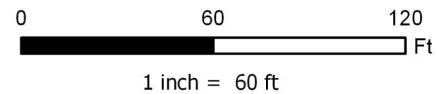




Legend

● Origin ● Soil Sample Location — Spill Path ▨ Spill Area



Project No: 018-065

Map By: NDB

Date: 2-7-2018

Emerald 2 Spill
Chevron USA, Inc.
Rio Blanco County, Colorado
NE/4 NE/4 Sec 25 T2S R103W



330 Grand Avenue, Unit C
Grand Junction, CO 81501
970-549-1015

Figure

1

Table 1
Emerald 2 Spill
Soil Data Summary

SAMPLE SUMMARY	
Location Description	Emerald 2 Spill
Sample Type	Soil

LABORATORY DATA SUMMARY					
Sample ID	EM2-SS1	EM2-SS2	EM2-BG1	COGCC TABLE 910-1 CONCENTRATION LEVELS	UNITS
Depth	0-6"	0-6"	0-6"		
Sample Date	11/1/2018	11/1/2018	11/1/2018		
Analytical Parameters					
TPH					
TPH Gasoline Range Organics	<2.1	<2.1	NT	500	mg/kg
TPH Diesel Range Organics	<3.2	<3.2	NT		
BTEX					
Benzene	<0.0067	<0.0067	NT	0.17	mg/kg
Toluene	<0.011	<0.011	NT	85	mg/kg
Ethylbenzene	<0.0082	<0.0082	NT	100	mg/kg
Total Xylene	<0.034	<0.034	NT	175	mg/kg
Metals					
Arsenic	6.3	6.2	7.3	0.39	mg/kg
Barium	110	170	110	15,000	mg/kg
Cadmium	0.22 J	0.16 J	0.16 J	70	mg/kg
Chromium	12	11	13	NA	mg/kg
Copper	17	16	17	3,100	mg/kg
Lead	15	13	13	400	mg/kg
Mercury	0.025	0.028	0.031	23	mg/kg
Nickel	13	13	14	1,600	mg/kg
Selenium	0.68 J	0.50 J	0.74 J	390	mg/kg
Silver	<0.054	<0.054	<0.048	390	mg/kg
Zinc	66	62	65	23,000	mg/kg
SAR Metals Analysis					
Calcium	100	30	92	NA	mg/L
Magnesium	42	12	33	NA	mg/L
Sodium	270	150	240	NA	mg/L
Sodium Adsorption Ratio	5.6	5.7	5.6	<12	ratio
Polynuclear Aromatic Hydrocarbons					
Acenaphthene	<0.0054	<0.0055	NT	1,000	mg/kg
Anthracene	<0.0052	<0.0053	NT	1,000	mg/kg
Benzo(a)anthracene	0.021	<0.0065	NT	0.22	mg/kg
Benzo(a)pyrene	0.019	<0.0046	NT	0.022	mg/kg
Benzo(b)fluoranthene	0.026	<0.0056	NT	0.22	mg/kg
Benzo(k)fluoranthene	0.010	<0.0057	NT	2.2	mg/kg
Chrysene	0.016	<0.0061	NT	22	mg/kg
Dibenzo(a,h)anthracene	<0.0040	<0.0041	NT	0.022	mg/kg
Fluoranthene	0.054	0.034	NT	1,000	mg/kg
Fluorene	<0.0054	<0.0055	NT	1,000	mg/kg
Indeno(1,2,3-cd)pyrene	0.0074 J	<0.0052	NT	0.22	mg/kg
Napthalene	<0.0048	<0.0048	NT	23	mg/kg
Pyrene	0.030	<0.0014	NT	1,000	mg/kg
General Chemistry					
Chromium, Hexavalent	<0.35	<0.34	0.74 J	23	mg/kg
Chromium, Trivalent	12	11	13	120,000	mg/kg
Specific Conductivity	1.4	0.75	1.3	<4 or 2 x the background	mmhos/cm
pH	9.16	8.91	9.37	6-9	su

mg/kg - milligrams per kilogram
mg/L - milligrams per liter
J - indicates an estimated value
mmhos/cm - millimhos per centimeter
mv - millivolts
su - standard units
NA - not applicable
NT - parameter was not tested

Over COGCC Table 910-1 concentration levels but under BACKGROUND level.

Over COGCC Table 910-1 concentration levels and not within BACKGROUND level.

Over COGCC Table 910-1 concentration levels



26-Nov-2018

Tim Dobransky
Entrada Consulting Group
240 Mesa Ave.
Grand Junction, CO 81501

Re: **Emerald 2 Spill**

Work Order: **1811346**

Dear Tim,

ALS Environmental received 3 samples on 06-Nov-2018 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 26.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Entrada Consulting Group
Project: Emerald 2 Spill
Work Order: 1811346

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1811346-01	EM2-SS1	Soil		11/1/2018 13:35	11/6/2018 09:30	<input type="checkbox"/>
1811346-02	EM2-SS2	Soil		11/1/2018 13:45	11/6/2018 09:30	<input type="checkbox"/>
1811346-03	EM2-BG1	Soil		11/1/2018 13:50	11/6/2018 09:30	<input type="checkbox"/>

Client: Entrada Consulting Group**Project:** Emerald 2 Spill**Work Order:** 1811346**Case Narrative**

Batch 127587, Method HG_7471_S, Sample 1811346-01A MSD: The RPD between the MS and MSD was outside the control limit for Mercury. The corresponding result in the parent sample should be considered estimated.

Batch 128146, Method CR6_7196_S, Sample 1811346-01A MSD: The RPD between the MS and MSD was outside the control limit for Hexavalent Chromium. The corresponding result in the parent sample should be considered estimated.

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

ALS Group, USA

Date: 26-Nov-18

Client: Entrada Consulting Group
Project: Emerald 2 Spill
Sample ID: EM2-SS1
Collection Date: 11/1/2018 01:35 PM

Work Order: 1811346
Lab ID: 1811346-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015M		Prep: SW3546 / 11/12/18		Analyst: RP
DRO (C10-C28)	U		3.2	5.6	mg/Kg-dry	1	11/14/2018 12:09
Surr: 4-Terphenyl-d14	82.3			33-111	%REC	1	11/14/2018 12:09
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 11/7/18		Analyst: RP
GRO (C6-C10)	U		2.1	5.0	mg/Kg	1	11/14/2018 01:25
Surr: Toluene-d8	86.9			71-123	%REC	1	11/14/2018 01:25
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 11/7/18		Analyst: RSB
Mercury	0.025		0.0019	0.019	mg/Kg-dry	1	11/9/2018 17:30
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 11/14/18		Analyst: ABL
Arsenic	6.3		0.11	0.44	mg/Kg-dry	1	11/14/2018 16:45
Barium	110		0.18	0.44	mg/Kg-dry	1	11/14/2018 16:45
Cadmium	0.22	J	0.042	0.88	mg/Kg-dry	1	11/14/2018 16:45
Chromium	12		0.025	0.44	mg/Kg-dry	1	11/14/2018 16:45
Copper	17		0.19	0.88	mg/Kg-dry	1	11/14/2018 16:45
Lead	15		0.093	0.44	mg/Kg-dry	1	11/14/2018 16:45
Nickel	13		0.18	0.44	mg/Kg-dry	1	11/14/2018 16:45
Selenium	0.68	J	0.25	0.88	mg/Kg-dry	1	11/14/2018 16:45
Silver	U		0.054	0.44	mg/Kg-dry	1	11/14/2018 16:45
Zinc	66		0.070	0.88	mg/Kg-dry	1	11/14/2018 16:45
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 11/14/18		Analyst: STP
Calcium	100		1.7	10	mg/L	20	11/14/2018 18:14
Magnesium	42		0.14	4.0	mg/L	20	11/14/2018 18:14
Sodium	270		0.68	4.0	mg/L	20	11/14/2018 18:14
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/14/18		Analyst: STP
Sodium Adsorption Ratio	5.6		0.010	0.010	none	1	11/14/2018
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 11/12/18		Analyst: KAW
Acenaphthene	U		0.0054	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Anthracene	U		0.0052	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Benzo(a)anthracene	0.021		0.0064	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Benzo(a)pyrene	0.019		0.0046	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Benzo(b)fluoranthene	0.026		0.0055	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Benzo(k)fluoranthene	0.010		0.0056	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Chrysene	0.016		0.0060	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Dibenzo(a,h)anthracene	U		0.0040	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Fluoranthene	0.054		0.0036	0.0074	mg/Kg-dry	1	11/14/2018 03:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 26-Nov-18

Client: Entrada Consulting Group
Project: Emerald 2 Spill
Sample ID: EM2-SS1
Collection Date: 11/1/2018 01:35 PM

Work Order: 1811346
Lab ID: 1811346-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0054	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Indeno(1,2,3-cd)pyrene	0.0074	J	0.0052	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Naphthalene	U		0.0048	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Pyrene	0.030		0.0014	0.0074	mg/Kg-dry	1	11/14/2018 03:45
Surr: 2-Fluorobiphenyl	68.9			44-107	%REC	1	11/14/2018 03:45
Surr: 4-Terphenyl-d14	73.3			52-123	%REC	1	11/14/2018 03:45
Surr: Nitrobenzene-d5	54.3			41-94	%REC	1	11/14/2018 03:45
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 11/7/18		Analyst: LSY
Benzene	U		0.0067	0.039	mg/Kg	1	11/13/2018 03:22
Ethylbenzene	U		0.0082	0.039	mg/Kg	1	11/13/2018 03:22
m,p-Xylene	0.019	J	0.019	0.078	mg/Kg	1	11/13/2018 03:22
o-Xylene	U		0.015	0.039	mg/Kg	1	11/13/2018 03:22
Toluene	U		0.011	0.039	mg/Kg	1	11/13/2018 03:22
Xylenes, Total	U		0.034	0.12	mg/Kg	1	11/13/2018 03:22
Surr: 1,2-Dichloroethane-d4	100			70-130	%REC	1	11/13/2018 03:22
Surr: 4-Bromofluorobenzene	95.0			70-130	%REC	1	11/13/2018 03:22
Surr: Dibromofluoromethane	84.0			70-130	%REC	1	11/13/2018 03:22
Surr: Toluene-d8	97.0			70-130	%REC	1	11/13/2018 03:22
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/14/18		Analyst: JB
Electrical Conductivity @ Saturation	1.4		0.011	0.10	mmhos/cm @25°	20	11/21/2018 00:30
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: MB
Chromium, Trivalent	12		0.36	1.2	mg/Kg-dry	1	11/21/2018 12:30
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 11/20/18		Analyst: JEB
Chromium, Hexavalent	U		0.35	1.1	mg/Kg-dry	1	11/20/2018 11:00
MOISTURE			Method: SW3550C				Analyst: RBS
Moisture	13		0.025	0.050	% of sample	1	11/15/2018 18:23
PH			Method: SW9045D		Prep: EXTRACT / 11/8/18		Analyst: RZM
pH	9.16		0.10	0.100	s.u.	1	11/9/2018 10:35

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 26-Nov-18

Client: Entrada Consulting Group
Project: Emerald 2 Spill
Sample ID: EM2-SS2
Collection Date: 11/1/2018 01:45 PM

Work Order: 1811346
Lab ID: 1811346-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015M		Prep: SW3546 / 11/12/18		Analyst: RP
DRO (C10-C28)	U		3.2	5.7	mg/Kg-dry	1	11/14/2018 12:38
Surr: 4-Terphenyl-d14	83.1			33-111	%REC	1	11/14/2018 12:38
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 11/7/18		Analyst: RP
GRO (C6-C10)	U		2.1	5.0	mg/Kg	1	11/14/2018 01:54
Surr: Toluene-d8	89.9			71-123	%REC	1	11/14/2018 01:54
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 11/7/18		Analyst: RSB
Mercury	0.028		0.0021	0.021	mg/Kg-dry	1	11/9/2018 17:38
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 11/14/18		Analyst: ABL
Arsenic	6.2		0.11	0.44	mg/Kg-dry	1	11/14/2018 16:51
Barium	170		0.17	0.44	mg/Kg-dry	1	11/14/2018 16:51
Cadmium	0.16	J	0.042	0.87	mg/Kg-dry	1	11/14/2018 16:51
Chromium	11		0.024	0.44	mg/Kg-dry	1	11/14/2018 16:51
Copper	16		0.19	0.87	mg/Kg-dry	1	11/14/2018 16:51
Lead	13		0.093	0.44	mg/Kg-dry	1	11/14/2018 16:51
Nickel	13		0.17	0.44	mg/Kg-dry	1	11/14/2018 16:51
Selenium	0.50	J	0.24	0.87	mg/Kg-dry	1	11/14/2018 16:51
Silver	U		0.054	0.44	mg/Kg-dry	1	11/14/2018 16:51
Zinc	62		0.070	0.87	mg/Kg-dry	1	11/14/2018 16:51
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 11/14/18		Analyst: STP
Calcium	30		1.7	10	mg/L	20	11/14/2018 18:20
Magnesium	12		0.14	4.0	mg/L	20	11/14/2018 18:20
Sodium	150		0.68	4.0	mg/L	20	11/14/2018 18:20
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/14/18		Analyst: STP
Sodium Adsorption Ratio	5.7		0.010	0.010	none	1	11/14/2018
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 11/12/18		Analyst: KAW
Acenaphthene	U		0.0055	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Anthracene	U		0.0053	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Benzo(a)anthracene	U		0.0065	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Benzo(a)pyrene	U		0.0046	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Benzo(b)fluoranthene	U		0.0056	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Benzo(k)fluoranthene	U		0.0057	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Chrysene	U		0.0061	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Dibenzo(a,h)anthracene	U		0.0041	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Fluoranthene	0.034		0.0036	0.0075	mg/Kg-dry	1	11/14/2018 04:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 26-Nov-18

Client: Entrada Consulting Group
Project: Emerald 2 Spill
Sample ID: EM2-SS2
Collection Date: 11/1/2018 01:45 PM

Work Order: 1811346
Lab ID: 1811346-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0055	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Indeno(1,2,3-cd)pyrene	U		0.0052	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Naphthalene	U		0.0048	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Pyrene	U		0.0014	0.0075	mg/Kg-dry	1	11/14/2018 04:08
Surr: 2-Fluorobiphenyl	67.9			44-107	%REC	1	11/14/2018 04:08
Surr: 4-Terphenyl-d14	76.6			52-123	%REC	1	11/14/2018 04:08
Surr: Nitrobenzene-d5	54.4			41-94	%REC	1	11/14/2018 04:08
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 11/7/18		Analyst: EMR
Benzene	U		0.0067	0.039	mg/Kg	1	11/12/2018 23:21
Ethylbenzene	U		0.0082	0.039	mg/Kg	1	11/12/2018 23:21
m,p-Xylene	U		0.019	0.078	mg/Kg	1	11/12/2018 23:21
o-Xylene	U		0.015	0.039	mg/Kg	1	11/12/2018 23:21
Toluene	U		0.011	0.039	mg/Kg	1	11/12/2018 23:21
Xylenes, Total	U		0.034	0.12	mg/Kg	1	11/12/2018 23:21
Surr: 1,2-Dichloroethane-d4	98.2			70-130	%REC	1	11/12/2018 23:21
Surr: 4-Bromofluorobenzene	102			70-130	%REC	1	11/12/2018 23:21
Surr: Dibromofluoromethane	93.9			70-130	%REC	1	11/12/2018 23:21
Surr: Toluene-d8	99.8			70-130	%REC	1	11/12/2018 23:21
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/14/18		Analyst: JB
Electrical Conductivity @ Saturation	0.75		0.011	0.10	mmhos/cm @25°	20	11/21/2018 00:30
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: JB
Chromium, Trivalent	11		0.35	1.1	mg/Kg-dry	1	11/25/2018 19:00
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 11/20/18		Analyst: JEB
Chromium, Hexavalent	U		0.34	1.1	mg/Kg-dry	1	11/21/2018 13:00
MOISTURE			Method: SW3550C				Analyst: RBS
Moisture	13		0.025	0.050	% of sample	1	11/15/2018 18:23
PH			Method: SW9045D		Prep: EXTRACT / 11/8/18		Analyst: RZM
pH	8.91		0.10	0.100	s.u.	1	11/9/2018 10:35

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 26-Nov-18

Client: Entrada Consulting Group
Project: Emerald 2 Spill
Sample ID: EM2-BG1
Collection Date: 11/1/2018 01:50 PM

Work Order: 1811346
Lab ID: 1811346-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
Mercury	0.031		0.0022	0.022	mg/Kg-dry	1	11/9/2018 17:40
METALS ANALYSIS BY ICP							
Arsenic	7.3		0.10	0.39	mg/Kg-dry	1	11/14/2018 16:57
Barium	110		0.15	0.39	mg/Kg-dry	1	11/14/2018 16:57
Cadmium	0.16	J	0.037	0.77	mg/Kg-dry	1	11/14/2018 16:57
Chromium	13		0.022	0.39	mg/Kg-dry	1	11/14/2018 16:57
Copper	17		0.17	0.77	mg/Kg-dry	1	11/14/2018 16:57
Lead	13		0.082	0.39	mg/Kg-dry	1	11/14/2018 16:57
Nickel	14		0.15	0.39	mg/Kg-dry	1	11/14/2018 16:57
Selenium	0.74	J	0.22	0.77	mg/Kg-dry	1	11/14/2018 16:57
Silver	U		0.048	0.39	mg/Kg-dry	1	11/14/2018 16:57
Zinc	65		0.062	0.77	mg/Kg-dry	1	11/14/2018 16:57
SOLUBLE CATIONS FOR SAR							
Calcium	92		1.7	10	mg/L	20	11/14/2018 18:22
Magnesium	33		0.14	4.0	mg/L	20	11/14/2018 18:22
Sodium	240		0.68	4.0	mg/L	20	11/14/2018 18:22
SODIUM ADSORPTION RATIO							
Sodium Adsorption Ratio	5.6		0.010	0.010	none	1	11/14/2018
ELECTRICAL CONDUCTIVITY (SAR)							
Electrical Conductivity @ Saturation	1.3		0.011	0.10	mmhos/cm @25°	20	11/21/2018 00:30
CHROMIUM, TRIVALENT							
Chromium, Trivalent	13		0.37	1.2	mg/Kg-dry	1	11/25/2018 19:00
CHROMIUM, HEXAVALENT							
Chromium, Hexavalent	0.74	J	0.39	1.3	mg/Kg-dry	1	11/21/2018 13:00
MOISTURE							
Moisture	16		0.025	0.050	% of sample	1	11/15/2018 18:23
PH							
pH	9.37		0.10	0.100	s.u.	1	11/9/2018 10:35

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127796** Instrument ID **GC8** Method: **SW8015M**

MBLK		Sample ID: DBLKS1-127796-127796				Units: mg/Kg		Analysis Date: 11/13/2018 04:23 PM		
Client ID:		Run ID: GC8_181113A				SeqNo: 5384391		Prep Date: 11/12/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) U 5.0
Surr: 4-Terphenyl-d14 2.807 0 3.33 0 84.3 33-111 0

LCS		Sample ID: DLCSS1-127796-127796				Units: mg/Kg		Analysis Date: 11/13/2018 04:52 PM		
Client ID:		Run ID: GC8_181113A				SeqNo: 5384392		Prep Date: 11/12/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 202.5 5.0 333 0 60.8 58-111 0
Surr: 4-Terphenyl-d14 2.816 0 3.33 0 84.6 33-111 0

MS		Sample ID: 1811329-01A MS				Units: mg/Kg		Analysis Date: 11/13/2018 05:21 PM		
Client ID:		Run ID: GC8_181113A				SeqNo: 5384393		Prep Date: 11/12/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 190 4.9 326.2 0 58.2 58-111 0
Surr: 4-Terphenyl-d14 2.711 0 3.262 0 83.1 33-111 0

MSD		Sample ID: 1811329-01A MSD				Units: mg/Kg		Analysis Date: 11/13/2018 05:50 PM		
Client ID:		Run ID: GC8_181113A				SeqNo: 5384394		Prep Date: 11/12/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 184.9 4.7 314.8 0 58.7 58-111 190 2.73 30
Surr: 4-Terphenyl-d14 2.711 0 3.148 0 86.1 33-111 2.711 0.00654 30

The following samples were analyzed in this batch: 1811346-01A 1811346-02A

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127567** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-127567-127567				Units: µg/Kg-dry		Analysis Date: 11/13/2018 04:11 PM		
Client ID:		Run ID: GC9_181113A				SeqNo: 5384908		Prep Date: 11/7/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	4491	0	5000	0	89.8	71-123	0			

LCS		Sample ID: LCS-127567-127567				Units: µg/Kg-dry		Analysis Date: 11/13/2018 02:15 PM		
Client ID:		Run ID: GC9_181113A				SeqNo: 5384903		Prep Date: 11/7/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	482000	5,000	500000	0	96.4	71-123	0			
Surr: Toluene-d8	5604	0	5000	0	112	71-123	0			

MS		Sample ID: 1811346-02A MS				Units: µg/Kg-dry		Analysis Date: 11/14/2018 10:35 A		
Client ID: EM2-SS2		Run ID: GC9_181113A				SeqNo: 5385396		Prep Date: 11/7/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	574500	5,000	500000	0	115	71-123	0			
Surr: Toluene-d8	5300	0	5000	0	106	71-123	0			

MSD		Sample ID: 1811346-02A MSD				Units: µg/Kg-dry		Analysis Date: 11/14/2018 11:33 A		
Client ID: EM2-SS2		Run ID: GC9_181113A				SeqNo: 5385397		Prep Date: 11/7/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	532200	5,000	500000	0	106	71-123	574500	7.65	30	
Surr: Toluene-d8	5163	0	5000	0	103	71-123	5300	2.62	30	

The following samples were analyzed in this batch:

1811346-01A	1811346-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127587** Instrument ID **HG4** Method: **SW7471B**

MBLK		Sample ID: MBLK-127587-127587				Units: mg/Kg		Analysis Date: 11/9/2018 05:25 PM		
Client ID:		Run ID: HG4_181109B				SeqNo: 5379749		Prep Date: 11/7/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-127587-127587				Units: mg/Kg		Analysis Date: 11/9/2018 05:28 PM		
Client ID:		Run ID: HG4_181109B				SeqNo: 5379750		Prep Date: 11/7/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1917 0.020 0.1665 0 115 80-120 0

MS		Sample ID: 1811346-01A MS				Units: mg/Kg		Analysis Date: 11/9/2018 05:33 PM		
Client ID: EM2-SS1		Run ID: HG4_181109B				SeqNo: 5379752		Prep Date: 11/7/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.06268 0.017 0.1399 0.02179 29.2 75-125 0 S

MSD		Sample ID: 1811346-01A MSD				Units: mg/Kg		Analysis Date: 11/9/2018 05:35 PM		
Client ID: EM2-SS1		Run ID: HG4_181109B				SeqNo: 5379753		Prep Date: 11/7/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1573 0.017 0.1395 0.02179 97.1 75-125 0.06268 86 35 R

The following samples were analyzed in this batch:

1811346-01A	1811346-02A	1811346-03A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127937** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-127937-127937				Units: mg/Kg		Analysis Date: 11/14/2018 03:30 PM		
Client ID:		Run ID: ICP2_181114A				SeqNo: 5386178		Prep Date: 11/14/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.028	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	0.0452	0.25								J
Zinc	0.0635	0.50								J

LCS		Sample ID: LCS-127937-127937				Units: mg/Kg		Analysis Date: 11/14/2018 03:36 PM		
Client ID:		Run ID: ICP2_181114A				SeqNo: 5386182		Prep Date: 11/14/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.46	0.25	5	0	89.2	80-120	0			
Barium	5.151	0.25	5	0	103	80-120	0			
Cadmium	4.73	0.50	5	0	94.6	80-120	0			
Chromium	5.224	0.25	5	0	104	80-120	0			
Copper	5.178	0.50	5	0	104	80-120	0			
Lead	4.79	0.25	5	0	95.8	80-120	0			
Nickel	4.835	0.25	5	0	96.7	80-120	0			
Selenium	4.525	0.50	5	0	90.5	80-120	0			
Silver	4.88	0.25	5	0	97.6	80-120	0			
Zinc	4.83	0.50	5	0	96.6	80-120	0			

MS		Sample ID: 1811459-03AMS				Units: mg/Kg		Analysis Date: 11/14/2018 06:33 PM		
Client ID:		Run ID: ICP2_181114A				SeqNo: 5386254		Prep Date: 11/14/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	10.93	0.36	7.299	4.541	87.5	75-125	0			
Barium	113.1	0.36	7.299	93.93	262	75-125	0			SO
Cadmium	6.796	0.73	7.299	0.1203	91.5	75-125	0			
Chromium	18.09	0.36	7.299	8.237	135	75-125	0			S
Copper	18.67	0.73	7.299	10.61	110	75-125	0			
Lead	15.83	0.36	7.299	9.318	89.3	75-125	0			
Nickel	15.85	0.36	7.299	9.111	92.4	75-125	0			
Selenium	6.759	0.73	7.299	0.3331	88	75-125	0			
Silver	7.299	0.36	7.299	-0.3047	104	75-125	0			
Zinc	52.71	0.73	7.299	44.98	106	75-125	0			O

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127937** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 1811459-03AMSD				Units: mg/Kg		Analysis Date: 11/14/2018 06:39 PM		
Client ID:		Run ID: ICP2_181114A				SeqNo: 5386256		Prep Date: 11/14/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	10.92	0.36	7.278	4.541	87.6	75-125	10.93	0.0906	20	
Barium	108.2	0.36	7.278	93.93	196	75-125	113.1	4.43	20	SO
Cadmium	6.761	0.73	7.278	0.1203	91.2	75-125	6.796	0.507	20	
Chromium	17.91	0.36	7.278	8.237	133	75-125	18.09	1	20	S
Copper	18.61	0.73	7.278	10.61	110	75-125	18.67	0.301	20	
Lead	15.71	0.36	7.278	9.318	87.9	75-125	15.83	0.764	20	
Nickel	15.24	0.36	7.278	9.111	84.2	75-125	15.85	3.97	20	
Selenium	6.718	0.73	7.278	0.3331	87.7	75-125	6.759	0.616	20	
Silver	7.271	0.36	7.278	-0.3047	104	75-125	7.299	0.392	20	
Zinc	51.82	0.73	7.278	44.98	94	75-125	52.71	1.71	20	O

The following samples were analyzed in this batch:

1811346-01A 1811346-02A 1811346-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127975** Instrument ID **ICPMS3** Method: **SW6020A**

DUP		Sample ID: 1811339-03BDUP				Units: mg/L		Analysis Date: 11/14/2018 06:12 PM		
Client ID:		Run ID: ICPMS3_181114A				SeqNo: 5386214		Prep Date: 11/14/2018		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	474.9	5.0	0	0	0	0-0	401.9	16.7		
Magnesium	44.21	2.0	0	0	0	0-0	38.62	13.5		
Sodium	679.9	2.0	0	0	0	0-0	604.8	11.7		

The following samples were analyzed in this batch:

1811346-01B 1811346-02B 1811346-03B

Batch ID: **127975** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 1811339-03BDUP				Units: none		Analysis Date: 11/14/2018		
Client ID:		Run ID: SAR_181114A				SeqNo: 5385113		Prep Date: 11/14/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	8	0.010	0	0	0		7.719	3.57	50	

The following samples were analyzed in this batch:

1811346-01B 1811346-02B 1811346-03B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127795** Instrument ID **SVMS9** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-127795-127795				Units: µg/Kg		Analysis Date: 11/12/2018 07:26 PM		
Client ID:		Run ID: SVMS9_181112A				SeqNo: 5382273		Prep Date: 11/12/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	6.7								
Anthracene	U	6.7								
Benzo(a)anthracene	U	6.7								
Benzo(a)pyrene	U	6.7								
Benzo(b)fluoranthene	U	6.7								
Benzo(k)fluoranthene	U	6.7								
Chrysene	U	6.7								
Dibenzo(a,h)anthracene	U	6.7								
Fluoranthene	U	6.7								
Fluorene	U	6.7								
Indeno(1,2,3-cd)pyrene	U	6.7								
Naphthalene	U	6.7								
Pyrene	U	6.7								
Surr: 2-Fluorobiphenyl	2193	0	3333	0	65.8	44-107	0			
Surr: 4-Terphenyl-d14	2603	0	3333	0	78.1	52-123	0			
Surr: Nitrobenzene-d5	1803	0	3333	0	54.1	41-94	0			

LCS		Sample ID: SLCSS1-127795-127795				Units: µg/Kg		Analysis Date: 11/12/2018 07:49 PM		
Client ID:		Run ID: SVMS9_181112A				SeqNo: 5382274		Prep Date: 11/12/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1104	6.7	1333	0	82.8	55-101	0			
Anthracene	1111	6.7	1333	0	83.4	67-105	0			
Benzo(a)anthracene	1189	6.7	1333	0	89.2	68-105	0			
Benzo(a)pyrene	1159	6.7	1333	0	86.9	68-110	0			
Benzo(b)fluoranthene	1134	6.7	1333	0	85.1	65-110	0			
Benzo(k)fluoranthene	1158	6.7	1333	0	86.9	66-113	0			
Chrysene	1161	6.7	1333	0	87.1	68-108	0			
Dibenzo(a,h)anthracene	1148	6.7	1333	0	86.1	62-119	0			
Fluoranthene	1075	6.7	1333	0	80.7	67-106	0			
Fluorene	1137	6.7	1333	0	85.3	59-107	0			
Indeno(1,2,3-cd)pyrene	1131	6.7	1333	0	84.8	56-120	0			
Naphthalene	984	6.7	1333	0	73.8	46-98	0			
Pyrene	1165	6.7	1333	0	87.4	60-119	0			
Surr: 2-Fluorobiphenyl	2769	0	3333	0	83.1	44-107	0			
Surr: 4-Terphenyl-d14	2927	0	3333	0	87.8	52-123	0			
Surr: Nitrobenzene-d5	2295	0	3333	0	68.9	41-94	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127795** Instrument ID **SVMS9** Method: **SW846 8270D**

MS				Sample ID: 1811329-01A MS				Units: µg/Kg		Analysis Date: 11/12/2018 08:12 PM	
Client ID:			Run ID: SVMS9_181112A			SeqNo: 5382352		Prep Date: 11/12/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	970.5	6.7	1332	0	72.9	55-101	0				
Anthracene	957.8	6.7	1332	0	71.9	67-105	0				
Benzo(a)anthracene	1020	6.7	1332	0	76.6	68-105	0				
Benzo(a)pyrene	1022	6.7	1332	0	76.7	68-110	0				
Benzo(b)fluoranthene	985.8	6.7	1332	0	74	65-110	0				
Benzo(k)fluoranthene	961.2	6.7	1332	0	72.2	66-113	0				
Chrysene	987.1	6.7	1332	0	74.1	68-108	0				
Dibenzo(a,h)anthracene	994.5	6.7	1332	0	74.7	62-119	0				
Fluoranthene	971.2	6.7	1332	0	72.9	67-106	0				
Fluorene	1011	6.7	1332	0	75.9	59-107	0				
Indeno(1,2,3-cd)pyrene	1041	6.7	1332	0	78.2	56-120	0				
Naphthalene	848.6	6.7	1332	0	63.7	46-98	0				
Pyrene	996.5	6.7	1332	0	74.8	60-119	0				
Surr: 2-Fluorobiphenyl	2316	0	3330	0	69.5	44-107	0				
Surr: 4-Terphenyl-d14	2493	0	3330	0	74.9	52-123	0				
Surr: Nitrobenzene-d5	2032	0	3330	0	61	41-94	0				

MSD				Sample ID: 1811329-01A MSD				Units: µg/Kg		Analysis Date: 11/12/2018 08:35 PM	
Client ID:		Run ID: SVMS9_181112A			SeqNo: 5382353		Prep Date: 11/12/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	801.9	6.4	1283	0	62.5	55-101	970.5	19	30		
Anthracene	800.6	6.4	1283	0	62.4	67-105	957.8	17.9	30	S	
Benzo(a)anthracene	866.7	6.4	1283	0	67.6	68-105	1020	16.2	30	S	
Benzo(a)pyrene	875.7	6.4	1283	0	68.3	68-110	1022	15.4	30		
Benzo(b)fluoranthene	845.5	6.4	1283	0	65.9	65-110	985.8	15.3	30		
Benzo(k)fluoranthene	800.6	6.4	1283	0	62.4	66-113	961.2	18.2	30	S	
Chrysene	834	6.4	1283	0	65	68-108	987.1	16.8	30	S	
Dibenzo(a,h)anthracene	835.9	6.4	1283	0	65.2	62-119	994.5	17.3	30		
Fluoranthene	811.5	6.4	1283	0	63.3	67-106	971.2	17.9	30	S	
Fluorene	828.2	6.4	1283	0	64.6	59-107	1011	19.9	30		
Indeno(1,2,3-cd)pyrene	883.4	6.4	1283	0	68.9	56-120	1041	16.4	30		
Naphthalene	696	6.4	1283	0	54.3	46-98	848.6	19.8	30		
Pyrene	836.5	6.4	1283	0	65.2	60-119	996.5	17.4	30		
Surr: 2-Fluorobiphenyl	1900	0	3207	0	59.2	44-107	2316	19.7	40		
Surr: 4-Terphenyl-d14	2089	0	3207	0	65.1	52-123	2493	17.7	40		
Surr: Nitrobenzene-d5	1672	0	3207	0	52.1	41-94	2032	19.5	40		

The following samples were analyzed in this batch:

1811346-01A 1811346-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127566** Instrument ID **VMS8** Method: **SW8260C**

Sample ID: MBLK-127566-127566				Units: µg/Kg-dry			Analysis Date: 11/12/2018 06:41 PM			
Client ID:		Run ID: VMS8_181112A			SeqNo: 5382409		Prep Date: 11/7/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>962.5</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>96.2</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>977.5</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>97.8</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: Dibromofluoromethane</i>	<i>928</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>92.8</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: Toluene-d8</i>	<i>999</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>99.9</i>	<i>70-130</i>	<i>0</i>			

LCS			Sample ID: LCS-127566-127566				Units: µg/Kg-dry		Analysis Date: 11/12/2018 05:39 PM		
Client ID:			Run ID: VMS8_181112A		SeqNo: 5382407		Prep Date: 11/7/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	962.5	30	1000	0	96.2	75-125	0				
Ethylbenzene	971	30	1000	0	97.1	75-125	0				
m,p-Xylene	1955	60	2000	0	97.8	80-125	0				
o-Xylene	1026	30	1000	0	103	75-125	0				
Toluene	965	30	1000	0	96.5	70-125	0				
Xylenes, Total	2980	90	3000	0	99.4	75-125	0				
Surr: 1,2-Dichloroethane-d4	971.5	0	1000	0	97.2	70-130	0				
Surr: 4-Bromofluorobenzene	1010	0	1000	0	101	70-130	0				
Surr: Dibromofluoromethane	995.5	0	1000	0	99.6	70-130	0				
Surr: Toluene-d8	969.5	0	1000	0	97	70-130	0				

MS				Sample ID: 1811346-02A MS			Units: µg/Kg-dry		Analysis Date: 11/13/2018 12:55 PM		
Client ID: EM2-SS2			Run ID: VMS8_181112A		SeqNo: 5382484		Prep Date: 11/7/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1133	39	1299	0	87.2	75-125	0				
Ethylbenzene	1149	39	1299	0	88.4	75-125	0				
m,p-Xylene	2344	78	2598	0	90.2	80-125	0				
o-Xylene	1200	39	1299	11.04	91.6	75-125	0				
Toluene	1142	39	1299	0	88	70-125	0				
Xylenes, Total	3545	120	3897	0	91	75-125	0				
Surr: 1,2-Dichloroethane-d4	1264	0	1299	0	97.3	70-130	0				
Surr: 4-Bromofluorobenzene	1305	0	1299	0	100	70-130	0				
Surr: Dibromofluoromethane	1248	0	1299	0	96.1	70-130	0				
Surr: Toluene-d8	1283	0	1299	0	98.8	70-130	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127566** Instrument ID **VMS8** Method: **SW8260C**

MSD				Sample ID: 1811346-02A MSD			Units: µg/Kg-dry		Analysis Date: 11/13/2018 01:10 A	
Client ID: EM2-SS2				Run ID: VMS8_181112A			SeqNo: 5382483		Prep Date: 11/7/2018	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1037	39	1299	0	79.8	75-125	1133	8.86	30	
Ethylbenzene	1083	39	1299	0	83.4	75-125	1149	5.94	30	
m,p-Xylene	2252	78	2598	0	86.7	80-125	2344	4.04	30	
o-Xylene	1160	39	1299	11.04	88.4	75-125	1200	3.41	30	
Toluene	1102	39	1299	0	84.8	70-125	1142	3.59	30	
Xylenes, Total	3411	120	3897	0	87.6	75-125	3545	3.83	30	
Surr: 1,2-Dichloroethane-d4	1247	0	1299	0	96	70-130	1264	1.35	30	
Surr: 4-Bromofluorobenzene	1357	0	1299	0	104	70-130	1305	3.9	30	
Surr: Dibromofluoromethane	1257	0	1299	0	96.8	70-130	1248	0.674	30	
Surr: Toluene-d8	1335	0	1299	0	103	70-130	1283	3.92	30	

The following samples were analyzed in this batch:

1811346-01A 1811346-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127637** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-127637-127637				Units: s.u.			Analysis Date: 11/9/2018 10:35 AM		
Client ID:				Run ID: WETCHEM_181109B				SeqNo: 5376644		Prep Date: 11/8/2018		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
pH		3.9	0.10	4	0	97.5	90-110	0					

DUP		Sample ID: 1811155-01B DUP				Units: s.u.		Analysis Date: 11/9/2018 10:35 AM		
Client ID:		Run ID: WETCHEM_181109B				SeqNo: 5376646		Prep Date: 11/8/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.29	0.10	0	0	0	0-0	7.99	3.69	20	

The following samples were analyzed in this batch:

1811346-01A 1811346-02A 1811346-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **127975** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP		Sample ID: 1811339-03BDUP				Units: mmhos/cm @25°		Analysis Date: 11/21/2018 12:30 A		
Client ID:		Run ID: WETCHEM_181121E		SeqNo: 5398306		Prep Date: 11/14/2018		DF: 20		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	6.6	0.10	0	0	0		5.72	14.3	50	

The following samples were analyzed in this batch:

1811346-01B	1811346-02B	1811346-03B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **128146** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-128146-128146				Units: mg/Kg		Analysis Date: 11/20/2018 11:00 A		
Client ID:		Run ID: WETCHEM_181120F		SeqNo: 5395807		Prep Date: 11/20/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

LCS		Sample ID: LCS-128146-128146				Units: mg/Kg		Analysis Date: 11/20/2018 11:00 A		
Client ID:		Run ID: WETCHEM_181120F		SeqNo: 5395808		Prep Date: 11/20/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.1 1.0 5 0 82 80-120 0

MS		Sample ID: 1811346-01A MS				Units: mg/Kg		Analysis Date: 11/20/2018 11:00 A		
Client ID: EM2-SS1		Run ID: WETCHEM_181120F		SeqNo: 5395818		Prep Date: 11/20/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 0.46 1.0 5 -0.3287 15.8 75-125 0 JS

MS		Sample ID: 1811346-01A MSI				Units: mg/Kg		Analysis Date: 11/20/2018 11:00 A		
Client ID: EM2-SS1		Run ID: WETCHEM_181120F		SeqNo: 5395820		Prep Date: 11/20/2018		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 319 100 1641 -0.3287 19.5 75-125 0 S

MSD		Sample ID: 1811346-01A MSD				Units: mg/Kg		Analysis Date: 11/20/2018 11:00 A		
Client ID: EM2-SS1		Run ID: WETCHEM_181120F		SeqNo: 5395819		Prep Date: 11/20/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2.363 0.98 4.902 -0.3287 54.9 75-125 0.46 135 20 SR

The following samples were analyzed in this batch: 1811346-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **128279** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-128279-128279				Units: mg/Kg		Analysis Date: 11/21/2018 01:00 PM		
Client ID:		Run ID: WETCHEM_181121T		SeqNo: 5399660		Prep Date: 11/20/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.33	1.0								J

LCS		Sample ID: LCS-128279-128279				Units: mg/Kg		Analysis Date: 11/21/2018 01:00 PM		
Client ID:		Run ID: WETCHEM_181121T		SeqNo: 5399661		Prep Date: 11/20/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.1	1.0	5	0	82	80-120	0			

MS		Sample ID: 18111091-01A MS				Units: mg/Kg		Analysis Date: 11/21/2018 01:00 PM		
Client ID:		Run ID: WETCHEM_181121T		SeqNo: 5399663		Prep Date: 11/20/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	2.34	0.97	4.854	0.8333	31	75-125	0			S

MS		Sample ID: 18111091-01A MSI				Units: mg/Kg		Analysis Date: 11/21/2018 01:00 PM		
Client ID:		Run ID: WETCHEM_181121T		SeqNo: 5399665		Prep Date: 11/20/2018		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	361.6	100	2308	0.8333	15.6	75-125	0			S

MSD		Sample ID: 18111091-01A MSD				Units: mg/Kg		Analysis Date: 11/21/2018 01:00 PM		
Client ID:		Run ID: WETCHEM_181121T		SeqNo: 5399664		Prep Date: 11/20/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	3.382	0.98	4.902	0.8333	52	75-125	2.34	36.4	20	SR

The following samples were analyzed in this batch:

1811346-02A 1811346-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Entrada Consulting Group
Work Order: 1811346
Project: Emerald 2 Spill

QC BATCH REPORT

Batch ID: **R249432** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R249432				Units: % of sample		Analysis Date: 11/15/2018 06:23 PM		
Client ID:		Run ID: MOIST_181115D				SeqNo: 5389726		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R249432				Units: % of sample		Analysis Date: 11/15/2018 06:23 PM		
Client ID:		Run ID: MOIST_181115D				SeqNo: 5389725		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 18111017-03B DUP				Units: % of sample		Analysis Date: 11/15/2018 06:23 PM		
Client ID:		Run ID: MOIST_181115D				SeqNo: 5389706		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 19.98 0.050 0 0 0 0-0 18.98 5.13 10

DUP		Sample ID: 1811355-09B DUP				Units: % of sample		Analysis Date: 11/15/2018 06:23 PM		
Client ID:		Run ID: MOIST_181115D				SeqNo: 5389720		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 12.97 0.050 0 0 0 0-0 13.4 3.26 10

The following samples were analyzed in this batch:

1811346-01A	1811346-02A	1811346-03A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Chain of Custody Form

Page 1 of 1

COC ID: 123456

- | | | |
|--|--|--|
| <input type="checkbox"/> Cincinnati, OH
+1 513 733 5336 | <input checked="" type="checkbox"/> Holland, MI
+1 616 399 6070 | <input type="checkbox"/> Salt Lake City, UT
+1 801 266 7700 |
| <input type="checkbox"/> Everett, WA
+1 425 356 2600 | <input type="checkbox"/> Houston, TX
+1 281 530 5656 | <input type="checkbox"/> Spring City, PA
+1 610 948 4903 |
| <input type="checkbox"/> Fort Collins, CO
+1 970 490 1511 | <input type="checkbox"/> Middletown, PA
+1 717 944 5541 | <input type="checkbox"/> York, PA
+1 717 505 5280 |

ALS Project Manager:		Work Order #: 1811346																															
Customer Information		Project Information																															
Purchase Order		Project Name	Emerald 2 Spill																														
Work Order		Project Number																															
Company Name	Entrada Consulting Group	Bill To Company	Entrada Consulting Group																														
Send Report To	Tim Dobransky	Invoice Attn.	Tim Dobransky																														
Address	330 Grand Ave Unit C	Address	330 Grand Ave Unit C																														
City/State/Zip	Grand Junction, CO 81501	City/State/Zip	Grand Junction, CO 81501																														
Phone	970.270.2986	Phone	970.270.2986																														
Fax		Fax																															
e-Mail Address	tdobransky@entradainc.com	e-Mail Address	tdobransky@entradainc.com																														
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="10" style="text-align: center;">Parameter/Method Request for Analysis</th> </tr> <tr><td>A</td><td>TPH (GRO & DRO)</td></tr> <tr><td>B</td><td>BTEX</td></tr> <tr><td>C</td><td>PAH (See Attached List) CO Table 910</td></tr> <tr><td>D</td><td>Electrical Conductivity</td></tr> <tr><td>E</td><td>Sodium Adsorption Ratio</td></tr> <tr><td>F</td><td>pH</td></tr> <tr><td>G</td><td>Metals (See Attached List) CO Table 910</td></tr> <tr><td>H</td><td>Arsenic Only</td></tr> <tr><td>I</td><td></td></tr> <tr><td>J</td><td></td></tr> </table>		Parameter/Method Request for Analysis										A	TPH (GRO & DRO)	B	BTEX	C	PAH (See Attached List) CO Table 910	D	Electrical Conductivity	E	Sodium Adsorption Ratio	F	pH	G	Metals (See Attached List) CO Table 910	H	Arsenic Only	I		J	
Parameter/Method Request for Analysis																																	
A	TPH (GRO & DRO)																																
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E	Sodium Adsorption Ratio																																
F	pH																																
G	Metals (See Attached List) CO Table 910																																
H	Arsenic Only																																
I																																	
J																																	
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold																
1	EM2-SS1	11/01/18	1335	Soil	8	2	X	X	X	X	X	X	X																				
2	EM2-SS2	11/01/18	1345	Soil	8	2	X	X	X	X	X	X	X																				
3	EM2-BG1	11/01/18	1350	Soil	8	2				X	X	X	X																				
4																																	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	

Sampler(s): Please Print & Sign Dobransky		Shipment Method: FedEx	Required Turnaround Time: <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour <input type="checkbox"/> Other _____	Results Due Date:
Relinquished by:	Date: 11/5/18	Time:	Received by:	Notes: Chevron Pricing Applies - Per Bruce Schlatter
Relinquished by:	Date: 11-5-18	Time: 1830	Received by (Laboratory):	Cooler Temp. 4.8°C QC Package: (Check Box Below) <input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like Other: _____
Logged by (Laboratory):	Date: 11/6/18	Time: 1300	Checked by (Laboratory):	
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035 SLC				

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Sample Receipt Checklist

Client Name: **ENTRADA**

Date/Time Received: **06-Nov-18 09:30**

Work Order: **1811346**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

06-Nov-18
Date

Reviewed by: Chad Whelton
eSignature

06-Nov-18
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.8/4.8 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/6/2018 2:23:17 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: