

Report Transmission Cover Page

Bill To: The Black Dirt Company	Project ID:	Lot ID: 1237282
300 Saskatchewan Ave	Project Name:	Control Number: C0056660
Spruce Grove, AB, Canada	Project Location:	Date Received: Nov 3, 2017
Attn: Charlene Hinkel	LSD:	Date Reported: Nov 14, 2017
Sampled By:	P.O.:	Report Number: 2239676
Company:	Proj. Acct. code:	

Contact	Company	Address
Charlene Hinkel	The Black Dirt Company	300 Saskatchewan Ave Spruce Grove, AB Phone: (780) 962-8220 Fax: (780) 962-8215 Email: charlene.hinkel@blackdirtcompany.

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA
Email - Single Report	PDF	Invoice

Notes To Clients:

- Nov 08, 2017 - Weed Seed analysis was performed by a subcontract laboratory. See attached 1 page report 1035462.

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Analytical Report

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		Reference Number	1237282-1			
		Sample Date				
		Sample Time				
		Sample Location				
		Sample Description	Soil Sample			
		Matrix	Soil			
Analyte	Units	Results	Results	Results	Nominal Detection Limit	
Metals Strong Acid Digestion						
Boron	Saturated Paste	mg/L	0.25		0.05	
Antimony	Strong Acid Extractable	mg/kg	0.2		0.2	
Arsenic	Strong Acid Extractable	mg/kg	5.1		0.2	
Barium	Strong Acid Extractable	mg/kg	194		1	
Beryllium	Strong Acid Extractable	mg/kg	0.4		0.1	
Cadmium	Strong Acid Extractable	mg/kg	0.29		0.01	
Chromium	Strong Acid Extractable	mg/kg	8.9		0.5	
Cobalt	Strong Acid Extractable	mg/kg	6.1		0.1	
Copper	Strong Acid Extractable	mg/kg	10.6		1	
Lead	Strong Acid Extractable	mg/kg	5.9		0.1	
Mercury	Strong Acid Extractable	mg/kg	<0.05		0.05	
Molybdenum	Strong Acid Extractable	mg/kg	<1.0		1	
Nickel	Strong Acid Extractable	mg/kg	16.3		0.5	
Selenium	Strong Acid Extractable	mg/kg	0.5		0.3	
Silver	Strong Acid Extractable	mg/kg	<0.1		0.1	
Thallium	Strong Acid Extractable	mg/kg	0.09		0.05	
Tin	Strong Acid Extractable	mg/kg	<1.0		1	
Uranium	Strong Acid Extractable	mg/kg	1.9		0.5	
Vanadium	Strong Acid Extractable	mg/kg	16.0		0.1	
Zinc	Strong Acid Extractable	mg/kg	54		1	
Physical and Aggregate Properties						
Texture			Loam			
Sand	50 µm - 2 mm	% by weight	48		0.1	
Silt	2 µm - 50 µm	% by weight	32		0.1	
Clay	<2 µm	% by weight	20		0.1	
Salinity						
Electrical Conductivity	Saturated Paste	dS/m	0.84		0.01	
SAR	Saturated Paste		0.3			
% Saturation		%	58			
Calcium	Saturated Paste	mg/kg	85.4			
Magnesium	Saturated Paste	mg/kg	13.3			
Sodium	Saturated Paste	mg/kg	8			
Potassium	Saturated Paste	mg/kg	5			
Chloride	Saturated Paste	mg/kg	17			
Sulfate (SO4)	Saturated Paste	mg/kg	77.4			
TGR	Saturated Paste	T/ac	<0.1			
Soil Acidity						
pH	1:2 Soil:Water	pH	8.2			
pH	1:2 Soil:CaCl2 sol.	pH	7.6			
Electrical Conductivity	1:2 Soil:Water	dS/m at 25 °C	0.27		0.01	

Analytical Report

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Attn: Charlene Hinkel		
Sampled By:		
Company:		

		Reference Number	1237282-1			
		Sample Date				
		Sample Time				
		Sample Location				
		Sample Description	Soil Sample			
		Matrix	Soil			
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Water Soluble Parameters						
Chromium (VI)	Dry Weight	mg/kg	<0.1			0.1
Mono-Aromatic Hydrocarbons - Soil						
Benzene	Dry Weight	mg/kg	<0.005			0.005
Toluene	Dry Weight	mg/kg	<0.02			0.02
Ethylbenzene	Dry Weight	mg/kg	<0.005			0.005
Total Xylenes (m,p,o)	Dry Weight	mg/kg	<0.03			0.03
Volatile Petroleum Hydrocarbons - Soil						
Methanol Field Preservation			Yes			
F1 C6-C10	Dry Weight	mg/kg	<10			10
F1 -BTEX	Dry Weight	mg/kg	<10			10
Extractable Petroleum Hydrocarbons - Soil						
Extraction Date	Total Extractables		6-Nov-17			
F2c C10-C16	Dry Weight	mg/kg	<50			50
F3c C16-C34	Dry Weight	mg/kg	<50			50
F4c C34-C50	Dry Weight	mg/kg	<100			100
F4HTGCc C34-C50+	Dry Weight	mg/kg	<100			100
% C50+		%	<5			
Clubroot Analysis						
Plasmodiophora brassicae	Clubroot Pathogen	spores/g	<1000			1000
Silica Gel Cleanup						
Silica Gel Cleanup			Done			
Soil % Moisture						
Moisture	Soil % Moisture	% by weight	16.60			
Subcontracted Analysis						
Subcontractor Report Id	Biovision		1035462			


 Approved by: Anthony Neumann, MSc
 Laboratory Operations Manager

Data have been validated by Analytical Quality Control and Exova's Integrated Data Validation System (IDVS).

Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

Methodology and Notes

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Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
1:5 Water Soluble Extraction	APHA	* Colorimetric Method, 3500-Cr B	Nov 6, 2017	Exova Edmonton
1:5 Water Soluble Extraction	McKeague	* Soluble Salts in Extracts of 1:5 Soil:Water Mixtures, 3.23	Nov 6, 2017	Exova Edmonton
BTEX-CCME - Soil	CCME	* Reference Method for Canada-Wide Standard for PHC in Soil, CWS PHCS TIER 1	Nov 4, 2017	Exova Calgary
BTEX-CCME - Soil	US EPA	* Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis/Gas Chromatography Mass Spectrometry, 5021/8260	Nov 4, 2017	Exova Calgary
Clubroot	Plant Path	* Wallenhammer et al 2011. In-Field distribution of Plasmodiophora brassicae measured using real-time PCR., Plant Pathology	Nov 8, 2017	Exova Edmonton
Metals ICP (Hot Block) in soil	EPA	* Sample Preparation Procedure for Spectrochemical Determination of Total Recoverable Elements, October 1999, 200.2	Nov 5, 2017	Exova Edmonton
Metals ICP (Hot Block) in soil	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Nov 5, 2017	Exova Edmonton
Particle Size Analysis - GS	Carter	* Hydrometer Method, 55.3	Nov 6, 2017	Exova Edmonton
pH and Conductivity in general soil 1:2	McKeague	* 1:2 Soil:Water Ratio, 4.12	Nov 6, 2017	Exova Edmonton
pH by CaCl2 (1:2 ratio) in soil	McKeague	* pH in 0.01M Calcium Chloride, 3.11	Nov 6, 2017	Exova Edmonton
Saturated Paste in General Soil	Carter	* Electrical Conductivity and Soluble Ions, Chapter 15	Nov 4, 2017	Exova Edmonton
Sublet to Biovision	Ext. Lab	See attached test report,	Nov 3, 2017	Biovision Seed Research Ltd.
TEH-CCME-Soil (Shake)	CCME	* Reference Method for Canada-Wide Standard for PHC in Soil, CWS PHCS TIER 1	Nov 4, 2017	Exova Calgary

* Reference Method Modified

References

APHA	Standard Methods for the Examination of Water and Wastewater
Carter	Soil Sampling and Methods of Analysis.
CCME	Canadian Council of Ministers of the Environment
EPA	Environmental Protection Agency Test Methods - US
Ext. Lab	External Laboratory
McKeague	Manual on Soil Sampling and Methods of Analysis
Plant Path	Plant Pathology
Soil & Environ. Anal.	Soil and Environmental Analysis: Physical Methods
US EPA	US Environmental Protection Agency Test Methods

Methodology and Notes

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Comments:

- Nov 08, 2017 - Weed Seed analysis was performed by a subcontract laboratory. See attached 1 page report 1035462.

Please direct any inquiries regarding this report to our Client Services Group or to the Operations Manager at the coordinates indicated at the top left of this page.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

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Petroleum Hydrocarbons in Soil

Batch Notes

1. The method used complies with the *Reference Method for the Canada Wide Standards for Petroleum Hydrocarbons in Soil - Tier 1*, April 2001, including Addendum 1, and is accredited for use in Exova.
2. Modifications of the method: See *Notes and Methodology* for nonconformances (if applicable).
3. Qualifications on results: See *Notes and Methodology* for nonconformances (if applicable).
4. Silica gel treatment is performed for fractions F2, F3, F4.
5. F1-BTEX: BTEX has been subtracted from the F1 fraction.
6. If analyzed, naphthalene has been subtracted from fraction F2 and selected PAHs have been subtracted from fraction F3.
7. F4HTGC is reported when more than 5% of the total carbon envelope elutes past C₅₀.
8. Exova does not routinely report Gravimetric Heavy Hydrocarbons (F4G or F4G-sg), F4HTGC through extended range high temperature GC is reported instead.
9. When both F4(C₃₄-C₅₀) and F4HTGC are reported, F4HTGC is the final F4 that is to be used for interpreting the CWS.
10. Quality criteria met for the batch: Data is reported in Quality Control Section of report (if requested).
 - nC₆ and nC₁₀ response factors (RF) are within 30% of RF for toluene
 - nC₁₀, nC₁₆ and nC₃₄ RFs are within 10% of each other
 - nC₅₀ RF is within 30% of the average RF for nC₁₀+nC₁₆+nC₃₄
 - linearity is within 15% for each of the calibrated carbon ranges
11. Batch data for analytical quality control are available on request.
12. Extraction and analysis holding times were met: See *Notes and Methodology* for nonconformances (if applicable).

Approved by: 
Anthony Neumann, MSc
Laboratory Operations Manager

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Work Order 1035462-01
Received 11/06/2017 Completed 11/7/2017

Submitted By:
Exova Canada Inc. (Edm)
2395 Speakman Dr.
Mississauga, ON CA L5K 1B3
P (905) 822-4111
E edmonton@exova.com

Tested By: BioVision Seed Labs
Unit 310, 280 Portage Close
Sherwood Park , Alberta T8H 2R6
P 1 (780) 436-8822
CFIA Acc #1172

Sample of: Soil
Designated: 106837
Sample ID: 1237282-1, Soil Sample

SENIOR MEMBER OF



161 HOSNA ARA BEGUM

Report of Analysis

*** Soil Seed Analysis 50g**

Completed: 11/7/2017

Method

OTH

- Wild Buckwheat 1
- Canada Thistle 1
- Scentless chamomile 1
- Dandelion 2
- Narrow-leaf hawksbeard 1
- Lamb's-quarters 4
- Barnyardgrass 1
- Sweet clover 1

Accredited by CFIA to conduct tests in accordance with the laboratory's scope of accreditation and the Canadian Methods and Procedures for Testing Seed.

*Advisory test - Method not CFIA M&P prescribed.

BioVision Seed Research Ltd. expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Method(s) used for promoting germination of dormant seed

Project Information

Project ID: _____
 Project Name: _____
 Project Location: _____
 Legal Location: _____
 PO/AFE#: _____
 Proj. Acct. Code: _____
 Quote #: _____

Invoice to: **THE BLACK DIRT COMPANY**
 Address: _____
 Attention: **CHARLENE HINKEL**
 Phone: **780.962.8220**
 Cell: **780.616.3566**
 Fax: _____
 E-mail: **charlene.hinkel@blackdirtcompany.com**
 Agreement ID: _____
 Copy of report: _____

Report To: _____
 Company: _____
 Address: _____
 Attention: _____
 Phone: _____
 Cell: _____
 Fax: _____
 E-mail 1: _____
 E-mail 2: _____
 Copy of invoice: _____

Report Results	Regulatory Requirement
E-Mail	HCDWQG
Mail	Ab Tier 1
Online	SPIGEC
Fax	BCCSR
PDF	Other (list below)
Excel	
QA/QC	

RUSH Priority

Emergency (contact lab for turnaround and pricing)
 Priority 1-2 working days (100% surcharge)
 Urgent 2-3 working days (50% surcharge)

When "ASAP" is requested, turn around will default to a 100% RUSH priority, with pricing and turn around time to match. Please contact the lab prior to submitting RUSH samples. If not all samples require RUSH, please indicate in the special instructions.

Date Required: _____ Signature: *CHinkel*

Special Instructions/Comments (please include contact information including ph. # if different from above).
100% Rush for PS1 only

Number of Containers	ABTIMET-S	ABT1SALS	PS1	CLUBROOT-S	S00	TISSWC	CCMEC
----------------------	-----------	----------	-----	------------	-----	--------	-------

Sample Custody (please print)
 Sampled by: _____
 Company: _____
This section for Lab use only
 Date/Time stamp:
 NOV 3 PM 12:27

	Site I.D.	Sample Description	Depth		Date/Time Sampled	Matrix	Sampling Method
			start in	end cm m			
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							


Enter tests above (√ relevant samples below)	√	√	√	√	√	√	√
--	---	---	---	---	---	---	---

- Indicate in the space allotted any deficiencies by the corresponding number.
1. Indicate any samples were not packaged well
 2. Indicate any samples received in Exova supply
 3. Indicate any samples were not clearly labeled
 4. Indicate any samples received within the req hold time or temp.
 5. Indicate any missing extra samples
 6. Indicate any samples that were received broken
 7. Indicate any samples where sufficient volume was not received
 8. Indicate any samples received in an inappropriate container

Submission of this form acknowledges acceptance of Exova's Standard Terms and Conditions (<http://www.exova.com/about/terms-and-conditions/>)

Please indicate any potentially hazardous samples

t: 1237282 COC



Shipping: COD Y/ N
 # and size of coolers
 Temp. received: _____ Delivery Method: _____
 Waybill: _____
 Received by: _____



ED 120-02