# INTENTION TO SOLICIT OFFERS TO PURCHASE FOR 2536 McPHILLIPS STREET, WINNIPEG, MANITOBA

#### THE SEVEN OAKS SCHOOL DIVISION 830 Powers Street Winnipeg, Manitoba R2V 4E7 Telephone: (204) 586-8061

# **INTRODUCTION AND DESCRIPTION OF PROPERTY**

The Seven Oaks School Division (the "School Division") intends to solicit offers for the purchase of School Division owned land civically identified as **2536 McPhillips Street**, **Winnipeg, Manitoba**, legally described as follows:

All that portion of OTM Lot 20 Parish of Kildonan which lies to the south of a straight line drawn north of parallel to and perp distant 335 feet from the southern limit of said lot and to the east of a straight line drawn nly at right angles to the southern limit of said lot from a point in the same distant westerly thereon 642.45 feet from the eastern limit of said lot.

(the "Property").

In the event of a discrepancy between the civic address and the legal description of the Property, the legal description shall prevail.

The Property comprises approximately five (5) acres.

There is a concrete block building located upon the Property comprising approximately 21,000 square feet.

# **PROCESS FOR THE DISPOSITION OF THE PROPERTY**

1. The Property will be advertised in the Winnipeg Free Press on Saturday, August 18, 2018. Offers to Purchase the Property (in the form provided by the School Division) will be received by the School Division until 12:00 noon (C.S.T.) on Friday, October 12, 2018 in sealed envelopes addressed to Mr. Wayne Shimizu, CPA, CMA, Secretary-Treasurer, The Seven Oaks School Division, 830 Powers Street, Winnipeg, MB R2V 4E7.

### Facsimile and electronic mail will not be accepted.

 To inspect the Property, please contact the School Division, Mr. Wayne Shimizu, CPA, CMA, Secretary-Treasurer, 830 Powers Street, Winnipeg, Manitoba, R2V 4E7, telephone: (204) 586-8061 or Ms. Tanya Pankiewich, Executive Assistant, at the same address and phone number.

# **CONDITIONS OF OFFER TO PURCHASE**

- 1. There is a minimum purchase price of SIX MILLION (\$6,000,000.00) DOLLARS for the Property.
- 2. By submitting an Offer to Purchase to the School Division:
  - (a) An Offeror waives any action, claim or demand arising from the information contained herein or from any other information provided orally or otherwise by the School Division or its agents or representatives in connection with the Property; and
  - (b) An Offeror acknowledges that it has made all necessary enquiries with respect to the Property and has satisfied itself as to the condition of the Property and agrees to all the Terms and Conditions herein.
- 3. Interested parties wishing to offer to purchase the Property shall submit an Offer to Purchase (in the form provided by the School Division) to the School Division in a sealed envelope as aforesaid and shall include with such Offer to Purchase a deposit of not less than **five (5%) per cent** of the purchase price payable by certified cheque, bank draft or solicitor's trust cheque to the School Division's Solicitors, **D'Arcy & Deacon LLP**, 2200 One Lombard Place, Winnipeg, Manitoba, R3B 0X7, to the attention of Mr. M. Willcock.

D'Arcy & Deacon LLP shall hold the deposit in trust (but shall not be required to invest the deposit in an interest bearing term deposit, certificate or instrument until such time as the Offer to Purchase has been accepted by the School Division and approved by The Public Schools Finance Board).

- 4. An Offeror must complete, sign and submit the form of Offer to Purchase provided by the School Division on the terms and conditions contained therein as its Offer to Purchase. An Offeror may insert any additional terms or conditions it is requesting in the Offer to Purchase. However, the cost and risk to the School Division arising from the additional terms and conditions inserted by the Offeror will be taken into consideration by the School Division when evaluating the Offer to Purchase.
- 5. The Offer to Purchase with deposit must be submitted to the School Division **in a sealed envelope** at the School Division's address noted above no later than the Date and Time noted above. Any Offers to Purchase received thereafter will be rejected and returned unopened to the Offeror.
- 6. Offers to Purchase will be reviewed by the Board of Trustees of the School Division at its regular Board Meeting on October 15, 2018, and will be reviewed with regard to at least the following criteria:
  - (a) Purchase price;
  - (b) The Offeror's intended use of the Property; and

(c) **Possession Date** – the possession date of the Property shall be between December 1, 2018 and December 31, 2018, as determined by the Offeror. (*There is a possibility that the possession date might be sooner but that would have to be agreed to by both parties at a later date.*)

# Any Offer to Purchase accepted by the School Division will be subject to the approval of The Public Schools Finance Board.

- 7. The Offer to Purchase will constitute a binding offer to purchase the Property from the School Division and must be signed by the Offeror or an authorized signatory thereof.
- 8. All Offers to Purchase shall include a plan for the intended use of the Property.
- 9. The highest purchase price or any Offer to Purchase will not necessarily be accepted by the School Division and the School Division reserves the right to reject any or all Offers to Purchase, in the School Division's sole and unfettered discretion.
- 10. All Offerors are advised to visit the Property.
- 11. The Property is offered for sale "as is" and the School Division assumes no responsibility for the state or condition of the Property, environmental or otherwise. All Offerors are responsible to ascertain and satisfy themselves regarding all matters with respect to the Property.
- 12. All Offerors should obtain independent legal advice and assistance from a lawyer.
- 13. The cost of any zoning changes to the Property shall be the responsibility of the Offeror whose Offer to Purchase is accepted (if any).
- 14. The School Division will not be liable to any Offeror whose Offer to Purchase is not accepted for any claims, whether for damages or costs, loss of anticipated profit in connection with the proposed purchase of the Property, or any other matter whatsoever.
- 15. The School Division may prior to any acceptance of an Offer to Purchase negotiate changes to the terms and conditions of an Offer to Purchase with an Offeror and make counter offers without having any duty or obligation to advise any other Offerors.
- 16. If the School Division accepts an Offer to Purchase or otherwise comes to agreement with an Offeror then all other Offerors will be released and their Offers to Purchase will be of no further force or effect. The deposits of such other Offerors will be returned to them and the School Division will have no obligations to such other Offerors.

17. If the School Division does not accept any Offers to Purchase within the prescribed time or otherwise does not come to agreement with any Offeror then all Offerors will be released and all Offers to Purchase will be of no further force or effect. The deposits of all Offerors will be returned to them and the School Division will have no obligations to any Offerors.

# DISCLAIMER

While information contained herein is believed to be accurate and correct, the School Division does not warrant or guarantee that such information is accurate or correct. Interested parties should verify this information themselves and only rely upon their own inspections and investigations of the Property.

# **OFFER TO PURCHASE**

\_\_\_\_\_\_ (the "Purchaser") offers to purchase from The Seven Oaks School Division (the "Vendor") and the Vendor agrees to sell to the Purchaser the property civically known as **2536 McPhillips Street, Winnipeg, Manitoba**, legally described as:

All that portion of OTM Lot 20 Parish of Kildonan which lies to the south of a straight line drawn north of parallel to and perp distant 335 feet from the southern limit of said lot and to the east of a straight line drawn nly at right angles to the southern limit of said lot from a point in the same distant wly thereon 642.45 feet from the eastern limit of said lot.

(the "Property").

### 1. Purchase Price/Deposit

The purchase price for the Property shall be \$ \_\_\_\_\_\_ of lawful money of Canada (the "Purchase Price") payable as follows:

- a) the sum of \$ \_\_\_\_\_\_ (the "Deposit") (being not less than five (5%) percent of the Purchase Price) by certified cheque, bank draft or solicitor's trust cheque payable to the Vendor's solicitors, **D'Arcy & Deacon LLP**, as a deposit to be held by the said Vendor's solicitors, in trust, pending completion or other termination of this agreement and to be credited on account of the Purchase Price on the Closing Date (as hereinafter defined) if this Offer is accepted by the Vendor;
- b) subject to subparagraph 1(c) below, the balance of the Purchase Price, subject to adjustment for real property taxes, by certified cheque, bank draft or lawyer's trust cheque on or before the Closing Date; and
- c) if part of the Purchase Price is to be paid from the proceeds of a new mortgage arranged by the Purchaser, payment of that part of the Purchase Price may be delayed by the time required for the registration of a mortgage to be completed by the Winnipeg Land Titles Office and reported to the mortgagee and, if so, that amount shall bear interest payable to the Vendor at the same rate as the said new mortgage from the Closing Date until the date of payment to the Vendor.

# [Note: The minimum Purchase Price is SIX MILLION (\$6,000,000.00) DOLLARS.]

D'Arcy & Deacon LLP shall hold the Deposit, in trust, but shall not be required to invest the deposit in an interest bearing term deposit, certificate or instrument until such time as the Offer to Purchase has been accepted by the School Division and approved by The Public Schools Finance Board. Except as provided in Paragraph 12.7 hereof, any interest earned on the Deposit to the Closing Date shall belong to the Purchaser.

# 2. Title

- 2.1 The Vendor represents and warrants to the Purchaser that on the Closing Date title to the Property will not be subject to any registered mortgages, registered encumbrances or registered liens, except for:
  - a) any private or public building or use restriction caveats with which the Property complies;
  - b) any public utility caveat protecting a right-of-way for service to which the Property is connected; and
  - c) MTS Allstream Inc. Caveat No. 3761127/1.
- 2.2 The Purchaser is not to call for the production of any title deeds, abstracts, surveys or other evidence of title except those as are in the possession of the Vendor.

### 3. Condition/Inspection of the Property

In making this Offer, the Purchaser acknowledges and agrees that:

- a) the Purchaser is relying entirely and solely on its inspection of the Property and is not relying on any representation by the Vendor or any of its officers, employees or agents concerning the condition of the Property, environmental or otherwise, except as expresses herein;
- b) the Purchaser is purchasing the Property in an "as is" and "where is" condition and any re-zoning or conditional use of the Property will be at the Purchaser's sole cost and expense;
- c) the Vendor makes no representation or warranty of any kind, express or implied, in respect of the Property, except as expressed herein;
- d) Manitoba Hydro has existing facilities installed on the Property and may require the Purchaser to enter into an Easement Agreement with it to cover the existing services; and

e) the Purchaser has received and reviewed a copy of the **KGS Group Consulting Engineers' Final Site Remediation Report** (the "Final Site Remediation Report") with respect to the Property dated July, 2018, and has also received and reviewed a copy of the letter from Manitoba Sustainable Development, Environmental Stewardship Division, dated July 23, 2018, with respect to the Final Site Remediation Report.

#### 4. Due Diligence

The Purchaser, its agents and contractors shall be allowed a period of thirty (30) days from the date of the Vendor's acceptance of this Offer (the "**Due Diligence Period**") to:

- a) examine the title to the Property, the ownership thereof and to make inquiries of The City of Winnipeg, public utilities and any government authority that the present or future use of the Property, as contemplated by the Purchaser may be lawful, and that there are no outstanding work orders or deficiency notices affecting the Property;
- b) upon reasonable written notice to the Vendor and subject to such reasonable conditions as may be imposed by the Vendor, to enter upon the Property for the purpose of conducting soil tests, environmental tests or assessments and any other inspections or tests it may deem desirable or necessary; provided that the Purchaser shall make good any damage caused to the Property as a result of such tests; and
- c) make investigations and enquiries concerning zoning, development approvals and any other matters of interest to the Purchaser with respect to the Property.

If the Purchaser, acting reasonably, is not satisfied with the results of any such examinations, inquiries, tests, assessments, inspections, investigations or enquiries the Purchaser or its solicitors, on its behalf, shall so advise the Vendor or its solicitors, in writing, within the Due Diligence Period and the Deposit shall be returned to the Purchaser, together with all accrued interest thereon and the agreement constituted by the acceptance of this Offer shall be null and void and of no further force or effect.

#### 5. Assignment

This agreement may not be assigned by the Purchaser without the prior written consent of the Vendor, which consent may be arbitrarily withheld.

# 6. Closing Date

The date of closing of the transaction (the "Closing Date") shall be \_\_\_\_\_, **2018**, at which time, in exchange for payment of the balance of the Purchase Price, subject to adjustment for real property taxes as aforesaid, the GST Certificate as referred to in paragraph 9 hereof, if applicable, the Vendor (through its lawyer) shall provide the Purchaser (through its lawyer) with:

- a) a Statement of Adjustments;
- b) a limited Declaration as to Possession in which an officer of the Vendor (in his/her capacity as an officer of the Vendor and not in his/her personal capacity) states that the Vendor is not a non-resident of Canada within the meaning of the *Income Tax Act* (Canada); and
- c) a registerable transfer of land for the Property (the "Transfer of Land").

Vacant possession of the Property shall be given to the Purchaser on the Closing Date.

# [Note: The Closing Date should be between December 1, 2018, and December 31, 2018, as determined by the Purchaser.]

#### 7. Residence

The Vendor represents and warrants that it is not now and will not be on the Closing Date a non-resident of Canada within the meaning of the *Income Tax Act* (Canada).

#### 8. Condition of Property

The Vendor represents and warrants that, unless otherwise specified in this Offer, the Property will be in substantially the same condition as it was in at the date of the making of this Offer by the Purchaser, reasonable wear and tear excepted.

#### 9. Goods and Services Tax

The Purchaser agrees to pay any and all Goods and Services Tax which may be exigible in connection with the purchase of the Property from the Vendor; provided, however, if the Purchaser is a goods and services tax registrant, the Purchaser may, subject to the approval of the Vendor, such approval not to be unreasonably withheld, self-assess with respect to the purchase of the Property in accordance with the provisions of the *Excise Tax Act* (Canada). In such case, on or before the Closing Date, the Purchaser shall provide the Vendor with a duly completed Goods and Services Tax Certificate, Warranty & Indemnity in the form attached hereto as Schedule "A".

### **10.** Intended Use of the Property

The Purchaser represents and warrants to the Vendor that the Purchaser intends to use the Property for the following purpose(s) and the Purchaser acknowledges that the Vendor will be relying on such representations and warranties together with any detailed plans and specifications attached to this Offer to Purchase when considering the Purchaser's Offer to Purchase:

#### 11. Risk

All risk of loss with respect to the Property shall remain in the Vendor up to the Closing Date and the Vendor shall maintain in full force and effect adequate insurance coverage on the Property to the full insurable value thereof. In the event of any destruction or partial destruction of the Property, or of any part thereof, before the Closing Date, the Purchaser shall have the right to either accept the proceeds of the insurance payable with respect to such destruction and proceed with this transaction without deduction to the Purchase Price on account of such destruction, or the Purchaser shall have the right to reduce the Purchase Price by the amount of the value of any such assets that may be so destroyed as determined by the appraisal of the insurers thereof. In the event of any destruction before the Closing Date of a substantial portion of the Property, either party, at its option, may declare this Offer and the agreement resulting from acceptance of this Offer void and at an end and the Deposit shall be forthwith returned to the Purchaser, with all interest earned thereon.

#### **12.** General Provisions

- 12.1 Except for the Purchaser's representations and warranties contained in Paragraph 10 hereof together with any attached plans and specifications, which shall survive closing of the within described transaction and shall remain in full force and effect indefinitely for the benefit of the Vendor, all other covenants, representations and warranties contained in this agreement shall survive for a period of thirty (30) days from the Closing Date and thereafter shall be of no further force or effect.
- 12.2 Taxes, local improvements and assessment rates shall be apportioned and allowed to the Closing Date with the Closing Date to be apportioned to the Purchaser.
- 12.3 This agreement shall enure to the benefit of and be binding upon the parties hereto and their respective heirs, executors, administrators, successors and permitted assigns. Time shall be of the essence hereof.
- 12.4 Any tender of documents or money may be made on the Vendor or the Purchaser or on their respective solicitors. Money shall be tendered by certified cheque or bank draft of a Canadian chartered bank or credit union or lawyer's trust cheque.
- 12.5 The Purchaser shall not register this agreement or notice of this agreement by way of caveat or otherwise against title to the Property.
- 12.6 Each party shall bear the fees and expenses of its own legal counsel and other charges incurred in connection with the purchase and sale of the Property. For greater certainty, the Purchaser shall be solely responsible for and shall pay all land transfer tax which may be exigible in connection with the registration of the Transfer of Land in the Winnipeg Land Titles Office.
- 12.7 If either party is in breach of its obligations hereunder (the "Defaulting Party") then the other party (the "Non-Defaulting Party") shall be entitled to exercise whatever remedies the Non-Defaulting Party may have by virtue of the default. Where the Defaulting Party is the Purchaser, the Vendor shall be entitled to retain the Deposit and all interest earned thereon for its own use, such retainer of the Deposit and all interest earned thereon shall not in itself constitute a termination of this agreement and shall not restrict the Vendor from exercising any other remedies which the Vendor may have by virtue of the Purchaser's default, including the right to claim damages from the Purchaser which the Vendor sustains in excess of the Deposit and all interest earned thereon.

12.8 Any notice permitted or required herein shall be in writing and personally delivered or sent by facsimile. Any notice will be deemed to have been received on the day of actual delivery to the **Secretary-Treasurer** of the Vendor or any officer or director of the Purchaser, as the case may be, and on the first business day after transmission by facsimile and shall be sent to such party as follows:

a) to the Vendor at:

The Seven Oaks School Division 830 Powers Street Winnipeg, Manitoba R2V 4E7

Attention: Secretary-Treasurer Facsimile: (204) 783-0118

a) to the Purchaser at:

#### 13. Lapse of Offer

This Offer shall be irrevocable by the Purchaser and open for acceptance by the Vendor until \_\_\_\_\_\_\_\_ at 5:00 p.m., after which time, if not accepted, it shall lapse and the Deposit shall be returned to the Purchaser, without interest.

# [Note: The Purchaser should leave this Offer open for acceptance until at least the 31<sup>st</sup> day of October, 2018.]

#### 14. Approval of the Public Schools Finance Board

Notwithstanding anything to the contrary herein contained or otherwise, this Offer to Purchase (and the agreement resulting from acceptance thereof) shall be subject to the approval of The Public Schools Finance Board on or before the **Closing Date**. If The Public Schools Finance Board has not approved this Offer to Purchase (and the agreement resulting from acceptance thereof) within such time, then this Offer to Purchase (and the agreement resulting from acceptance thereof) shall be null and void and the Deposit shall be returned to the Purchaser, without interest.

IN WITNESS WHEREOF the Purchaser has executed this Offer to Purchaser at Winnipeg, Manitoba, this \_\_\_\_\_\_day of \_\_\_\_\_\_, 2018 at \_\_\_\_\_\_ a.m. / p.m.

# [NAME OF PURCHASER]

Per: \_\_\_\_\_

Per: \_\_\_\_\_

# ACCEPTANCE

IN WITNESS WHEREOF the Vendor has accepted this Offer to Purchase at Winnipeg, Manitoba, this \_\_\_\_\_\_ day of \_\_\_\_\_\_, 2018 at \_\_\_\_\_\_ a.m. / p.m.

# THE SEVEN OAKS SCHOOL DIVISION

Per: \_\_\_\_\_

Per: \_\_\_\_\_

#### SCHEDULE "A"

#### GOODS AND SERVICES TAX CERTIFICATE, WARRANTY AND INDEMNITY

TO:	THE SEVEN OAKS SCHOOL DIVISION (the "Vendor")								
RE:	SALE OF 2536 McPHILLIPS STREET, WINNIPEG, MANITOBA, FROM THE VENDOR TO								
	(the "Purchaser")								
DATE OF CLOSING:	, 2018								

**IN CONSIDERATION** of the sum of One (\$1.00) Dollar paid by the Vendor to the Purchaser and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and notwithstanding the completion of the within described transaction, the Purchaser hereby certifies and warrants as follows to and in favour of the Vendor:

1. The Purchaser is purchasing from the Vendor the property civically known as **2536 McPhillips Street, Winnipeg, Manitoba**, legally described as follows:

All that portion of OTM Lot 20 Parish of Kildonan which lies to the south of a straight line drawn north of parallel to and perp distant 335 feet from the southern limit of said lot and to the east of a straight line drawn nly at right angles to the southern limit of said lot from a point in the same distant wly thereon 642.45 feet from the eastern limit of said lot.

(the "Property")

and the closing date of the within described transaction is \_\_\_\_\_,2018.

- 3. The Purchaser shall be liable, shall self-assess and shall remit to the appropriate governmental authority all goods and services tax payable under the Act in connection with the purchase of the Property and will file the prescribed goods and services tax forms in accordance with the Act.
- 4. The Purchaser hereby indemnifies and saves harmless the Vendor from any and all goods and services tax, penalties, costs, interest and other amounts which may be payable by or be assessed against the Vendor under the Act as a result of or in connection with Purchaser's failure to comply with the provisions of this document or any inaccuracy, misstatement or misrepresentations made in connection with any matter set out herein.

**IT IS ACKNOWLEDGED** that this document shall be for the benefit of the Vendor, its successors and assigns and shall survive, and not merge upon, the closing of the transaction referred to above.

**DATED** at the City of Winnipeg, in Manitoba, as of the \_\_\_\_\_ day of \_\_\_\_\_, 2018.

[INSERT NAME OF PURCHASER]

Per:\_\_\_\_\_

Name:

Office:

Per:\_\_\_\_\_

Name:

Office:



**Sustainable Development** Environmental Stewardship Division Environmental Approvals Branch 1007 Century Street, Winnipeg, Manitoba R3H 0W4 T 204-945-8321 F (204) 945-5229 www.manitoba.ca/sd

Seven Oaks School Division c/o Tony Campos 2536 McPhillips Street Winnipeg, MB R2V 4J8 July 23, 2018

Dear Mr. Campos:

Re: <u>Site Remediation, 2536 McPhillips Street:</u> <u>Review under the Contaminated Sites Remediation Act</u>

This letter is to acknowledge receipt of the report entitled "Seven Oaks School Division, Site Remediation, 2536 McPhillips Street" prepared by KGS Group dated July 2018 for the above-noted property (the site).

Manitoba Sustainable Development concurs that the report submitted adequately documents the remedial activities that have been carried out at the site are in accordance with the submitted and approved Remediation Plan.

It is the position of Manitoba Sustainable Development that no further remedial activities are required at the site at this time. The site is not designated as either a contaminated site or an impacted site pursuant to The Contaminated Sites Remediation Act, C.C.S.M, c. C205 and it will not be added to either the contaminated site registry or the impacted site registry at this time. In the event that any residual contamination remaining in the soil results in some form of exposure concern in the future, the site may be designated and the responsible party will be directed by this department to initiate any remedial measures.

It should be noted that the position of Manitoba Sustainable Development as stated in this letter is based on the information provided to this office by KGS Group and relates only to the matters within the scope of the approved Remedial Plan that was conducted by KGS Group. No additional site monitoring was performed by Manitoba Sustainable Development.

If you have any questions regarding this letter, please contact Warren Rospad, Contaminated Sites Program Specialist at 204-330-2685 or <u>warren.rospad@gov.mb.ca</u>. Please note that electronic submissions are preferred for all documents and correspondence.

Sincerely,

Jacey Braun

Tracey Braun Director

c. File: 28690 Ed Collins (KGS Group)



# SEVEN OAKS SCHOOL DIVISION

#### SITE REMEDIATION 2536 MCPHILLIPS STREET

FINAL

KGS Group 18-3152-002 July 2018

PREPARED BY:

Eric Levay

Senior Environmental Technologist

**REVIEWED BY:** 

Ed Collins, P.Eng. Senior Environmental Engineer

APPROVED BY:

Jason Mann, M.Sc., P.Geo. ssociate Principal, Department Head Environmental Services



Kontzamanis Graumann Smith MacMillan Inc.

July 12, 2018

File No. 18-3152-002

3rd Floor 865 Waverley Street Winnipeg, Manitoba R3T 5P4 204.896.1209 fax: 204.896.0754 www.kgsgroup.com

Seven Oaks School Division 2536 McPhillips Street Winnipeg, Manitoba R2V 4J8

ATTENTION: Mr. Tony Campos

RE: Site Remediation 2536 McPhillips Street, Winnipeg, Manitoba Final Report

Dear Mr. Campos:

Please find enclosed one (1) hard copy and one (1) electronic copy of the Final Report for the Site Remediation Program for the site located at 2536 McPhillips Street in Winnipeg, Manitoba. A copy of this report has been submitted to Mr. Warren Rospad of Manitoba Sustainable Development (MSD) on behalf of the Seven Oaks School Division.

KGS Group sincerely appreciates the opportunity to have been of service on this project. If you have any questions regarding this report please contact Mr. Ed Collins or the undersigned.





Yours truly,

Jason Mann, M.Sc., P.Geo. Associate Principal, Department Head Environmental Services

ERL/LM/jr Enclosure

cc: Warren Rospad, MSD



#### **EXECUTIVE SUMMARY**

Kontzamanis Graumann Smith MacMillan Inc. (KGS Group) was contracted by Seven Oaks School Division to provide engineering services associated with the execution of the Remedial Action Plan (RAP) at the property located at 2536 McPhillips Street in Winnipeg, Manitoba. The purpose of the RAP was to manage the petroleum hydrocarbon (PHC) exceedances in soil identified during the previous Phase I and Phase II Environmental Site Assessments completed by Pinchin Ltd. on January 20, 2017 and July 12, 2017, respectively. The RAP was prepared by KGS Group and submitted to Manitoba Sustainable Development, which was approved on March 13, 2018.

On-site remedial activities at the Seven Oaks School Division site located in Winnipeg, Manitoba were completed between June 15<sup>th</sup>, 2018 (utilities) and July 5, 2018. All excavations, hauling, sourcing and placement of backfill were completed by Kelvin Kartage Ltd. KGS Group was onsite to direct the extents of the excavation, collect closure samples from the excavation site, and survey the lateral and vertical extents of the excavation.

Excavation of PHC impacted soils initially occurred between June 18<sup>th</sup> and 28<sup>th</sup>, 2018. All closure samples met the applied current exposure pathway guidelines for Management Limits of the Canadian Council of Ministers of the Environment (CCME) guidelines for PHC's for the current site use. Low level concentrations of benzene were observed in two final floor samples at a depth of >3.5 m below grade in clay soils that did not meet a secondary potential future use exposure pathway guideline for indoor inhalation (slab on grade). A total of twelve floor samples and eight wall samples were obtained from the excavation and submitted for laboratory analysis of PHC. Laboratory results showed that all closure samples had PHC concentrations below the applicable Canadian Council of Ministers of the Environment (CCME) Commercial Land Use Tier I Site Specific Pathway – Management Limits Guideline, which is the applicable current site use and exposure pathway.

However, the site has been sold by the Seven Oaks School Division and since the future land use and exposure pathways are not known at the time of this report, KGS Group also applied the Inhalation of indoor air (slab on grade) Guideline for PHCs in soil. All final soil samples for PHC's were below these guidelines with the exception of benzene levels in two samples obtained in the northwest corner (floor) and the northeast (floor) of the excavation. These two samples exceeded the applicable guideline of 0.29 mg/kg for benzene with concentrations of 0.39 and 0.50 mg/kg, but were considered acceptable due to possible cross contamination as they were collected from the excavator bucket and not by hand, due to their depth (>2.5 m), and had low headspace values of <30 ppm. Also, the area will be capped by fine grained silty clay material and asphalted. The potential risk of exposure at these depths is deemed very low and over time these low level concentrations will naturally attenuate now that the bulk of the contaminated soil is removed.

The total calculated volume of impacted soils removed from the site, based on pre and post excavation surveys conducted by KGS Group, is 1106 m<sup>3</sup>. Based on the scale tickets provided by Kelvin Kartage Ltd., a total of 2026.7 metric tonnes of PHC impacted soils were received at the MidCanada Environmental Services landfill and the BFI Prairie Green landfill for final disposal, which translates to 1151 m<sup>3</sup>, which is only 46 m<sup>3</sup> difference between the two methods, which is an acceptable error given the application of an in-situ density as typically seen in similar soils in the area. Considering the silts and clays present at the site, this tonnage is



consistent with the calculated volume. Backfilling of the excavation occurred between June 18<sup>th</sup> and July 5, 2018 following receipt of all confirmatory laboratory soil results.

Seeing as future land use or planning is not known, KGS Group recommends that if future land use changes or a new foundation is planned, depending on the location and depth of the foundation, an engineered vapor barrier would be recommended if it would be within 1 m of where the two floor samples with slightly above the indoor inhalation (slab on grade) pathway guideline were observed.

Based on the results of the confirmatory soil sampling and remedial activities conducted at the site, no further work is warranted nor recommended at this time. In accordance with the RAP approval letter, a copy of this report must be submitted to Manitoba Sustainable Development.



# TABLE OF CONTENTS

EXEC	UTIVE S	UMMARY	i
1.0	INTROD 1.1   1.2 (	DUCTION	<u>.</u>
2.0	SOIL RE 2.1 2.2	EMEDIATION PROGRAM	-
3.0	SOIL AN	ID WASTE DISPOSAL	)
4.0	CONCL	USIONS	)
5.0	STATEN 5.1 5.2	IENT OF LIMITATIONS	
TABLI	ES		

FIGURES





#### **LIST OF TABLES**

1. Petroleum Hydrocarbons in Soil

#### **LIST OF FIGURES**

Site Location Map 1.

#### LIST OF APPENDICES

- Letter of Approval from Manitoba Sustainable Development Laboratory Certificates of Analyses Α.
- Β.



#### 1.0 INTRODUCTION

Kontzamanis Graumann Smith MacMillan Inc. (KGS Group) was retained by Seven Oaks School Division to provide engineering services associated with the execution of the Remedial Action Plan (RAP) at the property located at 2536 McPhillips Street in Winnipeg, Manitoba. The purpose of the RAP was to manage the hydrocarbon exceedances in soil identified during the previous Phase I and Phase II Environmental Site Assessments completed by Pinchin Ltd. In 2017.

This report details and summarizes the results of the remedial activities completed at the subject property between June 18<sup>th</sup>, 2018 and July 4<sup>th</sup>, 2018.

#### 1.1 BACKGROUND

The subject site is located at 2536 McPhillips Street, on the west side of McPhillips Street at the intersection with Templeton Avenue in Winnipeg, Manitoba (Figure 01). Adjacent properties include the Winnipeg Fire Paramedic Service Academy to the north, commercial facilities to the south and east, and residential dwellings and fields to the west. The subject site is currently owned by the Seven Oaks School Division but has been recently sold and the school division is in the process of transitioning ownership to the new owner by July 31, 2018.

The subject property, approximately 22,880 m<sup>2</sup> in size, provides storage for the Seven Oaks School Division bus fleet and all maintenance vehicles and equipment for the Division. There is a one-storey commercial structure on the site, approximately 1,890 m<sup>2</sup>, which comprises equipment garages and office space. Historically, the subject property also had a gas pump and a 9,090 L underground storage tank (UST) on site approximately 10 m northwest of the entrance off Templeton Avenue. The UST and associated fuel and vent piping were removed in 2003.

Laboratory analysis of soil samples collected from the final extents of the excavation during the UST excavation in 2003 indicated there were hydrocarbon impacted soils present that exceeded the Canadian Council of Ministers of the Environment (CCME) 1999 soil guidelines (commercial



land use). A Phase I ESA completed in January 2017 concluded that there was potential for subsurface impacts relating to the historical UST.

A Phase II ESA was conducted in July 2017 to further delineate the extents of the contamination. As part of the Phase II ESA, eleven (11) boreholes were drilled on the site; all of them completed as monitoring wells. Delineation of the hydrocarbon impacts in soil near the old UST was achieved both laterally and vertically to a maximum depth of 2.5 m. Pinchin estimated that the volume of impacted soil on the site ranged between 520 m<sup>3</sup> and 1,250 m<sup>3</sup>, and stated that the actual volume will depend on how far evidence of contamination is found away from the UST area during field screening of soil samples.

Groundwater samples collected from monitoring wells MW5 and MW7 had concentrations of petroleum hydrocarbon (PHC) Fractions F1 and F2 exceeding Ministry of the Environment and Climate Change (Ontario) (MOECC) groundwater guidelines for non-potable groundwater conditions. Benzene was also measured to exceed guidelines at monitoring well MW7. Guideline exceedances for petroleum hydrocarbon parameters were not identified in the groundwater samples analyzed from any of the other monitoring wells on the site. Groundwater elevations measured at the time of the Phase II ESA indicated that groundwater flow is to the east.

KGS Group prepared a RAP, in accordance with the Contaminated Sites Remediation Act (CSRA), detailing the proposed management of the hydrocarbon exceedances in soil at the subject site, by means of excavation and offsite disposal. This RAP was submitted to Manitoba Sustainable Development (MSD) on behalf of Seven Oaks School Division on March 7, 2018. In a response dated March 13, 2018, MSD indicated that the RAP had been approved. A copy of the RAP approval letter from MSD is included in Appendix A.

#### 1.2 OBJECTIVES AND SCOPE OF WORK

The main objectives of the RAP included the following:

- Excavate and dispose of impacted soils off site at a licensed disposal facility;
- Collect both floor and wall soil samples, for field screening and laboratory analysis of PHCs;



- Once extents of impacted soil have been confirmed by laboratory analysis, backfill the excavation with clean granular fill, compacted in 200 mm lifts to a Standard Proctor Density of 98%;
- Restoration of the work area to pre-construction conditions; and
- Document the soil remediation program in a Closure Report, and submit to Manitoba Sustainable Development for approval.

On-site remedial activities commenced on June 15<sup>th</sup> 2018 (utility locates), with impacted soil excavation taking place between June 18<sup>th</sup> and 28<sup>th</sup>. Backfilling of the excavation occurred between June 28<sup>th</sup> and July 5<sup>th</sup> 2018 in the excavation area confirmed to be low or below applicable CCME guidelines, following receipt of confirmatory laboratory soil results. All work associated with excavation, hauling, sourcing and placement of backfill were completed by Kelvin Kartage Ltd. KGS Group was onsite to direct the excavation work, defining extents of the excavation and to collect closure samples from the excavation site. Excavated impacted soils from the site were disposed of at the MidCanada Environmental Services Landfill near Ile-des-Chenes, Manitoba and the BFI Prairie Green Landfill, north of Winnipeg, Manitoba.



#### 2.0 SOIL REMEDIATION PROGRAM

#### 2.1 JUNE 2018 – SOIL EXCAVATION

#### **Onsite Activities**

KGS Group mobilized to site on June 18<sup>th</sup>, 2018 to familiarize field workers with the site and begin to delineate the limits of the excavation. The excavation contractor, Kelvin Kartage, Ltd., arrived on site on June 18<sup>th</sup>, 2018 and commenced excavating. Excavation of PHC impacted soils occurred between June 18<sup>th</sup> and 28<sup>th</sup>, 2018.

The main challenge for remediating the hydrocarbon impacted soil was determining what field screening headspace vapor result would produce an acceptable laboratory analysis result for closure given that the main contaminant of interest was benzene. Benzene is a highly pervasive chemical that diffuses through soil media with ease even in fine grained soils with small void spaces. KGS Group had to adjust the field screening limit for laboratory confirmation samples down from <100 ppm at the beginning of the work to <30 ppm at the end as laboratory results returned with above criteria concentrations. This can be seen in the first few soil sample results from sample locations S12 SE Wall, S20 East Floor and S29 Floor.

Closure samples were collected by KGS Group from the excavation floor and walls as the excavation progressed. The sampling nomenclature used was as follows:

- FLOOR floor sample (i.e., S86-FLOOR)
- WALL wall sample (i.e., S87-WALL)
- FS field screening (PID) result (i.e., FS53-FLOOR)

A total of twelve floor samples and eight wall samples were collected from the excavation (Figure 01). All samples were placed into sealable polyethylene sample bags for field screening of headspace vapors. If the headspace reading met the defined limit of <30 ppm, KGS Group either then deemed the excavation limit sufficient and/or collected a sample to submit to the laboratory, which then had to be placed into the appropriate sample containers provided by the laboratory, then stored in a cooler before transport to Maxxam Analytics in Winnipeg, a CALA (Canadian Accredited Laboratory Association) accredited laboratory for analysis PHCs. Sample



containers for all samples included one 120 mL glass jar and two 40 mL glass vials with methanol preservative inside. All samples were retrieved with disposable nitrile/latex gloves and a hand trowel that was thoroughly cleaned with isopropyl alcohol and distilled water prior to each sample collection if the depth of the sample was less than 3.0 m. If greater than 3.0 m depth, the sample was collected from the excavator bucket, which introduced the potential for cross-contamination from the excavator bucket to the soil in it. When collecting samples directly from the bucket, KGS Group tried to collect the sample from where it was thought had not been in direct contact with the bucket sides.

The typical soil stratigraphy of the excavation was the same as what had been previously described by Pinchin in their Phase II ESA.

"Native subsurface material underlying the fill material (asphalt and granular base material) was observed to generally consist of brown to grey silt underlain by brown clay that extended to the maximum borehole completion depth of 4.57 mbgs.) – Phase II ESA, Pinchin, July 12, 2017.

Prior to excavation works commencing, KGS Group performed a topographical survey of the site, surveying key features and boundaries. Once the final excavation limits were reached, a final survey was completed using Topcon Survey Grade GPS survey equipment. Based on the topographic survey, the total in-situ calculated volume of PHC impacted soils removed from site was 1151.6 m<sup>3</sup>. The average depth of the excavation was approximately 3.0 m and the excavation area approximately 442 m<sup>2</sup>.

#### Laboratory Soil Results

The laboratory analytical results are summarized on Table 1 and the Laboratory Certificate of Analysis is included in Appendix B.

Determination of applicable pathways and criteria was based on the Phase II ESA (section 2.6) by Pinchin as well as on current land use. These helped to define the acceptable level of remediation for this site. Given these factors, the applicable guideline used was the Management Limit as a primary remediation target while attempting to also remediate to a more



stringent guideline as future land management plans are not known. Therefore inhalation of indoor air check (slab on grade) was also used during remediation activities but which is not a current site use pathway as the existing building is over 30 m away from the excavation.

Specifically, the laboratory analytical results were compared to the Canadian Council of Ministers of the Environment (CCME) Commercial Land Use Criteria for Subsurface Soil (>1.5 m) Site Specific Pathway - Inhalation of indoor air check (slab on grade) for fine grained soil and the Management Limit.

All of the closure samples were below the Management Limit guideline. When compared to the inhalation of indoor air check (slab on grade) pathway (future land use considered), all closure samples were below applicable guideline for all PHC parameters except for benzene in two final sample locations, which are floor samples located at a depth greater than 3.5 m.

Table 1 shows which samples were intermediate and final sample locations. Where samples exceeded the guideline and had headspace vapor readings above 30 ppm, excavation was continued further out (wall) or deeper (floor) in the vicinity of the original sample location and the soil was resampled (i.e. S12 SE WALL was resampled and replaced by S70-WALL after the wall was excavated out approx. 1 m). For four of the six floor samples and the one wall sample, the resampled soil was below the guideline.

Even after reducing the field screening limit down to <30 ppm, there remained soil samples with low volatile headspace results (8 ppm to 24 ppm) which returned benzene concentrations slightly above the applicable criteria limit for benzene, 0.28 to 0.87 mg/kg as compared to 0.29 mg/kg concentration guideline for the selected pathway receptor. This was observed in floor samples only and at greater than 3.5 m depth in fine grained clay material.

Two closure samples and one duplicate sample on the floor of the excavation exceeded the slab on grade inhalation criteria for benzene. Sample S46-FLOOR(C) had a benzene concentration of 0.5 mg/kg, S46-FLOOR (duplicate of S46-FLOOR(C)) had a benzene concetration of 0.87 mg/kg and sample S79-FLOOR had a benzene concentration of 0.39 mg/kg. S46-FLOOR(C) is located in the northeast of the excavation, at a depth of 4.9 m, and



S79-FLOOR is located in the northwest corner at a depth of 3.6 m. S46-FLOOR(C) and S79-FLOOR were deemed acceptable closure samples for the following reasons:

- Current land use there are no building foundations less than 30 m distance from the excavation and the area will be asphalted and used as a parking lot;
- High variability of benzene concentrations and low headspace vapors observed in the fine grained clays and clayey silt layers shows that lower headspace readings do not translate into lower benzene concentrations (i.e. Samples S46-Floor and S46-Floor(C) are taken from the same location and depth. S46-Floor(C) had a higher field head space but lower benzene concentration than S46-Floor). This is a potential function of the margin of error of the equipment used to measure headspace vapors in the field, although a field "bump test" was completed and gave acceptable results. Also, at this depth the sampler could not enter into the excavation to manually collect the sample as it was not safe to do so when depths are greater than 3.0 m. This meant that the sample was collected out of the excavator bucket possibly introducing cross-contamination into the sampling process, but was there were no other alternative sampling methods at these depths.
- KGS Group did however compare floor samples taken from the same clay material, and it shows that cross contamination from the sampling method (e.g. excavator vs. by hand) was a possible factor. If you examine samples S46-Floor and S62-Floor field screening results of 11.7ppm and 12.8 ppm respectively, there is little difference, but when the laboratory results were returned, they had benzene concentrations of 0.87 mg/kg in S46-Floor and 0.22 mg/kg in S62-Floor. Perceived Exposure Risk for Human Health Due to the depth and material type, there is a low probability of exposure to very low levels of benzene. Also, the future land use will also be commercial and fill material placed in the excavation is a silty clay material which was compacted to a higher density than the insitu material and capped by asphalt, thus reducing the possibility of vapor migration and the management limit can then be applied, which would then mean that all soil remaining on site is acceptable and meets criteria.

Where acceptable results were observed the excavation was not continued further in those locations.

#### 2.2 JUNE-JULY 2018 – BACKFILLING

Following receipt of all laboratory analytical results and confirmation that all soil samples obtained from the floor and walls of the excavation met the applicable CCME commercial land use guidelines for PHCs, KGS Group and Kelvin Kartage Ltd. began backfilling activities. Backfilling occurred between June 28<sup>th</sup> and July 5, 2018.



Backfill material (which was a silty clay material) was placed in uniform layers not exceeding 200 mm compacted thickness and compacted using a vibrating drum roller until dry density values were stable and showed little variability between density measurements, as no proctor samples were submitted by the contractor. Compaction tests were completed by the on-site engineer using a Humboldt Model 5001 Nuclear Density Gauge. Measured dry densities ranged from 1350 kg/m<sup>3</sup> to 1450 kg/m<sup>3</sup> at 2.5 to 3 m depth, 1250 kg/m<sup>3</sup> to 1499 kg/m<sup>3</sup> at 1.5 to 2 m depth, and 1382 kg/m<sup>3</sup> to 1557 kg/m<sup>3</sup> at 1m to 1.5 m depth and 1344 kg/m<sup>3</sup> to 1534 kg/m<sup>3</sup> at 0.1m to 0.3 m depth. Granular material was placed and compacted on top of the fill to a depth equal to the existing granular surface (approximately 15 cm). The asphalt surface was replaced to the limits existing before excavation was started as specified in the City of Winnipeg Specification CW 3410-R12 – Asphaltic Concrete Pavement Works.

Field screening of the clean backfill was done randomly as the fill was brought to site to ensure clean material was being place. All results had less than 1 ppm headspace results.



#### 3.0 SOIL AND WASTE DISPOSAL

The scale tickets from the MidCanada Environmental Services landfill and the BFI Prairie Green landfill showed that a combined 2026.7 metric tonnes of PHC impacted soils were received at the disposal sites during the June 2018 remedial work.

Applying an average weighted density of  $1.76 \text{ tonnes/m}^3$  (weighted by % of type of material excavated), the volume of PHC impacted soil removed was  $1151.6 \text{ m}^3$ . This agrees with a post-excavation survey completed by KGS Group personnel which resulted in an excavated soil volume estimate of  $1106 \text{ m}^3$ .



#### 4.0 CONCLUSIONS

On-site remedial activities at the Seven Oaks School Division site located in Winnipeg, Manitoba were completed between June 15<sup>th</sup>, 2018 and July 5th, 2018. Utility locates were completed on June 15<sup>th</sup>, 2018, with impacted soil excavation taking place between June 18<sup>th</sup> and 28<sup>th</sup>, 2018 Backfilling of the excavation occurred between June 28<sup>th</sup> and July 5, 2018, following receipt of all confirmatory laboratory soil results. All excavations, hauling, sourcing and placement of backfill were completed by Kelvin Kartage Ltd. under the direct supervision of KGS Group. Excavated impacted soils from the site were disposed of at the MidCanada Environmental Services landfill near Ile-des-Chenes and the BFI Prairie Green landfill north of Winnipeg, Manitoba.

The total calculated volume of impacted soils removed from the site, based on pre and post excavation surveys conducted by KGS Group, is 1106 m<sup>3</sup>. Based on the scale tickets provided by the MidCanada Environmental Services landfill and the BFI Prairie Green landfill, a combined total of 2026.7 metric tonnes of PHC impacted soils were received at the MidCanada Environmental Services landfill and the BFI Prairie Green landfill for final disposal. Considering the silts and clays present at the site, this tonnage is consistent with the calculated volume.

The laboratory analytical results for closure samples collected from the floor and walls of the excavation showed that the remaining soils at the site meet current land use exposure pathways and are within applicable CCME Commercial Land Use Criteria for Subsurface Soil >1.5 m depth Site Specific Pathway – Management Limits Guideline for PCHs in fine grained soil. Seeing as future land use or planning is not known, KGS Group recommends that if future land use changes or a new foundation is planned, depending on the location and depth of the foundation, an engineered vapor barrier would be recommended if it would be within 1 m of where the two floor samples with slightly above the indoor inhalation (slab on grade) pathway guideline were observed. Based on the results of the confirmatory soil sampling and remedial activities conducted at the site and the current site use, no further work is warranted nor recommended at this time. In accordance with the RAP approval letter (Appendix A), a copy of this report must be submitted to Manitoba Sustainable Development.



#### 5.0 STATEMENT OF LIMITATIONS

#### 5.1 THIRD PARTY USE OF REPORT

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

#### 5.2 ENVIRONMENTAL STATEMENT OF LIMITATIONS

KGS Group prepared this report in a professional manner using the degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. The information contained in this report, including its conclusions, is based on the information that was made available to KGS Group during the investigation and upon the services described, which was performed within the time and budgetary requirements of Seven Oaks School Division. As the report is based on available information, some of its conclusions could be different if the information upon which it is based is determined to be false, inaccurate or contradicted by additional information. KGS Group makes no representation concerning the legal significance of its findings or the value of the property investigated.





#### **TABLES**





#### TABLE 1 PETROLEUM HYDROCARBONS IN SOIL SEVEN OAKS SCHOOL DIVISION SOIL REMEDIATION 2536 MCPHILLIPS STREET, WINNIPEG, MB

	Duplicate ID		Final or Intermediate Soil Sample	Depth (m)	Soil Type	Moisture Content (%)	Field Vapour Reading (ppm)	Parameter <sup>(1)</sup>							
Sample ID		Date						Benzene	Toluene	Ethylbenzene	Xylenes (o,-m,-p)	F1 (C <sub>6</sub> - C <sub>10</sub> )	F2 (C <sub>10</sub> - C <sub>16</sub> )	F3 (C <sub>16</sub> - C <sub>34</sub> )	F4 (C <sub>34</sub> - C <sub>50</sub> )
S4-FLOOR		10 km 10		2.9	Clay	21	29.7	0.073	<0.020	0.95	<0.045	50	<10	<50	<50
	Lab Dup	10-Juli-10	Final			21		0.073	<0.020	1.00	-	-	<10	<50	<50
S12 SE WALL		00 1	8 Intermediate	2.3	Clay	20	- 74	0.63	0.04	0.76	0.21	<10	14	<50	<50
	Lab Dup	20-Jun-18				-		-	-	-	-	-	12	<50	<50
S20 EAST FLOOR		00 km 40	Intermediate	2.9	Clay	32	104	5.2	7.7	2.0	13	11	<10	<50	<50
	Lab Dup	20-Jun-16				32		-	-	-	-	-	-	-	-
S30-B-WALL		04 hrs 40	Final	2.3	Clay	24		0.08	<0.020	0.022	<0.045	11	<10	<50	<50
	Lab Dup	21-Jun-18	Finai			-	70.3	0.08	<0.020	0.021	-	-	<10	<50	<50
	Lab Dup		Intermediate	3.1	Clay	33	95.5	4.5	3.1	1.9	10	41	10	<50	<50
529-FLOOR		21-Jun-18				33		-	-	-	-	-	-	-	
S34-FLOOR		00 km 40	Final	4	Clay	34	6.7	0.027	<0.020	<0.010	<0.045	<10	<10	59	<50
	Lab Dup	- 22-Jun-18				-		0.028	<0.020	<0.010					
S36-WALL		22-Jun-18	Final	2.3	Sandy Silt	18	10.5	<0.0050	<0.020	0.026	0.091	<10	<10	<50	<50
S46-FLOOR		22-Jun-18	Duplicate of S46-Floor (C)	4.9	Clay	35	11.7	0.87	0.18	0.50	2.1	<10	<10	<50	<50
		25-Jun-18 Dup	Final	3.1	Clay	33	2.1	<0.0050	<0.020	<0.010	<0.045	<10	<10	<50	<50
000 T LOOK	Lab Dup					34	2.1	-	-	-	-	-	-	-	-
S46-FLOOR(C)		25-Jun-18	Final	4.9	Clay	33	24.5	0.50	2.5	0.54	3.4	<10	<10	<50	<50
S70-W/ALL		26-Jun-18	Final	2.3	Silty Clay	26	8.1	<0.0050	<0.020	<0.010	<0.045	<10	<10	<50	<50
OTO WITEE	Lab Dup	20 0011 10	To That			-	0.1	<0.0050	<0.020	<0.010	-	-	-	-	-
S69-FLOOR		26-Jun-18	Intermediate	3.5	Clay	35	8	0.38	<0.020	0.033	0.16	<10	<10	<50	<50
S63-WALL		26-Jun-18	Final	2.3	Clay	24	12.4	0.033	<0.020	<0.010	<0.045	<10	<10	<50	<50
S62-FLOOR		26-Jun-18	Final	3.2	Clay	36	12.8	0.22	0.088	0.049	0.33	<10	<10	<50	<50
S61-WALL		26-Jun-18	Final	2.4	Clay	31	10.9	<0.0050	<0.020	<0.010	<0.045	<10	<10	<50	<50
S79-FLOOR		27-Jun-18	Final	3.6	Clay	36	14.9	0.39	<0.020	0.32	0.40	<10	<10	<50	<50
S80-WALL		27 Jun 19	Final	26	Clay	31	11.2	<0.0050	<0.020	<0.010	<0.045	<10	<10	<50	<50
	Lab Dup	27-Juli-16	5 Findi	2.0		31		-	-	-	-	-	-	-	-
S83-FLOOR		27-Jun-18	Final	3.1	Clay	31	9	0.18	<0.020	<0.010	<0.045	<10	<10	<50	<50
		28-Jun-18 Lab Dup	Final	3.3	Clay	33		<0.0050	<0.020	<0.010	<0.045	<10	<10	<50	<50
500-FLOOR	Lab Dup					31	1.4	-	-	-	-	-	<10	<50	<50
S87-WALL		28-Jun-18	Final	2.3	Silty Clay	25	23	<0.0050	<0.020	<0.010	<0.045	<10	<10	<50	<50
Laboratory Detection Limits							0.005	0.020	0.010	0.045	10	10	50	50	
CCME Guidelines <sup>(2,3)</sup> - Commercial Land Use Criteria for Subsurface Soil (>1.5 m)															
Inhalation of Indoor Air Check (slab on grade)								0.29	13,000	6,700	1,600	-	-	-	-
Management Limit <sup>(a)</sup>								-	-	-	-	800	1,000	5,000	10,000

#### Notes:

U:\F

"-" = No Data

1. All values are expressed in milligrams per kilogram (mg/kg) unless otherwise specified.

2. CCME - Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999. Update 7.0 - 2007.

Chapter 7 - Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

3. CCME - Canadian Council of Ministers of the Environment. Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) in Soil, May 2001 - revised January 2008. Updated July 2012.

a. Includes additional considerations such as free phase formation, explosive hazards, and buried infrastructure effects.

re Report\_Soils.xlsx - Exceedance of Tier I Site Specific Criteria TABLE XX PHCs IN SOIL LOCATION PAGE 1 OF 1



**FIGURES** 








# **APPENDIX A**

# LETTER OF APPROVAL FROM MANITOBA SUSTAINABLE DEVELOPMENT





Environmental Stewardship Division Environmental Approvals Branch 1007 Century Street, Winnipeg, Manitoba R3H 0W4 T 204-945-8321 F 204-948-2338 www.manitoba.ca/sd

Seven Oaks School Division c/o Tony Campos 2536 McPhillips Street Winnipeg, MB R2V 4J8 March 13, 2018

Dear Mr. Campos:

Re: <u>Site Remediation, 2536 McPhillips Street, Winnipeg, Manitoba;</u> Approval under the Contaminated Sites Remediation Act

This will acknowledge receipt of the Remediation Plan for the above noted property (the site) dated March 7, 2018 and prepared by KGS Group.

This letter constitutes written authorization as specified under The Contaminated Sites Remediation Act, C.C.S.M, c. C205, s. 17.1 (1) for Seven Oaks School Division to proceed with the remediation of the site as described in the Remediation Plan. Any change to the Remediation Plan must be approved by the undersigned prior to initiating the change.

It is requested that a Summary Report documenting the remediation is submitted to this office for review at the completion of the Remediation Plan.

It should be noted that the position of Manitoba Sustainable Development as stated in this letter is based on the information provided to this office by KGS Group and relates only to the matters within the scope of the Remediation Plan submitted by KGS Group.

If you have any questions regarding this letter, please contact Warren Rospad, Contaminated Sites Program Specialist at 204-330-2685 or <u>warren.rospad@gov.mb.ca</u>. Please note that electronic submissions are preferred for documents and correspondence.

Sincerely,

Jacey Braun

Tracey Braun Director

c. File: 28690 Ed Collins (KGS Group) Environmental Compliance and Enforcement Branch



# **APPENDIX B**

# LABORATORY CERTIFICATES OF ANALYSES



Your Project #: 18-3152-002 Your C.O.C. #: C#554917-01-01

Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/21 Report #: R2576339 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

#### MAXXAM JOB #: B848997 Received: 2018/06/20, 09:10

Sample Matrix: Soil # Samples Received: 1

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
F1-BTEX	1	N/A	2018/06/21	WIN SOP-00054	Auto Calc
BTEX/MTBE VH F1 in Soil - Field Pres. (1)	1	N/A	2018/06/20	WINSOP-00054	PA8260D/CCME PHCCWS
CCME Hydrocarbons (F2-F4 in soil) (2)	1	2018/06/20	2018/06/21	WIN SOP-00056	CCME PHC-CWS
Moisture	1	N/A	2018/06/21	WIN SOP-00060	CCME PHC-CWS m

#### 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 extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.

(2) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxia Stroup Company

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-01-01

#### Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/21 Report #: R2576339 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B848997 Received: 2018/06/20, 09:10

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Amanda Hung, B.Sc., Project Manager Email: AHung@maxxam.ca Phone# (204)772-7276 Ext:7062215



Report Date: 2018/06/21

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## FIELD PRESERVED BTEX/F1, F2-F4 IN SOIL (SOIL)

Maxxam ID		TR3965			TR3965		
Sampling Date		2018/06/18 13:35			2018/06/18 13:35		
COC Number		C#554917-01-01			C#554917-01-01		
	UNITS	S4-FLOOR	RDL	QC Batch	S4-FLOOR Lab-Dup	RDL	QC Batch
Physical Properties							
Moisture	%	21	0.3	9031858	21	0.3	9031858
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	10	9031861	<10	10	9031861
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	50	9031861	<50	50	9031861
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	9031861	<50	50	9031861
Reached Baseline at C50	mg/kg	Yes	N/A	9031861	Yes	N/A	9031861
Volatiles					-		
Benzene	mg/kg	0.073	0.0050	9031942	0.073	0.0050	9031942
Toluene	mg/kg	<0.020	0.020	9031942	<0.020	0.020	9031942
Xylenes (Total)	mg/kg	<0.045	0.045	9031850			
F1 (C6-C10) - BTEX	mg/kg	50	10	9031850			
Ethylbenzene	mg/kg	0.95	0.010	9031942	1.0	0.010	9031942
m & p-Xylene	mg/kg	<0.040	0.040	9031942	<0.040	0.040	9031942
o-Xylene	mg/kg	<0.020	0.020	9031942	<0.020	0.020	9031942
F1 (C6-C10)	mg/kg	51	10	9031942	70	10	9031942
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	106		9031942	113		9031942
4-Bromofluorobenzene (sur.)	%	97		9031942	106		9031942
D10-o-Xylene (sur.)	%	90		9031942	105		9031942
D4-1,2-Dichloroethane (sur.)	%	125		9031942	115		9031942
O-TERPHENYL (sur.)	%	82		9031861	82		9031861
RDL = Reportable Detection Lir	nit						
Lab-Dup = Laboratory Initiated	Duplica	ite					

N/A = Not Applicable



Maxxam Job #: B848997 Report Date: 2018/06/21 KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## **GENERAL COMMENTS**

Each te	mperature is the	average of up to t	ree cooler temperatures taken at receipt
	Package 1	8.9°C	]
			_
Results	relate only to th	e items tested.	



Maxxam Job #: B848997

Report Date: 2018/06/21

## QUALITY ASSURANCE REPORT

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

			Matrix	Spike	Spiked	Blank	Method	Blank	RPI	)
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9031861	O-TERPHENYL (sur.)	2018/06/21	83	60 - 130	89	60 - 130	87	%		
9031942	1,4-Difluorobenzene (sur.)	2018/06/20	106	50 - 140	107	50 - 140	112	%		
9031942	4-Bromofluorobenzene (sur.)	2018/06/20	103	50 - 140	96	50 - 140	99	%		
9031942	D10-o-Xylene (sur.)	2018/06/20	98	60 - 140	95	60 - 140	94	%		
9031942	D4-1,2-Dichloroethane (sur.)	2018/06/20	103	50 - 140	114	50 - 140	113	%		
9031858	Moisture	2018/06/21					<0.3	%	0	20
9031861	F2 (C10-C16 Hydrocarbons)	2018/06/21	90	60 - 130	96	70 - 130	<10	mg/kg	NC	40
9031861	F3 (C16-C34 Hydrocarbons)	2018/06/21	87	60 - 130	92	70 - 130	<50	mg/kg	NC	40
9031861	F4 (C34-C50 Hydrocarbons)	2018/06/21	93	60 - 130	96	70 - 130	<50	mg/kg	NC	40
9031861	Reached Baseline at C50	2018/06/21					YES	mg/kg	NC	50
9031942	Benzene	2018/06/20	101	50 - 140	99	60 - 130	<0.0050	mg/kg	0.19	50
9031942	Ethylbenzene	2018/06/20	101	50 - 140	95	60 - 130	<0.010	mg/kg	6.2	50
9031942	F1 (C6-C10)	2018/06/20	96	60 - 140	78	60 - 140	<10	mg/kg	NC	30
9031942	m & p-Xylene	2018/06/20	96	50 - 140	95	60 - 130	<0.040	mg/kg	NC	50
9031942	o-Xylene	2018/06/20	93	50 - 140	95	60 - 130	<0.020	mg/kg	NC	50
9031942	Toluene	2018/06/20	93	50 - 140	96	60 - 130	<0.020	mg/kg	NC	50

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 (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 #: B848997 Report Date: 2018/06/21 Success Through Science®

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## VALIDATION SIGNATURE PAGE

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

fatter me

Kathleah Manuel, B.Sc, Analyst

A Bureau V	gritas Group Company	D-675 Berry Street, Winnipe	g, Manitoba Canada F	3H 1A7 Tel:(	204) 772-7276 Tol	I-free:800-563-6	6266 Fax:	(204) 772-2386 w	ww.maxxam.ca	(					Chai	in Of Custody Record	Page
		INVOICE TO:				Report Ini	formation					Project In	formation			Laboratory Use	Only
npany Name	#7500 KGS G	roup		Company Na	ame K6S	Group	0			Quota	tion #	B70208				Maxxam Job #	Bottle Order #:
ntact Name	Accounts Paya	ble		Contact Nan	ne ERIC LEV	/AY	4			P.O. #	ŧ						
Iress	3rd Floor 865 V	Vaverly St		Address	865	Wavel	ly S	st			Project # 18-3152-002			B848997			554917
	Winnipeg MB F	(31 514			WPG	, <u>R37</u>	574	(00.0)	00.0754	Projec	t Name					Chain Of Custody Record	Project Manager
ne	WMacQuarrie	Fax:		Phone	(204) 896	-1209		Fax: (204) 8	96-0754	Site #		En					Amanda Hung
an		Signation		Email	ial Instructions	(gsgroup.co				Samp	led By Analysis Regu					C#554917-01-01	
							nking Water ? (Y/N) iltered ? (Y/N)	rved BTEX/F1, F2-							Regular ( (will be ap Standard Please no days - con Job Specifi	Please provide advance notice for ru (Standard) TAT oplied if Rush TAT is not specified) TAT = 5-7 Working days for most lests. he: Standard TAT for certain lests such as BC nact your Project Manager for details. fic Rush TAT (( applies to entire submission)	sh projects DD and Dioxins/Furans a
	Note: For regulated Samples r	drinking water samples - please nust be kept cool ( < 10°C ) from ti	e use the Drinking W ime of sampling until (	ater Chain of Ielivery to ma	Custody Form		ulated Dri ils Field F	d Prese n Soil		0.14					Date Requ Rush Confir	rmalion Number	(call lab for #)
Sample	Barcode Label	Sample (Location) Identifica	ation Date	Sampled	Time Sampled	Matrix	Regi	Fiel F4 i							# of Bottles	s Comments	
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* RELING	UISHED BY: (Signatu	re/Print)	Date: (YY/MM/DD	Time	9	RECEI	VED BY: (	Signature/Print)		Date	e: (YY/MM/DD)	Time	# jars used and			Lab Use Only	
55		Erichevery	18/06/2	0 9:0	5 BA	Brookil	in H	iebert		10	10612	0 09:10	not submitted	Time Sens	sitive Te	emperature (°C) on Receipt Custody	y Seal Intact on Cooler?

ice present

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-01-01

Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/22 Report #: R2577267 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

#### MAXXAM JOB #: B849494 Received: 2018/06/21, 08:30

Sample Matrix: Soil # Samples Received: 2

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	2	N/A	2018/06/22	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	2	N/A	2018/06/22	AB SOP-00039	Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (3)	1	2018/06/21	2018/06/21	WIN SOP-00056	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil) (3)	1	2018/06/21	2018/06/22	WIN SOP-00056	CCME PHC-CWS
Moisture	2	N/A	2018/06/22	WIN SOP-00060	CCME PHC-CWS m

#### **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) This test was performed by Maxxam Calgary Environmental

(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

(3) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxia Stroup Company

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-01-01

#### Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/22 Report #: R2577267 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B849494 Received: 2018/06/21, 08:30

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Amanda Hung, B.Sc., Project Manager Email: AHung@maxxam.ca Phone# (204)772-7276 Ext:7062215





Report Date: 2018/06/22

### KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## FIELD PRESERVED BTEX/F1, F2-F4 IN SOIL (SOIL)

Maxxam ID		TR6568			TR6568			TR6569		
Sampling Date		2018/06/20 11:05			2018/06/20 11:05			2018/06/20 14:25		
COC Number		C#554917-01-01			C#554917-01-01			C#554917-01-01		
	UNITS	S12 SE WALL	RDL	QC Batch	S12 SE WALL Lab-Dup	RDL	QC Batch	S20 EAST FLOOR	RDL	QC Batch
Physical Properties										
Moisture	%	20	0.3	9033656				32	0.3	9033656
Ext. Pet. Hydrocarbon	•	·			•					
F2 (C10-C16 Hydrocarbons)	mg/kg	14	10	9033667	12	10	9033667	<10	10	9033667
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	50	9033667	<50	50	9033667	<50	50	9033667
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	9033667	<50	50	9033667	<50	50	9033667
Reached Baseline at C50	mg/kg	Yes	N/A	9033667	Yes	N/A	9033667	Yes	N/A	9033667
Volatiles	-	•								
Xylenes (Total)	mg/kg	0.21	0.045	9033675				13	0.045	9033675
F1 (C6-C10) - BTEX	mg/kg	<10	10	9033675				11	10	9033675
Surrogate Recovery (%)		•								
O-TERPHENYL (sur.)	%	102		9033667	113		9033667	98		9033667
PDL - Papartable Detection	limit	•	•	•	•		-	•		

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

Maxxam ID		TR6569		
Sampling Date		2018/06/20 14:25		
COC Number		C#554917-01-01		
	UNITS	S20 EAST FLOOR Lab-Dup	RDL	QC Batch
Physical Properties				
Moisture	%	32	0.3	9033656
RDL = Reportable Detection L Lab-Dup = Laboratory Initiate	imit d Duplic	ate		



Report Date: 2018/06/22

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		TR6568	TR6569		
Sampling Date		2018/06/20 11:05	2018/06/20 14:25		
COC Number		C#554917-01-01	C#554917-01-01		
	UNITS	S12 SE WALL	S20 EAST FLOOR	RDL	QC Batch
Field Preserved Volatiles					
Benzene	mg/kg	0.63	5.2	0.0050	9033814
Toluene	mg/kg	0.043	7.7	0.020	9033814
Ethylbenzene	mg/kg	0.76	2.0	0.010	9033814
m & p-Xylene	mg/kg	0.18	9.2	0.040	9033814
o-Xylene	mg/kg	0.031	3.7	0.020	9033814
F1 (C6-C10)	mg/kg	<10	39	10	9033814
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	102	100		9033814
4-Bromofluorobenzene (sur.)	%	95	95		9033814
D10-o-Xylene (sur.)	%	100	97		9033814
D4-1,2-Dichloroethane (sur.)	%	93	94		9033814
RDL = Reportable Detection Lin	nit				



Success Through Science®

Maxxam Job #: B849494 Report Date: 2018/06/22 KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## **GENERAL COMMENTS**

Each te	mperature is the	average of up to t	hree cooler temperatures taken at receipt
	Package 1	6.0°C	
Results	relate only to the	e items tested.	



Maxxam Job #: B849494

Report Date: 2018/06/22

## QUALITY ASSURANCE REPORT

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

			Matrix	Spike	Spiked	Blank	Method I	Blank	RPI	)
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9033667	O-TERPHENYL (sur.)	2018/06/21	105	60 - 130	106	60 - 130	106	%		
9033814	1,4-Difluorobenzene (sur.)	2018/06/22	97	50 - 140	91	50 - 140	95	%		
9033814	4-Bromofluorobenzene (sur.)	2018/06/22	95	50 - 140	103	50 - 140	98	%		
9033814	D10-o-Xylene (sur.)	2018/06/22	111	50 - 140	93	50 - 140	92	%		
9033814	D4-1,2-Dichloroethane (sur.)	2018/06/22	104	50 - 140	96	50 - 140	96	%		
9033656	Moisture	2018/06/22					<0.3	%	0.31	20
9033667	F2 (C10-C16 Hydrocarbons)	2018/06/21	109	60 - 130	101	70 - 130	<10	mg/kg	13	40
9033667	F3 (C16-C34 Hydrocarbons)	2018/06/21	107	60 - 130	100	70 - 130	<50	mg/kg	NC	40
9033667	F4 (C34-C50 Hydrocarbons)	2018/06/21	119	60 - 130	111	70 - 130	<50	mg/kg	NC	40
9033667	Reached Baseline at C50	2018/06/21					YES	mg/kg	NC	50
9033814	Benzene	2018/06/22	80	50 - 140	92	60 - 130	<0.0050	mg/kg	NC	50
9033814	Ethylbenzene	2018/06/22	80	50 - 140	93	60 - 130	<0.010	mg/kg	NC	50
9033814	F1 (C6-C10)	2018/06/22	90	60 - 140	91	60 - 140	<10	mg/kg	13	30
9033814	m & p-Xylene	2018/06/22	79	50 - 140	96	60 - 130	<0.040	mg/kg	NC	50
9033814	o-Xylene	2018/06/22	83	50 - 140	102	60 - 130	<0.020	mg/kg	NC	50
9033814	Toluene	2018/06/22	83	50 - 140	93	60 - 130	<0.020	mg/kg	NC	50

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 (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 #: B849494 Report Date: 2018/06/22 Success Through Science®

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## VALIDATION SIGNATURE PAGE

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

Junzhi Graz

Janet Gao, B.Sc., QP, Supervisor, Organics

fatter me

Kathleah Manuel, B.Sc, Analyst

ABureau	gritas Group Compan	D-675 Berry Street, Winnip	eg, Manitoba Canada	R3H 1A7 Tel:(20	04) 772-7276 Toll-fi	ree:800-563-6	266 Fax:(	204) 772-23	86 www.maxxam.ca						Gnan	I OI Custody Record	Page of
		INVOICE TO:				Report Inf	ormation					Project In	formation			Laboratory Use	Only
ompany Name	#7500 KGS 0	Group		Company Nan	ne K65	GROUP	)			Quota	Duptation # B70208					Maxxam Job #	Bottle Order #:
ontact Name	Accounts Paya 3rd Floor 865	able Waverly St		Contact Name	BERICLEVA	VAVERI	WERLY ST BRD FL.			P.O. #	ŧ 91#	18-3152-002				BOHQHQH	554917
	Winnipeg MB	R3T 5T4			WINNI	PEL N	B, K	31 5	T4	Projec	t Name					Chain Of Custody Record	Project Manager
none	(204) 896-120	9 Fax:		Phone	(204) 896-1	1209		ax: (20	4) 896-0754	Site #							Amanda Hupa
nail	WMacQuarrie	@kgsgroup.com		Email	elevay@kg	sgroup.co	m	204-	229-1136	Samp	led By	ERL/	RAP			C#554917-01-01	Amanda Hung
Regulatory Cr	riteria			Specia	Instructions						Analysis Reque	sted	1 1			Turnaround Time (TAT) Req	uired
	Note: For regulate	d drinking water samples - plea	se use the Drinking	Water Chain of C	Custody Form		ted Drinking Water ? (Y / I Field Filtered ? (Y / N )	Preserved BTEX/F1, F2 Soil						-	Regular (S (will be ap, Standard Please no: days - con Job Specifi Date Requir Rush Confirm	Standard) TAT piled if Rush TAT is not specified) TAT = 5-7 Working days for most tests. te: Standard TAT for certain tests such as BC tact your Project Manager for details. ic Rush TAT (If applies to entire submission) red: <u>JUNE X2JJ3/8</u> Time R mation Number	D and Dioxins/Furans are
Sample	Samples	must be kept cool ( < 10°C ) from Sample (Location) Identifi	time of sampling until	I delivery to maxx	am	Matrix	Regulat	Field F							# of Battlac	Comments	sall lab for #)
Gample	B Dalcode Label				11:05	Watrix									2	Johnshi	
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4																	
																21-Jun-18 08:	30
																Amanda Hung	
																<b>B</b> 849494	-
l																SN	
3																	
* RELIN	QUISHED BY: (Signat	ure/Print)	Date: (YY/MM/D	D) Time		RECEI	VED BY: (S	Signature/Pr	nt)	Date	e: (YY/MM/DD)	Time	# jars used and			Lab Use Only	
3		Elevary	18/06/2	1 0830	> <b>\$</b>	Roche	lle	stan	ont	19	06/21	0830	not submitted	Time Sens	itive Ter	mperature (°C) on Receipt Custody	Seal Intact on Cooler? Yes No

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-02-01

Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/25 Report #: R2578021 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

#### MAXXAM JOB #: B850037 Received: 2018/06/22, 09:12

Sample Matrix: Soil # Samples Received: 2

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
F1-BTEX	2	N/A	2018/06/25	WIN SOP-00054	Auto Calc
BTEX/MTBE VH F1 in Soil - Field Pres. (1)	1	N/A	2018/06/23	WINSOP-00054	PA8260D/CCME PHCCWS
BTEX/MTBE VH F1 in Soil - Field Pres. (1)	1	N/A	2018/06/25	WINSOP-00054	PA8260D/CCME PHCCWS
CCME Hydrocarbons (F2-F4 in soil) (2)	2	2018/06/22	2018/06/22	WIN SOP-00056	CCME PHC-CWS
Moisture	2	N/A	2018/06/25	WIN SOP-00060	CCME PHC-CWS m

#### **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 extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.

(2) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxia Stroup Company

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-02-01

#### Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/25 Report #: R2578021 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B850037 Received: 2018/06/22, 09:12

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Amanda Hung, B.Sc., Project Manager Email: AHung@maxxam.ca Phone# (204)772-7276 Ext:7062215





Report Date: 2018/06/25

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## FIELD PRESERVED BTEX/F1, F2-F4 IN SOIL (SOIL)

Maxxam ID		TR9386			TR9386			TR9387		
Sampling Date		2018/06/21			2018/06/21			2018/06/21		
		13:20			13:20			13:15		
COC Number		C#554917-02-01			C#554917-02-01			C#554917-02-01		
	UNITS	S30-B-WALL	RDL	QC Batch	S30-B-WALL Lab-Dup	RDL	QC Batch	S29-FLOOR	RDL	QC Batch
Physical Properties										
Moisture	%	24	0.3	9035388				33	0.3	9035388
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	10	9035390	<10	10	9035390	10	10	9035390
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	50	9035390	<50	50	9035390	<50	50	9035390
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	9035390	<50	50	9035390	<50	50	9035390
Reached Baseline at C50	mg/kg	Yes	N/A	9035390	Yes	N/A	9035390	Yes	N/A	9035390
Volatiles										
Benzene	mg/kg	0.075	0.0050	9036077	0.076	0.0050	9036077	4.5	0.0050	9036077
Toluene	mg/kg	<0.020	0.020	9036077	<0.020	0.020	9036077	3.1	0.020	9036077
Xylenes (Total)	mg/kg	<0.045	0.045	9035370				10	0.045	9035370
F1 (C6-C10) - BTEX	mg/kg	11	10	9035370				41	10	9035370
Ethylbenzene	mg/kg	0.022	0.010	9036077	0.021	0.010	9036077	1.9	0.010	9036077
m & p-Xylene	mg/kg	<0.040	0.040	9036077	<0.040	0.040	9036077	8.5	0.040	9036077
o-Xylene	mg/kg	<0.020	0.020	9036077	<0.020	0.020	9036077	1.9	0.020	9036077
F1 (C6-C10)	mg/kg	11	10	9036077	11	10	9036077	61	10	9036077
Surrogate Recovery (%)		-						-		
1,4-Difluorobenzene (sur.)	%	99		9036077	100		9036077	95		9036077
4-Bromofluorobenzene (sur.)	%	105		9036077	105		9036077	104		9036077
D10-o-Xylene (sur.)	%	92		9036077	96		9036077	105		9036077
D4-1,2-Dichloroethane (sur.)	%	92		9036077	86		9036077	99		9036077
O-TERPHENYL (sur.)	%	87		9035390	93		9035390	97		9035390

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

Maxxam ID		TR9387						
Sampling Date		2018/06/21 13:15						
COC Number		C#554917-02-01						
	UNITS	S29-FLOOR Lab-Dup	RDL	QC Batch				
Physical Properties								
Moisture % 33 0.3 9035388								
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate								



Maxxam Job #: B850037 Report Date: 2018/06/25 KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## **GENERAL COMMENTS**

Each te	emperature is the	average of up to t	hree cooler temperatures taken at receipt
	Package 1	8.4°C	
Result	s relate only to th	e items tested.	



Maxxam Job #: B850037

Report Date: 2018/06/25

## QUALITY ASSURANCE REPORT

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

			Matrix	Spike	Spiked	Blank	Method I	Blank	RPI	)
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9035390	O-TERPHENYL (sur.)	2018/06/22	86	60 - 130	87	60 - 130	93	%		
9036077	1,4-Difluorobenzene (sur.)	2018/06/23	91	50 - 140	95	50 - 140	95	%		
9036077	4-Bromofluorobenzene (sur.)	2018/06/23	105	50 - 140	105	50 - 140	106	%		
9036077	D10-o-Xylene (sur.)	2018/06/23	102	60 - 140	96	60 - 140	104	%		
9036077	D4-1,2-Dichloroethane (sur.)	2018/06/23	97	50 - 140	103	50 - 140	114	%		
9035388	Moisture	2018/06/25					<0.3	%	1.5	20
9035390	F2 (C10-C16 Hydrocarbons)	2018/06/22	101	60 - 130	103	70 - 130	<10	mg/kg	NC	40
9035390	F3 (C16-C34 Hydrocarbons)	2018/06/22	98	60 - 130	96	70 - 130	<50	mg/kg	NC	40
9035390	F4 (C34-C50 Hydrocarbons)	2018/06/22	111	60 - 130	116	70 - 130	<50	mg/kg	NC	40
9035390	Reached Baseline at C50	2018/06/22					YES	mg/kg	NC	50
9036077	Benzene	2018/06/25	77	50 - 140	101	60 - 130	<0.0050	mg/kg	2.0	50
9036077	Ethylbenzene	2018/06/25	80	50 - 140	101	60 - 130	<0.010	mg/kg	2.9	50
9036077	F1 (C6-C10)	2018/06/25	71	60 - 140	117	60 - 140	<10	mg/kg	4.6	30
9036077	m & p-Xylene	2018/06/25	78	50 - 140	97	60 - 130	<0.040	mg/kg	NC	50
9036077	o-Xylene	2018/06/25	80	50 - 140	99	60 - 130	<0.020	mg/kg	NC	50
9036077	Toluene	2018/06/25	75	50 - 140	95	60 - 130	<0.020	mg/kg	NC	50

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 (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).



Success Through Science®

Report Date: 2018/06/25

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## VALIDATION SIGNATURE PAGE

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

fatter me

Kathleah Manuel, B.Sc, Analyst

Max	Xam	Maxxam Analytics Internation D-675 Berry Street, Winnipe	nal Corporation o/a g, Manitoba Canad	Maxxam Analyti a R3H 1A7 Tel:	cs 204) 772-7276	Foll-free:800-563-6	266 Fax:(	204) 772-23	86 www.maxx	am.ca						Chair	n Of Custody Record		Page
		INVOICE TO:			101	Report Inf	ormation			1			Project Inf	ormation			Labor	atory Use C	nly
ompony Nomo	#7500 KGS	Group		Company N	ma KGS	how					Quotation #		B70208				Maxxam Job #		Bottle Order #:
ontact Name	Accounts Pay	able		Contact Nat	ne ÉRIC L	EVAY	,	~ 1			2.0. #						2050027		
ddress	3rd Floor 865	Waverly St		Address	865	Wave	ley	St.			Project #		18-3152-0	02		ť	2800021		554917
	Winnipeg MB	R3T 5T4		_	_Wr	0 123	51	4	4) 000 075		Project Name						Chain Of Custody Rec	ord	Project Manager
hone	(204) 896-120	Fax:		Phone	(204) 8	96-1209 Skasaroup oo	F	Fax: (20	14) 896-075	04	Site #		F0/ //	DH					Amanda Hung
mail	vviviacQuarrie	@kgsgroup.com		Email	elevay	wkgsgroup.co		1			Sampled By	Pequest	FRAN	12m	1		C#554917-02-01	- (TAT) D	1t
Regulatory Cri	teria			Spe	cial instructions		-	d.			Analysis	Request	30				Please provide advan	e (TAT) Requ	n orojects
	Note: For regulate	ed drinking water samples - pleas	e use the Drinking	g Water Chain o	f Custody Form		ated Drinking Water ? (Y/ s Field Filtered ? (Y/N)	Preserved BTEX/F1, F Soil								Regular (S (will be ap) Standard T Please not days - con Job Specifi Date Requir Rush Confirm	Standard) TAT plied if Rush TAT is not specifi TAT = 5-7 Working deys for mit the Standard TAT for certain let tact your Project Manager for ic Rush TAT (if applies to entire red:	ed) ost tests. sts such as BOL details. e submission) Time Re (c	and Dioxins/Furans are a quired:
Sample	Barcode Label	Sample (Location) Identific	ation Di	ate Sampled	Time Sample	d Matrix	Regul	Field F4 in								# of Bottles		Comments	
		530-B-4	IALL JI	UN-21	13:20	Soil		V											
2		529 - FLOO	RJI	15-11	13:15	SOIL		$\checkmark$											
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A ; RELIN	QUISHED BY: (Signa	ature/Print)	Date: (YY/MM	/DD) Tir	10	RECE	VED BY: (	Signature/P	rint)		Date: (YY/N	IM/DD)	Time	# jars used and			Lab Use	Only	
pube fle	Mity Li	ke McAllister	18/06/2	2 9:	Z BA	A Brook	uni	tiene	rt		18106	122	09:100	not submitted	Time Sen	sitive Ter	mperature (°C) on Receipt	Custody	Seal Intact on Cooler?
								1000			0010000000		13			10	.0 8.18.4		Yes No
UNLESS OTI FOR VIEWIN	HERWISE AGREED T G AT WWW.MAXXAM	O IN WRITING, WORK SUBMITTED ( I.CA/TERMS.		CUSTODY IS SUE	JECT TO MAXX/	AN INCOMPLETE			S. SIGNING OF				ENT IS ACKNO	WLEDGMENT AND A	CCEPTANC	E OF OUR 1	LEKMS WHICH ARE AVAILABLE	white:	Maxxam Yellow: Clier

Ke packs present

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-03-01

Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/27 Report #: R2579598 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

#### MAXXAM JOB #: B851101 Received: 2018/06/26, 08:50

Sample Matrix: Soil # Samples Received: 5

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
F1-BTEX	5	N/A	2018/06/27	WIN SOP-00054	Auto Calc
BTEX/MTBE VH F1 in Soil - Field Pres. (2)	5	N/A	2018/06/26	WINSOP-00054	PA8260D/CCME PHCCWS
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	5	2018/06/27	2018/06/27	AB SOP-00036	CCME PHC-CWS m
Moisture (1)	5	N/A	2018/06/27	AB SOP-00002	CCME PHC-CWS m

#### 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.

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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) This test was performed by Maxxam Calgary Environmental

(2) The extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.

(3) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxia Stroup Company

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-03-01

#### Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/27 Report #: R2579598 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B851101 Received: 2018/06/26, 08:50

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Amanda Hung, B.Sc., Project Manager Email: AHung@maxxam.ca Phone# (204)772-7276 Ext:7062215





Maxxam Job #: B851101 Report Date: 2018/06/27

### KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## **BTEX/F1 IN SOIL (FIELD PRESERVED)**

Maxxam ID		TS5759			TS5759			TS5760		
Sampling Date		2018/06/22 10:20			2018/06/22 10:20			2018/06/22 10:25		
COC Number		C#554917-03-01			C#554917-03-01			C#554917-03-01		
	UNITS	S34-FLOOR	RDL	QC Batch	S34-FLOOR Lab-Dup	RDL	QC Batch	S36-WALL	RDL	QC Batch
Volatiles										
Benzene	mg/kg	0.027	0.0050	9039761	0.028	0.0050	9039761	<0.0050	0.0050	9039761
Toluene	mg/kg	<0.020	0.020	9039761	<0.020	0.020	9039761	<0.020	0.020	9039761
Xylenes (Total)	mg/kg	<0.045	0.045	9039694				0.091	0.045	9039694
F1 (C6-C10) - BTEX	mg/kg	<10	10	9039694				<10	10	9039694
Ethylbenzene	mg/kg	<0.010	0.010	9039761	<0.010	0.010	9039761	0.026	0.010	9039761
m & p-Xylene	mg/kg	<0.040	0.040	9039761	<0.040	0.040	9039761	0.091	0.040	9039761
o-Xylene	mg/kg	<0.020	0.020	9039761	<0.020	0.020	9039761	<0.020	0.020	9039761
F1 (C6-C10)	mg/kg	<10	10	9039761	<10	10	9039761	<10	10	9039761
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	98		9039761	101		9039761	100		9039761
4-Bromofluorobenzene (sur.)	%	102		9039761	102		9039761	102		9039761
D10-o-Xylene (sur.)	%	98		9039761	101		9039761	100		9039761
D4-1,2-Dichloroethane (sur.)	%	113		9039761	107		9039761	110		9039761
	·	•	•	•	•			•	•	•

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		TS5761	TS5762	TS5763		
Sampling Date		2018/06/22 14:50	2018/06/25 15:45	2018/06/25 16:05		
COC Number		C#554917-03-01	C#554917-03-01	C#554917-03-01		
	UNITS	S46-FLOOR	S55-FLOOR	S46-FLOOR(C)	RDL	QC Batch
Volatiles						
Benzene	mg/kg	0.87	<0.0050	0.50	0.0050	9039761
Toluene	mg/kg	0.18	<0.020	2.5	0.020	9039761
Xylenes (Total)	mg/kg	2.1	<0.045	3.4	0.045	9039694
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	10	9039694
Ethylbenzene	mg/kg	0.50	<0.010	0.54	0.010	9039761
m & p-Xylene	mg/kg	2.0	<0.040	2.5	0.040	9039761
o-Xylene	mg/kg	0.13	<0.020	0.89	0.020	9039761
F1 (C6-C10)	mg/kg	11	<10	<10	10	9039761
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	103	99	102		9039761
4-Bromofluorobenzene (sur.)	%	100	100	100		9039761
D10-o-Xylene (sur.)	%	100	99	102		9039761
D4-1,2-Dichloroethane (sur.)	%	101	104	100		9039761
RDL = Reportable Detection Lir	nit					





Report Date: 2018/06/27

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		TS5759	TS5760	TS5761	TS5762	TS5763		
Sampling Date		2018/06/22 10:20	2018/06/22 10:25	2018/06/22 14:50	2018/06/25 15:45	2018/06/25 16:05		
COC Number		C#554917-03-01	C#554917-03-01	C#554917-03-01	C#554917-03-01	C#554917-03-01		
	UNITS	S34-FLOOR	S36-WALL	S46-FLOOR	S55-FLOOR	S46-FLOOR(C)	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	10	9040317
F3 (C16-C34 Hydrocarbons)	mg/kg	59	<50	<50	<50	<50	50	9040317
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	50	9040317
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes		9040317
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	103	101	101	82	82		9040317
RDL = Reportable Detection L	imit							



Maxxam Job #: B851101 Report Date: 2018/06/27 KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## **PHYSICAL TESTING (SOIL)**

Maxxam ID		TS5759	TS5760	TS5761	TS5762	TS5762		
Sampling Date		2018/06/22 10:20	2018/06/22 10:25	2018/06/22 14:50	2018/06/25 15:45	2018/06/25 15:45		
COC Number		C#554917-03-01	C#554917-03-01	C#554917-03-01	C#554917-03-01	C#554917-03-01		
	UNITS	S34-FLOOR	S36-WALL	S46-FLOOR	S55-FLOOR	S55-FLOOR Lab-Dup	RDL	QC Batch
Physical Properties								
Moisture	%	34	18	35	33	34	0.30	9041563
RDL = Reportable Detection L	imit							

Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		TS5763		
Sampling Date		2018/06/25		
		16:05		
COC Number		C#554917-03-01		
	UNITS	S46-FLOOR(C)	RDL	QC Batch
Physical Properties				
Moisture	%	33	0.30	9041563



Success Through Science®

Maxxam Job #: B851101 Report Date: 2018/06/27 KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## **GENERAL COMMENTS**

	Each temperature is the average of up to three cooler temperatures taken at receipt										
Ра	ackage 1	2.5°C	]								
Results relate only to the items tested.											



Maxxam Job #: B851101

Report Date: 2018/06/27

## QUALITY ASSURANCE REPORT

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

			Matrix	Spike	Spiked	Blank	Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9039761	1,4-Difluorobenzene (sur.)	2018/06/26	94	50 - 140	101	50 - 140	103	%		
9039761	4-Bromofluorobenzene (sur.)	2018/06/26	101	50 - 140	101	50 - 140	101	%		
9039761	D10-o-Xylene (sur.)	2018/06/26	105	60 - 140	98	60 - 140	98	%		
9039761	D4-1,2-Dichloroethane (sur.)	2018/06/26	92	50 - 140	102	50 - 140	101	%		
9040317	O-TERPHENYL (sur.)	2018/06/27	93	60 - 140	90	60 - 140	116	%		
9039761	Benzene	2018/06/26	92	50 - 140	100	60 - 130	<0.0050	mg/kg	3.2	50
9039761	Ethylbenzene	2018/06/26	95	50 - 140	99	60 - 130	<0.010	mg/kg	NC	50
9039761	F1 (C6-C10)	2018/06/26	97	60 - 140	113	60 - 140	<10	mg/kg	NC	30
9039761	m & p-Xylene	2018/06/26	91	50 - 140	96	60 - 130	<0.040	mg/kg	NC	50
9039761	o-Xylene	2018/06/26	93	50 - 140	96	60 - 130	<0.020	mg/kg	NC	50
9039761	Toluene	2018/06/26	91	50 - 140	96	60 - 130	<0.020	mg/kg	NC	50
9040317	F2 (C10-C16 Hydrocarbons)	2018/06/27	90	60 - 130	90	70 - 130	<10	mg/kg	NC	40
9040317	F3 (C16-C34 Hydrocarbons)	2018/06/27	98	60 - 130	99	70 - 130	<50	mg/kg	NC	40
9040317	F4 (C34-C50 Hydrocarbons)	2018/06/27	94	60 - 130	93	70 - 130	<50	mg/kg	NC	40
9041563	Moisture	2018/06/27					<0.30	%	3.0	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 (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 #: B851101 Report Date: 2018/06/27 Success Through Science®

KGS Group Client Project #: 18-3152-002 Sampler Initials: ERL

## VALIDATION SIGNATURE PAGE

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

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

fatter me

Kathleah Manuel, B.Sc, Analyst

1/monicatedk

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

A Bureau	yitas Group Compan	D-675 Berry Street, Winnipe	eg, Manitoba Ca	anada R3H 1A7 Tel:	(204) 772-7276 To	oll-free:800-563-6	266 Fax	(204) 772-238	www.maxxam.c	а						Chair	n Of Custody Record	· · · · · ·
	6	INVOICE TO:				Report Infe	ormation	1					Project Inf	ormation			Laboratory Us	e Only
ompany Name	ame #7500 KGS Group				Company Name KGS Group						Outstion # B70208					Maxxam Job # Bottle C		
ontact Name	Accounts Paya	ccounts Payable Contact Name ERIC LEVAY								P.0	P.O. #					-	- C 11 (0)	
ddress	ress 3rd Floor 865 Waverly St				Address _ 865 Wayer les St.						Project # 18-3152-002					R	5851101	554917
	(204) R06 1200				Phone <u>(204)</u> 896-1209 Fax (204) 896-0754					Proj	Project Name						Chain Of Custody Record	Project Manager
hone 1209 Fax:			Phone	Site						- 1							Amanda Hung	
Pogulatory C	ritoria	S. 3-3		Spe	cial Instructions	kgsgroup.coi		1		Sarr	Apalysis F		EKL/	LDM		_	C#554917-03-01	
Regulatory G							î	à			Analysian	requested					Turnaround Time (TAT) R	equired
							king Water ? (Y/	ed BTEX/F1, F							Ri (w St Pl de	egular (S vill be app tandard 7 lease not ays - cont b Specific	Standard) TAT blied if Rush TAT is not specified) IAT = 5-7 Working days for most tests. Ter Standard TAT for certain tests such as tact your Project Manager for details. Purch TAT (if applies to aptire submission)	BOD and Dioxins/Furans are
	Note: For regulated	d drinking water samples - pleas	e use the Drini	king Water Chain o	f Custody Form		field Fit	Soil							Da	te Requir sh Confirm	red: <u>IS/06/2627</u> Time nation Number	Required: FOD
Sample	Samples i e Barcode Label	must be kept cool ( < 10°C ) from (	time of sampling	g until delivery to ma	xxam	Matrix	Regula	Field I								( Damias	Common	(call lab for #)
		534 - FLOOI	e	06/22	10:20	Soll		V							#0	r Bottles	Commen	15
		S36-WALL		06/22	10:25	SO/L		~					_			_		
		S46- FLOOK	2	06/22	14:50	SOIL		V			26-Jun-18 08:50							
		S55-FLOOR		06/25	15:45	SOIL		~			Amanda Hung				1			
		546 - FLOOR	(0)	06/25	16:05	SOL		V			B851101							
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I RELIN	QUISHED BY: (Signatu	ire/Print)	Date: (YY/M	(M/DD) Tim	e A	RECEIV	ED BY: (	Signature/Print		Da	ite: (YY/MM	DD)	Time	# jars used and			Lab Use Only	
ary allo	with Lula	e mentil ister	18/06/	~ <b>9</b> 90	1 April	ty aller	P	-diel	IAM_	- 20	18/00	125 4	100-	norsubmitted	Time Sensitive	Tem	operature (°C) on Receipt	dy Seal Intact on Cooler?
UNLESS OTH	FRWISE AGREED TO	IN WRITING WORK SUBMITTED O		E CUSTODY IS OUD	A PA	Keilu	les	stani	nt	201	18/06/	26 0	1850			12	1/10-3/10.1 2	Yes No
FOR VIEWING	AT WWW.MAXXAM.C.	A/TERMS. RELINQUISHER TO ENSURE THE	ACCURACY OF	THE CHAIN OF CUS	FODY RECORD. AN	INCOMPLETE CH	MS AND	CONDITIONS.	ESULT IN ANAL	CHAIN OF O	CUSTODY D	Teno	S : N.9	12.1 0.6	CCEPTANCE O	FOURT	ERMS WHICH ARE AVAILABLEY WI	ite: Maxxam Yellow: Client
												4	Ice	packs pr	resent			÷.

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-04-01

Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/28 Report #: R2580565 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

#### MAXXAM JOB #: B851630 Received: 2018/06/27, 09:10

Sample Matrix: Soil # Samples Received: 5

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
F1-BTEX	5	N/A	2018/06/28	WIN SOP-00054	Auto Calc
BTEX/MTBE VH F1 in Soil - Field Pres. (2)	5	N/A	2018/06/27	WINSOP-00054	PA8260D/CCME PHCCWS
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	5	2018/06/28	2018/06/28	AB SOP-00036	CCME PHC-CWS m
Moisture (1)	5	N/A	2018/06/28	AB SOP-00002	CCME PHC-CWS m

#### 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) This test was performed by Maxxam Calgary Environmental

(2) The extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.

(3) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxia Stroup Company

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-04-01

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KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/28 Report #: R2580565 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B851630 Received: 2018/06/27, 09:10

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Amanda Hung, B.Sc., Project Manager Email: AHung@maxxam.ca Phone# (204)772-7276 Ext:7062215


Maxxam Job #: B851630 Report Date: 2018/06/28 KGS Group Client Project #: 18-3152-002

# **BTEX/F1 IN SOIL (FIELD PRESERVED)**

Maxxam ID		TS7932			TS7932			TS7933		
Sampling Date		2018/06/26 16:40			2018/06/26 16:40			2018/06/26 16:20		
COC Number		C#554917-04-01			C#554917-04-01			C#554917-04-01		
	UNITS	S70-WALL	RDL	QC Batch	S70-WALL Lab-Dup	RDL	QC Batch	S69-FLOOR	RDL	QC Batch
Volatiles										
Benzene	mg/kg	<0.0050	0.0050	9041298	<0.0050	0.0050	9041298	0.38	0.0050	9041298
Toluene	mg/kg	<0.020	0.020	9041298	<0.020	0.020	9041298	<0.020	0.020	9041298
Xylenes (Total)	mg/kg	<0.045	0.045	9041069				0.16	0.045	9041069
F1 (C6-C10) - BTEX	mg/kg	<10	10	9041069				<10	10	9041069
Ethylbenzene	mg/kg	<0.010	0.010	9041298	<0.010	0.010	9041298	0.033	0.010	9041298
m & p-Xylene	mg/kg	<0.040	0.040	9041298	<0.040	0.040	9041298	0.11	0.040	9041298
o-Xylene	mg/kg	<0.020	0.020	9041298	<0.020	0.020	9041298	0.052	0.020	9041298
F1 (C6-C10)	mg/kg	<10	10	9041298	<10	10	9041298	<10	10	9041298
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	102		9041298	99		9041298	102		9041298
4-Bromofluorobenzene (sur.)	%	98		9041298	100		9041298	100		9041298
D10-o-Xylene (sur.)	%	98		9041298	97		9041298	104		9041298
D4-1,2-Dichloroethane (sur.)	%	100		9041298	108		9041298	101		9041298
1										

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

						-
Maxxam ID		TS7934	TS7935	TS7936		
Sampling Date		2018/06/26	2018/06/26	2018/06/26		
Sumpling Dute		12:00	09:55	09:50		
COC Number		C#554917-04-01	C#554917-04-01	C#554917-04-01		
	UNITS	S63-WALL	S62-FLOOR	S61-WALL	RDL	QC Batch
Volatiles						
Benzene	mg/kg	0.033	0.22	<0.0050	0.0050	9041298
Toluene	mg/kg	<0.020	0.088	<0.020	0.020	9041298
Xylenes (Total)	mg/kg	<0.045	0.33	<0.045	0.045	9041069
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	10	9041069
Ethylbenzene	mg/kg	<0.010	0.049	<0.010	0.010	9041298
m & p-Xylene	mg/kg	<0.040	0.24	<0.040	0.040	9041298
o-Xylene	mg/kg	<0.020	0.083	<0.020	0.020	9041298
F1 (C6-C10)	mg/kg	<10	<10	<10	10	9041298
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	102	103	102		9041298
4-Bromofluorobenzene (sur.)	%	100	100	98		9041298
D10-o-Xylene (sur.)	%	105	100	100		9041298
D4-1,2-Dichloroethane (sur.)	%	102	101	100		9041298
RDL = Reportable Detection Lir	nit					



Report Date: 2018/06/28

KGS Group Client Project #: 18-3152-002

# PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		TS7932	TS7933	TS7934	TS7935	TS7936		
Sampling Date		2018/06/26	2018/06/26	2018/06/26	2018/06/26	2018/06/26		
		16:40	16:20	12:00	09:55	09:50		
COC Number		C#554917-04-01	C#554917-04-01	C#554917-04-01	C#554917-04-01	C#554917-04-01		
	UNITS	S70-WALL	S69-FLOOR	S63-WALL	S62-FLOOR	S61-WALL	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	10	9042465
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	50	9042465
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	50	9042465
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes		9042465
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	92	108	111	101	98		9042465
RDL = Reportable Detection L	imit	•	•	•	•	•	•	



Maxxam Job #: B851630 Report Date: 2018/06/28 KGS Group Client Project #: 18-3152-002

# **PHYSICAL TESTING (SOIL)**

Maxxam ID		TS7932	TS7933	TS7934	TS7935	TS7936		
Sampling Date		2018/06/26	2018/06/26	2018/06/26	2018/06/26	2018/06/26		
b8		16:40	16:20	12:00	09:55	09:50		
COC Number		C#554917-04-01	C#554917-04-01	C#554917-04-01	C#554917-04-01	C#554917-04-01		
	UNITS	S70-WALL	S69-FLOOR	S63-WALL	S62-FLOOR	S61-WALL	RDL	QC Batch
Physical Properties								
Moisture	%	26	35	24	36	31	0.30	9042836
RDL = Reportable Detection L	imit.							



Maxxam Job #: B851630 Report Date: 2018/06/28 Success Through Science®

KGS Group Client Project #: 18-3152-002

## **GENERAL COMMENTS**

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

Package 1 12.2°C

Results relate only to the items tested.



Maxxam Job #: B851630

Report Date: 2018/06/28

### **QUALITY ASSURANCE REPORT**

KGS Group Client Project #: 18-3152-002

		Matrix Spike Spiked Blar		Blank	nk Method Blank		RPD			
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9041298	1,4-Difluorobenzene (sur.)	2018/06/27	92	50 - 140	100	50 - 140	99	%		
9041298	4-Bromofluorobenzene (sur.)	2018/06/27	102	50 - 140	102	50 - 140	102	%		
9041298	D10-o-Xylene (sur.)	2018/06/27	98	60 - 140	106	60 - 140	99	%		
9041298	D4-1,2-Dichloroethane (sur.)	2018/06/27	96	50 - 140	99	50 - 140	106	%		
9042465	O-TERPHENYL (sur.)	2018/06/28	98	60 - 140	97	60 - 140	98	%		
9041298	Benzene	2018/06/27	94	50 - 140	109	60 - 130	<0.0050	mg/kg	NC	50
9041298	Ethylbenzene	2018/06/27	93	50 - 140	106	60 - 130	<0.010	mg/kg	NC	50
9041298	F1 (C6-C10)	2018/06/27	104	60 - 140	107	60 - 140	<10	mg/kg	NC	30
9041298	m & p-Xylene	2018/06/27	89	50 - 140	104	60 - 130	<0.040	mg/kg	NC	50
9041298	o-Xylene	2018/06/27	92	50 - 140	103	60 - 130	<0.020	mg/kg	NC	50
9041298	Toluene	2018/06/27	90	50 - 140	104	60 - 130	<0.020	mg/kg	NC	50
9042465	F2 (C10-C16 Hydrocarbons)	2018/06/28	37 (1)	60 - 130	93	70 - 130	<10	mg/kg	40	40
9042465	F3 (C16-C34 Hydrocarbons)	2018/06/28	54 (1)	60 - 130	93	70 - 130	<50	mg/kg	24	40
9042465	F4 (C34-C50 Hydrocarbons)	2018/06/28	84	60 - 130	90	70 - 130	<50	mg/kg	NC	40
9042836	Moisture	2018/06/28					<0.30	%	0.32	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 (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 #: B851630 Report Date: 2018/06/28

Success Through Science®

KGS Group Client Project #: 18-3152-002

### VALIDATION SIGNATURE PAGE

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

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

unzhi Gras

Janet Gao, B.Sc., QP, Supervisor, Organics

1/micatelk

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Max	(Jam	Maxxam Analytics Internation D-675 Berry Street, Winnipeg	al Corporation o/a I , Manitoba Canada	Maxxam Analyti a R3H 1A7 Tel:	cs 204) 772-7276 T	oll-free:800-563-6	266 Fax:	(204) 772-23	86 www.ma	axxam.ca							Chai	n Of Custody Record		Page	of
		INVOICE TO:				Report Info	rmation				1		Project	Informat	ion			Labora	tory Use (	Only	01
Company Name	#7500 KGS 0	Group		Company N	ame						Quotat	ion#	B70208	3				Maxxam Job #		Bottle Orde	er #:
Contact Name	Accounts Paya	able		Contact Nar	ne ERIC LE	VAY					P.O. #	IOT #						-1100			
Address	3rd Floor 865 \	Naverly St		Address							Project	#	18-315	2-002			1	8851630		554917	
	Winnipeg MB I	R3T 5T4		_	Cell	204 - 220	1-113	6		Control	Project	Name	3					Chain Of Custody Reco	rd	Project Mana	ager
Phone	(204) 896-1209	9 Fax:		Phone	(204) 89	6-1209		= <sub>ax:</sub> (20	4) 896-0	754	Site #									Amanda Hu	ung
Email	WMacQuarrie(	@kgsgroup.com		Email	elevay@	kgsgroup.cor	n r				Sample	ed By						C#554917-04-01			
Regulatory Cri	iteria			Spei	cial Instructions		-	2.1			A	nalysis Reque	sted	1			S. 108.775	Turnaround Time	e (TAT) Req	uired	
	Note: For regulated	d drinking water samples - please	use the Drinking	Water Chain o	f Custody Form		d Drinking Water ? (Y/I ield Filtered ? (Y/N)	reserved BTEX/F1, F.									Regular ( (will be ap Standard Please no days - cor Job Specif Date Requi Rush Confin	Standard) TAT splied if Rush TAT is not specifie TAT = 5-7 Working days for mos- the: Standard TAT for certain test thact your Project Manager for di- tic Rush TAT (if applies to entire ired: 28,000,000,000,000,000,000,000,000,000,0	d) st tests. 's such as BO. etails. submission) Time Ri	D and Dioxins/Furan equired: <u>EDD</u>	is are > 5
	Samples	must be kept cool ( < 10°C ) from tir	me of sampling unti	il delivery to ma	xxam		gulate	eld P	- 0										(	call lab for #)	
Sample	Barcode Label	Sample (Location) Identifica	tion Da	ate Sampled	Time Sampled	Matrix	Re Re	ĒŽ						-	_		# of Bottles		Comments		
1		S7D-Wall	26	106/18	16:40	Soil		×									3				
2		569-FLOOR	26	5/06/18	16:20	Soil		×									3				
3		563-Vall	26	6/06/18	1200	Soil		X									3				
4		562-Floor	26	5/06/18	0955	Soil		X									3				
5		561- Wall	20	5/06/18	0950	Soil		X									3				
6				/						2	7-Jun	-18 09:1	.0								
7									1	Amand	a Hui	ng 									
8										<b>B</b> 83	5163	0									
9									H	-17											
10																					
* RELIN	QUISHED BY: (Signat	ure/Print)	Date: (YY/MM/D	DD) Tin	ne	RECEN	ED BY: (	Signature/Pr	int)		Date	: (YY/MM/DD)	Time	#j	ars used and			Lab Use C	Dnly		
1	17	E. Levay	18/06/2	7 08	75 BA	Brooki	yn	Hiepe	urt		18	10612	7 09:1	0 "	orenninited	Time Ser	sitive	mperature (°C) on Receipt	Custody	Yes No	ler?
* UNLESS OTH FOR VIEWING IT IS THE RES	HERWISE AGREED TO G AT WWW.MAXXAM.O SPONSIBILITY OF THI	N WRITING, WORK SUBMITTED ON CAJTERMS. E RELINQUISHER TO ENSURE THE A	I N THIS CHAIN OF CI ACCURACY OF THE	USTODY IS SUB	I JECT TO MAXXAN	'S STANDARD TE	RMS AND		S. SIGNING	OF THIS CH	AIN OF CU	ISTODY DOCU	MENT IS ACK	NOWLEDO	SMENT AND A	CCEPTANO	CE OF OUR	TERMS WHICH ARE AVAILABLE	White	Maxxam Yellov	w: Client

ice packs present

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-08-01

Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/28 Report #: R2580567 Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B851944 Received: 2018/06/27, 16:05

Sample Matrix: Soil

# Samples Received: 3

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	3	N/A	2018/06/28	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	3	N/A	2018/06/28	AB SOP-00039	Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	3	2018/06/28	2018/06/28	AB SOP-00036	CCME PHC-CWS m
Moisture (1)	3	N/A	2018/06/28	AB SOP-00002	CCME PHC-CWS m

#### 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.

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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) This test was performed by Maxxam Calgary Environmental

(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

(3) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxia Stroup Company

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-08-01

#### Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/28 Report #: R2580567 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B851944 Received: 2018/06/27, 16:05

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Amanda Hung, B.Sc., Project Manager Email: AHung@maxxam.ca Phone# (204)772-7276 Ext:7062215



Maxxam Job #: B851944 Report Date: 2018/06/28 KGS Group Client Project #: 18-3152-002

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Maxxam ID		TS9445	TS9446			TS9446		
Sampling Date		2018/06/27 13:50	2018/06/27 13:55			2018/06/27 13:55		
COC Number		C#554917-08-01	C#554917-08-01			C#554917-08-01		
	UNITS	S79-FLOOR	S80-WALL	RDL	QC Batch	S80-WALL Lab-Dup	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	10	9042465			
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	50	9042465			
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	50	9042465			
Reached Baseline at C50	mg/kg	Yes	Yes		9042465			
Physical Properties				1				
Moisture	%	36	31	0.30	9042836	31	0.30	9042836
Volatiles								<u></u>
Xylenes (Total)	mg/kg	0.40	<0.045	0.045	9041574			
F1 (C6-C10) - BTEX	mg/kg	<10	<10	10	9041574			
Field Preserved Volatiles								<u></u>
Benzene	mg/kg	0.39	<0.0050	0.0050	9042193			
Toluene	mg/kg	<0.020	<0.020	0.020	9042193			
Ethylbenzene	mg/kg	0.32	<0.010	0.010	9042193			
m & p-Xylene	mg/kg	0.40	<0.040	0.040	9042193			
o-Xylene	mg/kg	<0.020	<0.020	0.020	9042193			
F1 (C6-C10)	mg/kg	<10	<10	10	9042193			
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	94	96		9042193			
4-Bromofluorobenzene (sur.)	%	100	99		9042193			
D10-o-Xylene (sur.)	%	112	115		9042193			
D4-1,2-Dichloroethane (sur.)	%	108	104		9042193			
O-TERPHENYL (sur.)	%	109	114		9042465			
RDL = Reportable Detection Li	mit							
Lab-Dup = Laboratory Initiated	l Duplica	te						



Report Date: 2018/06/28

KGS Group Client Project #: 18-3152-002

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Maxxam ID		TS9447		
Sampling Date		2018/06/27		
COC Number				
		C#554917-08-01		
	UNITS	S83-FLOOR	RDL	QC Batch
Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	10	9042465
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	50	9042465
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	9042465
Reached Baseline at C50	mg/kg	Yes		9042465
Physical Properties	•		•	
Moisture	%	31	0.30	9042836
Volatiles		•		
Xylenes (Total)	mg/kg	<0.045	0.045	9041574
F1 (C6-C10) - BTEX	mg/kg	<10	10	9041574
Field Preserved Volatiles				
Benzene	mg/kg	0.18	0.0050	9042193
Toluene	mg/kg	<0.020	0.020	9042193
Ethylbenzene	mg/kg	<0.010	0.010	9042193
m & p-Xylene	mg/kg	<0.040	0.040	9042193
o-Xylene	mg/kg	<0.020	0.020	9042193
F1 (C6-C10)	mg/kg	<10	10	9042193
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	94		9042193
4-Bromofluorobenzene (sur.)	%	100		9042193
D10-o-Xylene (sur.)	%	118		9042193
D4-1,2-Dichloroethane (sur.)	%	110		9042193
O-TERPHENYL (sur.)	%	111		9042465
RDL = Reportable Detection Lir	nit			



Maxxam Job #: B851944 Report Date: 2018/06/28 Success Through Science®

KGS Group Client Project #: 18-3152-002

## **GENERAL COMMENTS**

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

Package 1 16.9°C

Results relate only to the items tested.



Maxxam Job #: B851944

Report Date: 2018/06/28

### **QUALITY ASSURANCE REPORT**

KGS Group Client Project #: 18-3152-002

		Matrix Spike		Spiked Blank		k Method Blank		RPE	)	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9042193	1,4-Difluorobenzene (sur.)	2018/06/28	102	50 - 140	98	50 - 140	100	%		
9042193	4-Bromofluorobenzene (sur.)	2018/06/28	94	50 - 140	103	50 - 140	98	%		
9042193	D10-o-Xylene (sur.)	2018/06/28	112	50 - 140	111	50 - 140	106	%		
9042193	D4-1,2-Dichloroethane (sur.)	2018/06/28	110	50 - 140	102	50 - 140	103	%		
9042465	O-TERPHENYL (sur.)	2018/06/28	98	60 - 140	97	60 - 140	98	%		
9042193	Benzene	2018/06/28	90	50 - 140	107	60 - 130	<0.0050	mg/kg	0.24	50
9042193	Ethylbenzene	2018/06/28	93	50 - 140	111	60 - 130	<0.010	mg/kg	8.2	50
9042193	F1 (C6-C10)	2018/06/28	100	60 - 140	106	60 - 140	<10	mg/kg	NC	30
9042193	m & p-Xylene	2018/06/28	91	50 - 140	112	60 - 130	<0.040	mg/kg	2.9	50
9042193	o-Xylene	2018/06/28	91	50 - 140	116	60 - 130	<0.020	mg/kg	NC	50
9042193	Toluene	2018/06/28	94	50 - 140	109	60 - 130	<0.020	mg/kg	NC	50
9042465	F2 (C10-C16 Hydrocarbons)	2018/06/28	37 (1)	60 - 130	93	70 - 130	<10	mg/kg	40	40
9042465	F3 (C16-C34 Hydrocarbons)	2018/06/28	54 (1)	60 - 130	93	70 - 130	<50	mg/kg	24	40
9042465	F4 (C34-C50 Hydrocarbons)	2018/06/28	84	60 - 130	90	70 - 130	<50	mg/kg	NC	40
9042836	Moisture	2018/06/28					<0.30	%	0.32	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 (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 #: B851944 Report Date: 2018/06/28 KGS Group Client Project #: 18-3152-002

### VALIDATION SIGNATURE PAGE

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

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

unzhi Gras

Janet Gao, B.Sc., QP, Supervisor, Organics

1/micatelk

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Max	(kam	Maxxam Analytics International D-675 Berry Street, Winnipeg, N	Corporation o/a N Manitoba Canada	laxxam Analytic R3H 1A7 Tel:(2	s 04) 772-7276 Tol	-free:800-563-6	266 Fax:(	204) 772-23	186 www.maxi	xam.ca							Chai	n Of Custody Record			Page of
		INVOICE TO:		1		Report Infe	ormation						Р	Project Infor	mation			Labora	tory Use Or	ly	rugo o
Company Name	#7500 KGS G	iroup		Company Na	me						Quotati	on#	B7	0208				Maxxam Job #		Bottl	le Order #:
Contact Name	Accounts Paya	ble		Contact Nam	e ERIC LEV	/AY					P.O. #		_					Dominul			
Address	3rd Floor 865 V	Vaverly St		Address							Project	#	18-	-3152-00	2			15851999		5	554917
	Winnipeg MB F	R3T 5T4		-	Cell	204	224	- 1131	>		Project	Name						Chain Of Custody Reco	rd	Proje	ct Manager
Phone	(204) 896-1209	Fax:		Phone	(204) 896	-1209	F	-ax: (20	4) 896-07	54	Site #		( <b>—</b>							Ama	anda Hung
Email	WMacQuarrie@	2)kgsgroup.com		Email	elevay@l	(gsgroup.com	n				Sample	id By					_	C#554917-08-01			-12
Regulatory Cri	iteria			Speci	al Instructions		~				A	nalysis Reque	ested		1		Ron Balancia	Turnaround Time	e (TAT) Requir	ed	
φ.	Note: For regulated	i drinking water samples - please u	se the Drinking V	Nater Chain of	Custody Form		I Drinking Water ? (Y/N	eserved BTEX/F1, F2									Regular ( (will be ap Standard Please no days - con Job Specifi Date Requi	Standard) TAT opplied if Rush TAT is not specifie TAT = 5-7 Working days for mo- ole: Standard TAT for certain tess lact your Project Manager for d fice Rush TAT (if applies to entire irred: 2800118	d) st tests. 's such as BOD a etails. submission) Time Requ	and Dioxin: uired: E	s/Furans are > 5
	Samples r	must be kept cool ( < 10°C ) from time	of sampling until	delivery to max	xam		gulated tals Fie	eld Pre									Rush Com		(call	lab for #)	
Sample	Barcode Label	Sample (Location) Identification	on Dat	e Sampled	Time Sampled	Matrix	Rec	Fie 74									# of Bottles	8	Comments		
1		579 - Floor	27	106/18	1350	Soil		X													
2		S80-Wall	27	106/18	1355	Soil		X													
3		583-Floor	27	1/06/18	1455	Soil		X													
4																					
5																					
6																					
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* RELIN	QUISHED BY: (Signate	ure/Print)	Date: (YY/MM/D	D) Time		RECEI	VED BY: (	Signature/P	rint)		Date	(YY/MM/DD)		Time	# jars used and not submitted			Lab Use (	Only		0
2	76	Lerong 1	8/06/2	7 160	64	Brookiy	n Hi	ebert			181	06127	1	6:05	-	Time Ser	Te Te	emperature (°C) on Receipt	Custody S	eal Intact	on Cooler?
/	~	~				2 2021 2021 2020 2020												a.1 19.7 189	Y 1 115	es	NO Client
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Ice Present

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-05-01

Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/29 Report #: R2581126 Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

#### MAXXAM JOB #: B852464 Received: 2018/06/28, 16:15

Sample Matrix: Soil # Samples Received: 2

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	2	N/A	2018/06/29	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	2	N/A	2018/06/29	AB SOP-00039	Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	2	2018/06/29	2018/06/29	AB SOP-00036	CCME PHC-CWS m
Moisture (1)	2	N/A	2018/06/29	AB SOP-00002	CCME PHC-CWS m

#### 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) This test was performed by Maxxam Calgary Environmental

(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

(3) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxia Stroup Company

Your Project #: 18-3152-002 Your C.O.C. #: C#554917-05-01

#### Attention: ERIC LEVAY

KGS Group 3rd Floor 865 Waverly St Winnipeg, MB Canada R3T 5T4

> Report Date: 2018/06/29 Report #: R2581126 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B852464 Received: 2018/06/28, 16:15

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Amanda Hung, B.Sc., Project Manager Email: AHung@maxxam.ca Phone# (204)772-7276 Ext:7062215



Maxxam Job #: B852464 Report Date: 2018/06/29 KGS Group Client Project #: 18-3152-002

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Maxxam ID		TT1793			TT1793			TT1794						
Sampling Date		2018/06/28 13:45			2018/06/28 13:45			2018/06/28 14:00						
COC Number		C#554917-05-01			C#554917-05-01			C#554917-05-01						
	UNITS	S86-FLOOR	RDL	QC Batch	S86-FLOOR Lab-Dup	RDL	QC Batch	S87-WALL	RDL	QC Batch				
Ext. Pet. Hydrocarbon														
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	10	9044857	<10	10	9044857	<10	10	9044857				
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	50	9044857	<50	50	9044857	<50	50	9044857				
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	9044857	<50	50	9044857	<50	50	9044857				
Reached Baseline at C50	mg/kg	Yes		9044857	Yes		9044857	Yes		9044857				
Physical Properties														
Moisture	%	33	0.30	9044874	31	0.30	9044874	25	0.30	9044874				
Volatiles														
Xylenes (Total)	mg/kg	<0.045	0.045	9043457				<0.045	0.045	9043457				
F1 (C6-C10) - BTEX	mg/kg	<10	10	9043457				<10	10	9043457				
Field Preserved Volatiles														
Benzene	mg/kg	<0.0050	0.0050	9042244				<0.0050	0.0050	9042244				
Toluene	mg/kg	<0.020	0.020	9042244				<0.020	0.020	9042244				
Ethylbenzene	mg/kg	<0.010	0.010	9042244				<0.010	0.010	9042244				
m & p-Xylene	mg/kg	<0.040	0.040	9042244				<0.040	0.040	9042244				
o-Xylene	mg/kg	<0.020	0.020	9042244				<0.020	0.020	9042244				
F1 (C6-C10)	mg/kg	<10	10	9042244				<10	10	9042244				
Surrogate Recovery (%)														
1,4-Difluorobenzene (sur.)	%	98		9042244				98		9042244				
4-Bromofluorobenzene (sur.)	%	98		9042244				98		9042244				
D10-o-Xylene (sur.)	%	116		9042244				99		9042244				
D4-1,2-Dichloroethane (sur.)	%	103		9042244				104		9042244				
O-TERPHENYL (sur.)	%	97		9044857	98		9044857	95		9044857				
RDL = Reportable Detection Limit														
Lab-Dup = Laboratory Initiated	Duplica	te	Lab-Dup = Laboratory Initiated Duplicate											



Maxxam Job #: B852464 Report Date: 2018/06/29 Success Through Science®

KGS Group Client Project #: 18-3152-002

## **GENERAL COMMENTS**

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

Package 1 10.4°C

Results relate only to the items tested.



Maxxam Job #: B852464

Report Date: 2018/06/29

### **QUALITY ASSURANCE REPORT**

KGS Group Client Project #: 18-3152-002

			Matrix Spike		Spiked	Blank	Method E	Blank	RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9042244	1,4-Difluorobenzene (sur.)	2018/06/28	93	50 - 140	97	50 - 140	92	%		
9042244	4-Bromofluorobenzene (sur.)	2018/06/28	102	50 - 140	103	50 - 140	102	%		
9042244	D10-o-Xylene (sur.)	2018/06/28	109	50 - 140	106	50 - 140	103	%		
9042244	D4-1,2-Dichloroethane (sur.)	2018/06/28	107	50 - 140	88	50 - 140	97	%		
9044857	O-TERPHENYL (sur.)	2018/06/29	86	60 - 140	94	60 - 140	104	%		
9042244	Benzene	2018/06/28	96	50 - 140	115	60 - 130	<0.0050	mg/kg	NC	50
9042244	Ethylbenzene	2018/06/28	87	50 - 140	111	60 - 130	<0.010	mg/kg	NC	50
9042244	F1 (C6-C10)	2018/06/28	60	60 - 140	94	60 - 140	<10	mg/kg	NC	30
9042244	m & p-Xylene	2018/06/28	93	50 - 140	120	60 - 130	<0.040	mg/kg	NC	50
9042244	o-Xylene	2018/06/28	89	50 - 140	115	60 - 130	<0.020	mg/kg	NC	50
9042244	Toluene	2018/06/28	90	50 - 140	105	60 - 130	<0.020	mg/kg	NC	50
9044857	F2 (C10-C16 Hydrocarbons)	2018/06/29	89	60 - 130	93	70 - 130	<10	mg/kg	NC	40
9044857	F3 (C16-C34 Hydrocarbons)	2018/06/29	89	60 - 130	96	70 - 130	<50	mg/kg	NC	40
9044857	F4 (C34-C50 Hydrocarbons)	2018/06/29	86	60 - 130	91	70 - 130	<50	mg/kg	NC	40
9044874	Moisture	2018/06/29					<0.30	%	5.9	20
Duplicato: Pai	irod analysis of a sonarate portion of the same sample.	Isod to ovaluato t	ho varianco in t	ho moscurom	ont					

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 (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 #: B852464 Report Date: 2018/06/29 Success Through Science®

KGS Group Client Project #: 18-3152-002

#### VALIDATION SIGNATURE PAGE

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

Junchi Gras

Janet Gao, B.Sc., QP, Supervisor, Organics

Jord W-

Jared Wiseman, B.Sc., P.Chem., QP, Senior Analyst, Organics

1/micatelk

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

	(Lam	Maxxam Analytics International D-675 Berry Street, Winnipeg, M	Corporation o/a M Manitoba Canada	Maxxam Analytic R3H 1A7 Tel:(2	s 04) 772-7276_Toll-	free:800-563-6	266 Fa	x:(204) 772-	2386 www.maxxam	.ca						Chai	n Of Custody Record	Page of	
INVOICE TO:					Report Information						Project Information						Laboratory Use Only		
Company Name	company Name #7500 KGS Group Company Name									0	Oustation # B70208						Maxxam Job #	Bottle Order #:	
Contact Name	Accounts Paya	able		Contact Nam	Let Name ERIC LEVAY					P	O. #	-					0.0		
Address	3rd Floor 865	Naverly St		Address	15					P	oject #	1	8-3152-0	002			6852464	554917	
	Winnipeg MB	R3T 5T4	all and the second s							P	oject Name	-			_		Chain Of Custody Record	Project Manager	
Phone (204) 896-1209 Fax:			Phone (204) 896-1209 Fax: (204) 896-0754							te #	-						Amanda Hung		
Email WMacQuarrie@kgsgroup.com				Email elevay@kgsgroup.com						Si	Sampled By						C#554917-05-01		
Regulatory Cri	iteria			Special Instructions						_	Analysis Requested					Turnaround Time (TAT) Required			
Note: For regulated drinking water samples - please use the Drinking		Vater Chain of Custody Form			d Drinking Water ? ( Y / N	eld Filtered ? (Y/N) eserved BTEX/F1, F2 0il						Reg (will Stan Plea day: day: Job 1 Date Rush			ular (Standard) TAT   be applied if Rush TAT is not specified)   dard TAT = 5-7 Working days for most tests.   se note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5   - contact your Project Manager for details.   Specific Rush TAT (if applies to entire submission)   Required: 24/06/1/8   Time Required: EO(0)				
	Samples	must be kept cool ( < 10°C ) from time	of sampling until	delivery to max	xam		gulate	eld P										(call lab for #)	
Sample	Barcode Label	Sample (Location) Identification	n Dat	e Sampled	Time Sampled	Matrix	Re	ž iž ž		_						# of Bottles	Comn	nents	
1		586-Floor	28	3/06/18	1345	Soil		X								3			
2		587- Wall	28	3/06/18	1400	Soil		x								3			
3																			
4													1						
5																			
6																			
7																			
8																			
9																			
10																			
* RELINQUISHED BY: (Signature/Print)   Date: (YY/IMM/DD)   Time   RECEIVED BY: (Signature/Print)   Date: (YY/IMM/DD)   Time   #Jars used and Lab Use Only																			
E-LEVAY 18/06/28 1615. BROOKLUN Hiebert 18/06/2							8106128	5 1	6:15		Time Sen	sitive Te	mperature (°C) on Receipt	Sustody Seal Intact on Cooler?					
* UNLESS OTH FOR VIEWING IT IS THE RES	* 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 White Maxaem Vellow: Client FOR VIEWING AT WWW.MAXXAM.CATERMS.																		

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