Y/N)	Comments Why Not Done
1.			
2.			
3.			
4.			
5.			

Key Observation & Recommendations

1. Sediment Filtration System

Location: At southwest corner of site on Renfrew St. - Canadian Dewatering Filtration System.

General Comments: Treatment system includes settlement tanks, Floc tubes, pH treatment and additonal sand filter. System also includes carbon system for environmental treatment. Sample taken on this visit.

Photos:

Recommended Actions:

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway should be regularly monitored and swept when it becomes soiled as a result of from work on site. Noted concrete pours being performed without spill containment equipment.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday. Spill protection basin during concrete pours.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Appropriate catch basins are protected.

Photos: Yes

Recommended Actions: Clean/replaced when clogged or in disrepair.

4. Run-off Control

Location: Sump/well system.

General Comments: Runoff collected/pumped to sump for primary filtration before being pumped to water treatment system for final filtration and discharge to combined sanitary/storm system.

Photos:

Recommended Actions: Monitor system and service/maintain regularly.

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos:

Recommended Actions:

6. Others

Location: Laneway - Concrete Pours and Site Vehicles

General Comments: Site personnel are responsible for ensuring that measures are in place

to prevent high pH liquids from entering catch basins during site concrete pours.

Photos:

Recommended Actions:

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
January 12, 2017	1:15 p.m.	no precipitation	discharge tank	8.21	1.02
Feb. 7-17	afternoon	no precipitation	discharge tank	7.47	0.84
February 17, 2017	afternoon	no precipitation	discharge tank	8.05	1.31
March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56
June 28-17	afternoon	no precipitation	discharge tank	7.77	4.78

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☑ NO ☐

Date: November 20, 2017 Time: 12:44 p.m. Stage of Construction: third floor above parkade

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: overcast and no rain at 8°C 24 hrs Prior to Inspection: significant rainfall at 6°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super:

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
Site Supervisor	Thind Properties Ltd. - John Mastin	johnm@thind.ca
Project Manager	Kian Tey	kian@thind.ca

New Items Requiring Immediate Attention/Action

1. Laneway at north and south end needs to be swept - site material.
2.
3.

Action must be complete by: As soon as possible.

Outstanding Issues From Last Inspection	Done (Y/N)	Done (Y/N)	Comments Why Not Done
1. Laneway needs to be swept - site material and dried cement spillage from pours		N	
2. Concrete pour being carried out without appropriate spill catch equipment		Y	
3.			
4.			
5.			

Key Observation & Recommendations

1. Sediment Filtration System

Location: On Renfrew St. - pH treatment system only

General Comments: pH treatment system in place. A sample port must be installed at the pH tank in order for us to obtain a sample of the discharge for testing. No sample obtained at this time.

Photos:

Recommended Actions: Ensure no site material - dust or garbage is allowed to enter sump.

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway at north and south end need to be swept. Site material has migrated onto laneway.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday when affected by site work.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Appropriate catch basins are protected.

Photos: Yes

Recommended Actions: Clean and/or replace when clogged or in disrepair.

4. Run-off Control

Location: Sump/well system.

General Comments: Runoff collected by perimeter drains and pumps and discharged to sump in lower parkade and from there to pH treatment system.

Photos: Yes

Recommended Actions:

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos:

Recommended Actions:

6. Others

Location: Laneway - Concrete Pours and ite vehicles and and on Renfrew St.

General Comments: Ensure laneway is regularly swept after pours, loading activities and/or use by any

construction vehicles related to site work.

Photos:

Recommended Actions:

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
January 12, 2017	1:15 p.m.	no precipitation	discharge tank	8.21	1.02
Feb. 7-17	afternoon	no precipitation	discharge tank	7.47	0.84
February 17, 2017	afternoon	no precipitation	discharge tank	8.05	1.31
March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56
June 28-17	afternoon	no precipitation	discharge tank	7.77	4.78
Sept. 13-17	morning	no precipitation	parkade sump	8.81	8.91
Sept. 19-17	morning	< 1 mm	discharge tank	7.62	0.92
Sept. 29-17	11:45 a.m.	2 mm	parkade sump	8.95	49.1
Oct. 17-17	12:00 p.m.	no precipitation	parkade sump	8.85	21.2
Oct. 17-17	12:00 p.m.	no precipitation	filtration tank	7.90	4.09

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☐ NO ☑

Date: October 10, 2017 Time: morning Stage of Construction: second floor above parkade

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: intermittent rain at 12°C 24 hrs Prior to Inspection: clear and dry at 17°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super:

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
Site Supervisor	Thind Properties Ltd. - John Mastin	johnm@thind.ca
Project Manager	Kian Tey	kian@thind.ca

New Items Requiring Immediate Attention/Action

1. Laneway at south end needs to be swept - site material. Silt sack protection should be replaced.
2. Water being discharged from site without going through on-site filtration system.
3. Significant fuel odor from water being discharged off site from sump (without going through filtration system)

Action must be complete by: As soon as possible.

Outstanding Issues From Last Inspection	Done (Y/N)	Done (Y/N)	Comments Why Not Done
1. Laneway at south end needs to be swept - site material.		N	Unknown
2.			
3.			
4.			
5.			

Key Observation & Recommendations

1. Sediment Filtration System

Location: At southwest corner of site on Renfrew St. - Canadian Dewatering Filtration System.

General Comments: Sample collected from sump in basement. Sump collection being pumped off site without first going through filtration system.

Photos: Yes

Recommended Actions: Ensure no site material is allowed to enter sump. Pump to filtration system first.

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway at south end needs to be swept. Site material has migrated onto laneway.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday when affected by site work.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Silt sack protection at catch basin in laneway needs to be replaced. No longer in effective condition.

Photos:

Recommended Actions: Replace silt sack.

4. Run-off Control

Location: Sump/well system.

General Comments: Runoff collected by perimeter drains and discharged to sump in lower parkade. Sample to be obtained from here to determine if filtration system is still necessary.

Photos:

Recommended Actions: Carbon treatment my be required even after turbidity system is on longer required.

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos:

Recommended Actions:

6. Others

Location: Laneway - Concrete Pours and Site Vehicles

General Comments: Ensure spill protection in place during concrete pours.

Photos:

Recommended Actions:

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
January 12, 2017	1:15 p.m.	no precipitation	discharge tank	8.21	1.02
Feb. 7-17	afternoon	no precipitation	discharge tank	7.47	0.84
February 17, 2017	afternoon	no precipitation	discharge tank	8.05	1.31
March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56
June 28-17	afternoon	no precipitation	discharge tank	7.77	4.78
Sept. 13-17	morning	no precipitation	parkade sump	8.81	8.91
Sept. 19-17	morning	< 1 mm	discharge tank	7.62	0.92
Sept. 29-17	11:45 a.m.	2 mm	parkade sump	8.95	49.1
Oct. 10-17	10:00 a.m.	< 2 mm	parkade sump	7.85	36.6


20 2
NO PARKING
LEVEL LOAD
778.881.6070

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☑ NO ☐

Date: October 20, 2017 Time: 2:00 p.m. Stage of Construction: second floor above parkade

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: partly cloudy and no rain at 13°C 24 hrs Prior to Inspection: rain at time heavy at 11°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super:

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
Site Supervisor	Thind Properties Ltd. - John Mastin	johnm@thind.ca
Project Manager	Kian Tey	kian@thind.ca

New Items Requiring Immediate Attention/Action

1. Laneway at south ends need to be swept and cleared of concrete material.
2. Some sweeping also required at concrete pour location on 1st Ave. adjacent to site.
3.

Action must be complete by: As soon as possible.

Outstanding Issues From Last Inspection	Done (Y/N)	Comments Why Not Done
1. Laneway at south end needs to be swept - site material.	N	
2.		
3.		
4.		
5.		

Key Observation & Recommendations

1. Sediment Filtration System

Location: At southwest corner of site on Renfrew St. - Canadian Dewatering Filtration System.

General Comments: Sample collected from sump in basement and from filtration system discharge. Ensure flow into sump in basement is directly discharged and not flow over parkade floor - cleaner samples.

Photos:

Recommended Actions: Ensure no site material - dust or garbage is allowed to enter sump.

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway at south end needs to be swept. Site material has migrated onto laneway. Laneway has been soiled by concrete pours - dried concrete should be removed.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday when affected by site work.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Appropriate catch basins are protected.

Photos:

Recommended Actions: Clean/replaced when clogged or in disrepair.

4. Run-off Control

Location: Sump in Lower parkade.

General Comments: Runoff collected by perimeter drains and pumps and discharged to sump Ensure pumps discharged directly to sump. Sample of collection taken for testing.

Photos: Yes

Recommended Actions: Pump directly to sump not over parkade slab. Ensure sump pump is working.

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos:

Recommended Actions:

6. Others

Location: Laneway and Roadway - Concrete Pours Site.

General Comments: Cleaning required at both locations.

Photos:

Recommended Actions:

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
January 12, 2017	1:15 p.m.	no precipitation	discharge tank	8.21	1.02
Feb. 7-17	afternoon	no precipitation	discharge tank	7.47	0.84
February 17, 2017	afternoon	no precipitation	discharge tank	8.05	1.31
March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56
June 28-17	afternoon	no precipitation	discharge tank	7.77	4.78
Sept. 13-17	morning	no precipitation	parkade sump	8.81	8.91
Sept. 19-17	morning	< 1 mm	discharge tank	7.62	0.92
Sept. 29-17	11:45 a.m.	2 mm	parkade sump	8.95	49.1
Oct. 17-17	12:00 p.m.	no precipitation	parkade sump	8.85	21.2
Oct. 17-17	12:00 p.m.	no precipitation	filtration tank	7.90	4.09
Oct. 20-17	2:00 p.m.	no precipitation	parkade sump	8.89	10.47

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☑ NO ☐

Date: October 17, 2017 Time: 12:01 p.m. Stage of Construction: second floor above parkade

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: clear and sunny 13°C 24 hrs Prior to Inspection: rain at 12°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super:

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
Site Supervisor	Thind Properties Ltd. - John Mastin	johnm@thind.ca
Project Manager	Kian Tey	kian@thind.ca

New Items Requiring Immediate Attention/Action

1. Laneway at south end needs to be swept - site material.
2. Concrete pour being carried out from laneway without appropriate spill catch equipment
3.

Action must be complete by: As soon as possible.

Outstanding Issues From Last Inspection	Done (Y/N)	Done (Y/N)	Comments Why Not Done
1. Laneway needs to be swept - site material and dried cement spillage from pours		N	
2.			
3.			
4.			
5.			

Key Observation & Recommendations

1. Sediment Filtration System

Location: At southwest corner of site on Renfrew St. - Canadian Dewatering Filtration System.

General Comments: Sample collected from sump in basement and from filtration system discharge. Ensure flow into sump in basement is directly discharged and not flow over parkade floor - cleaner samples.

Photos:

Recommended Actions: Ensure no site material - dust or garbage is allowed to enter sump.

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway at south end needs to be swept. Site material has migrated onto laneway. Observed concrete pour occurring without proper spill catch equipment - soils laneway.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday when affected by site work.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Appropriate catch basins are protected. Observed worn catch basin protection changed out.

Photos: Yes

Recommended Actions: Clean/replaced when clogged or in disrepair.

4. Run-off Control

Location: Sump/well system.

General Comments: Runoff collected by perimeter drains and pumps and discharged to sump in lower parkade At this stage of construcion, ensure collections are pumped directly to sump and not flowing over parkade floor.

Photos: Yes

Recommended Actions:

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos:

Recommended Actions:

6. Others

Location: Laneway - Concrete Pours and Site Vehicles

General Comments: Ensure spill protection in place during concrete pours.

Photos:

Recommended Actions:

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
January 12, 2017	1:15 p.m.	no precipitation	discharge tank	8.21	1.02
Feb. 7-17	afternoon	no precipitation	discharge tank	7.47	0.84
February 17, 2017	afternoon	no precipitation	discharge tank	8.05	1.31
March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56
June 28-17	afternoon	no precipitation	discharge tank	7.77	4.78
Sept. 13-17	morning	no precipitation	parkade sump	8.81	8.91
Sept. 19-17	morning	< 1 mm	discharge tank	7.62	0.92
Sept. 29-17	11:45 a.m.	2 mm	parkade sump	8.95	49.1
Oct. 17-17	12:00 p.m.	no precipitation	parkade sump	8.85	21.2
Oct. 17-17	12:00 p.m.	no precipitation	filtration tank	7.90	4.09

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☑ NO ☐

Date: September 13, 2017 Time: morning Stage of Construction: second floor above parkade

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: clear and warm at 19°C 24 hrs Prior to Inspection: overcast and dry at 20°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super:

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
General Contractor	Thind Properties Ltd. - Timothy McGowan	timothy@thind.ca
Earthworks Contractor	DNS Bulldozing - DJ	dj@dnsbulldozing.com
Sustainability Consultant		
Architect		

New Items Requiring Immediate Attention/Action

1. Concrete pours being undertaken without proper spill containment equipment.
2.
3.

Action must be complete by:

Outstanding Issues From Last Inspection	Done (Y/N)	Done (Y/N)	Comments Why Not Done
1. Concrete pours with proper spill protection		Y	
2.			
3.			
4.			
5.			

Key Observation & Recommendations

1. Sediment Filtration System

Location: At southwest corner of site on Renfrew St. - Canadian Dewatering Filtration System.

General Comments: Treatment system includes settlement tanks, Floc tubes, pH treatment and additonal sand filter. System also includes carbon system for environmental treatment. Sample taken on this visit.

Photos:

Recommended Actions:

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway clean.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday when affected by site work.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Appropriate catch basins are protected.

Photos: Yes

Recommended Actions: Clean/replaced when clogged or in disrepair.

4. Run-off Control

Location: Sump/well system.

General Comments: Runoff collected/pumped to sump for primary filtration before being pumped to water treatment system for final filtration and discharge to combined sanitary/storm system.

Photos:

Recommended Actions: Monitor system and service/maintain regularly.

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos: _____

Recommended Actions: _____

6. Others

Location: Laneway - Concrete Pours and Site Vehicles

General Comments: Site personnel are responsible for ensuring that measures are in place

to prevent high pH liquids from entering catch basins during site concrete pours.

Photos: _____

Recommended Actions: _____

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
January 12, 2017	1:15 p.m.	no precipitation	discharge tank	8.21	1.02
Feb. 7-17	afternoon	no precipitation	discharge tank	7.47	0.84
February 17, 2017	afternoon	no precipitation	discharge tank	8.05	1.31
March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56
June 28-17	afternoon	no precipitation	discharge tank	7.77	4.78
Sept. 13-17	morning	no precipitation	parkade sump	8.81	8.91

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☑ NO ☐

Date: September 19, 2017 Time: morning Stage of Construction: second floor above parkade

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: overcast and dry at 16°C 24 hrs Prior to Inspection: intermittent showers at 15°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super: _____

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
General Contractor	Thind Properties Ltd. - Timothy McGowan	timothy@thind.ca
Earthworks Contractor	DNS Bulldozing - DJ	dj@dnsbulldozing.com
Sustainability Consultant		
Architect		

New Items Requiring Immediate Attention/Action

1. Laneway at south end needs to be swept - site material.
2. _____
3. _____

Action must be complete by: As soon as possible.

Outstanding Issues From Last Inspection	Done (Y/N)	Comments Why Not Done
1. Concrete pours to have proper spill protection equipment in place.	Y	
2.		
3.		
4.		
5.		

Key Observation & Recommendations

1. Sediment Filtration System

Location: At southwest corner of site on Renfrew St. - Canadian Dewatering Filtration System.

General Comments: No collection in sump. Sample should be collected from sump in basement to determine if filtration system no longer required.

Photos:

Recommended Actions: Call Horizon before pumping from sump for us to first obtain a sample.

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway at south end needs to be swept. Site material on laneway.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday when affected by site work.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Appropriate catch basins are protected.

Photos: Yes

Recommended Actions: Clean/replaced when clogged or in disrepair.

4. Run-off Control

Location: Sump/well system.

General Comments: Runoff collected by perimeter drains and discharged to sump in lower parkade. Sample to be obtained from here to determine if filtration system is still necessary.

Photos:

Recommended Actions: Call Horizon for testing before pumping from sump.

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos:

Recommended Actions:

6. Others

Location: Laneway - Concrete Pours and Site Vehicles

General Comments: Ensure spill protection in place during concrete pours.

Photos:

Recommended Actions:

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
January 12, 2017	1:15 p.m.	no precipitation	discharge tank	8.21	1.02
Feb. 7-17	afternoon	no precipitation	discharge tank	7.47	0.84
February 17, 2017	afternoon	no precipitation	discharge tank	8.05	1.31
March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56
June 28-17	afternoon	no precipitation	discharge tank	7.77	4.78
Sept. 13-17	morning	no precipitation	parkade sump	8.81	8.91
Sept. 19-17	morning	< 1 mm	discharge tank	7.62	0.92

Our File: 114-3565

HORIZON ENGINEERING INC

Erosion and Sediment Control (ESC) Monitoring Report

Site COMPLIANT with Vancouver environmental requirements? YES ☑ NO ☐

Date: September 29, 2017 Time: morning Stage of Construction: second floor above parkade

Location

Development Company: Renfrew View Homes Development Ltd - Thind

Location (Civic Address): 2245 Kingsway, Vancouver V5N 2T6

Project Name: 2889 East 1st Avenue

Weather Conditions

At Inspection: intermittent rain at 19°C 24 hrs Prior to Inspection: clear and dry at 24°C

Environmental Monitoring Firm

Monitor Name: Clive Clarke - BC-CESCL

Monitor Phone: 604-990-0546 Reviewed by Site Super:

Inspection Report Distribution	Name(s)	Email Address
Client	Renfrew View Homes Ltd - Dave Westley	dave@thind.ca
Design Engineer	Karim Karimzadegan	karim@horizoneng.ca
Site Supervisor	Thind Properties Ltd. - John Mastin	johnm@thind.ca
Project Manager	Kian Tey	kian@thind.ca

New Items Requiring Immediate Attention/Action

1. Laneway at south end needs to be swept - site material.
2.
3.

Action must be complete by: As soon as possible.

Outstanding Issues From Last Inspection	Done (Y/N)	Done (Y/N)	Comments Why Not Done
1. Laneway at south end needs to be swept - site material.		N	
2.			
3.			
4.			
5.			

Key Observation & Recommendations

1. Sediment Filtration System

Location: At southwest corner of site on Renfrew St. - Canadian Dewatering Filtration System.

General Comments: Sample collected from sump in basement. Site material is being washed into sump to result in unnecessarily high turbidity values in samples taken from sump.

Photos:

Recommended Actions: Ensure no site material - dust or garbage is allowed to enter sump.

2. Site Entrances and Traffic Areas

Location: Access at laneway - east of the site.

General Comments: Laneway at south end needs to be swept. Site material has migrated onto laneway.

Photos: Yes

Recommended Actions: Sweep laneway at end of each workday when affected by site work.

3. Catch Basin Inlets

Location: At laneway and on Graveley and Renfrew Streets.

General Comments: Appropriate catch basins are protected.

Photos:

Recommended Actions: Clean/replaced when clogged or in disrepair.

4. Run-off Control

Location: Sump/well system.

General Comments: Runoff collected by perimeter drains and discharged to sump in lower parkade. Sample to be obtained from here to determine if filtration system is still necessary.

Photos:

Recommended Actions:

5. Perimeter Controls

Location: Silt fencing where necessary. Dust fencing where necessary.

General Comments: Silt fencing to be installed where necessary to prevent sediment migration off site.

Dust protection to be placed on perimeter fencing if dust becomes a problem during site work.

Photos:

Recommended Actions:

6. Others

Location: Laneway - Concrete Pours and Site Vehicles

General Comments: Ensure spill protection in place during concrete pours.

Photos:

Recommended Actions:

Sampling Data

Summary of monitoring results including previous visits

Date	Time	Weather (precipitation mm)	Sample Location	Field pH	Turbidity / NTU
October 21, 2016	10:30 a.m.	>1mm	no discharge		
October 27, 2016	11:30 a.m.	2-4 mm	discharge tank	7.15	0.54
November 1, 2016	10:30 a.m.	1 mm	discharge tank	7.27	0.62
November 22, 2016	1:30 p.m.	3-5 mm	discharge tank	8.26	44
December 29, 2016	12:30 p.m.	3-5 mm	discharge tank	7.98	52
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March 8, 2017	morning	no precipitation	discharge tank	7.92	2.01
March 23, 2017	morning	no precipitation	discharge tank	6.59	0.92
April 26, 2017	morning	no precipitation	discharge tank	7.20	0.38
June 1-17	morning	no precipitation	discharge tank	7.33	3.56
June 28-17	afternoon	no precipitation	discharge tank	7.77	4.78
Sept. 13-17	morning	no precipitation	parkade sump	8.81	8.91
Sept. 19-17	morning	< 1 mm	discharge tank	7.62	0.92
Sept. 29-17	11:45 a.m.	2 mm	parkade sump	49.1	8.95

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST.
Your C.O.C. #: K018622

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/10/18
Report #: R2462398
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B790932
Received: 2017/10/16, 18:36

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	1	2017/10/16	2017/10/18	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	1	N/A	2017/10/17	BBY8SOP-00010/11/12	BC Lab Manual 2017 m
Hardness Total (calculated as CaCO3) (1)	1	N/A	2017/10/17	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/10/17	2017/10/17	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/10/17	2017/10/18	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/10/17	2017/10/17	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/10/18	BBY WI-00033	Auto Calc
pH Water (2)	1	2017/10/17	2017/10/17	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/10/17	2017/10/18	BBY6SOP-00034	SM 22 2540 D
Volatile HC-BTEX	1	N/A	2017/10/18	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation acting as Maxxam Analytics 8575 Lougheed Hwy Burnaby British Columbia Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST.
Your C.O.C. #: K018622

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/10/18
Report #: R2462398
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B790932
Received: 2017/10/16, 18:36

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Nancy Niklis, Project Manager
Email: NNiklis@maxxam.ca
Phone# (604) 734 7276
==========
This report has been generated and distributed using a secure automated process.
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 Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	**INFLUENT**	**RDL**	**QC Batch**
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8796441
Physical Properties				
pH	pH	8.48		8796677
Physical Properties				
Total Suspended Solids	mg/L	61 (1)	11	8795953

RDL = Reportable Detection Limit
(1) RDL raised due to sample matrix interference.

Maxxam Analytics International Corporation o/a Maxxam Analytics, Burnaby, BC, Canada V5G 1K9 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	INFLUENT	RDL	QC Batch
Industrial				
BTEX Total	ug/L	6.06	0.40	8795479
RDL = Reportable Detection Limit				

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Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	**INFLUENT**	**RDL**	**QC Batch**
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8794492
Benzene	ug/L	1.0	0.40	8796280
Toluene	ug/L	2.5	0.40	8796280
Ethylbenzene	ug/L	<0.40	0.40	8796280
m & p-Xylene	ug/L	1.5	0.40	8796280
o-Xylene	ug/L	1.1	0.40	8796280
Styrene	ug/L	<0.40	0.40	8796280
Xylenes (Total)	ug/L	2.5	0.40	8796280
VH C6-C10	ug/L	<300	300	8796280
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	106		8796280
4-Bromofluorobenzene (sur.)	%	106		8796280
D4-1,2-Dichloroethane (sur.)	%	120		8796280
RDL = Reportable Detection Limit				

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Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

CSR TOTAL METALS (NO CV-HG) IN WATER

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	INFLUENT	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	76.0	0.50	8795339
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	1420	3.0	8795997
Total Arsenic (As)	ug/L	4.33	0.10	8795997
Total Boron (B)	ug/L	55	50	8795997
Total Cadmium (Cd)	ug/L	0.036	0.010	8795997
Total Chromium (Cr)	ug/L	12.9	1.0	8795997
Total Cobalt (Co)	ug/L	2.61	0.20	8795997
Total Copper (Cu)	ug/L	26.0	0.50	8795997
Total Iron (Fe)	ug/L	1750	10	8795997
Total Lead (Pb)	ug/L	1.54	0.20	8795997
Total Manganese (Mn)	ug/L	48.1	1.0	8795997
Total Molybdenum (Mo)	ug/L	4.0	1.0	8795997
Total Nickel (Ni)	ug/L	4.1	1.0	8795997
Total Selenium (Se)	ug/L	0.78	0.10	8795997
Total Silver (Ag)	ug/L	0.034	0.020	8795997
Total Zinc (Zn)	ug/L	103	5.0	8795997
RDL = Reportable Detection Limit				

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Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		SF6477		
Sampling Date		2017/10/16 14:30		
COC Number		K018622		
	UNITS	INFLUENT	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	0.12	0.10	8794239
High Molecular Weight PAH`s	ug/L	0.084	0.050	8794239
Total PAH	ug/L	0.21	0.10	8794239
Quinoline	ug/L	0.12	0.020	8795660
Naphthalene	ug/L	<0.10	0.10	8795660
2-Methylnaphthalene	ug/L	<0.10	0.10	8795660
Acenaphthylene	ug/L	<0.050	0.050	8795660
Acenaphthene	ug/L	<0.050	0.050	8795660
Fluorene	ug/L	<0.050	0.050	8795660
Phenanthrene	ug/L	<0.050	0.050	8795660
Anthracene	ug/L	<0.010	0.010	8795660
Acridine	ug/L	<0.050	0.050	8795660
Fluoranthene	ug/L	0.061	0.020	8795660
Pyrene	ug/L	0.023	0.020	8795660
Benzo(a)anthracene	ug/L	<0.010	0.010	8795660
Chrysene	ug/L	<0.020	0.020	8795660
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8795660
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8795660
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8795660
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8795660
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8795660
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8795660
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	108		8795660
D8-ACENAPHTHYLENE (sur.)	%	108		8795660
D8-NAPHTHALENE (sur.)	%	97		8795660
TERPHENYL-D14 (sur.)	%	123		8795660
RDL = Reportable Detection Limit				

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Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.3°C

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790932
Report Date: 2017/10/18

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8795660	D10-ANTHRACENE (sur.)	2017/10/17	101	50 - 140	112	50 - 140	110	%		
8795660	D8-ACENAPHTHYLENE (sur.)	2017/10/17	103	50 - 140	104	50 - 140	104	%		
8795660	D8-NAPHTHALENE (sur.)	2017/10/17	103	50 - 140	105	50 - 140	101	%		
8795660	TERPHENYL-D14 (sur.)	2017/10/17	100	50 - 140	107	50 - 140	113	%		
8796280	1,4-Difluorobenzene (sur.)	2017/10/17	100	70 - 130	98	70 - 130	100	%		
8796280	4-Bromofluorobenzene (sur.)	2017/10/17	99	70 - 130	101	70 - 130	104	%		
8796280	D4-1,2-Dichloroethane (sur.)	2017/10/17	105	70 - 130	105	70 - 130	104	%		
8795660	2-Methylnaphthalene	2017/10/17	NC	50 - 140	97	50 - 140	<0.10	ug/L	NC	40
8795660	Acenaphthene	2017/10/17	NC	50 - 140	98	50 - 140	<0.050	ug/L	1.7	40
8795660	Acenaphthylene	2017/10/17	97	50 - 140	98	50 - 140	<0.050	ug/L	NC	40
8795660	Acridine	2017/10/17	97	50 - 140	98	50 - 140	<0.050	ug/L	NC	40
8795660	Anthracene	2017/10/17	96	50 - 140	101	50 - 140	<0.010	ug/L	NC	40
8795660	Benzo(a)anthracene	2017/10/17	92	50 - 140	95	50 - 140	<0.010	ug/L	NC	40
8795660	Benzo(a)pyrene	2017/10/17	86	50 - 140	95	50 - 140	<0.0050	ug/L	15	40
8795660	Benzo(b&j)fluoranthene	2017/10/17	91	50 - 140	95	50 - 140	<0.030	ug/L	NC	40
8795660	Benzo(g,h,i)perylene	2017/10/17	80	50 - 140	95	50 - 140	<0.050	ug/L	NC	40
8795660	Benzo(k)fluoranthene	2017/10/17	88	50 - 140	104	50 - 140	<0.050	ug/L	NC	40
8795660	Chrysene	2017/10/17	89	50 - 140	93	50 - 140	<0.020	ug/L	NC	40
8795660	Dibenz(a,h)anthracene	2017/10/17	82	50 - 140	97	50 - 140	<0.0030	ug/L	NC	40
8795660	Fluoranthene	2017/10/17	97	50 - 140	100	50 - 140	<0.020	ug/L	12	40
8795660	Fluorene	2017/10/17	NC	50 - 140	98	50 - 140	<0.050	ug/L	1.6	40
8795660	Indeno(1,2,3-cd)pyrene	2017/10/17	81	50 - 140	96	50 - 140	<0.050	ug/L	NC	40
8795660	Naphthalene	2017/10/17	NC	50 - 140	105	50 - 140	<0.10	ug/L	1.7	40
8795660	Phenanthrene	2017/10/17	NC	50 - 140	100	50 - 140	<0.050	ug/L	NC	40
8795660	Pyrene	2017/10/17	100	50 - 140	102	50 - 140	<0.020	ug/L	19	40
8795660	Quinoline	2017/10/17	109	50 - 140	105	50 - 140	<0.020	ug/L	NC	40
8795953	Total Suspended Solids	2017/10/18	105	80 - 120	98	80 - 120	<4.0	mg/L	NC	20
8795997	Total Aluminum (Al)	2017/10/17	103	80 - 120	109	80 - 120	<3.0	ug/L	17	20
8795997	Total Arsenic (As)	2017/10/17	105	80 - 120	99	80 - 120	<0.10	ug/L	12	20
8795997	Total Boron (B)	2017/10/17	93	80 - 120	92	80 - 120	<50	ug/L	2.6	20
8795997	Total Cadmium (Cd)	2017/10/17	94	80 - 120	97	80 - 120	<0.010	ug/L	17	20

Maxxam Job #: B790932
Report Date: 2017/10/18

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8795997	Total Chromium (Cr)	2017/10/17	100	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
8795997	Total Cobalt (Co)	2017/10/17	98	80 - 120	103	80 - 120	<0.20	ug/L	2.4	20
8795997	Total Copper (Cu)	2017/10/17	93	80 - 120	109	80 - 120	<0.50	ug/L	2.7	20
8795997	Total Iron (Fe)	2017/10/17	98	80 - 120	118	80 - 120	<10	ug/L	5.7	20
8795997	Total Lead (Pb)	2017/10/17	92	80 - 120	97	80 - 120	<0.20	ug/L	NC	20
8795997	Total Manganese (Mn)	2017/10/17	NC	80 - 120	100	80 - 120	<1.0	ug/L	2.5	20
8795997	Total Molybdenum (Mo)	2017/10/17	NC	80 - 120	97	80 - 120	<1.0	ug/L	0.84	20
8795997	Total Nickel (Ni)	2017/10/17	92	80 - 120	103	80 - 120	<1.0	ug/L	3.0	20
8795997	Total Selenium (Se)	2017/10/17	102	80 - 120	106	80 - 120	<0.10	ug/L	7.4	20
8795997	Total Silver (Ag)	2017/10/17	100	80 - 120	106	80 - 120	<0.020	ug/L	NC	20
8795997	Total Zinc (Zn)	2017/10/17	90	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
8796280	Benzene	2017/10/17	111	70 - 130	109	70 - 130	<0.40	ug/L	NC	30
8796280	Ethylbenzene	2017/10/17	109	70 - 130	112	70 - 130	<0.40	ug/L	NC	30
8796280	m & p-Xylene	2017/10/17	103	70 - 130	106	70 - 130	<0.40	ug/L	NC	30
8796280	o-Xylene	2017/10/17	103	70 - 130	105	70 - 130	<0.40	ug/L	NC	30
8796280	Styrene	2017/10/17	100	70 - 130	103	70 - 130	<0.40	ug/L	NC	30
8796280	Toluene	2017/10/17	104	70 - 130	105	70 - 130	<0.40	ug/L	NC	30
8796280	VH C6-C10	2017/10/17			117	70 - 130	<300	ug/L	NC	30
8796280	Xylenes (Total)	2017/10/17					<0.40	ug/L	NC	30
8796441	Oil & Grease (mineral/synthetic)	2017/10/18			92	65 - 135	<2.0	mg/L		
8796677	pH	2017/10/17			101	97 - 103			0.36	20

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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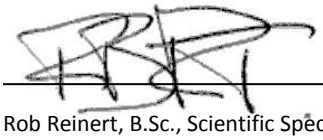
Maxxam Job #: B790932
Report Date: 2017/10/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST.
Sampler Initials: GY

VALIDATION SIGNATURE PAGE

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



Rob Reinert, B.Sc., Scientific Specialist

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Maxxam Analytics International Corporation o/a Maxxam Analytics 8-4606 Agar Drive Richmond, British Columbia, Canada V6W 1E5 Telephone(604) 734-7276 Fax(604) 731-2386

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Maxxam
A Bureau Veritas Group Company

CHAIN OF CUSTODY RECORD

BBY FCD-00077/07
Page 1 of 1

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name:	Quotation #:	☐ Regular TAT 5 days (Most analyses)
Contact Name: Judy Tai	Contact Name: Same	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 13732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location: 1615 Renfrew St.	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☒ 1 Day ☐ 3 Days
Email: jtai@keystoneenvironmental.ca	Email: gjia@keystoneenvironmental.ca	Sampled By: Garth Yu	Date Required:

Regulatory Criteria	Special Instructions	Rush Confirmation #:
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Cooler	
☐ YK CSR Soil ☐ YK CSR Water	☐ Ship Sample Bottles (Please Specify)	
☐ CCME (Specify) ☒ Other (Specify) Metro Van		
☐ Drinking Water ☐ BC Water Quality		

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

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEXS / VPH	BTEX / F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	Mineral Oil and Grease	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Influent	2017/10/16	1430	water	X		X				X			X	X		X	7		Report total BTEX
2																				
3	Discharge	2017/10/16	1430	water	X		X				X			X	X		X	7	X	-hold Discharge
4																				
5																				
6																				
7																				
8																				
9																				
10																				

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
		9, 9, 10
N/A		

COOLING MEDIA PRESENT Y / N

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Garth Yu	2017/10/16	1830	Eva Sykora EVA SYKORA	2017/10/16	18:36

B790932_COC

COC-1027 Keystone

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: November 30, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	October 2017
Total Monthly Discharge Volume:	373.00 m^3
Number of Days of Discharge to Sewer:	31
Maximum Daily Flow:	24.09 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Oct 16 2017

Discharge Volume on Day of Sampling:	12.00 m^3
Comments:	Influent sample

Sampling Set: Grab

Sampling Start Time:	02:30 PM
Comments:	Influent sample

Sampling Results

Parameter:	pH
Sample Result:	8.48 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	61 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00021 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.00606 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	1.42 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00433 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	0.055 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.000036 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	0.0129 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00261 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.026 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	1.75 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.00154 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.0481 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.004 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	0.0041 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	0.00078 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	0.000034 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	0.103 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Nov 10 2017 09:17 AM	B790932V1-R2017-10-18_17-24-22_R006.pdf

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: October 31, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	September 2017
Total Monthly Discharge Volume:	480.00 m^3
Number of Days of Discharge to Sewer:	21
Maximum Daily Flow:	28.24 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Sep 26 2017

Discharge Volume on Day of Sampling:	14.11 m^3

Sampling Set: Grab

Sampling Start Time:	03:00 PM

Sampling Results

Parameter:	pH
Sample Result:	7.2 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	< 4 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.0535 mg/L

Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0236 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00259 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.000018 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00076 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.00471 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	1.28 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.00059 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.237 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0038 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	0.0027 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	0.0326 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Oct 27 2017 11:05 AM	B783597V1-R2017-09-30_14-30-57_R006.pdf

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K017529

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/09/30
Report #: R2452721
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B783597
Received: 2017/09/26, 16:53

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	1	2017/09/27	2017/09/29	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	1	2017/09/28	2017/09/28	BBY8SOP-00010/11/12	BC Lab Manual 2017 m
Hardness Total (calculated as CaCO3)	1	N/A	2017/09/29	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/09/28	2017/09/29	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/09/28	2017/09/29	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/09/27	2017/09/28	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/09/29	BBY WI-00033	Auto Calc
pH Water (1)	1	2017/09/28	2017/09/29	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/09/28	2017/09/29	BBY6SOP-00034	SM 22 2540 D
Field pH	1	2017/09/28	2017/09/29		
Volatile HC-BTEX	1	N/A	2017/09/29	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation acting as Maxxam Analytics 8575 Lougheed Hwy, Burnaby, British Columbia, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K017529

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/09/30
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CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B783597
Received: 2017/09/26, 16:53

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Megan Smith, Project Manager
Email: msmith@maxxam.ca
Phone# (604) 734 7276

==========

This report has been generated and distributed using a secure automated process.
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.

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB2400		
Sampling Date		2017/09/26 15:30		
COC Number		K017529		
	UNITS	**DISCHARGE**	**RDL**	**QC Batch**
Field Parameters				
Field pH	pH	7.2	N/A	ONSITE
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8774683
Physical Properties				
pH	pH	8.31		8774526
Physical Properties				
Total Suspended Solids	mg/L	<4.0	4.0	8774063

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		SB2400		
Sampling Date		2017/09/26 15:30		
COC Number		K017529		
	UNITS	**DISCHARGE**	**RDL**	**QC Batch**
Industrial				
BTEX Total	ug/L	53.5	0.40	8773303
RDL = Reportable Detection Limit				

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		SB2400		
Sampling Date		2017/09/26 15:30		
COC Number		K017529		
	UNITS	DISCHARGE	RDL	QC Batch
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8772163
Benzene	ug/L	14	0.40	8774429
Toluene	ug/L	4.8	0.40	8774429
Ethylbenzene	ug/L	<0.40	0.40	8774429
m & p-Xylene	ug/L	17	0.40	8774429
o-Xylene	ug/L	18	0.40	8774429
Styrene	ug/L	<0.40	0.40	8774429
Xylenes (Total)	ug/L	35	0.40	8774429
VH C6-C10	ug/L	<300	300	8774429
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	83		8774429
4-Bromofluorobenzene (sur.)	%	94		8774429
D4-1,2-Dichloroethane (sur.)	%	95		8774429
RDL = Reportable Detection Limit				

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

CSR TOTAL METALS (NO CV-HG) IN WATER

Maxxam ID		SB2400	SB2400		
Sampling Date		2017/09/26 15:30	2017/09/26 15:30		
COC Number		K017529	K017529		
	UNITS	DISCHARGE	DISCHARGE Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	235		0.50	8772260
Total Metals by ICPMS					
Total Aluminum (Al)	ug/L	23.6	21.8	3.0	8774719
Total Arsenic (As)	ug/L	2.59	2.62	0.10	8774719
Total Boron (B)	ug/L	<50	<50	50	8774719
Total Cadmium (Cd)	ug/L	0.018	0.016	0.010	8774719
Total Chromium (Cr)	ug/L	<1.0	<1.0	1.0	8774719
Total Cobalt (Co)	ug/L	0.76	0.75	0.20	8774719
Total Copper (Cu)	ug/L	4.71 (1)	3.54 (2)	0.50	8774719
Total Iron (Fe)	ug/L	1280	1310	10	8774719
Total Lead (Pb)	ug/L	0.59	0.59	0.20	8774719
Total Manganese (Mn)	ug/L	237	242	1.0	8774719
Total Molybdenum (Mo)	ug/L	3.8	3.8	1.0	8774719
Total Nickel (Ni)	ug/L	2.7	2.7	1.0	8774719
Total Selenium (Se)	ug/L	<0.10	<0.10	0.10	8774719
Total Silver (Ag)	ug/L	<0.020	<0.020	0.020	8774719
Total Zinc (Zn)	ug/L	32.6	31.6	5.0	8774719

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

(1) Duplicate RPD for (Copper) above control limit - (10% of analytes failure allowed).

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		SB2400		
Sampling Date		2017/09/26 15:30		
COC Number		K017529		
	UNITS	DISCHARGE	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	<0.10	0.10	8772160
High Molecular Weight PAH`s	ug/L	<0.050	0.050	8772160
Total PAH	ug/L	<0.10	0.10	8772160
Quinoline	ug/L	<0.020	0.020	8772715
Naphthalene	ug/L	<0.10	0.10	8772715
2-Methylnaphthalene	ug/L	<0.10	0.10	8772715
Acenaphthylene	ug/L	<0.050	0.050	8772715
Acenaphthene	ug/L	<0.050	0.050	8772715
Fluorene	ug/L	<0.050	0.050	8772715
Phenanthrene	ug/L	<0.050	0.050	8772715
Anthracene	ug/L	<0.010	0.010	8772715
Acridine	ug/L	<0.050	0.050	8772715
Fluoranthene	ug/L	<0.020	0.020	8772715
Pyrene	ug/L	<0.020	0.020	8772715
Benzo(a)anthracene	ug/L	<0.010	0.010	8772715
Chrysene	ug/L	<0.020	0.020	8772715
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8772715
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8772715
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8772715
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8772715
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8772715
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8772715
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	92		8772715
D8-ACENAPHTHYLENE (sur.)	%	90		8772715
D8-NAPHTHALENE (sur.)	%	75		8772715
TERPHENYL-D14 (sur.)	%	86		8772715
RDL = Reportable Detection Limit				

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Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	20.3°C

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B783597
Report Date: 2017/09/30

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8772715	D10-ANTHRACENE (sur.)	2017/09/28	90	50 - 140	93	50 - 140	107	%		
8772715	D8-ACENAPHTHYLENE (sur.)	2017/09/28	88	50 - 140	92	50 - 140	103	%		
8772715	D8-NAPHTHALENE (sur.)	2017/09/28	77	50 - 140	80	50 - 140	92	%		
8772715	TERPHENYL-D14 (sur.)	2017/09/28	87	50 - 140	94	50 - 140	103	%		
8774429	1,4-Difluorobenzene (sur.)	2017/09/28	83	70 - 130	78	70 - 130	107	%		
8774429	4-Bromofluorobenzene (sur.)	2017/09/28	89	70 - 130	90	70 - 130	120	%		
8774429	D4-1,2-Dichloroethane (sur.)	2017/09/28	94	70 - 130	84	70 - 130	120	%		
8772715	2-Methylnaphthalene	2017/09/28	77	50 - 140	78	50 - 140	<0.10	ug/L	NC	40
8772715	Acenaphthene	2017/09/28	84	50 - 140	86	50 - 140	<0.050	ug/L	NC	40
8772715	Acenaphthylene	2017/09/28	84	50 - 140	86	50 - 140	<0.050	ug/L	NC	40
8772715	Acridine	2017/09/28	99	50 - 140	100	50 - 140	<0.050	ug/L	NC	40
8772715	Anthracene	2017/09/28	86	50 - 140	93	50 - 140	<0.010	ug/L	NC	40
8772715	Benzo(a)anthracene	2017/09/28	78	50 - 140	86	50 - 140	<0.010	ug/L	NC	40
8772715	Benzo(a)pyrene	2017/09/28	66	50 - 140	90	50 - 140	<0.0050	ug/L	NC	40
8772715	Benzo(b&j)fluoranthene	2017/09/28	67	50 - 140	89	50 - 140	<0.030	ug/L	NC	40
8772715	Benzo(g,h,i)perylene	2017/09/28	45 (1)	50 - 140	82	50 - 140	<0.050	ug/L	NC	40
8772715	Benzo(k)fluoranthene	2017/09/28	67	50 - 140	89	50 - 140	<0.050	ug/L	NC	40
8772715	Chrysene	2017/09/28	77	50 - 140	84	50 - 140	<0.020	ug/L	NC	40
8772715	Dibenz(a,h)anthracene	2017/09/28	48 (1)	50 - 140	86	50 - 140	<0.0030	ug/L	NC	40
8772715	Fluoranthene	2017/09/28	83	50 - 140	86	50 - 140	<0.020	ug/L	NC	40
8772715	Fluorene	2017/09/28	80	50 - 140	83	50 - 140	<0.050	ug/L	NC	40
8772715	Indeno(1,2,3-cd)pyrene	2017/09/28	46 (1)	50 - 140	84	50 - 140	<0.050	ug/L	NC	40
8772715	Naphthalene	2017/09/28	76	50 - 140	77	50 - 140	<0.10	ug/L	NC	40
8772715	Phenanthrene	2017/09/28	84	50 - 140	86	50 - 140	<0.050	ug/L	NC	40
8772715	Pyrene	2017/09/28	85	50 - 140	89	50 - 140	<0.020	ug/L	NC	40
8772715	Quinoline	2017/09/28	110	50 - 140	110	50 - 140	<0.020	ug/L	NC	40
8774063	Total Suspended Solids	2017/09/29	104	80 - 120	101	80 - 120	<4.0	mg/L	7.1	20
8774429	Benzene	2017/09/28	100	70 - 130	92	70 - 130	<0.40	ug/L	NC	30
8774429	Ethylbenzene	2017/09/28	119	70 - 130	119	70 - 130	<0.40	ug/L	NC	30
8774429	m & p-Xylene	2017/09/28	110	70 - 130	111	70 - 130	<0.40	ug/L	NC	30
8774429	o-Xylene	2017/09/28	111	70 - 130	111	70 - 130	<0.40	ug/L	NC	30

Maxxam Job #: B783597
Report Date: 2017/09/30

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8774429	Styrene	2017/09/28	107	70 - 130	109	70 - 130	<0.40	ug/L	NC	30
8774429	Toluene	2017/09/28	92	70 - 130	98	70 - 130	<0.40	ug/L	2.8	30
8774429	VH C6-C10	2017/09/28			101	70 - 130	<300	ug/L	NC	30
8774429	Xylenes (Total)	2017/09/28					<0.40	ug/L	NC	30
8774526	pH	2017/09/29			101	97 - 103			0.73	20
8774683	Oil & Grease (mineral/synthetic)	2017/09/29			96	65 - 135	<2.0	mg/L		
8774719	Total Aluminum (Al)	2017/09/29	107	80 - 120	106	80 - 120	<3.0	ug/L	7.6	20
8774719	Total Arsenic (As)	2017/09/29	95	80 - 120	93	80 - 120	<0.10	ug/L	1.2	20
8774719	Total Boron (B)	2017/09/29	90	80 - 120	97	80 - 120	<50	ug/L	NC	20
8774719	Total Cadmium (Cd)	2017/09/29	97	80 - 120	97	80 - 120	<0.010	ug/L	12	20
8774719	Total Chromium (Cr)	2017/09/29	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
8774719	Total Cobalt (Co)	2017/09/29	95	80 - 120	96	80 - 120	<0.20	ug/L	0.13	20
8774719	Total Copper (Cu)	2017/09/29	81	80 - 120	99	80 - 120	<0.50	ug/L	28 (1)	20
8774719	Total Iron (Fe)	2017/09/29	NC	80 - 120	105	80 - 120	<10	ug/L	2.9	20
8774719	Total Lead (Pb)	2017/09/29	98	80 - 120	96	80 - 120	<0.20	ug/L	0.34	20
8774719	Total Manganese (Mn)	2017/09/29	NC	80 - 120	96	80 - 120	<1.0	ug/L	2.1	20
8774719	Total Molybdenum (Mo)	2017/09/29	NC	80 - 120	96	80 - 120	<1.0	ug/L	1.3	20
8774719	Total Nickel (Ni)	2017/09/29	94	80 - 120	100	80 - 120	<1.0	ug/L	2.6	20
8774719	Total Selenium (Se)	2017/09/29	95	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
8774719	Total Silver (Ag)	2017/09/29	101	80 - 120	102	80 - 120	<0.020	ug/L	NC	20
8774719	Total Zinc (Zn)	2017/09/29	NC	80 - 120	101	80 - 120	<5.0	ug/L	3.3	20

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B783597
Report Date: 2017/09/30

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: KG

VALIDATION SIGNATURE PAGE

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

Dijana Bradaric

Dijana Bradaric, BBY Customer Service

Rob Reinert, B.Sc., Scientific Specialist

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.

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Maxxam
A Bureau Veritas Group Company

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CHAIN OF CUSTODY RECORD

BBY FCD-00077/07

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Page _____ of _____

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name: same as invoice	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Judy Tai	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 12732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location: 1615 Renfrew St.	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: jtai@keystoneenvironmental.ca	Email:	Sampled By: Kareena Gill / Garth	Date Required:

Regulatory Criteria	Special Instructions
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Cooler
☐ YK CSR Soil ☐ YK CSR Water	☐ Ship Sample Bottles (Please Specify)
☐ CCME (Specify) ☑ Other (Specify) Metro Van	
☐ Drinking Water ☐ BC Water Quality	

Rush Confirmation #:

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

Analysis Requested

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEXS / VPH	BTEX / F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	MDG	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Discharge	2017/09/26	15:30	Water	✓		✓				✓			✓	✓		✓	8		Report Total BTEX
2																				Field PH 7.2 @ 23°C
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

MTBE; VOC / BTEXS / VPH; VOC / BTEX / F1; LEPH/HEPH/PAH; F2 - F4; TEH; Preserved?; Filtered?; Field Preserved?; Sulphate; COD; Alkalinity; Ammonia; BOD; Conductivity; Nitrate; Fluoride; TDS; Nitrite

LABORATORY USE ONLY

CUSTODY SEAL Y / N: Present ☐ Intact ☐

COOLER TEMPERATURES: NA; 20, 20, 21

COOLING MEDIA PRESENT Y / N

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Kareena Gill / Kareena Gill	2017/09/26	16:50	GLORIA CHAN	2017/09/26	16:53

B783597_COC

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at

COC-1027 Keystone

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K018241

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/09/01
Report #: R2438075
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B771897
Received: 2017/08/23, 17:50

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	2	2017/09/01	2017/09/01	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	2	2017/08/27	2017/08/28	BBY8SOP-00010/11/12	BC Lab Manual 2017 m
Hardness Total (calculated as CaCO3)	1	N/A	2017/08/28	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	1	N/A	2017/08/29	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2017/08/24	2017/08/28	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2017/08/24	2017/08/29	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (total)	2	2017/08/25	2017/08/28	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	2	2017/08/24	2017/08/25	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	2	2017/08/26	2017/08/26	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	2	N/A	2017/08/28	BBY WI-00033	Auto Calc
pH Water (1)	1	2017/08/25	2017/08/25	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/08/28	2017/08/29	BBY6SOP-00034	SM 22 2540 D
Field pH	1	N/A	2017/08/28		
Volatile HC-BTEX	2	N/A	2017/08/28	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Maxxam Analytics International Corporation acting as Maxxam Analytics 8575 Lougheed Hwy, Burnaby, British Columbia, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O C. #: K018241

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/09/01
Report #: R2438075
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB # B771897
Received 2017/08/23, 17 50

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

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

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604)639-2602

==========

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 Analytics International Corporation, Maxxam Analytics, Burnaby, British Columbia, Canada V5G 1K6 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RU5415	RU5416		
Sampling Date		2017/08/23 05:05	2017/08/15 03:15		
COC Number		K018241	K018241		
	UNITS	DISCHARGE	INFLUENT	RDL	QC Batch
Field Parameters					
Field pH	pH	6.85		N/A	ONSITE
OIL & GREASE					
Oil & Grease (mineral/synthetic)	mg/L	<2.0	<2.0	2.0	8738115
Physical Properties					
pH	pH	7.98			8738082
Physical Properties					
Total Suspended Solids	mg/L	5.3		4.0	8740936
RDL = Reportable Detection Limit					

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		RU5415	RU5416		
Sampling Date		2017/08/23 05:05	2017/08/15 03:15		
COC Number		K018241	K018241		
	UNITS	DISCHARGE	INFLUENT	RDL	QC Batch
Industrial					
BTEX Total	ug/L	235	413	0.40	8745474
RDL = Reportable Detection Limit					

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		RU5415	RU5416		
Sampling Date		2017/08/23 05:05	2017/08/15 03:15		
COC Number		K018241	K018241		
	UNITS	DISCHARGE	INFLUENT	RDL	QC Batch
Volatiles					
VPH (VHW6 to 10 - BTEX)	ug/L	<300	<300	300	8736869
Benzene	ug/L	49	110	0.40	8739814
Toluene	ug/L	33	75	0.40	8739814
Ethylbenzene	ug/L	0.49	<0.40	0.40	8739814
m & p-Xylene	ug/L	67	130	0.40	8739814
o-Xylene	ug/L	86	100	0.40	8739814
Styrene	ug/L	<0.40	<0.40	0.40	8739814
Xylenes (Total)	ug/L	150	230	0.40	8739814
VH C6-C10	ug/L	<300	560	300	8739814
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	109	108		8739814
4-Bromofluorobenzene (sur.)	%	99	104		8739814
D4-1,2-Dichloroethane (sur.)	%	122	121		8739814
RDL = Reportable Detection Limit					

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

CSR TOTAL METALS (NO CV-HG) IN WATER

Maxxam ID		RU5415		RU5416		
Sampling Date		2017/08/23 05:05		2017/08/15 03:15		
COC Number		K018241		K018241		
	UNITS	DISCHARGE	QC Batch	INFLUENT	RDL	QC Batch
Calculated Parameters						
Total Hardness (CaCO3)	mg/L	234	8736498	182	0.50	8736498
Total Metals by ICPMS						
Total Aluminum (Al)	ug/L	17.2	8738896	190	3.0	8738275
Total Antimony (Sb)	ug/L	<0.50	8738896	<0.50	0.50	8738275
Total Arsenic (As)	ug/L	2.06	8738896	1.46	0.10	8738275
Total Barium (Ba)	ug/L	50.9	8738896	45.7	1.0	8738275
Total Beryllium (Be)	ug/L	<0.10	8738896	<0.10	0.10	8738275
Total Bismuth (Bi)	ug/L	<1.0	8738896	<1.0	1.0	8738275
Total Boron (B)	ug/L	<50	8738896	<50	50	8738275
Total Cadmium (Cd)	ug/L	0.010	8738896	0.022	0.010	8738275
Total Chromium (Cr)	ug/L	<1.0	8738896	4.0	1.0	8738275
Total Cobalt (Co)	ug/L	0.64	8738896	0.54	0.20	8738275
Total Copper (Cu)	ug/L	2.99	8738896	3.77	0.50	8738275
Total Iron (Fe)	ug/L	1660	8738896	1420	10	8738275
Total Lead (Pb)	ug/L	1.10	8738896	0.67	0.20	8738275
Total Lithium (Li)	ug/L	<2.0	8738896	2.6	2.0	8738275
Total Manganese (Mn)	ug/L	326	8738896	86.3	1.0	8738275
Total Mercury (Hg)	ug/L	<0.050	8738896	<0.050	0.050	8738275
Total Molybdenum (Mo)	ug/L	8.1	8738896	3.2	1.0	8738275
Total Nickel (Ni)	ug/L	1.3	8738896	<1.0	1.0	8738275
Total Selenium (Se)	ug/L	<0.10	8738896	0.40	0.10	8738275
Total Silicon (Si)	ug/L	15100	8738896	17900	100	8738275
Total Silver (Ag)	ug/L	<0.020	8738896	<0.020	0.020	8738275
Total Strontium (Sr)	ug/L	496	8738896	393	1.0	8738275
Total Thallium (Tl)	ug/L	<0.010	8738896	<0.010	0.010	8738275
Total Tin (Sn)	ug/L	<5.0	8738896	<5.0	5.0	8738275
Total Titanium (Ti)	ug/L	<5.0	8738896	6.2	5.0	8738275
Total Uranium (U)	ug/L	0.69	8738896	0.52	0.10	8738275
Total Vanadium (V)	ug/L	<5.0	8738896	8.0	5.0	8738275
Total Zinc (Zn)	ug/L	12.2	8738896	12.7	5.0	8738275
Total Zirconium (Zr)	ug/L	<0.10	8738896	0.15	0.10	8738275
RDL = Reportable Detection Limit						

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Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

CSR TOTAL METALS (NO CV-HG) IN WATER

Maxxam ID		RU5415		RU5416		
Sampling Date		2017/08/23 05:05		2017/08/15 03:15		
COC Number		K018241		K018241		
	UNITS	DISCHARGE	QC Batch	INFLUENT	RDL	QC Batch
Total Calcium (Ca)	mg/L	65.2	8736499	49.8	0.050	8736499
Total Magnesium (Mg)	mg/L	17.4	8736499	14.0	0.050	8736499
Total Potassium (K)	mg/L	7.26	8736499	14.5	0.050	8736499
Total Sodium (Na)	mg/L	30.5	8736499	40.5	0.050	8736499
Total Sulphur (S)	mg/L	8.7	8736499	11.0	3.0	8736499
RDL = Reportable Detection Limit						

Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		RU5415	RU5416		
Sampling Date		2017/08/23 05:05	2017/08/15 03:15		
COC Number		K018241	K018241		
	UNITS	DISCHARGE	INFLUENT	RDL	QC Batch
Polycyclic Aromatics					
Low Molecular Weight PAH`s	ug/L	0.21	0.90	0.10	8736709
High Molecular Weight PAH`s	ug/L	<0.050	<0.050	0.050	8736709
Total PAH	ug/L	0.21	0.90	0.10	8736709
Quinoline	ug/L	<0.020	0.17	0.020	8739152
Naphthalene	ug/L	0.21	0.56	0.10	8739152
2-Methylnaphthalene	ug/L	<0.10	0.16	0.10	8739152
Acenaphthylene	ug/L	<0.050	<0.050	0.050	8739152
Acenaphthene	ug/L	<0.050	<0.050	0.050	8739152
Fluorene	ug/L	<0.050	<0.050	0.050	8739152
Phenanthrene	ug/L	<0.050	<0.050	0.050	8739152
Anthracene	ug/L	<0.010	<0.010	0.010	8739152
Acridine	ug/L	<0.050	<0.050	0.050	8739152
Fluoranthene	ug/L	<0.020	<0.020	0.020	8739152
Pyrene	ug/L	<0.020	<0.020	0.020	8739152
Benzo(a)anthracene	ug/L	<0.010	<0.010	0.010	8739152
Chrysene	ug/L	<0.020	<0.020	0.020	8739152
Benzo(b&j)fluoranthene	ug/L	<0.030	<0.030	0.030	8739152
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	0.050	8739152
Benzo(a)pyrene	ug/L	<0.0050	<0.0050	0.0050	8739152
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	0.050	8739152
Dibenz(a,h)anthracene	ug/L	<0.0030	<0.0030	0.0030	8739152
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	0.050	8739152
Surrogate Recovery (%)					
D10-ANTHRACENE (sur.)	%	92	91		8739152
D8-ACENAPHTHYLENE (sur.)	%	93	92		8739152
D8-NAPHTHALENE (sur.)	%	92	91		8739152
TERPHENYL-D14 (sur.)	%	87	84		8739152
RDL = Reportable Detection Limit					

Maxxam Analytics International Corporation o/a MA-xam Analytics Burnaby 8075 Canada Way V5G 4K6 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	11.3°C
Package 2	21.0°C

Revised Report (Version: 2): Total BTEX requested as per Judy Tai (GP5).

CSR TOTAL METALS (NO CV-HG) IN WATER Comments

Matrix Spike Elements by CRC ICPMS (total): RDL raised due to concentration over linear range, sample dilution required

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B771897
Report Date: 2017/09/01

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8739152	D10-ANTHRACENE (sur.)	2017/08/26	107	50 - 140	98	50 - 140	100	%		
8739152	D8-ACENAPHTHYLENE (sur.)	2017/08/26	104	50 - 140	96	50 - 140	100	%		
8739152	D8-NAPHTHALENE (sur.)	2017/08/26	99	50 - 140	97	50 - 140	97	%		
8739152	TERPHENYL-D14 (sur.)	2017/08/26	101	50 - 140	96	50 - 140	91	%		
8739814	1,4-Difluorobenzene (sur.)	2017/08/28	97	70 - 130	114	70 - 130	120	%		
8739814	4-Bromofluorobenzene (sur.)	2017/08/28	96	70 - 130	112	70 - 130	99	%		
8739814	D4-1,2-Dichloroethane (sur.)	2017/08/28	106	70 - 130	118	70 - 130	119	%		
8738082	pH	2017/08/25			101	97 - 103			1.7	20
8738115	Oil & Grease (mineral/synthetic)	2017/08/25			92	70 - 130	<2.0	mg/L		
8738275	Total Aluminum (Al)	2017/08/28	105	80 - 120	111	80 - 120	<3.0	ug/L		
8738275	Total Antimony (Sb)	2017/08/28	111	80 - 120	96	80 - 120	<0.50	ug/L		
8738275	Total Arsenic (As)	2017/08/28	110	80 - 120	99	80 - 120	<0.10	ug/L		
8738275	Total Barium (Ba)	2017/08/28	NC	80 - 120	99	80 - 120	<1.0	ug/L		
8738275	Total Beryllium (Be)	2017/08/28	107	80 - 120	100	80 - 120	<0.10	ug/L		
8738275	Total Bismuth (Bi)	2017/08/28	96	80 - 120	100	80 - 120	<1.0	ug/L		
8738275	Total Boron (B)	2017/08/28	NC	80 - 120	101	80 - 120	<50	ug/L		
8738275	Total Cadmium (Cd)	2017/08/28	110	80 - 120	99	80 - 120	<0.010	ug/L		
8738275	Total Chromium (Cr)	2017/08/28	99	80 - 120	96	80 - 120	<1.0	ug/L		
8738275	Total Cobalt (Co)	2017/08/28	96	80 - 120	97	80 - 120	<0.20	ug/L		
8738275	Total Copper (Cu)	2017/08/28	93	80 - 120	96	80 - 120	<0.50	ug/L		
8738275	Total Iron (Fe)	2017/08/28	NC	80 - 120	107	80 - 120	<10	ug/L	0.41	20
8738275	Total Lead (Pb)	2017/08/28	98	80 - 120	99	80 - 120	<0.20	ug/L		
8738275	Total Lithium (Li)	2017/08/28	102	80 - 120	99	80 - 120	<2.0	ug/L		
8738275	Total Manganese (Mn)	2017/08/28	NC	80 - 120	99	80 - 120	<1.0	ug/L		
8738275	Total Mercury (Hg)	2017/08/28	110	80 - 120	98	80 - 120	<0.050	ug/L		
8738275	Total Molybdenum (Mo)	2017/08/28	112	80 - 120	98	80 - 120	<1.0	ug/L		
8738275	Total Nickel (Ni)	2017/08/28	97	80 - 120	96	80 - 120	<1.0	ug/L		
8738275	Total Selenium (Se)	2017/08/28	108	80 - 120	103	80 - 120	<0.10	ug/L		
8738275	Total Silicon (Si)	2017/08/28					<100	ug/L		
8738275	Total Silver (Ag)	2017/08/28	105	80 - 120	104	80 - 120	<0.020	ug/L		
8738275	Total Strontium (Sr)	2017/08/28	NC	80 - 120	95	80 - 120	<1.0	ug/L		

Maxxam Job #: B771897
Report Date: 2017/09/01

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8738275	Total Thallium (Tl)	2017/08/28	101	80 - 120	100	80 - 120	<0.010	ug/L		
8738275	Total Tin (Sn)	2017/08/28	96	80 - 120	98	80 - 120	<5.0	ug/L		
8738275	Total Titanium (Ti)	2017/08/28	101	80 - 120	92	80 - 120	<5.0	ug/L		
8738275	Total Uranium (U)	2017/08/28	98	80 - 120	96	80 - 120	<0.10	ug/L		
8738275	Total Vanadium (V)	2017/08/28	97	80 - 120	96	80 - 120	<5.0	ug/L		
8738275	Total Zinc (Zn)	2017/08/28	NC	80 - 120	100	80 - 120	<5.0	ug/L		
8738275	Total Zirconium (Zr)	2017/08/28					<0.10	ug/L		
8738896	Total Aluminum (Al)	2017/08/28	112	80 - 120	112	80 - 120	<3.0	ug/L	NC	20
8738896	Total Antimony (Sb)	2017/08/28	103	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
8738896	Total Arsenic (As)	2017/08/28	108	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
8738896	Total Barium (Ba)	2017/08/28	100	80 - 120	102	80 - 120	<1.0	ug/L	0.79	20
8738896	Total Beryllium (Be)	2017/08/28	102	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
8738896	Total Bismuth (Bi)	2017/08/28	98	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
8738896	Total Boron (B)	2017/08/28	108	80 - 120	101	80 - 120	<50	ug/L	NC	20
8738896	Total Cadmium (Cd)	2017/08/28	104	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
8738896	Total Chromium (Cr)	2017/08/28	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
8738896	Total Cobalt (Co)	2017/08/28	95	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
8738896	Total Copper (Cu)	2017/08/28	91	80 - 120	98	80 - 120	<0.50	ug/L	0.38	20
8738896	Total Iron (Fe)	2017/08/28	104	80 - 120	109	80 - 120	<10	ug/L	3.5	20
8738896	Total Lead (Pb)	2017/08/28	97	80 - 120	99	80 - 120	<0.20	ug/L	1.2	20
8738896	Total Lithium (Li)	2017/08/28	NC	80 - 120	101	80 - 120	<2.0	ug/L	0.059	20
8738896	Total Manganese (Mn)	2017/08/28	NC	80 - 120	101	80 - 120	<1.0	ug/L	0.34	20
8738896	Total Mercury (Hg)	2017/08/28	102	80 - 120	97	80 - 120	<0.050	ug/L	NC	20
8738896	Total Molybdenum (Mo)	2017/08/28	104	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
8738896	Total Nickel (Ni)	2017/08/28	93	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
8738896	Total Selenium (Se)	2017/08/28	111	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
8738896	Total Silicon (Si)	2017/08/28					<100	ug/L	1.5	20
8738896	Total Silver (Ag)	2017/08/28	107	80 - 120	110	80 - 120	<0.020	ug/L	NC	20
8738896	Total Strontium (Sr)	2017/08/28	NC	80 - 120	98	80 - 120	<1.0	ug/L	0.24	20
8738896	Total Thallium (Tl)	2017/08/28	99	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
8738896	Total Tin (Sn)	2017/08/28	103	80 - 120	102	80 - 120	<5.0	ug/L	NC	20

Maxxam Job #: B771897
Report Date: 2017/09/01

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8738896	Total Titanium (Ti)	2017/08/28	100	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
8738896	Total Uranium (U)	2017/08/28	100	80 - 120	96	80 - 120	<0.10	ug/L	3.9	20
8738896	Total Vanadium (V)	2017/08/28	99	80 - 120	97	80 - 120	<5.0	ug/L	NC	20
8738896	Total Zinc (Zn)	2017/08/28	79 (1)	80 - 120	102	80 - 120	<5.0	ug/L	5.5	20
8738896	Total Zirconium (Zr)	2017/08/28					<0.10	ug/L	5.6	20
8739152	2-Methylnaphthalene	2017/08/26	90	50 - 140	82	50 - 140	<0.10	ug/L	NC	40
8739152	Acenaphthene	2017/08/26	93	50 - 140	87	50 - 140	<0.050	ug/L	NC	40
8739152	Acenaphthylene	2017/08/26	92	50 - 140	85	50 - 140	<0.050	ug/L	NC	40
8739152	Acridine	2017/08/26	96	50 - 140	96	50 - 140	<0.050	ug/L	NC	40
8739152	Anthracene	2017/08/26	99	50 - 140	90	50 - 140	<0.010	ug/L	NC	40
8739152	Benzo(a)anthracene	2017/08/26	95	50 - 140	85	50 - 140	<0.010	ug/L	NC	40
8739152	Benzo(a)pyrene	2017/08/26	90	50 - 140	86	50 - 140	<0.0050	ug/L	NC	40
8739152	Benzo(b&j)fluoranthene	2017/08/26	92	50 - 140	87	50 - 140	<0.030	ug/L	NC	40
8739152	Benzo(g,h,i)perylene	2017/08/26	76	50 - 140	82	50 - 140	<0.050	ug/L	NC	40
8739152	Benzo(k)fluoranthene	2017/08/26	96	50 - 140	87	50 - 140	<0.050	ug/L	NC	40
8739152	Chrysene	2017/08/26	105	50 - 140	93	50 - 140	<0.020	ug/L	NC	40
8739152	Dibenz(a,h)anthracene	2017/08/26	80	50 - 140	87	50 - 140	<0.0030	ug/L	NC	40
8739152	Fluoranthene	2017/08/26	92	50 - 140	91	50 - 140	<0.020	ug/L	NC	40
8739152	Fluorene	2017/08/26	91	50 - 140	87	50 - 140	<0.050	ug/L	NC	40
8739152	Indeno(1,2,3-cd)pyrene	2017/08/26	79	50 - 140	85	50 - 140	<0.050	ug/L	NC	40
8739152	Naphthalene	2017/08/26	95	50 - 140	91	50 - 140	<0.10	ug/L	NC	40
8739152	Phenanthrene	2017/08/26	96	50 - 140	91	50 - 140	<0.050	ug/L	NC	40
8739152	Pyrene	2017/08/26	93	50 - 140	91	50 - 140	<0.020	ug/L	NC	40
8739152	Quinoline	2017/08/26	105	50 - 140	82	50 - 140	<0.020	ug/L	NC	40
8739814	Benzene	2017/08/28	105	70 - 130	113	70 - 130	<0.40	ug/L	NC	30
8739814	Ethylbenzene	2017/08/28	104	70 - 130	103	70 - 130	<0.40	ug/L	NC	30
8739814	m & p-Xylene	2017/08/28	100	70 - 130	101	70 - 130	<0.40	ug/L	NC	30
8739814	o-Xylene	2017/08/28	100	70 - 130	97	70 - 130	<0.40	ug/L	NC	30
8739814	Styrene	2017/08/28	104	70 - 130	111	70 - 130	<0.40	ug/L	NC	30
8739814	Toluene	2017/08/28	96	70 - 130	107	70 - 130	<0.40	ug/L	NC	30
8739814	VH C6-C10	2017/08/28			99	70 - 130	<300	ug/L	NC	30

Maxxam Job #: B771897
Report Date: 2017/09/01

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8739814	Xylenes (Total)	2017/08/28					<0.40	ug/L	NC	30
8740936	Total Suspended Solids	2017/08/29	108	80 - 120	97	80 - 120	<4.0	mg/L	4.5	20

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B771897
Report Date: 2017/09/01

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: EM

VALIDATION SIGNATURE PAGE

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

Andy Lu, Ph.D., P.Chem., Scientific Specialist

Rob Reinert, B.Sc., Scientific Specialist

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.

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K 018241

CHAIN OF CUSTODY RECORD

BBY FCD-00077/07

Page 1 of 1

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name:	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Judy Tai	Contact Name: same	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 12732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location: 1615 Renfrew St	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: jtai@keystoneenvironmental.com	Email: emarcy@keystoneenvironmental.com	Sampled By: Eva Marcy	Date Required:

Regulatory Criteria	Special Instructions
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Cooler
☐ YK CSR Soil ☐ YK CSR Water	☐ Ship Sample Bottles (Please Specify)
☐ CCME (Specify) ☐ Other (Specify)	
☐ Drinking Water ☑ BC Water Quality	

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

Rush Confirmation #:

LABORATORY USE ONLY

CUSTODY SEAL Y / N NM | Present NM | Intact NM | COOLER TEMPERATURES 11, 12, 11 / 20, 21, 22

NOTE, 1 COOLER, BUT COOLER TEMP DIFFERENT FOR DIFF. DATES

COOLING MEDIA PRESENT Y / N

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEXS / VPH	BTEX / F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	Oil & grease / hydrocarbon	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Discharge	2017/08/23	5:05	SW	/		/				/			/	/		/	7		field pH 6.85
2	Influent	2017/08/15	3:15	SW	/		/				/			/	/		/	6		
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Eva Marcy EMarcy	2017/08/23	5:50 pm	KEVIN CHOW	2017/08/23	17:50

B771897_COC

COC-1027 Keystone

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: September 30, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	August 2017
Total Monthly Discharge Volume:	271.63 m^3
Number of Days of Discharge to Sewer:	23
Maximum Daily Flow:	23.63 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Aug 23 2017

Discharge Volume on Day of Sampling:	11.81 m^3

Sampling Set: Grab

Sampling Start Time:	05:05 PM
Comments:	Discharge results.

Sampling Results

Parameter:	pH
Sample Result:	6.85 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	5.3 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00021 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.235 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0172 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00206 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.00001 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00064 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.00299 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	1.66 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.0011 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.326 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0081 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	0.0013 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	0.0122 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Sep 07 2017 03:28 PM	B771897V2R-R2017-09-01_10-11-44_R006.pdf

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Success Through Science®

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K012319

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/07/18
Report #: R2414474
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B756799
Received: 2017/07/11, 17:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	1	2017/07/11	2017/07/17	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	1	2017/07/14	2017/07/14	BBY8SOP-00010/11/12	PBM BC Lab Manual m
Hardness Total (calculated as CaCO3)	1	N/A	2017/07/17	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/07/14	2017/07/15	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/07/12	2017/07/13	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/07/14	2017/07/15	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/07/17	BBY WI-00033	Auto Calc
pH Water (1)	1	2017/07/14	2017/07/15	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/07/17	2017/07/18	BBY6SOP-00034	SM 22 2540 D
Field pH	1	N/A	2017/07/17		
Volatile HC-BTEX	1	N/A	2017/07/17	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation acting as Maxxam Analytics 8 Burbidge Canada V5A 1V5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 12732
Site Location: 1615 RENFREW ST
Your C.O.C. #: K012319

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/07/18
Report #: R2414474
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B756799
Received: 2017/07/11, 17:30

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604)639-2602

==========

This report has been generated and distributed using a secure automated process.
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.

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	**DS17-7**	**RDL**	**QC Batch**
Field Parameters				
Field pH	pH	7.12	N/A	ONSITE
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8693212
Physical Properties				
pH	pH	8.30		8695830
Physical Properties				
Total Suspended Solids	mg/L	<4.0	4.0	8697249

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	**DS17-7**	**RDL**	**QC Batch**
Industrial				
BTEX Total	ug/L	461	0.40	8691256
RDL = Reportable Detection Limit				

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	DS17-7	RDL	QC Batch
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8690943
Benzene	ug/L	89	0.40	8695110
Toluene	ug/L	210	0.40	8695110
Ethylbenzene	ug/L	4.6	0.40	8695110
m & p-Xylene	ug/L	100	0.40	8695110
o-Xylene	ug/L	56	0.40	8695110
Styrene	ug/L	<0.40	0.40	8695110
Xylenes (Total)	ug/L	160	0.40	8695110
VH C6-C10	ug/L	470	300	8695110
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	107		8695110
4-Bromofluorobenzene (sur.)	%	97		8695110
D4-1,2-Dichloroethane (sur.)	%	100		8695110
RDL = Reportable Detection Limit				

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	DS17-7	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	216	0.50	8691447
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	11.5	3.0	8695061
Total Arsenic (As)	ug/L	1.92	0.10	8695061
Total Boron (B)	ug/L	<50	50	8695061
Total Cadmium (Cd)	ug/L	0.013	0.010	8695061
Total Chromium (Cr)	ug/L	<1.0	1.0	8695061
Total Cobalt (Co)	ug/L	0.95	0.20	8695061
Total Copper (Cu)	ug/L	3.05	0.50	8695061
Total Iron (Fe)	ug/L	248	10	8695061
Total Lead (Pb)	ug/L	0.97	0.20	8695061
Total Manganese (Mn)	ug/L	620	1.0	8695061
Total Molybdenum (Mo)	ug/L	24.2	1.0	8695061
Total Nickel (Ni)	ug/L	<1.0	1.0	8695061
Total Selenium (Se)	ug/L	<0.10	0.10	8695061
Total Silver (Ag)	ug/L	<0.020	0.020	8695061
Total Zinc (Zn)	ug/L	14.0	5.0	8695061
RDL = Reportable Detection Limit				

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Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		RM3028		
Sampling Date		2017/07/11 15:15		
COC Number		K012319		
	UNITS	DS17-7	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	1.6	0.10	8690810
High Molecular Weight PAH`s	ug/L	<0.050	0.050	8690810
Total PAH	ug/L	1.6	0.10	8690810
Quinoline	ug/L	<0.020	0.020	8695389
Naphthalene	ug/L	1.4	0.10	8695389
2-Methylnaphthalene	ug/L	0.24	0.10	8695389
Acenaphthylene	ug/L	<0.050	0.050	8695389
Acenaphthene	ug/L	<0.050	0.050	8695389
Fluorene	ug/L	<0.050	0.050	8695389
Phenanthrene	ug/L	<0.050	0.050	8695389
Anthracene	ug/L	<0.010	0.010	8695389
Acridine	ug/L	<0.050	0.050	8695389
Fluoranthene	ug/L	<0.020	0.020	8695389
Pyrene	ug/L	<0.020	0.020	8695389
Benzo(a)anthracene	ug/L	<0.010	0.010	8695389
Chrysene	ug/L	<0.020	0.020	8695389
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8695389
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8695389
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8695389
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8695389
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8695389
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8695389
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	100		8695389
D8-ACENAPHTHYLENE (sur.)	%	102		8695389
D8-NAPHTHALENE (sur.)	%	99		8695389
TERPHENYL-D14 (sur.)	%	99		8695389
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby, BC, Canada V5A 4N5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	13.7°C

Results relate only to the items tested.

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Maxxam Job #: B756799
Report Date: 2017/07/18

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8695110	1,4-Difluorobenzene (sur.)	2017/07/14	102	70 - 130	103	70 - 130	105	%		
8695110	4-Bromofluorobenzene (sur.)	2017/07/14	97	70 - 130	88	70 - 130	93	%		
8695110	D4-1,2-Dichloroethane (sur.)	2017/07/14	98	70 - 130	95	70 - 130	101	%		
8695389	D10-ANTHRACENE (sur.)	2017/07/17	103	60 - 130	113	60 - 130	102	%		
8695389	D8-ACENAPHTHYLENE (sur.)	2017/07/17	100	50 - 130	115	50 - 130	103	%		
8695389	D8-NAPHTHALENE (sur.)	2017/07/17	107	50 - 130	100	50 - 130	98	%		
8695389	TERPHENYL-D14 (sur.)	2017/07/17	116	60 - 130	120	60 - 130	105	%		
8693212	Oil & Grease (mineral/synthetic)	2017/07/13			90	70 - 130	<2.0	mg/L		
8695061	Total Aluminum (Al)	2017/07/15	NC	80 - 120	113	80 - 120	<3.0	ug/L	6.3	20
8695061	Total Arsenic (As)	2017/07/15	98	80 - 120	99	80 - 120	<0.10	ug/L	0.76	20
8695061	Total Boron (B)	2017/07/15	104	80 - 120	103	80 - 120	<50	ug/L	NC	20
8695061	Total Cadmium (Cd)	2017/07/15	93	80 - 120	98	80 - 120	<0.010	ug/L	NC	20
8695061	Total Chromium (Cr)	2017/07/15	99	80 - 120	99	80 - 120	<1.0	ug/L	1.9	20
8695061	Total Cobalt (Co)	2017/07/15	96	80 - 120	98	80 - 120	<0.20	ug/L	NC	20
8695061	Total Copper (Cu)	2017/07/15	94	80 - 120	100	80 - 120	<0.50	ug/L	0.40	20
8695061	Total Iron (Fe)	2017/07/15	NC	80 - 120	112	80 - 120	<10	ug/L	9.5	20
8695061	Total Lead (Pb)	2017/07/15	97	80 - 120	100	80 - 120	<0.20	ug/L	0.46	20
8695061	Total Manganese (Mn)	2017/07/15	NC	80 - 120	99	80 - 120	<1.0	ug/L	0.97	20
8695061	Total Molybdenum (Mo)	2017/07/15	NC	80 - 120	103	80 - 120	<1.0	ug/L	0.81	20
8695061	Total Nickel (Ni)	2017/07/15	94	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
8695061	Total Selenium (Se)	2017/07/15	96	80 - 120	105	80 - 120	<0.10	ug/L	17	20
8695061	Total Silver (Ag)	2017/07/15	99	80 - 120	105	80 - 120	<0.020	ug/L	NC	20
8695061	Total Zinc (Zn)	2017/07/15	86	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
8695110	Benzene	2017/07/14	101	70 - 130	97	70 - 130	<0.40	ug/L	NC	30
8695110	Ethylbenzene	2017/07/14	97	70 - 130	98	70 - 130	<0.40	ug/L	NC	30
8695110	m & p-Xylene	2017/07/14	95	70 - 130	96	70 - 130	<0.40	ug/L	NC	30
8695110	o-Xylene	2017/07/14	94	70 - 130	83	70 - 130	<0.40	ug/L	NC	30
8695110	Styrene	2017/07/14	103	70 - 130	91	70 - 130	<0.40	ug/L	NC	30
8695110	Toluene	2017/07/14	97	70 - 130	95	70 - 130	<0.40	ug/L	NC	30
8695110	VH C6-C10	2017/07/14			107	70 - 130	<300	ug/L	NC	30
8695110	Xylenes (Total)	2017/07/14					<0.40	ug/L	NC	30

Maxxam Job #: B756799
Report Date: 2017/07/18

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8695389	2-Methylnaphthalene	2017/07/15	86	50 - 130	72	50 - 130	<0.10	ug/L	NC	40
8695389	Acenaphthene	2017/07/15	94	50 - 130	88	50 - 130	<0.050	ug/L	NC	40
8695389	Acenaphthylene	2017/07/15	88	50 - 130	82	50 - 130	<0.050	ug/L	NC	40
8695389	Acridine	2017/07/15	94	50 - 130	74	50 - 130	<0.050	ug/L	NC	40
8695389	Anthracene	2017/07/15	95	60 - 130	82	60 - 130	<0.010	ug/L	NC	40
8695389	Benzo(a)anthracene	2017/07/15	88	60 - 130	70	60 - 130	<0.010	ug/L	NC	40
8695389	Benzo(a)pyrene	2017/07/15	90	60 - 130	84	60 - 130	<0.0050	ug/L	NC	40
8695389	Benzo(b&j)fluoranthene	2017/07/15	90	60 - 130	81	60 - 130	<0.030	ug/L	NC	40
8695389	Benzo(g,h,i)perylene	2017/07/15	91	60 - 130	77	60 - 130	<0.050	ug/L	NC	40
8695389	Benzo(k)fluoranthene	2017/07/15	89	60 - 130	86	60 - 130	<0.050	ug/L	NC	40
8695389	Chrysene	2017/07/15	99	60 - 130	73	60 - 130	<0.020	ug/L	NC	40
8695389	Dibenz(a,h)anthracene	2017/07/15	96	60 - 130	84	60 - 130	<0.0030	ug/L	NC	40
8695389	Fluoranthene	2017/07/15	102	60 - 130	77	60 - 130	<0.020	ug/L	NC	40
8695389	Fluorene	2017/07/15	93	50 - 130	83	50 - 130	<0.050	ug/L	NC	40
8695389	Indeno(1,2,3-cd)pyrene	2017/07/15	94	60 - 130	81	60 - 130	<0.050	ug/L	NC	40
8695389	Naphthalene	2017/07/15	85	50 - 130	66	50 - 130	<0.10	ug/L	NC	40
8695389	Phenanthrene	2017/07/15	93	60 - 130	83	60 - 130	<0.050	ug/L	NC	40
8695389	Pyrene	2017/07/15	105	60 - 130	89	60 - 130	<0.020	ug/L	NC	40
8695389	Quinoline	2017/07/15	108	50 - 130	86	50 - 130	<0.020	ug/L	NC	40
8695830	pH	2017/07/15			101	97 - 103				
8697249	Total Suspended Solids	2017/07/18	112	80 - 120	102	80 - 120	<4.0	mg/L		

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B756799
Report Date: 2017/07/18

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Site Location: 1615 RENFREW ST
Sampler Initials: GU

VALIDATION SIGNATURE PAGE

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

Andy Lu, Ph.D., P.Chem., Scientific Specialist

Dijana Bradaric

Dijana Bradaric, BBY Customer Service

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.

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Maxxam

4606 Canada Way, Burnaby, BC Canada V5G

386

B756799_COC

CHAIN OF CUSTODY RECORD

Page: 1 of 1

K 012319

Invoice To: Require Report? Yes [X] No [ ]

Company Name: Keystone Environmental Ltd.
Contact Name: Judy Tai
Address: #320-4400 Dominion Street
Burnaby, BC PC: V5G 4G3
Phone / Fax#: Ph: (604) 430-0671 Fax: (604) 430-0672
E-mail jtai@keystoneenvironmental.ca

Company Name:
Contact Name: Same
Address:
PC:
Ph: Fax:
Phone / Fax#:
E-mail gyu@keystoneenvironmental.ca
dholmes@keystoneenvironmental.ca

PO #:	
Quotation #:	
Project # :	12732
Proj. Name:	
Location:	1615 Renfrew St
Sampled By:	Garth Yu

REGULATORY REQUIREMENTS SERVICE REQUESTED:

- [ ] CSR
- [ ] CCME
- [ ] BC Water Quality
- [X] Other MetroVan
- [ ] DRINKING WATER
- [X] Regular Turn Around Time (TAT) (5 days for most tests)
- [ ] RUSH (Please contact the lab)
- [ ] 1 Day [ ] 2 Day [ ] 3 Day

Date Required:

Special Instructions:

Return Cooler [ ] Ship Sample Bottles (please specify) [ ]

field pH: 7.17 @ 23.7°C
Report total BTEX. Take pH from TSS bottle.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification	Sample Type	Date/Time Sampled	BTEX/VPH	VOC/VPH	EPH	PAH	CCME-PHC (Fractions 1-4 Plus BTEX)	CCME-PHC (Fractions 2-4)	CCME BTEX (Fraction 1 Plus BTEX)	PCB	Phenols by 4AAP	TOG	Phenols by GCMS	SWOG	Dissolved Metals	Field Filtered?	Field Acidified?	Metals Metals Field Acidified?	Nitrate	Nitrite	Chloride	Fluoride	Sulphate	Total Suspended Solids-TSS	pH	Conductivity	Alkalinity	BOD	COD	Coliform, Total & E.coli	Fecal	Asbestos	# of containers	HOLD
					MTBE		TEH	LEPH/HEPH						MOG		SWOG	N	Y	Y	N	Ammonia		Sulphate		TDS		Conductivity	Alkalinity				Fecal			
1	DJ17-7		water	July 11/17 15:15hrs	X			X						X		X				X					X	X	X							1	
2																																			
3																																			
4																																			
5																																			
6																																			
7																																			
8																																			
9																																			
10																																			
11																																			
12																																			

Samples are from a Drinking Water Source? NO
Does source supply multiple households? NO

Laboratory Use Only

*Relinquished by:	Date (YY/MM/DD):	Time:	Received by:	Date (YY/MM/DD):	Time:	Time Sensitive	Temperature on Receipt (°C)	Custody Seal Intact on Cooler?
Garth Yu	17/07/11	1725	Kevin Chong	2017/07/19	17:30	✓	14, 14, 13	Yes / No

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

COC-1027-Keystone

Maxxam International Corporation o/a Maxxam Analytics

Just SAMPLED

NA

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: November 30, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	October 2017
Total Monthly Discharge Volume:	373.00 m^3
Number of Days of Discharge to Sewer:	31
Maximum Daily Flow:	24.09 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Oct 16 2017

Discharge Volume on Day of Sampling:	12.00 m^3
Comments:	Influent sample

Sampling Set: Grab

Sampling Start Time:	02:30 PM
Comments:	Influent sample

Sampling Results

Parameter:	pH
Sample Result:	8.48 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	61 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00021 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.00606 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	1.42 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00433 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	0.055 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.000036 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	0.0129 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00261 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.026 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	1.75 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.00154 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.0481 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.004 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	0.0041 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	0.00078 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	0.000034 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	0.103 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Nov 10 2017 09:17 AM	B790932V1-R2017-10-18_17-24-22_R006.pdf

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 12732
Your C.O.C. #: K017562

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/07/04
Report #: R2406575
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B751811
Received: 2017/06/27, 11:15

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH, VH, F1 SIM/MS	1	2017/06/28	2017/06/30	BBY8SOP-00010/11/12	PBM BC Lab Manual m
Hardness Total (calculated as CaCO3)	1	N/A	2017/06/30	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/06/29	2017/06/30	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/06/28	2017/06/29	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/06/29	2017/06/30	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/07/04	BBY WI-00033	Auto Calc
pH Water (1)	1	2017/06/28	2017/06/29	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/06/29	2017/06/30	BBY6SOP-00034	SM 22 2540 D
Volatile HC-BTEX	1	N/A	2017/06/30	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Maxxam Analytics International Corporation o/a Maxxam Analytics 8 Burbidge Street Coquitlam, British Columbia V3K 7B2 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 12732
Your C.O.C. #: K017562

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/07/04
Report #: R2406575
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B751811
Received: 2017/06/27, 11:15

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604)639-2602
==========
This report has been generated and distributed using a secure automated process.
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.

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Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RJ6638		
Sampling Date		2017/06/27 10:30		
COC Number		K017562		
	UNITS	**DS17-6**	**RDL**	**QC Batch**
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8679522
Physical Properties				
pH	pH	8.27		8680097
Physical Properties				
Total Suspended Solids	mg/L	<4.0	4.0	8680610
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics 8575 Lougheed Hwy, Burnaby, BC Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		RJ6638		
Sampling Date		2017/06/27 10:30		
COC Number		K017562		
	UNITS	DS17-6	RDL	QC Batch
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8677029
Benzene	ug/L	<0.40	0.40	8678813
Toluene	ug/L	<0.40	0.40	8678813
Ethylbenzene	ug/L	<0.40	0.40	8678813
m & p-Xylene	ug/L	<0.40	0.40	8678813
o-Xylene	ug/L	<0.40	0.40	8678813
Styrene	ug/L	<0.40	0.40	8678813
Xylenes (Total)	ug/L	<0.40	0.40	8678813
VH C6-C10	ug/L	<300	300	8678813
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	112		8678813
4-Bromofluorobenzene (sur.)	%	111		8678813
D4-1,2-Dichloroethane (sur.)	%	124		8678813
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics 8075 Control Ave, Burnaby, BC, Canada V5A 4K6 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		RJ6638		
Sampling Date		2017/06/27 10:30		
COC Number		K017562		
	UNITS	DS17-6	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	196	0.50	8677361
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	9.4	3.0	8680437
Total Arsenic (As)	ug/L	2.17	0.10	8680437
Total Boron (B)	ug/L	<50	50	8680437
Total Cadmium (Cd)	ug/L	<0.010	0.010	8680437
Total Chromium (Cr)	ug/L	<1.0	1.0	8680437
Total Cobalt (Co)	ug/L	0.92	0.20	8680437
Total Copper (Cu)	ug/L	<0.50	0.50	8680437
Total Iron (Fe)	ug/L	45	10	8680437
Total Lead (Pb)	ug/L	<0.20	0.20	8680437
Total Manganese (Mn)	ug/L	792	1.0	8680437
Total Molybdenum (Mo)	ug/L	9.9	1.0	8680437
Total Nickel (Ni)	ug/L	<1.0	1.0	8680437
Total Selenium (Se)	ug/L	<0.10	0.10	8680437
Total Silver (Ag)	ug/L	<0.020	0.020	8680437
Total Zinc (Zn)	ug/L	<5.0	5.0	8680437
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics 8boratories 2687 Canada Way V5G 1K9 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		RJ6638		
Sampling Date		2017/06/27 10:30		
COC Number		K017562		
	UNITS	DS17-6	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	0.21	0.10	8677028
High Molecular Weight PAH`s	ug/L	<0.050	0.050	8677028
Total PAH	ug/L	0.21	0.10	8677028
Quinoline	ug/L	<0.020	0.020	8679868
Naphthalene	ug/L	0.21	0.10	8679868
2-Methylnaphthalene	ug/L	<0.10	0.10	8679868
Acenaphthylene	ug/L	<0.050	0.050	8679868
Acenaphthene	ug/L	<0.050	0.050	8679868
Fluorene	ug/L	<0.050	0.050	8679868
Phenanthrene	ug/L	<0.050	0.050	8679868
Anthracene	ug/L	<0.010	0.010	8679868
Acridine	ug/L	<0.050	0.050	8679868
Fluoranthene	ug/L	<0.020	0.020	8679868
Pyrene	ug/L	<0.020	0.020	8679868
Benzo(a)anthracene	ug/L	<0.010	0.010	8679868
Chrysene	ug/L	<0.020	0.020	8679868
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8679868
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8679868
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8679868
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8679868
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8679868
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8679868
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	86		8679868
D8-ACENAPHTHYLENE (sur.)	%	89		8679868
D8-NAPHTHALENE (sur.)	%	65		8679868
TERPHENYL-D14 (sur.)	%	87		8679868
RDL = Reportable Detection Limit				

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Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	17.7°C

Results relate only to the items tested.

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Maxxam Job #: B751811
Report Date: 2017/07/04

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8678813	1,4-Difluorobenzene (sur.)	2017/06/30	97	70 - 130	98	70 - 130	107	%		
8678813	4-Bromofluorobenzene (sur.)	2017/06/30	101	70 - 130	94	70 - 130	100	%		
8678813	D4-1,2-Dichloroethane (sur.)	2017/06/30	112	70 - 130	95	70 - 130	104	%		
8679868	D10-ANTHRACENE (sur.)	2017/06/29	92	60 - 130	91	60 - 130	92	%		
8679868	D8-ACENAPHTHYLENE (sur.)	2017/06/29	95	50 - 130	94	50 - 130	94	%		
8679868	D8-NAPHTHALENE (sur.)	2017/06/29	86	50 - 130	85	50 - 130	86	%		
8679868	TERPHENYL-D14 (sur.)	2017/06/29	93	60 - 130	92	60 - 130	94	%		
8678813	Benzene	2017/06/30	115	70 - 130	94	70 - 130	<0.40	ug/L	NC	30
8678813	Ethylbenzene	2017/06/30	113	70 - 130	99	70 - 130	<0.40	ug/L	NC	30
8678813	m & p-Xylene	2017/06/30	105	70 - 130	89	70 - 130	<0.40	ug/L	NC	30
8678813	o-Xylene	2017/06/30	113	70 - 130	95	70 - 130	<0.40	ug/L	NC	30
8678813	Styrene	2017/06/30	116	70 - 130	102	70 - 130	<0.40	ug/L	NC	30
8678813	Toluene	2017/06/30	108	70 - 130	86	70 - 130	<0.40	ug/L	23	30
8678813	VH C6-C10	2017/06/30			88	70 - 130	<300	ug/L		
8678813	Xylenes (Total)	2017/06/30					<0.40	ug/L	NC	30
8679522	Oil & Grease (mineral/synthetic)	2017/06/29			95	70 - 130	<2.0	mg/L		
8679868	2-Methylnaphthalene	2017/06/29	90	50 - 130	89	50 - 130	<0.10	ug/L	NC	40
8679868	Acenaphthene	2017/06/29	93	50 - 130	93	50 - 130	<0.050	ug/L	NC	40
8679868	Acenaphthylene	2017/06/29	93	50 - 130	92	50 - 130	<0.050	ug/L	NC	40
8679868	Acridine	2017/06/29	102	50 - 130	104	50 - 130	<0.050	ug/L	NC	40
8679868	Anthracene	2017/06/29	95	60 - 130	97	60 - 130	<0.010	ug/L	NC	40
8679868	Benzo(a)anthracene	2017/06/29	91	60 - 130	91	60 - 130	<0.010	ug/L	NC	40
8679868	Benzo(a)pyrene	2017/06/29	101	60 - 130	104	60 - 130	<0.0050	ug/L	NC	40
8679868	Benzo(b&j)fluoranthene	2017/06/29	97	60 - 130	98	60 - 130	<0.030	ug/L	NC	40
8679868	Benzo(g,h,i)perylene	2017/06/29	89	60 - 130	95	60 - 130	<0.050	ug/L	NC	40
8679868	Benzo(k)fluoranthene	2017/06/29	104	60 - 130	101	60 - 130	<0.050	ug/L	NC	40
8679868	Chrysene	2017/06/29	90	60 - 130	91	60 - 130	<0.020	ug/L	NC	40
8679868	Dibenz(a,h)anthracene	2017/06/29	97	60 - 130	103	60 - 130	<0.0030	ug/L	NC	40
8679868	Fluoranthene	2017/06/29	97	60 - 130	96	60 - 130	<0.020	ug/L	NC	40
8679868	Fluorene	2017/06/29	92	50 - 130	92	50 - 130	<0.050	ug/L	NC	40
8679868	Indeno(1,2,3-cd)pyrene	2017/06/29	95	60 - 130	100	60 - 130	<0.050	ug/L	NC	40

Maxxam Job #: B751811
Report Date: 2017/07/04

QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8679868	Naphthalene	2017/06/29	84	50 - 130	86	50 - 130	<0.10	ug/L	0.34	40
8679868	Phenanthrene	2017/06/29	91	60 - 130	88	60 - 130	<0.050	ug/L	NC	40
8679868	Pyrene	2017/06/29	98	60 - 130	98	60 - 130	<0.020	ug/L	NC	40
8679868	Quinoline	2017/06/29	113	50 - 130	115	50 - 130	<0.020	ug/L	NC	40
8680097	pH	2017/06/29			102	97 - 103				
8680437	Total Aluminum (Al)	2017/06/30	101	80 - 120	104	80 - 120	<3.0	ug/L	10	20
8680437	Total Arsenic (As)	2017/06/30	102	80 - 120	101	80 - 120	<0.10	ug/L	0.66	20
8680437	Total Boron (B)	2017/06/30	94	80 - 120	95	80 - 120	<50	ug/L	NC	20
8680437	Total Cadmium (Cd)	2017/06/30	104	80 - 120	104	80 - 120	<0.010	ug/L	13	20
8680437	Total Chromium (Cr)	2017/06/30	102	80 - 120	107	80 - 120	<1.0	ug/L	NC	20
8680437	Total Cobalt (Co)	2017/06/30	102	80 - 120	107	80 - 120	<0.20	ug/L	NC	20
8680437	Total Copper (Cu)	2017/06/30	101	80 - 120	104	80 - 120	<0.50	ug/L	0.22	20
8680437	Total Iron (Fe)	2017/06/30	118	80 - 120	109	80 - 120	<10	ug/L	2.3	20
8680437	Total Lead (Pb)	2017/06/30	98	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
8680437	Total Manganese (Mn)	2017/06/30	94	80 - 120	99	80 - 120	<1.0	ug/L	1.9	20
8680437	Total Molybdenum (Mo)	2017/06/30	NC	80 - 120	102	80 - 120	<1.0	ug/L	0.22	20
8680437	Total Nickel (Ni)	2017/06/30	100	80 - 120	109	80 - 120	<1.0	ug/L	2.0	20
8680437	Total Selenium (Se)	2017/06/30	108	80 - 120	104	80 - 120	<0.10	ug/L	8.5	20
8680437	Total Silver (Ag)	2017/06/30	108	80 - 120	111	80 - 120	<0.020	ug/L	NC	20
8680437	Total Zinc (Zn)	2017/06/30	107	80 - 120	108	80 - 120	<5.0	ug/L	NC	20
8680610	Total Suspended Solids	2017/06/30	93	80 - 120	96	80 - 120	<4.0	mg/L	9.7	20

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B751811
Report Date: 2017/07/04

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

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

Andy Lu, Ph.D., P.Chem., Scientific Specialist

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.

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K 017562

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CHAIN OF CUSTODY RECORD

BBY FCD-00077/07

Page _____ of _____

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: 3763 - Keystone Environmental Ltd.	Company Name: Same	Quotation #:	☐ Regular TAT 5 days (Most analyses)
Contact Name: Judy Tai	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: #320 - 4400 Dominion Street	Address:	Project #: 12732	Rush TAT (Surcharges will be applied)
Burnaby, BC PC: V5G 4G3	PC:	Site Location:	☐ Same Day ☐ 2 Days
Phone: (604) 430-0671	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: jtai@keystoneenviro.com	Email: shalmes@keystoneenviro.com	Sampled By: Holmes	Date Required:

Regulatory Criteria

☐ BC CSR Soil ☐ BC CSR Water
☐ YK CSR Soil ☐ YK CSR Water
☐ CCME (Specify) ☑ Other (Specify) M.V.
☐ Drinking Water ☐ BC Water Quality

Special Instructions

☐ Return Cooler
☐ Ship Sample Bottles (Please Specify)

Analysis Requested

Rush Confirmation #:

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

	Sample Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEXS / VPH	BTEX / F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	MV metals	MOE	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	DS17-6	17/6/27	10 30	water			/										/	/	7	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

MTBE ☐ | VOC / BTEXS / VPH ☐ | VOC / BTEX / F1 ☐ | LEPH/HEPH/PAH ☐ | F2 - F4 ☐ | TEH ☐ | Preserved? ☐ | Filtered? ☐ | Preserved? ☐ | Filtered? ☐ | Field Preserved? ☐ | Field Preserved? ☐ | Sulphate ☐ | Fluoride ☐ | COD ☐ | BOD ☐ | Alkalinity ☐ | Conductivity ☐ | Ammonia ☐ | Nitrate ☐

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
NA		17.8.18

COOLING MEDIA PRESENT Y / N

COMMENTS

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
	17/6/27	11 15	Laurel Berthier	2017/06/27	11:15

B751811_COC

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at

COC-1027 Keystone

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: July 31, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	June 2017
Total Monthly Discharge Volume:	1,587.00 m^3
Number of Days of Discharge to Sewer:	27
Maximum Daily Flow:	117.56 m^3/d
Limit:	500.00 m^3/d

Sampling Date: Jun 27 2017

Discharge Volume on Day of Sampling:	117.56 m^3

Sampling Set: Grab

Sampling Start Time:	10:30 AM
Comments:	The reported pH is the field pH, see attached field notes.

Sampling Results

Parameter:	pH
Sample Result:	7.3 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	< 4 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00021 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	< 0.0016 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0094 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00217 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	< 0.00001 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	0.00092 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	< 0.0005 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	0.045 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	< 0.0002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.792 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0099 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	< 0.0001 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	< 0.005 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
Jul 18 2017 10:09 AM	B751811V1-R2017-07-04_12-16-20_R006.pdf
Jul 18 2017 10:20 AM	12732_20170628095933.pdf

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Success Through Science®

Your Project #: 12732-54
Your C.O.C. #: K004460

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/05/10
Report #: R2380907
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B733680
Received: 2017/05/04, 12:53

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total BTEX (calc'd)	1	2017/05/04	2017/05/06	BBY8SOP-00010	EPA 8260c R3 m
BTEX/MTBE LH, VH, F1 SIM/MS	1	2017/05/05	2017/05/06	BBY8SOP-00010/11/12	PBM BC Lab Manual
Hardness Total (calculated as CaCO3)	1	N/A	2017/05/10	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2017/05/08	2017/05/09	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Mineral Oil and Grease	1	2017/05/04	2017/05/05	BBY8SOP-00004	BCMOE BCLM Sep2011 m
PAH in Water by GC/MS (SIM)	1	2017/05/08	2017/05/09	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	1	N/A	2017/05/10	BBY WI-00033	Auto Calc
pH Water (1)	1	N/A	2017/05/06	BBY6SOP-00026	SM 22 4500-H+ B m
Total Suspended Solids	1	2017/05/09	2017/05/10	BBY6SOP-00034	SM 22 2540 D
Field pH	1	2017/05/09	2017/05/10		
Volatile HC-BTEX	1	N/A	2017/05/06	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 8 Burbidge Canada V5A 1V5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 12732-54
Your C.O.C. #: K004460

Attention:Judy Tai

KEYSTONE ENVIRONMENTAL LTD
SUITE 320
4400 DOMINION STREET
BURNABY, BC
CANADA V5G 4G3

Report Date: 2017/05/10
Report #: R2380907
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B733680

Received: 2017/05/04, 12:53

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604)639-2602

==========

This report has been generated and distributed using a secure automated process.
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Maxxam Analytics International Corporation acting as Maxxam Analytics | Burnaby, British Columbia, Canada V5G 4L8 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	**DS17-5**	**RDL**	**QC Batch**
Field Parameters				
Field pH	pH	7.0	N/A	ONSITE
OIL & GREASE				
Oil & Grease (mineral/synthetic)	mg/L	<2.0	2.0	8621028
Physical Properties				
pH	pH	8.15		8622177
Physical Properties				
Total Suspended Solids	mg/L	<4.0	4.0	8624236

RDL = Reportable Detection Limit
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics 8575 Lougheed Hwy, Burnaby, BC, Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	**DS17-5**	**RDL**	**QC Batch**
Industrial				
BTEX Total	ug/L	26.0	0.40	8620775
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby, BC, Canada V5A 4N5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

CSR BTEX/VPH IN WATER (WATER)

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	DS17-5	RDL	QC Batch
Volatiles				
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	8620065
Benzene	ug/L	4.9	0.40	8621714
Toluene	ug/L	8.8	0.40	8621714
Ethylbenzene	ug/L	<0.40	0.40	8621714
m & p-Xylene	ug/L	8.0	0.40	8621714
o-Xylene	ug/L	4.4	0.40	8621714
Styrene	ug/L	<0.40	0.40	8621714
Xylenes (Total)	ug/L	12	0.40	8621714
VH C6-C10	ug/L	<300	300	8621714
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	103		8621714
4-Bromofluorobenzene (sur.)	%	92		8621714
D4-1,2-Dichloroethane (sur.)	%	104		8621714
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics 8075 Lougheed Trail, Burnaby, B.C. Canada V5A 4V7 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	DS17-5	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	131	0.50	8620056
Total Metals by ICPMS				
Total Aluminum (Al)	ug/L	35.7	3.0	8623461
Total Arsenic (As)	ug/L	0.92	0.10	8623461
Total Boron (B)	ug/L	<50	50	8623461
Total Cadmium (Cd)	ug/L	0.010	0.010	8623461
Total Chromium (Cr)	ug/L	<1.0	1.0	8623461
Total Cobalt (Co)	ug/L	<0.20	0.20	8623461
Total Copper (Cu)	ug/L	1.12	0.50	8623461
Total Iron (Fe)	ug/L	65	10	8623461
Total Lead (Pb)	ug/L	1.17	0.20	8623461
Total Manganese (Mn)	ug/L	32.9	1.0	8623461
Total Molybdenum (Mo)	ug/L	3.2	1.0	8623461
Total Nickel (Ni)	ug/L	<1.0	1.0	8623461
Total Selenium (Se)	ug/L	0.21	0.10	8623461
Total Silver (Ag)	ug/L	<0.020	0.020	8623461
Total Zinc (Zn)	ug/L	<5.0	5.0	8623461
RDL = Reportable Detection Limit				

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Maxxam Job #: B733680
Report Date: 2017/05/10

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

CSR PAH IN WATER BY GC-MS (WATER)

Maxxam ID		QZ5840		
Sampling Date		2017/05/04 12:00		
COC Number		K004460		
	UNITS	DS17-5	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH`s	ug/L	0.37	0.10	8620337
High Molecular Weight PAH`s	ug/L	<0.050	0.050	8620337
Total PAH	ug/L	0.37	0.10	8620337
Quinoline	ug/L	<0.020	0.020	8623183
Naphthalene	ug/L	0.26	0.10	8623183
2-Methylnaphthalene	ug/L	0.11	0.10	8623183
Acenaphthylene	ug/L	<0.050	0.050	8623183
Acenaphthene	ug/L	<0.050	0.050	8623183
Fluorene	ug/L	<0.050	0.050	8623183
Phenanthrene	ug/L	<0.050	0.050	8623183
Anthracene	ug/L	<0.010	0.010	8623183
Acridine	ug/L	<0.050	0.050	8623183
Fluoranthene	ug/L	<0.020	0.020	8623183
Pyrene	ug/L	<0.020	0.020	8623183
Benzo(a)anthracene	ug/L	<0.010	0.010	8623183
Chrysene	ug/L	<0.020	0.020	8623183
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8623183
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8623183
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8623183
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8623183
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8623183
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8623183
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	120		8623183
D8-ACENAPHTHYLENE (sur.)	%	111		8623183
D8-NAPHTHALENE (sur.)	%	91		8623183
D9-Acridine (sur.)	%	126		8623183
TERPHENYL-D14 (sur.)	%	117		8623183
RDL = Reportable Detection Limit				

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Maxxam Job #: B733680
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KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	14.0°C

Results relate only to the items tested.

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Maxxam Job #: B733680
Report Date: 2017/05/10

QUALITY ASSURANCE REPORT

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8621714	1,4-Difluorobenzene (sur.)	2017/05/06	103	70 - 130	102	70 - 130	107	%		
8621714	4-Bromofluorobenzene (sur.)	2017/05/06	90	70 - 130	89	70 - 130	88	%		
8621714	D4-1,2-Dichloroethane (sur.)	2017/05/06	98	70 - 130	102	70 - 130	106	%		
8623183	D10-ANTHRACENE (sur.)	2017/05/09	102	60 - 130	124	60 - 130	113	%		
8623183	D8-ACENAPHTHYLENE (sur.)	2017/05/09	105	50 - 130	111	50 - 130	100	%		
8623183	D8-NAPHTHALENE (sur.)	2017/05/09	90	50 - 130	89	50 - 130	80	%		
8623183	D9-Acridine (sur.)	2017/05/09	115	50 - 130	118	50 - 130	111	%		
8623183	TERPHENYL-D14 (sur.)	2017/05/09	91	60 - 130	120	60 - 130	109	%		
8621028	Oil & Grease (mineral/synthetic)	2017/05/05			93	70 - 130	<2.0	mg/L		
8621714	Benzene	2017/05/06	113	70 - 130	113	70 - 130	<0.40	ug/L	4.6	30
8621714	Ethylbenzene	2017/05/06	107	70 - 130	107	70 - 130	<0.40	ug/L	3.2	30
8621714	m & p-Xylene	2017/05/06	109	70 - 130	105	70 - 130	<0.40	ug/L	3.9	30
8621714	o-Xylene	2017/05/06	102	70 - 130	102	70 - 130	<0.40	ug/L	3.0	30
8621714	Styrene	2017/05/06	98	70 - 130	98	70 - 130	<0.40	ug/L	NC	30
8621714	Toluene	2017/05/06	103	70 - 130	102	70 - 130	<0.40	ug/L	3.8	30
8621714	VH C6-C10	2017/05/06			108	70 - 130	<300	ug/L	15	30
8621714	Xylenes (Total)	2017/05/06					<0.40	ug/L	3.8	30
8622177	pH	2017/05/06			102	97 - 103			0.36	N/A
8623183	2-Methylnaphthalene	2017/05/09	96	50 - 130	100	50 - 130	<0.10	ug/L	NC	40
8623183	Acenaphthene	2017/05/09	106	50 - 130	111	50 - 130	<0.050	ug/L	NC	40
8623183	Acenaphthylene	2017/05/09	100	50 - 130	105	50 - 130	<0.050	ug/L	NC	40
8623183	Acridine	2017/05/09	117	50 - 130	123	50 - 130	<0.050	ug/L	NC	40
8623183	Anthracene	2017/05/09	123	60 - 130	128	60 - 130	<0.010	ug/L	NC	40
8623183	Benzo(a)anthracene	2017/05/09	102	60 - 130	110	60 - 130	<0.010	ug/L	NC	40
8623183	Benzo(a)pyrene	2017/05/09	90	60 - 130	105	60 - 130	<0.0050	ug/L	NC	40
8623183	Benzo(b&j)fluoranthene	2017/05/09	96	60 - 130	112	60 - 130	<0.030	ug/L	NC	40
8623183	Benzo(g,h,i)perylene	2017/05/09	89	60 - 130	105	60 - 130	<0.050	ug/L	NC	40
8623183	Benzo(k)fluoranthene	2017/05/09	97	60 - 130	114	60 - 130	<0.050	ug/L	NC	40
8623183	Chrysene	2017/05/09	104	60 - 130	113	60 - 130	<0.020	ug/L	NC	40
8623183	Dibenz(a,h)anthracene	2017/05/09	88	60 - 130	103	60 - 130	<0.0030	ug/L	NC	40
8623183	Fluoranthene	2017/05/09	113	60 - 130	115	60 - 130	<0.020	ug/L	NC	40

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QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8623183	Fluorene	2017/05/09	99	50 - 130	105	50 - 130	<0.050	ug/L	NC	40
8623183	Indeno(1,2,3-cd)pyrene	2017/05/09	91	60 - 130	106	60 - 130	<0.050	ug/L	NC	40
8623183	Naphthalene	2017/05/09	93	50 - 130	98	50 - 130	<0.10	ug/L	NC	40
8623183	Phenanthrene	2017/05/09	100	60 - 130	106	60 - 130	<0.050	ug/L	NC	40
8623183	Pyrene	2017/05/09	114	60 - 130	102	60 - 130	<0.020	ug/L	NC	40
8623183	Quinoline	2017/05/09	107	50 - 130	115	50 - 130	<0.020	ug/L	NC	40
8623461	Total Aluminum (Al)	2017/05/10	122 (1)	80 - 120	115	80 - 120	<3.0	ug/L	54 (1)	20
8623461	Total Arsenic (As)	2017/05/10	107	80 - 120	100	80 - 120	<0.10	ug/L	3.2	20
8623461	Total Boron (B)	2017/05/10	115	80 - 120	107	80 - 120	<50	ug/L	3.5	20
8623461	Total Cadmium (Cd)	2017/05/10	93	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
8623461	Total Chromium (Cr)	2017/05/10	95	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
8623461	Total Cobalt (Co)	2017/05/10	93	80 - 120	98	80 - 120	<0.20	ug/L	1.3	20
8623461	Total Copper (Cu)	2017/05/10	86	80 - 120	97	80 - 120	<0.50	ug/L	6.8	20
8623461	Total Iron (Fe)	2017/05/10	128 (1)	80 - 120	107	80 - 120	<10	ug/L	55 (1)	20
8623461	Total Lead (Pb)	2017/05/10	92	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
8623461	Total Manganese (Mn)	2017/05/10	NC	80 - 120	98	80 - 120	<1.0	ug/L	1.2	20
8623461	Total Molybdenum (Mo)	2017/05/10	NC	80 - 120	100	80 - 120	<1.0	ug/L	3.9	20
8623461	Total Nickel (Ni)	2017/05/10	92	80 - 120	98	80 - 120	<1.0	ug/L	0.067	20
8623461	Total Selenium (Se)	2017/05/10	105	80 - 120	97	80 - 120	<0.10	ug/L	0.17	20
8623461	Total Silver (Ag)	2017/05/10	93	80 - 120	104	80 - 120	<0.020	ug/L	NC	20
8623461	Total Zinc (Zn)	2017/05/10	82	80 - 120	94	80 - 120	<5.0	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8624236	Total Suspended Solids	2017/05/10	108	80 - 120	105	80 - 120	<4.0	mg/L	4.2	20

N/A = Not Applicable

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.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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KEYSTONE ENVIRONMENTAL LTD
Client Project #: 12732-54
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

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

Dijana Bradaric

Dijana Bradaric, BBY Customer Service

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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.

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Maxxam

4606 Canada Way, Burnaby, BC Canada V5G 1K5 Ph: 604 734 7276 To

Maxxam Job#: B733680_COC

AIN OF CUSTODY RECORD

Page: 1 of 1

K 004460

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Keystone Environmental Ltd.
Contact Name: Judy Tai
Address: #320-4400 Dominion Street
Burnaby, BC PC: V5G 4G3
Phone / Fax#: Ph: (604) 430-0671 Fax: (604) 430-0672
E-mail: jtai@keystoneenviro.com

Report To:

Company Name: Same
Contact Name:
Address:
PC:
Phone / Fax#: Ph: Fax:
E-mail: shotmes@keystoneenviro.com gyes

PO #:
Quotation #:
Project # : 12732 - 54
Proj. Name:
Location:
Sampled By: holmes

REGULATORY REQUIREMENTS SERVICE REQUESTED:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☑ Other M.V.
- ☐ DRINKING WATER

- ☑ Regular Turn Around Time (TAT) (5 days for most tests)
- ☐ RUSH (Please contact the lab)
  - ☐ 1 Day ☐ 2 Day ☐ 3 Day
- Date Required:

Special Instructions:

Return Cooler ☐ Ship Sample Bottles (please specify) ☐

No LL Hg. Report Total BTEX
Field pH = 7.0

ANALYSIS REQUESTED

	Sample Identification	Lab Identification	Sample Type	Date/Time Sampled
1	DS17-5		Water	May 4/17 1200
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

BTEX/VPH ☑ MTBE
VOC/VPH ☐
EPH ☐ TEH
PAH ☑ LEPH/HEPH
CCME-PHC (Fractions 1-4 Plus BTEX) ☐
CCME-PHC (Fractions 2-4) ☐
CCME BTEX (Fraction 1 Plus BTEX) ☐
PCB ☐
Phenols by 4AAP ☐ Phenols by GCMS
TOG ☐ MOG ☐ SWOG
Dissolved Metals: Field Filtered? Y ☐ N ☐
Field Acidified? Y ☐ N ☐
Totals Metals Field Acidified? Y ☐ N ☐
Nitrate ☐
Nitrite ☐
Ammonia ☐
Chloride ☐
Fluoride ☐
Sulphate ☐
Total Suspended Solids-TSS ☑ TDS
pH ☑ Conductivity
Alkalinity ☑
BOD ☐
COD ☐
Coliform, Total & E.coli ☐ Fecal
Asbestos ☐
MV Metals
# of containers: 7
HOLD ☐

Samples are from a Drinking Water Source? YES ☐ NO ☐
Does source supply multiple households? YES ☐ NO ☐

Laboratory Use Only

*Relinquished by:	Date (YY/MM/DD):	Time:	Received by:	Date (YY/MM/DD):	Time:	Time Sensitive	Temperature on Receipt (°C)	Custody Seal Intact on Cooler?
	17/5/4	1245	AUGUSTIN ANCAMAO	17/05/04	12:53	☐	14, 13, 15 16.6-4.3 JUST SAMPLED	NA Yes ☐ No ☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Monthly Monitoring Report

Renfrew View Homes Development Ltd
Permit: 101045

Due Date: June 30, 2017

Comments:

Cover Letter:

Sample Point: 1 - The onsite sanitary sewer connection is the approved discharge point

Flow Measurements

Reporting Period:	May 2017
Total Monthly Discharge Volume:	2,095.00 m^3
Number of Days of Discharge to Sewer:	30
Maximum Daily Flow:	139.70 m^3/d
Limit:	500.00 m^3/d

Sampling Date: May 04 2017

Discharge Volume on Day of Sampling:	69.80 m^3

Sampling Set: Grab

Sampling Start Time:	12:00 PM

Sampling Results

Parameter:	pH
Sample Result:	7 ug/L
Limit:	5.5 - 10.5 ug/L

Parameter:	Total Suspended Solids
Sample Result:	< 4 mg/L
Limit:	Maximum 600 mg/L

Parameter:	Oil & Grease Hydrocarbon
Sample Result:	< 2 mg/L
Limit:	Maximum 15 mg/L

Parameter:	Polycyclic Aromatic Hydrocarbons
Sample Result:	0.00037 mg/L
Limit:	Maximum 0.05 mg/L

Parameter:	Total BETX
Sample Result:	0.026 mg/L

Limit:	Maximum 1 mg/L

Parameter:	Aluminum - total
Sample Result:	0.0357 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Arsenic - total
Sample Result:	0.00092 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Boron - total
Sample Result:	< 0.05 mg/L
Limit:	Maximum 50 mg/L

Parameter:	Cadmium - total
Sample Result:	0.00001 mg/L
Limit:	Maximum 0.2 mg/L

Parameter:	Chromium - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 4 mg/L

Parameter:	Cobalt - total
Sample Result:	< 0.0002 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Copper - total
Sample Result:	0.00112 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Iron - total
Sample Result:	0.065 mg/L
Limit:	Maximum 10 mg/L

Parameter:	Lead - total
Sample Result:	0.00117 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Manganese - total
Sample Result:	0.0329 mg/L
Limit:	Maximum 5 mg/L

Parameter:	Molybdenum - total
Sample Result:	0.0032 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Nickel - total
Sample Result:	< 0.001 mg/L
Limit:	Maximum 2 mg/L

Parameter:	Selenium - total
Sample Result:	0.00021 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Silver - total
Sample Result:	< 0.00002 mg/L
Limit:	Maximum 1 mg/L

Parameter:	Zinc - total
Sample Result:	< 0.005 mg/L
Limit:	Maximum 3 mg/L

Report Documents

Date Added	File Name
May 31 2017 01:50 PM	B733680V1-R2017-05-10_15-37-16_R006.pdf