

Certificate of Analysis

January 25th, 2013

Magpie Operating
2707 South CR 11
Loveland, CO 80537

Project: Magpie (Lab Work Order - 012407)

On January 24th, 2013, eAnalytics Laboratory received 6 samples for analysis. As stated on the chain of custody, the requested analyses were for the following:

Analysis	EPA Method	Samples
BTEX	8260C	1-4
TPH	8015C/8260C	1-6
pH	9045D	1-4
PAH	8270-SIM	1-4
Sodium Absorption Ratio (SAR)	U.S. Department of Agriculture Handbook 60 Method 20B	1-4
Electrical Conductivity of Soil	U.S. Department of Agriculture Handbook 60 Method 3	1-4

All quality control analyses associated with the requested tests were satisfactorily passed before the samples were run. Thank you for allowing eAnalytics Laboratory to provide laboratory services for you. If you have any questions please give us a call, we are happy to help.

Sincerely,



Christopher Dieken
Quality Assurance Manager
eAnalytics Laboratory
(970) 667-6975
info@eAnalyticsLab.com



Certificate of Analysis

Sample Information

Client:	Magpie Operating 2707 South CR 11 Loveland, CO 80537	Sample Name:	A
Project:		Lab ID:	012407-01
		Date Sampled:	01/24/13
		Date Received:	01/24/13
		Date Analyzed:	01/25/13

PAH Analysis in Soil - Method EPA 8270C SIM

Surrogate Recoveries

Surrogate	Acceptance	% Recovery	Surrogate	Acceptance	% Recovery
2,4,6-Tribromophenol	(70-130%)	94	Nitrobenzene-d5	(70-130%)	91
2-Fluorobiphenyl	(70-130%)	89	2-Fluorophenol	(70-130%)	97

Compound	CAS #	Concentration (mg/kg)	Compound	CAS #	Concentration (mg/kg)
Acenaphthene	83-32-9	< 1	Dibenzo(a,h)-anthracene	53-70-3	< 0.022
Acenaphthylene	208-96-8	< 1	Flouranthene	206-44-0	< 1
Anthracene	120-12-7	< 1	Fluorene	86-73-7	< 1
Benzo(a)-anthracene	56-55-3	< 0.22	Indeno(1,2,3-C,D) pyrene	193-39-5	< 0.22
Benzo(a)-pyrene	50-32-8	< 0.022	Naphthalene	91-20-3	< 1
Benzo(b)-fluoranthene	205-99-2	< 0.22	Phenanthrene	85-01-8	< 1
Benzo(g,h,i)-perylene	191-24-2	< 1	Pyrene	129-00-0	< 1
Benzo(k)-fluoranthene	207-08-9	< 2.2			
Chrysene	218-01-9	< 22			

Todd Rhea

eAnalytics Laboratory - Laboratory Manager
eAnalytics Laboratory: 1767 Rocky Mountain Avenue Loveland CO 80538 (970) 667-6975
The results contained within this report relate only to the items analyzed

Certificate of Analysis

Sample Information

Client:	Magpie Operating 2707 South CR 11 Loveland, CO 80537	Sample Name:	B
Project:		Lab ID:	012407-02
		Date Sampled:	01/24/13
		Date Received:	01/24/13
		Date Analyzed:	01/25/13

PAH Analysis in Soil - Method EPA 8270C SIM

Surrogate Recoveries

Surrogate	Acceptance	% Recovery	Surrogate	Acceptance	% Recovery
2,4,6-Tribromophenol	(70-130%)	97	Nitrobenzene-d5	(70-130%)	87
2-Fluorobiphenyl	(70-130%)	82	2-Fluorophenol	(70-130%)	79

Compound	CAS #	Concentration (mg/kg)	Compound	CAS #	Concentration (mg/kg)
Acenaphthene	83-32-9	< 1	Dibenzo(a,h)-anthracene	53-70-3	< 0.022
Acenaphthylene	208-96-8	< 1	Flouranthene	206-44-0	< 1
Anthracene	120-12-7	< 1	Fluorene	86-73-7	< 1
Benzo(a)-anthracene	56-55-3	< 0.22	Indeno(1,2,3-C,D) pyrene	193-39-5	< 0.22
Benzo(a)-pyrene	50-32-8	< 0.022	Naphthalene	91-20-3	< 1
Benzo(b)-fluoranthene	205-99-2	< 0.22	Phenanthrene	85-01-8	< 1
Benzo(g,h,i)-perylene	191-24-2	< 1	Pyrene	129-00-0	< 1
Benzo(k)-fluoranthene	207-08-9	< 2.2			
Chrysene	218-01-9	< 22			

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Certificate of Analysis

Sample Information

Client:	Magpie Operating 2707 South CR 11 Loveland, CO 80537	Sample Name:	C
Project:		Lab ID:	012407-03
		Date Sampled:	01/24/13
		Date Received:	01/24/13
		Date Analyzed:	01/25/13

PAH Analysis in Soil - Method EPA 8270C SIM

Surrogate Recoveries

Surrogate	Acceptance	% Recovery	Surrogate	Acceptance	% Recovery
2,4,6-Tribromophenol	(70-130%)	90	Nitrobenzene-d5	(70-130%)	90
2-Fluorobiphenyl	(70-130%)	88	2-Fluorophenol	(70-130%)	89

Compound	CAS #	Concentration (mg/kg)	Compound	CAS #	Concentration (mg/kg)
Acenaphthene	83-32-9	< 1	Dibenzo(a,h)-anthracene	53-70-3	< 0.022
Acenaphthylene	208-96-8	< 1	Flouranthene	206-44-0	< 1
Anthracene	120-12-7	< 1	Fluorene	86-73-7	< 1
Benzo(a)-anthracene	56-55-3	< 0.22	Indeno(1,2,3-C,D) pyrene	193-39-5	< 0.22
Benzo(a)-pyrene	50-32-8	< 0.022	Naphthalene	91-20-3	< 1
Benzo(b)-fluoranthene	205-99-2	< 0.22	Phenanthrene	85-01-8	< 1
Benzo(g,h,i)-perylene	191-24-2	< 1	Pyrene	129-00-0	< 1
Benzo(k)-fluoranthene	207-08-9	< 2.2			
Chrysene	218-01-9	< 22			

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Sample Information

Client:	Magpie Operating 2707 South CR 11 Loveland, CO 80537	Sample Name:	D
Project:		Lab ID:	012407-04
		Date Sampled:	01/24/13
		Date Received:	01/24/13
		Date Analyzed:	01/25/13

PAH Analysis in Soil - Method EPA 8270C SIM

Surrogate Recoveries

Surrogate	Acceptance	% Recovery	Surrogate	Acceptance	% Recovery
2,4,6-Tribromophenol	(70-130%)	77	Nitrobenzene-d5	(70-130%)	92
2-Fluorobiphenyl	(70-130%)	99	2-Fluorophenol	(70-130%)	87

Compound	CAS #	Concentration (mg/kg)	Compound	CAS #	Concentration (mg/kg)
Acenaphthene	83-32-9	< 1	Dibenzo(a,h)-anthracene	53-70-3	< 0.022
Acenaphthylene	208-96-8	< 1	Flouranthene	206-44-0	< 1
Anthracene	120-12-7	< 1	Fluorene	86-73-7	< 1
Benzo(a)-anthracene	56-55-3	< 0.22	Indeno(1,2,3-C,D) pyrene	193-39-5	< 0.22
Benzo(a)-pyrene	50-32-8	< 0.022	Naphthalene	91-20-3	< 1
Benzo(b)-fluoranthene	205-99-2	< 0.22	Phenanthrene	85-01-8	< 1
Benzo(g,h,i)-perylene	191-24-2	< 1	Pyrene	129-00-0	< 1
Benzo(k)-fluoranthene	207-08-9	< 2.2			
Chrysene	218-01-9	< 22			

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Sample Information

Client: Magpie Operating
2707 South CR 11
Loveland, CO 80537

Project:
Methods: U.S. Dept of Ag (#60 Method 20B) - SAR
U.S. Dept of Ag (#60 Method 3) - EC
EPA 9045D - pH Soil

Date Received: 01/24/13

Soil Sample Analysis

Sample Name	Sodium Adsorption Ratio - SAR	Electrical Conductivity EC mmhos/cm	pH	Date Sampled	Date Analyzed	Lab ID
A	11.46	11.4	7.61	01/24/13	01/25/13	012407-01
B	13.10	11.8	9.50	01/24/13	01/25/13	012407-02
C	20.48	16.8	7.82	01/24/13	01/25/13	012407-03
D	20.60	20.7	8.73	01/24/13	01/25/13	012407-04

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Sample Information

Client: Magpie Operating
2707 South CR 11
Loveland, CO 80537

Project:
Methods: EPA8260C (Volatile Organics)
EPA8015C (DRO)

Date Received: 01/24/13

Soil Sample Analysis

Sample Name	Benzene mg/kg	Toluene mg/kg	Ethyl- benzene mg/kg	Total Xylenes mg/kg	TPH-GRO C ₆ -C ₁₀ mg/kg	TPH-DRO C ₁₀ -C ₂₈ mg/kg	Date Sampled	Date Analyzed	Lab ID
A	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/24/13	01/24/13	012407-01
B	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/24/13	01/24/13	012407-02
C	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/24/13	01/24/13	012407-03
D	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/24/13	01/24/13	012407-04
I J N	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/24/13	01/24/13	012407-05
I J S	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	01/24/13	01/24/13	012407-06

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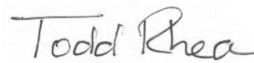
Client: Magpie Operating
2707 South CR 11
Loveland, CO 80537

Project:
Methods: EPA8260C (Volatile Organics)

Date Received: 01/24/13

Surrogate Recoveries (%)

Sample Name	Dibromofluoromethane Acceptance (70-130%)	1,2-Dichloroethane-D4 Acceptance (70-130%)	Toluene-D8 Acceptance (70-130%)	Bromofluorobenzene Acceptance (70-130%)	Date Sampled	Date Analyzed	Lab ID
A	93	99	98	96	01/24/13	01/24/13	012407-01
B	94	95	95	105	01/24/13	01/24/13	012407-02
C	98	96	99	96	01/24/13	01/24/13	012407-03
D	99	92	103	104	01/24/13	01/24/13	012407-04
I J N	96	101	104	103	01/24/13	01/24/13	012407-05
I J S	101	90	98	102	01/24/13	01/24/13	012407-06



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Certificate of Analysis

Sample Information

Client: Magpie Operating
2707 South CR 11
Loveland, CO 80537

Project:
Methods: EPA8260C (Volatile Organics)
EPA8015C (DRO)

Date Received: 01/24/13

QA/QC Sample Analysis

Sample Name	Benzene (% Recovery)	Toluene (% Recovery)	Ethyl- benzene (% Recovery)	Total Xylenes (% Recovery)	TPH-GRO C ₆ -C ₁₀ (% Recovery)	TPH-DRO C ₁₀ -C ₂₈ (% Recovery)	Date Sampled	Date Analyzed	Lab ID
Laboratory Control Sample (Acceptable Range 70-130)	102 %	95 %	91 %	90 %	97 %	93 %		01/24/13	L1-24-1
Calibration Check Standard (Acceptable Range 80-120)	96 %	99 %	93 %	97 %	91 %	102 %		01/24/13	C1-24-1
Method Blank	< 0.01 mg/kg	< 0.01 mg/kg	< 0.01 mg/kg	< 0.01 mg/kg	< 50 mg/kg	< 50 mg/kg		01/24/13	B1-24-1

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