



Thursday, August 25, 2022

Levi Kirk
MarCom LLC
1811 East Mulberry Street
Fort Collins, CO 80524

Re: ALS Workorder: 2207722
Project Name: Wildhorse 16-13H
Project Number: Wildhorse 16-13H

Dear Mr. Kirk:

Five soil samples were received from MarCom LLC, on 7/29/2022. The samples were scheduled for the following analyses:

GC/MS Semivolatiles

GC/MS Volatiles

Inorganics

Metals

Percent Moisture

Total Extractable Petroleum Hydrocarbons (Diesel)

8270 - Subcontracted to ALS Holland, MI

The results for these analyses are contained in the enclosed reports.


The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

For

ALS Environmental
Alannah R. Liebert
Project Manager

	<h1>Accreditations</h1>	Effective June 7, 2022
		ALS Environmental – Fort Collins

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Arizona	AZ0828
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
Oklahoma	1301
Louisiana	197538
Maryland (MD)	285
PJLA (DoD ELAP/ISO 170250)	95377
PJLA (DOE-AP/ISO 17025)	95377
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280
Virginia	460305

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.



2207722

GC/MS Volatiles:

The samples were analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C. The samples were also analyzed for Gasoline Range Organics (GRO).

All acceptance criteria were met.

DRO:

The samples were analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.

All acceptance criteria were met.

Metals:

The samples were analyzed following SW-846, 3rd Edition procedures. Analysis by Trace ICP followed method 6010D and the current revision of SOP 834. Analysis by ICPMS followed method 6020B and the current revision of SOP 827.

All acceptance criteria were met.

Inorganics:

The samples were analyzed following SW-846 and USDA Handbook 60 Chapter 6 procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Electrical conductivity	USDA60	810 Draft
Sodium Adsorption Ratio	USDA60	810 Draft
Paste pH	USDA60	810 Draft
Hexavalent chromium	7196A	1122

Chromium III is a calculated value derived from the subtraction of hexavalent chromium from total chromium.

All acceptance criteria were met.

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Sample Number(s) Cross-Reference Table

OrderNum: 2207722

Client Name: MarCom LLC

Client Project Name: Wildhorse 16-13H

Client Project Number: Wildhorse 16-13H

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
BH-1@4'	2207722-1		SOIL	29-Jul-22	10:15
SW-1@2'	2207722-2		SOIL	29-Jul-22	10:20
SW-2@2'	2207722-3		SOIL	29-Jul-22	10:25
SW-3@2'	2207722-4		SOIL	29-Jul-22	10:30
SW-4@2'	2207722-5		SOIL	29-Jul-22	10:35
BH-1@4'	2207722-6		SatExtract	29-Jul-22	10:15
SW-1@2'	2207722-7		SatExtract	29-Jul-22	10:20
SW-2@2'	2207722-8		SatExtract	29-Jul-22	10:25
SW-3@2'	2207722-9		SatExtract	29-Jul-22	10:30
SW-4@2'	2207722-10		SatExtract	29-Jul-22	10:35



2225 Commerce Drive, Fort Collins, Colorado 80524
 TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 2021-8

[illegible]

Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments: Each sample has 2 4oz Jars and 1 Bag.	QC PACKAGE (check below)				
	LEVEL I (Standard QC)	<input checked="" type="checkbox"/>			
	LEVEL III (Std QC + forms)	<input type="checkbox"/>			
	LEVEL IV (Std QC + forms + raw data)	<input type="checkbox"/>			
		<input type="checkbox"/>			
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035					

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	<i>Levi Kirk</i>	Levi Kirk	7-29-23	3:20
RECEIVED BY	<i>Amy Kepner</i>	Amy Kepner	7-29-23	1530
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: NEW CLIENT-MARCOM Workorder No: 2207722
 Project Manager: _____ Initials: KC Date: 7/29/22

	N/A	YES	NO
1. Are airbills / shipping documents present and/or removable?	X		
Tracking number: _____			
2. Are custody seals on shipping containers intact?	X		
3. Are custody seals on sample containers intact?	X		
4. Is there a COC (chain-of-custody) present?		X	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X	
6. Are short-hold samples present?			X
7. Are all samples within holding times for the requested analyses?		X	
8. Were all sample containers received intact? (not broken or leaking)		X	
9. Is there sufficient sample for the requested analyses?		X	
10. Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X	
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)	X		
12. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X		
13. Were the samples shipped on ice?			X
14. Were cooler temperatures measured at 0.1-6.0°C?	IR gun used*: <u>#6</u>		X
Cooler #: <u>1</u> Temperature (°C): <u>30.4</u> # of custody seals on cooler: <u>0</u> External µR/hr reading: <u>NA</u> Background µR/hr reading: <u>10</u> Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES			

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Samples arrived above recommended holding temperature 30.4C.

Were unpreserved bottles pH checked? NA All client bottle ID's vs ALS lab ID's double-checked by: KC

If applicable, was the client contacted? **YES** Contact: Levi Kirk Date/Time: 8/4/22

Project Manager Signature / Date: *Amr* 8/04/22

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SAMPLE SUMMARY REPORT

Client: MarCom LLC
Project: Wildhorse 16-13H Wildhorse 16-13H
Sample ID: BH-1 @4'
Legal Location:
Collection Date: 7/29/2022 10:15

Date: 25-Aug-22
Work Order: 2207722
Lab ID: 2207722-1
Matrix: SOIL
Percent Moisture: 18.5

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M_MO		Prep Date: 8/8/2022	PrepBy: JRS	
OIL RANGE ORGANICS	11		9.5	MG/KG	1	8.8	8/10/2022 09:08
DIESEL RANGE ORGANICS	ND		9.5	MG/KG	1	4.8	8/10/2022 09:08
Surr: O-TERPHENYL	104		60-120	%REC	1		8/10/2022 09:08
GC/MS VOLATILES			SW8260		Prep Date: 8/1/2022	PrepBy: TWK	
BENZENE	ND		6.1	UG/KG	1	2.1	8/1/2022 20:04
TOLUENE	ND		6.1	UG/KG	1	2.4	8/1/2022 20:04
ETHYLBENZENE	ND		6.1	UG/KG	1	2.7	8/1/2022 20:04
M+P-XYLENE	ND		8.5	UG/KG	1	4.4	8/1/2022 20:04
O-XYLENE	ND		6.1	UG/KG	1	2.2	8/1/2022 20:04
1,3,5-TRIMETHYLBENZENE	ND		6.1	UG/KG	1	3.2	8/1/2022 20:04
1,2,4-TRIMETHYLBENZENE	ND		6.1	UG/KG	1	1.9	8/1/2022 20:04
Surr: DIBROMOFLUOROMETHANE	101		77-125	%REC	1		8/1/2022 20:04
Surr: TOLUENE-D8	103		80-120	%REC	1		8/1/2022 20:04
Surr: 4-BROMOFLUOROBENZENE	102		71-121	%REC	1		8/1/2022 20:04
GASOLINE RANGE ORGANICS	ND		610	UG/KG	1	220	8/1/2022 20:04
HEXAVALENT CHROMIUM			SW7196		Prep Date: 8/12/2022	PrepBy: DMS	
CHROMIUM VI	ND		0.14	MG/KG	1	0.064	8/12/2022
ICPMS METALS			SW6020		Prep Date: 8/9/2022	PrepBy: ETC	
SILVER	ND		140	UG/KG	10	68	8/12/2022 11:42
ARSENIC	3500		240	UG/KG	10	58	8/12/2022 11:42
BARIUM	350000		600	UG/KG	10	270	8/12/2022 11:42
CADMIUM	87	J	240	UG/KG	10	45	8/12/2022 11:42
CHROMIUM	8400		1200	UG/KG	10	660	8/12/2022 11:42
COPPER	8600		2400	UG/KG	10	350	8/12/2022 11:42
NICKEL	7000		2400	UG/KG	10	530	8/12/2022 11:42
LEAD	10000		240	UG/KG	10	79	8/12/2022 11:42
SELENIUM	720	J	1200	UG/KG	10	260	8/12/2022 11:42
ZINC	30000		12000	UG/KG	10	4900	8/12/2022 11:42
SODIUM ADSORPTION RATIO			USDA60		Prep Date: 8/14/2022	PrepBy: AOW	
PASTE PH	8.1		0.1	pH	1		8/14/2022
TRIVALENT CHROMIUM (FROM TOTAL CR - CR+6)			CRIII		Prep Date: 8/14/2022	PrepBy: AOW	
CHROMIUM III	8.4		1.2	MG/KG	1		8/14/2022

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SAMPLE SUMMARY REPORT

Client: MarCom LLC
Project: Wildhorse 16-13H Wildhorse 16-13H
Sample ID: SW-1@2'
Legal Location:
Collection Date: 7/29/2022 10:20

Date: 25-Aug-22
Work Order: 2207722
Lab ID: 2207722-2
Matrix: SOIL
Percent Moisture: 23.8

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M_MO		Prep Date: 8/8/2022		PrepBy: JRS
OIL RANGE ORGANICS	14		10	MG/KG	1	9.5	8/10/2022 09:33
DIESEL RANGE ORGANICS	ND		10	MG/KG	1	5.2	8/10/2022 09:33
Surr: O-TERPHENYL	108		60-120	%REC	1		8/10/2022 09:33
GC/MS VOLATILES			SW8260		Prep Date: 8/1/2022		PrepBy: TWK
BENZENE	ND		6.4	UG/KG	1	2.2	8/1/2022 20:24
TOLUENE	ND		6.4	UG/KG	1	2.5	8/1/2022 20:24
ETHYLBENZENE	ND		6.4	UG/KG	1	2.8	8/1/2022 20:24
M+P-XYLENE	ND		8.9	UG/KG	1	4.6	8/1/2022 20:24
O-XYLENE	ND		6.4	UG/KG	1	2.3	8/1/2022 20:24
1,3,5-TRIMETHYLBENZENE	ND		6.4	UG/KG	1	3.3	8/1/2022 20:24
1,2,4-TRIMETHYLBENZENE	ND		6.4	UG/KG	1	2	8/1/2022 20:24
Surr: DIBROMOFLUOROMETHANE	99		77-125	%REC	1		8/1/2022 20:24
Surr: TOLUENE-D8	103		80-120	%REC	1		8/1/2022 20:24
Surr: 4-BROMOFLUOROBENZENE	101		71-121	%REC	1		8/1/2022 20:24
GASOLINE RANGE ORGANICS	ND		640	UG/KG	1	230	8/1/2022 20:24
HEXAVALENT CHROMIUM			SW7196		Prep Date: 8/24/2022		PrepBy: DMS
CHROMIUM VI	0.074	J	0.15	MG/KG	1	0.071	8/24/2022
ICPMS METALS			SW6020		Prep Date: 8/9/2022		PrepBy: ETC
SILVER	ND		150	UG/KG	10	74	8/12/2022 11:45
ARSENIC	4100		260	UG/KG	10	64	8/12/2022 11:45
BARIUM	360000		650	UG/KG	10	300	8/12/2022 11:45
CADMIUM	96	J	260	UG/KG	10	49	8/12/2022 11:45
CHROMIUM	9700		1300	UG/KG	10	720	8/12/2022 11:45
COPPER	8200		2600	UG/KG	10	380	8/12/2022 11:45
NICKEL	7700		2600	UG/KG	10	570	8/12/2022 11:45
LEAD	9500		260	UG/KG	10	86	8/12/2022 11:45
SELENIUM	810	J	1300	UG/KG	10	290	8/12/2022 11:45
ZINC	32000		13000	UG/KG	10	5300	8/12/2022 11:45
SODIUM ADSORPTION RATIO			USDA60		Prep Date: 8/14/2022		PrepBy: AOW
PASTE PH	9		0.1	pH	1		8/14/2022
TRIVALENT CHROMIUM (FROM TOTAL CR - CR+6)			CRIII		Prep Date: 8/14/2022		PrepBy: AOW
CHROMIUM III	9.6		1.2	MG/KG	1		8/14/2022

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: MarCom LLC
 Project: Wildhorse 16-13H Wildhorse 16-13H
 Sample ID: SW-2@2'
 Legal Location:
 Collection Date: 7/29/2022 10:25

Date: 25-Aug-22
 Work Order: 2207722
 Lab ID: 2207722-3
 Matrix: SOIL
 Percent Moisture: 22.0

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M_MO		Prep Date: 8/8/2022		PrepBy: JRS
OIL RANGE ORGANICS	18		10	MG/KG	1	9.4	8/10/2022 09:58
DIESEL RANGE ORGANICS	ND		10	MG/KG	1	5.1	8/10/2022 09:58
Surr: O-TERPHENYL	108		60-120	%REC	1		8/10/2022 09:58
GC/MS VOLATILES			SW8260		Prep Date: 8/1/2022		PrepBy: TWK
BENZENE	ND		6.4	UG/KG	1	2.2	8/1/2022 20:44
TOLUENE	ND		6.4	UG/KG	1	2.5	8/1/2022 20:44
ETHYLBENZENE	ND		6.4	UG/KG	1	2.8	8/1/2022 20:44
M+P-XYLENE	ND		8.9	UG/KG	1	4.6	8/1/2022 20:44
O-XYLENE	ND		6.4	UG/KG	1	2.3	8/1/2022 20:44
1,3,5-TRIMETHYLBENZENE	ND		6.4	UG/KG	1	3.3	8/1/2022 20:44
1,2,4-TRIMETHYLBENZENE	ND		6.4	UG/KG	1	2	8/1/2022 20:44
Surr: DIBROMOFLUOROMETHANE	101		77-125	%REC	1		8/1/2022 20:44
Surr: TOLUENE-D8	101		80-120	%REC	1		8/1/2022 20:44
Surr: 4-BROMOFLUOROBENZENE	102		71-121	%REC	1		8/1/2022 20:44
GASOLINE RANGE ORGANICS	ND		640	UG/KG	1	230	8/1/2022 20:44
HEXAVALENT CHROMIUM			SW7196		Prep Date: 8/12/2022		PrepBy: DMS
CHROMIUM VI	ND		0.15	MG/KG	1	0.069	8/12/2022
ICPMS METALS			SW6020		Prep Date: 8/9/2022		PrepBy: ETC
SILVER	ND		140	UG/KG	10	71	8/12/2022 11:48
ARSENIC	3800		250	UG/KG	10	61	8/12/2022 11:48
BARIUM	280000		630	UG/KG	10	290	8/12/2022 11:48
CADMIUM	92	J	250	UG/KG	10	48	8/12/2022 11:48
CHROMIUM	9200		1300	UG/KG	10	690	8/12/2022 11:48
COPPER	8000		2500	UG/KG	10	360	8/12/2022 11:48
NICKEL	7800		2500	UG/KG	10	550	8/12/2022 11:48
LEAD	11000		250	UG/KG	10	83	8/12/2022 11:48
SELENIUM	990	J	1300	UG/KG	10	280	8/12/2022 11:48
ZINC	31000		13000	UG/KG	10	5100	8/12/2022 11:48
SODIUM ADSORPTION RATIO			USDA60		Prep Date: 8/14/2022		PrepBy: AOW
PASTE PH	8.4		0.1	pH	1		8/14/2022
TRIVALENT CHROMIUM (FROM TOTAL CR - CR+6)			CRIII		Prep Date: 8/14/2022		PrepBy: AOW
CHROMIUM III	9.2		1.3	MG/KG	1		8/14/2022

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SAMPLE SUMMARY REPORT

Client: MarCom LLC
 Project: Wildhorse 16-13H Wildhorse 16-13H
 Sample ID: SW-3@2'
 Legal Location:
 Collection Date: 7/29/2022 10:30

Date: 25-Aug-22
 Work Order: 2207722
 Lab ID: 2207722-4
 Matrix: SOIL
 Percent Moisture: 23.9

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M_MO		Prep Date: 8/8/2022		PrepBy: JRS
OIL RANGE ORGANICS	11		10	MG/KG	1	9.4	8/10/2022 10:24
DIESEL RANGE ORGANICS	ND		10	MG/KG	1	5.1	8/10/2022 10:24
Surr: O-TERPHENYL	109		60-120	%REC	1		8/10/2022 10:24
GC/MS VOLATILES			SW8260		Prep Date: 8/1/2022		PrepBy: TWK
BENZENE	ND		6.4	UG/KG	1	2.2	8/1/2022 21:03
TOLUENE	ND		6.4	UG/KG	1	2.5	8/1/2022 21:03
ETHYLBENZENE	ND		6.4	UG/KG	1	2.8	8/1/2022 21:03
M+P-XYLENE	ND		8.9	UG/KG	1	4.6	8/1/2022 21:03
O-XYLENE	ND		6.4	UG/KG	1	2.3	8/1/2022 21:03
1,3,5-TRIMETHYLBENZENE	ND		6.4	UG/KG	1	3.3	8/1/2022 21:03
1,2,4-TRIMETHYLBENZENE	ND		6.4	UG/KG	1	2	8/1/2022 21:03
Surr: DIBROMOFLUOROMETHANE	100		77-125	%REC	1		8/1/2022 21:03
Surr: TOLUENE-D8	102		80-120	%REC	1		8/1/2022 21:03
Surr: 4-BROMOFLUOROBENZENE	100		71-121	%REC	1		8/1/2022 21:03
GASOLINE RANGE ORGANICS	ND		640	UG/KG	1	230	8/1/2022 21:03
HEXAVALENT CHROMIUM			SW7196		Prep Date: 8/12/2022		PrepBy: DMS
CHROMIUM VI	ND		0.15	MG/KG	1	0.071	8/12/2022
ICPMS METALS			SW6020		Prep Date: 8/9/2022		PrepBy: ETC
SILVER	ND		150	UG/KG	10	73	8/12/2022 11:51
ARSENIC	4200		260	UG/KG	10	63	8/12/2022 11:51
BARIUM	330000		640	UG/KG	10	300	8/12/2022 11:51
CADMIUM	170	J	260	UG/KG	10	49	8/12/2022 11:51
CHROMIUM	8700		1300	UG/KG	10	710	8/12/2022 11:51
COPPER	9300		2600	UG/KG	10	370	8/12/2022 11:51
NICKEL	8300		2600	UG/KG	10	570	8/12/2022 11:51
LEAD	12000		260	UG/KG	10	85	8/12/2022 11:51
SELENIUM	990	J	1300	UG/KG	10	290	8/12/2022 11:51
ZINC	35000		13000	UG/KG	10	5300	8/12/2022 11:51
SODIUM ADSORPTION RATIO			USDA60		Prep Date: 8/14/2022		PrepBy: AOW
PASTE PH	8.4		0.1	pH	1		8/14/2022
TRIVALENT CHROMIUM (FROM TOTAL CR - CR+6)			CRIII		Prep Date: 8/14/2022		PrepBy: AOW
CHROMIUM III	8.7		1.3	MG/KG	1		8/14/2022

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: MarCom LLC
 Project: Wildhorse 16-13H Wildhorse 16-13H
 Sample ID: SW-4@2'
 Legal Location:
 Collection Date: 7/29/2022 10:35

Date: 25-Aug-22
 Work Order: 2207722
 Lab ID: 2207722-5
 Matrix: SOIL
 Percent Moisture: 24.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M_MO		Prep Date: 8/8/2022		PrepBy: JRS
OIL RANGE ORGANICS	12		11	MG/KG	1	9.7	8/10/2022 10:49
DIESEL RANGE ORGANICS	ND		11	MG/KG	1	5.3	8/10/2022 10:49
Surr: O-TERPHENYL	110		60-120	%REC	1		8/10/2022 10:49
GC/MS VOLATILES			SW8260		Prep Date: 8/1/2022		PrepBy: TWK
BENZENE	ND		6.3	UG/KG	1	2.1	8/1/2022 21:23
TOLUENE	ND		6.3	UG/KG	1	2.5	8/1/2022 21:23
ETHYLBENZENE	ND		6.3	UG/KG	1	2.8	8/1/2022 21:23
M+P-XYLENE	ND		8.8	UG/KG	1	4.5	8/1/2022 21:23
O-XYLENE	ND		6.3	UG/KG	1	2.3	8/1/2022 21:23
1,3,5-TRIMETHYLBENZENE	ND		6.3	UG/KG	1	3.3	8/1/2022 21:23
1,2,4-TRIMETHYLBENZENE	ND		6.3	UG/KG	1	2	8/1/2022 21:23
Surr: DIBROMOFLUOROMETHANE	101		77-125	%REC	1		8/1/2022 21:23
Surr: TOLUENE-D8	102		80-120	%REC	1		8/1/2022 21:23
Surr: 4-BROMOFLUOROBENZENE	101		71-121	%REC	1		8/1/2022 21:23
GASOLINE RANGE ORGANICS	ND		630	UG/KG	1	230	8/1/2022 21:23
HEXAVALENT CHROMIUM			SW7196		Prep Date: 8/12/2022		PrepBy: DMS
CHROMIUM VI	ND		0.16	MG/KG	1	0.075	8/12/2022
ICPMS METALS			SW6020		Prep Date: 8/9/2022		PrepBy: ETC
SILVER	ND		150	UG/KG	10	73	8/12/2022 11:54
ARSENIC	4200		260	UG/KG	10	63	8/12/2022 11:54
BARIUM	370000		640	UG/KG	10	290	8/12/2022 11:54
CADMIUM	180	J	260	UG/KG	10	49	8/12/2022 11:54
CHROMIUM	8800		1300	UG/KG	10	700	8/12/2022 11:54
COPPER	9900		2600	UG/KG	10	370	8/12/2022 11:54
NICKEL	8600		2600	UG/KG	10	560	8/12/2022 11:54
LEAD	12000		260	UG/KG	10	85	8/12/2022 11:54
SELENIUM	1100	J	1300	UG/KG	10	280	8/12/2022 11:54
ZINC	37000		13000	UG/KG	10	5200	8/12/2022 11:54
SODIUM ADSORPTION RATIO			USDA60		Prep Date: 8/14/2022		PrepBy: AOW
PASTE PH	8.5		0.1	pH	1		8/14/2022
TRIVALENT CHROMIUM (FROM TOTAL CR - CR+6)			CRIII		Prep Date: 8/14/2022		PrepBy: AOW
CHROMIUM III	8.8		1.3	MG/KG	1		8/14/2022

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: MarCom LLC

Date: 25-Aug-22

Project: Wildhorse 16-13H Wildhorse 16-13H

Work Order: 2207722

Sample ID: BH-1@4'

Lab ID: 2207722-6

Legal Location:

Matrix: SATEXTRACT

Collection Date: 7/29/2022 10:15

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
<hr/>							
ICP METALS			USDA60		Prep Date: 8/9/2022		PrepBy:ETC
CALCIUM	120		10	MG/L	10		8/11/2022 13:05
BORON	0.63		0.2	MG/L	1		8/11/2022 12:16
MAGNESIUM	22		10	MG/L	10		8/11/2022 13:05
SODIUM	170		10	MG/L	10		8/11/2022 13:05
SODIUM ADSORPTION RATIO			USDA60		Prep Date: 8/14/2022		PrepBy:AOW
ELECTRICAL CONDUCTIVITY @ SATURATION	1900		1	umhos/cm	1		8/14/2022
SODIUM ADSORPTION RATIO	3.7		0.54	NU	10		8/11/2022 13:05

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: MarCom LLC
Project: Wildhorse 16-13H Wildhorse 16-13H
Sample ID: SW-1@2'
Legal Location:
Collection Date: 7/29/2022 10:20

Date: 25-Aug-22
Work Order: 2207722
Lab ID: 2207722-7
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
<hr/>							
ICP METALS			USDA60			Prep Date: 8/9/2022	PrepBy: ETC
CALCIUM	130		10	MG/L	10		8/11/2022 13:06
BORON	0.67		0.2	MG/L	1		8/11/2022 12:17
MAGNESIUM	10		10	MG/L	10		8/11/2022 13:06
SODIUM	180		10	MG/L	10		8/11/2022 13:06
SODIUM ADSORPTION RATIO			USDA60			Prep Date: 8/14/2022	PrepBy: AOW
ELECTRICAL CONDUCTIVITY @ SATURATION	1200		1	umhos/cm	1		8/14/2022
SODIUM ADSORPTION RATIO	4.1		0.54	NU	10		8/11/2022 13:06

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: MarCom LLC

Date: 25-Aug-22

Project: Wildhorse 16-13H Wildhorse 16-13H

Work Order: 2207722

Sample ID: SW-2@2'

Lab ID: 2207722-8

Legal Location:

Matrix: SATEXTRACT

Collection Date: 7/29/2022 10:25

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
<hr/>							
ICP METALS			USDA60			Prep Date: 8/9/2022	PrepBy:ETC
CALCIUM	140		10	MG/L	10		8/11/2022 13:07
BORON	0.47		0.2	MG/L	1		8/11/2022 12:18
MAGNESIUM	31		10	MG/L	10		8/11/2022 13:07
SODIUM	220		10	MG/L	10		8/11/2022 13:07
SODIUM ADSORPTION RATIO			USDA60			Prep Date: 8/14/2022	PrepBy:AOW
ELECTRICAL CONDUCTIVITY @ SATURATION	2300		1	umhos/cm	1		8/14/2022
SODIUM ADSORPTION RATIO	4.3		0.54	NU	10		8/11/2022 13:07

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: MarCom LLC

Date: 25-Aug-22

Project: Wildhorse 16-13H Wildhorse 16-13H

Work Order: 2207722

Sample ID: SW-3@2'

Lab ID: 2207722-9

Legal Location:

Matrix: SATEXTRACT

Collection Date: 7/29/2022 10:30

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
<hr/>							
ICP METALS			USDA60			Prep Date: 8/9/2022	PrepBy:ETC
CALCIUM	85		10	MG/L	10		8/11/2022 13:08
BORON	0.46		0.2	MG/L	1		8/11/2022 12:19
MAGNESIUM	ND		10	MG/L	10		8/11/2022 13:08
SODIUM	67		10	MG/L	10		8/11/2022 13:08
SODIUM ADSORPTION RATIO			USDA60			Prep Date: 8/14/2022	PrepBy:AOW
ELECTRICAL CONDUCTIVITY @ SATURATION	960		1	umhos/cm	1		8/14/2022
SODIUM ADSORPTION RATIO	1.8	S	0.54	NU	10		8/11/2022 13:08

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: MarCom LLC

Date: 25-Aug-22

Project: Wildhorse 16-13H Wildhorse 16-13H

Work Order: 2207722

Sample ID: SW-4@2'

Lab ID: 2207722-10

Legal Location:

Matrix: SATEXTRACT

Collection Date: 7/29/2022 10:35

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ICP METALS							
			USDA60		Prep Date: 8/9/2022		PrepBy:ETC
CALCIUM	72		10	MG/L	10		8/11/2022 13:09
BORON	0.79		0.2	MG/L	1		8/11/2022 12:20
MAGNESIUM	ND		10	MG/L	10		8/11/2022 13:09
SODIUM	140		10	MG/L	10		8/11/2022 13:09
SODIUM ADSORPTION RATIO							
			USDA60		Prep Date: 8/14/2022		PrepBy:AOW
ELECTRICAL CONDUCTIVITY @ SATURATION	1300		1	umhos/cm	1		8/14/2022
SODIUM ADSORPTION RATIO	4.2	S	0.54	NU	10		8/11/2022 13:09

Client: MarCom LLC
Project: Wildhorse 16-13H Wildhorse 16-13H
Sample ID: SW-4@2'
Legal Location:
Collection Date: 7/29/2022 10:35

Date: 25-Aug-22
Work Order: 2207722
Lab ID: 2207722-10
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC
 U or ND - Result is less than the sample specific MDC.
 Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
 Y2 - Chemical Yield outside default limits.
 W - DER is greater than Warning Limit of 1.42
 * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
 # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
 G - Sample density differs by more than 15% of LCS density.
 D - DER is greater than Control Limit
 M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
 L - LCS Recovery below lower control limit.
 H - LCS Recovery above upper control limit.
 P - LCS, Matrix Spike Recovery within control limits.
 N - Matrix Spike Recovery outside control limits
 NC - Not Calculated for duplicate results less than 5 times MDC
 B - Analyte concentration greater than MDC.
 B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.
 S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.
 G - A pattern resembling gasoline was detected in this sample.
 D - A pattern resembling diesel was detected in this sample.
 M - A pattern resembling motor oil was detected in this sample.
 C - A pattern resembling crude oil was detected in this sample.
 4 - A pattern resembling JP-4 was detected in this sample.
 5 - A pattern resembling JP-5 was detected in this sample.
 H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
 L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
 Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

ALS -- Fort Collins

Client: MarCom LLC

Work Order: 2207722

Project: Wildhorse 16-13H Wildhorse 16-13H

Date: 8/25/2022 10:23:

QC BATCH REPORT

Batch ID: HC220808-81-1

Instrument ID: FUELS-1

Method: SW8015M_MO

LCS Sample ID: HC220808-81

Units: MG/KG

Analysis Date: 8/11/2022 16:25

Client ID:

Run ID: HC220815-81A

Prep Date: 8/8/2022

DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
OIL RANGE ORGANICS	67.2	8	62.5		107	80-128				20	
DIESEL RANGE ORGANICS	55.3	8	62.5		89	75-120				20	
Surr: O-TERPHENYL	12.5		12.5		100	60-120					

LCSD Sample ID: HC220808-81

Units: MG/KG

Analysis Date: 8/11/2022 16:50

Client ID:

Run ID: HC220815-81A

Prep Date: 8/8/2022

DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
OIL RANGE ORGANICS	66.7	8	62.5		107	80-128		67.2	1	20	
DIESEL RANGE ORGANICS	56.7	8	62.5		91	75-120		55.3	2	20	
Surr: O-TERPHENYL	12.3		12.5		99	60-120			1		

MB Sample ID: HC220808-81

Units: MG/KG

Analysis Date: 8/10/2022 04:28

Client ID:

Run ID: HC220815-81A

Prep Date: 8/8/2022

DF: 1

Analyte	Result	ReportLimit	MDL								Qual
OIL RANGE ORGANICS	ND	8	7.4								
DIESEL RANGE ORGANICS	ND	8	4								
Surr: O-TERPHENYL	14.4				115	60-120					

The following samples were analyzed in this batch:

2207722-1	2207722-2	2207722-3
2207722-4	2207722-5	

Client: MarCom LLC
 Work Order: 2207722
 Project: Wildhorse 16-13H Wildhorse 16-13H

QC BATCH REPORT

Batch ID: IP220809-3-1 Instrument ID: ICPMS2 Method: SW6020

LCS	Sample ID: IM220809-3			Units: UG/KG			Analysis Date: 8/12/2022 11:07				
Client ID:	Run ID: IM220812-11A2			Prep Date: 8/9/2022			DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
ARSENIC	9640	200	10000		96	80-120				20	
BARIUM	9000	500	10000		90	80-120				20	
CADMIUM	3000	200	3000		100	80-120				20	
CHROMIUM	47300	1000	50000		95	80-120				20	
COPPER	99400	2000	100000		99	80-120				20	
LEAD	5210	200	5000		104	80-120				20	
NICKEL	47400	2000	50000		95	80-120				20	
SELENIUM	9860	1000	10000		99	80-120				20	
SILVER	1020	114	1000		103	80-120				20	
ZINC	182000	10000	200000		91	80-120				20	

LCSD	Sample ID: IM220809-3			Units: UG/KG			Analysis Date: 8/12/2022 11:13				
Client ID:	Run ID: IM220812-11A2				Prep Date: 8/9/2022			DF: 10			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
ARSENIC	9700	200	10000		97	80-120		9640	1	20	
BARIUM	8880	500	10000		89	80-120		9000	1	20	
CADMIUM	2930	200	3000		98	80-120		3000	2	20	
CHROMIUM	46900	1000	50000		94	80-120		47300	1	20	
COPPER	99200	2000	100000		99	80-120		99400	0	20	
LEAD	5170	200	5000		103	80-120		5210	1	20	
NICKEL	47200	2000	50000		94	80-120		47400	0	20	
SELENIUM	10200	1000	10000		102	80-120		9860	3	20	
SILVER	1030	114	1000		103	80-120		1020	1	20	
ZINC	181000	10000	200000		90	80-120		182000	1	20	

Client: MarCom LLC
Work Order: 2207722
Project: Wildhorse 16-13H Wildhorse 16-13H

QC BATCH REPORT

Batch ID: **IP220809-3-1** Instrument ID: **ICPMS2** Method: **SW6020**

MB Sample ID: **IP220809-3** Units: **UG/KG** Analysis Date: **8/12/2022 11:04**
Client ID: Run ID: **IM220812-11A2** Prep Date: **8/9/2022** DF: **10**

Analyte	Result	ReportLimit	MDL	Qual
ARSENIC	ND	200	49	
BARIUM	ND	500	230	
CADMIUM	ND	200	38	
CHROMIUM	ND	1000	550	
COPPER	ND	2000	290	
LEAD	ND	200	66	
NICKEL	ND	2000	440	
SELENIUM	ND	1000	220	
SILVER	ND	110	57	
ZINC	ND	10000	4100	

The following samples were analyzed in this batch:

2207722-1	2207722-2	2207722-3
2207722-4	2207722-5	

Client: MarCom LLC
Work Order: 2207722
Project: Wildhorse 16-13H Wildhorse 16-13H

QC BATCH REPORT

Batch ID: **IP220810-2-1** Instrument ID: **ICP5900** Method: **SW6010**

LCS	Sample ID: IP220810-2				Units: MG/L		Analysis Date: 8/11/2022 12:08				
Client ID:		Run ID: IT220811-1A1				Prep Date: 8/10/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
BORON	2.14	0.2	2		107	80-120				20	

LCSD		Sample ID: IP220810-2			Units: MG/L		Analysis Date: 8/11/2022 12:09				
Client ID:		Run ID: IT220811-1A1			Prep Date: 8/10/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
BORON	2.12	0.2	2		106	80-120		2.14	1	20	

MB		Sample ID: IP220810-2			Units: MG/L		Analysis Date: 8/11/2022 12:07	
Client ID:		Run ID: IT220811-1A1			Prep Date: 8/10/2022		DF: 1	
Analyte		Result	ReportLimit	MDL				Qual
BORON		ND	0.2					

The following samples were analyzed in this batch:

2207722-6	2207722-7	2207722-8
2207722-9	2207722-10	

Client: MarCom LLC
Work Order: 2207722
Project: Wildhorse 16-13H Wildhorse 16-13H

QC BATCH REPORT

Batch ID: **VL220801-3-1** Instrument ID: **HPV3** Method: **SW8260**

LCS		Sample ID: VL220801-33				Units: UG/KG		Analysis Date: 8/1/2022 12:24			
Client ID:		Run ID: VL220801-3A				Prep Date: 8/1/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1920	500	2000		96	75-125				20	

LCSD		Sample ID: VL220801-33			Units: UG/KG		Analysis Date: 8/1/2022 12:44				
Client ID:		Run ID: VL220801-3A			Prep Date: 8/1/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1840	500	2000		92	75-125		1920	4	20	

MB		Sample ID: VL220801-3			Units: UG/KG		Analysis Date: 8/1/2022 14:05		
Client ID:		Run ID: VL220801-3A			Prep Date: 8/1/2022			DF: 1	
Analyte		Result	ReportLimit	MDL		Qual			
GASOLINE RANGE ORGANICS		ND	500	180					

The following samples were analyzed in this batch:

2207722-1	2207722-2	2207722-3
2207722-4	2207722-5	

Client: MarCom LLC
 Work Order: 2207722
 Project: Wildhorse 16-13H Wildhorse 16-13H

QC BATCH REPORT

Batch ID: **VL220801-3-3** Instrument ID: **HPV3** Method: **SW8260**

LCS	Sample ID: VL220801-3			Units: UG/KG			Analysis Date: 8/1/2022 13:05				
Client ID:	Run ID: VL220801-3A			Prep Date: 8/1/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	37.5	5	40		94	70-129				30	
TOLUENE	35.9	5	40		90	68-125				30	
Surr: DIBROMOFLUOROMETHANE	51		50		102	77-125					
Surr: TOLUENE-D8	49.8		50		100	80-120					
Surr: 4-BROMOFLUOROBENZENE	50.4		50		101	71-121					

LCSD	Sample ID: VL220801-3			Units: UG/KG			Analysis Date: 8/1/2022 13:25				
Client ID:	Run ID: VL220801-3A			Prep Date: 8/1/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	37	5	40		92	70-129		37.5	1	30	
TOLUENE	35.5	5	40		89	68-125		35.9	1	30	
Surr: DIBROMOFLUOROMETHANE	51.5		50		103	77-125			1		
Surr: TOLUENE-D8	50.2		50		100	80-120			1		
Surr: 4-BROMOFLUOROBENZENE	49.3		50		99	71-121			2		

MB	Sample ID: VL220801-3			Units: UG/KG			Analysis Date: 8/1/2022 14:05				
Client ID:	Run ID: VL220801-3A			Prep Date: 8/1/2022			DF: 1				
Analyte	Result	ReportLimit	MDL								Qual
BENZENE	ND	5	1.7								
TOLUENE	ND	5	2								
ETHYLBENZENE	ND	5	2.2								
M+P-XYLENE	ND	7	3.6								
O-XYLENE	ND	5	1.8								
1,3,5-TRIMETHYLBENZENE	ND	5	2.6								
1,2,4-TRIMETHYLBENZENE	ND	5	1.6								
Surr: DIBROMOFLUOROMETHANE	50.6				101	77-125					
Surr: TOLUENE-D8	49.3				99	80-120					
Surr: 4-BROMOFLUOROBENZENE	49.5				99	71-121					

The following samples were analyzed in this batch:

2207722-1	2207722-2	2207722-3
2207722-4	2207722-5	

Client: MarCom LLC
Work Order: 2207722
Project: Wildhorse 16-13H Wildhorse 16-13H

QC BATCH REPORT

Batch ID: **CR220812-1-1** Instrument ID: **Spec** Method: **SW7196**

LCS		Sample ID: CR220812-1		Units: MG/KG			Analysis Date: 8/12/2022				
Client ID:		Run ID: CR220812-1A3				Prep Date: 8/12/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHROMIUM VI	1.06	0.12	1		106	80-120				20	

LCSD		Sample ID: CR220812-1		Units: MG/KG			Analysis Date: 8/12/2022				
Client ID:		Run ID: CR220812-1A3				Prep Date: 8/12/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHROMIUM VI	1.01	0.12	1		101	80-120		1.06	5	20	

MB		Sample ID: CR220812-1		Units: MG/KG			Analysis Date: 8/12/2022				
Client ID:		Run ID: CR220812-1A3				Prep Date: 8/12/2022			DF: 1		
Analyte	Result	ReportLimit	MDL								Qual
CHROMIUM VI	ND	0.12	0.057								

The following samples were analyzed in this batch:

2207722-1	2207722-3	2207722-4
2207722-5		

Client: MarCom LLC
Work Order: 2207722
Project: Wildhorse 16-13H Wildhorse 16-13H

QC BATCH REPORT

Batch ID: CR220824-1-1 Instrument ID: Spec Method: SW7196

LCS		Sample ID: CR220824-1			Units: MG/KG			Analysis Date: 8/24/2022				
Client ID:		Run ID: CR220824-1A2			Prep Date: 8/24/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual	
CHROMIUM VI	1.07	0.12	1		107	80-120				20		

LCSD		Sample ID: CR220824-1			Units: MG/KG			Analysis Date: 8/24/2022				
Client ID:		Run ID: CR220824-1A2			Prep Date: 8/24/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual	
CHROMIUM VI	1.07	0.12	1		107	80-120		1.07	0	20		

MB		Sample ID: CR220824-1			Units: MG/KG		Analysis Date: 8/24/2022			
Client ID:		Run ID: CR220824-1A2			Prep Date: 8/24/2022			DF: 1		
Analyte		Result	ReportLimit	MDL						Qual
CHROMIUM VI		ND	0.12	0.057						

MS		Sample ID: 2207722-2			Units: MG/KG			Analysis Date: 8/24/2022				
Client ID: SW-1@2'		Run ID: CR220824-1A2			Prep Date: 8/24/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual	
CHROMIUM VI	1.38	0.151	1.26	0.074	104	75-125				20		

MSD		Sample ID: 2207722-2			Units: MG/KG			Analysis Date: 8/24/2022				
Client ID: SW-1@2'		Run ID: CR220824-1A2			Prep Date: 8/24/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual	
CHROMIUM VI	1.38	0.151	1.26	0.074	104	75-125		1.38	0	20		

The following samples were analyzed in this batch:

2207722-2

Client: MarCom LLC
Work Order: 2207722
Project: Wildhorse 16-13H Wildhorse 16-13H

QC BATCH REPORT

Batch ID: **SC220814-2-1** Instrument ID: **pH-2** Method: **USDA60**

DUP Sample ID: **2207722-6** Units: **umhos/cm** Analysis Date: **8/14/2022**
Client ID: **BH-1@4'** Run ID: **SC220814-1A1** Prep Date: **8/14/2022** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
ELECTRICAL CONDUCTIVITY @ SATURATION	1880	1						1900	2	10	

The following samples were analyzed in this batch:

2207722-6	2207722-7	2207722-8
2207722-9	2207722-10	



10-Aug-2022

Alannah Liebert
ALS Environmental
225 Commerce Dr
Ft. Collins, CO 80524

Re: **2207722**

Work Order: **22080488**

Dear Alannah,

ALS Environmental received 5 samples on 04-Aug-2022 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 18.

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,

Jodi Blouw

Electronically approved by: Alex J. Cszaszar

Jodi Blouw

Report of Laboratory Analysis

Certificate No: MN 026-999-449

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

Client: ALS Environmental
Project: 2207722
Work Order: 22080488

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>
22080488-01	BH-1@4'	Soil		7/29/2022 10:15	8/4/2022 16:00	<input type="checkbox"/>
22080488-02	SW-1@2'	Soil		7/29/2022 10:20	8/4/2022 16:00	<input type="checkbox"/>
22080488-03	SW-2@2'	Soil		7/29/2022 10:25	8/4/2022 16:00	<input type="checkbox"/>
22080488-04	SW-3@2'	Soil		7/29/2022 10:30	8/4/2022 16:00	<input type="checkbox"/>
22080488-05	SW-4@2'	Soil		7/29/2022 10:35	8/4/2022 16:00	<input type="checkbox"/>

Client: ALS Environmental
Project: 2207722
Work Order: 22080488

Case Narrative

Samples for the above noted Work Order were received on 08/04/2022. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics:

Batch 200991, Method SW8270E, Sample SW-1@2' (22080488-02A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low.

Batch 200991, Method SW8270E, Sample SW-2@2' (22080488-03A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low.

Batch 200991, Method SW8270E, Sample SW-3@2' (22080488-04A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low.

Batch 200991, Method SW8270E, Sample SW-4@2' (22080488-05A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low.

Wet Chemistry:

No other deviations or anomalies were noted.

Client: ALS Environmental
Project: 2207722
WorkOrder: 22080488

**QUALIFIERS,
ACRONYMS, UNITS**

<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
n	Analyte accreditation is not offered
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
µg/Kg-dry	Micrograms per Kilogram Dry Weight

ALS Group USA, Corp

Date: 10-Aug-22

CLIENT: ALS Environmental
Project: 2207722

Work Order: 22080488

Lab ID: 22080488-01A

Collection Date: 7/29/2022 10:15:00 AM

Client Sample ID: BH-1@4'

Matrix: SOIL

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)		SW8270E		Analyst: EEW			
1-Methylnaphthalene	U	5.7	3.4		µg/Kg-dry	1	8/8/2022 10:35 PM
2-Methylnaphthalene	U	5.7	4.0		µg/Kg-dry	1	8/8/2022 10:35 PM
Acenaphthene	U	5.7	4.8		µg/Kg-dry	1	8/8/2022 10:35 PM
Acenaphthylene	U	5.7	4.5		µg/Kg-dry	1	8/8/2022 10:35 PM
Anthracene	U	5.7	5.1		µg/Kg-dry	1	8/8/2022 10:35 PM
Benzo(a)anthracene	U	5.7	5.5		µg/Kg-dry	1	8/8/2022 10:35 PM
Benzo(a)pyrene	U	5.7	4.6		µg/Kg-dry	1	8/8/2022 10:35 PM
Benzo(b)fluoranthene	U	5.7	4.8		µg/Kg-dry	1	8/8/2022 10:35 PM
Benzo(g,h,i)perylene	U	5.7	3.3		µg/Kg-dry	1	8/8/2022 10:35 PM
Benzo(k)fluoranthene	U	5.7	4.6		µg/Kg-dry	1	8/8/2022 10:35 PM
Chrysene	U	5.7	5.2		µg/Kg-dry	1	8/8/2022 10:35 PM
Dibenzo(a,h)anthracene	U	5.7	4.6		µg/Kg-dry	1	8/8/2022 10:35 PM
Fluoranthene	U	5.7	4.5		µg/Kg-dry	1	8/8/2022 10:35 PM
Fluorene	U	5.7	4.4		µg/Kg-dry	1	8/8/2022 10:35 PM
Indeno(1,2,3-cd)pyrene	U	5.7	5.0		µg/Kg-dry	1	8/8/2022 10:35 PM
Naphthalene	U	5.7	5.5		µg/Kg-dry	1	8/8/2022 10:35 PM
Phenanthrene	U	5.7	3.5		µg/Kg-dry	1	8/8/2022 10:35 PM
Pyrene	U	5.7	5.5		µg/Kg-dry	1	8/8/2022 10:35 PM
Surr: 2-Fluorobiphenyl	84.9	20-140	0		%REC	1	8/8/2022 10:35 PM
Surr: 4-Terphenyl-d14	52.5	22-172	0		%REC	1	8/8/2022 10:35 PM
Surr: Nitrobenzene-d5	50.5	28-140	0		%REC	1	8/8/2022 10:35 PM
MOISTURE		SW3550C		Analyst: ALG			
Moisture	29	0.10	0.10		% of sample	1	8/5/2022 02:18 PM

Qualifiers:
U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results RPD > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

AR Page 1 of 5

ALS Group USA, Corp

Date: 10-Aug-22

CLIENT: ALS Environmental
Project: 2207722

Work Order: 22080488

Lab ID: 22080488-02A

Collection Date: 7/29/2022 10:20:00 AM

Client Sample ID: SW-1@2'

Matrix: SOIL

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)		SW8270E		Analyst: EEW			
1-Methylnaphthalene	U	5.6	3.3		µg/Kg-dry	1	8/8/2022 10:51 PM
2-Methylnaphthalene	U	5.6	3.9		µg/Kg-dry	1	8/8/2022 10:51 PM
Acenaphthene	U	5.6	4.8		µg/Kg-dry	1	8/8/2022 10:51 PM
Acenaphthylene	U	5.6	4.5		µg/Kg-dry	1	8/8/2022 10:51 PM
Anthracene	U	5.6	5.0		µg/Kg-dry	1	8/8/2022 10:51 PM
Benzo(a)anthracene	U	5.6	5.4		µg/Kg-dry	1	8/8/2022 10:51 PM
Benzo(a)pyrene	U	5.6	4.5		µg/Kg-dry	1	8/8/2022 10:51 PM
Benzo(b)fluoranthene	U	5.6	4.8		µg/Kg-dry	1	8/8/2022 10:51 PM
Benzo(g,h,i)perylene	U	5.6	3.2		µg/Kg-dry	1	8/8/2022 10:51 PM
Benzo(k)fluoranthene	U	5.6	4.6		µg/Kg-dry	1	8/8/2022 10:51 PM
Chrysene	U	5.6	5.1		µg/Kg-dry	1	8/8/2022 10:51 PM
Dibenzo(a,h)anthracene	U	5.6	4.5		µg/Kg-dry	1	8/8/2022 10:51 PM
Fluoranthene	U	5.6	4.4		µg/Kg-dry	1	8/8/2022 10:51 PM
Fluorene	U	5.6	4.4		µg/Kg-dry	1	8/8/2022 10:51 PM
Indeno(1,2,3-cd)pyrene	U	5.6	4.9		µg/Kg-dry	1	8/8/2022 10:51 PM
Naphthalene	U	5.6	5.4		µg/Kg-dry	1	8/8/2022 10:51 PM
Phenanthrene	U	5.6	3.4		µg/Kg-dry	1	8/8/2022 10:51 PM
Pyrene	U	5.6	5.4		µg/Kg-dry	1	8/8/2022 10:51 PM
Surr: 2-Fluorobiphenyl	26.4	20-140	0		%REC	1	8/8/2022 10:51 PM
Surr: 4-Terphenyl-d14	5.11	22-172	0	S	%REC	1	8/8/2022 10:51 PM
Surr: Nitrobenzene-d5	9.70	28-140	0	S	%REC	1	8/8/2022 10:51 PM
MOISTURE		SW3550C		Analyst: ALG			
Moisture	26	0.10	0.10		% of sample	1	8/5/2022 02:18 PM

Qualifiers:
U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results RPD > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

AR Page 2 of 5

ALS Group USA, Corp

Date: 10-Aug-22

CLIENT: ALS Environmental
Project: 2207722

Work Order: 22080488

Lab ID: 22080488-03A

Collection Date: 7/29/2022 10:25:00 AM

Client Sample ID: SW-2@2'

Matrix: SOIL

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)		SW8270E		Analyst: EEW			
1-Methylnaphthalene	U	5.4	3.2		µg/Kg-dry	1	8/8/2022 11:06 PM
2-Methylnaphthalene	U	5.4	3.7		µg/Kg-dry	1	8/8/2022 11:06 PM
Acenaphthene	U	5.4	4.6		µg/Kg-dry	1	8/8/2022 11:06 PM
Acenaphthylene	U	5.4	4.3		µg/Kg-dry	1	8/8/2022 11:06 PM
Anthracene	U	5.4	4.8		µg/Kg-dry	1	8/8/2022 11:06 PM
Benzo(a)anthracene	U	5.4	5.2		µg/Kg-dry	1	8/8/2022 11:06 PM
Benzo(a)pyrene	U	5.4	4.3		µg/Kg-dry	1	8/8/2022 11:06 PM
Benzo(b)fluoranthene	U	5.4	4.5		µg/Kg-dry	1	8/8/2022 11:06 PM
Benzo(g,h,i)perylene	U	5.4	3.1		µg/Kg-dry	1	8/8/2022 11:06 PM
Benzo(k)fluoranthene	U	5.4	4.4		µg/Kg-dry	1	8/8/2022 11:06 PM
Chrysene	U	5.4	4.9		µg/Kg-dry	1	8/8/2022 11:06 PM
Dibenzo(a,h)anthracene	U	5.4	4.3		µg/Kg-dry	1	8/8/2022 11:06 PM
Fluoranthene	U	5.4	4.2		µg/Kg-dry	1	8/8/2022 11:06 PM
Fluorene	U	5.4	4.2		µg/Kg-dry	1	8/8/2022 11:06 PM
Indeno(1,2,3-cd)pyrene	U	5.4	4.7		µg/Kg-dry	1	8/8/2022 11:06 PM
Naphthalene	U	5.4	5.2		µg/Kg-dry	1	8/8/2022 11:06 PM
Phenanthrene	U	5.4	3.3		µg/Kg-dry	1	8/8/2022 11:06 PM
Pyrene	U	5.4	5.1		µg/Kg-dry	1	8/8/2022 11:06 PM
Surr: 2-Fluorobiphenyl	35.4	20-140	0		%REC	1	8/8/2022 11:06 PM
Surr: 4-Terphenyl-d14	3.92	22-172	0	S	%REC	1	8/8/2022 11:06 PM
Surr: Nitrobenzene-d5	8.20	28-140	0	S	%REC	1	8/8/2022 11:06 PM
MOISTURE		SW3550C		Analyst: ALG			
Moisture	23	0.10	0.10		% of sample	1	8/5/2022 02:18 PM

Qualifiers:
U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results RPD > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 10-Aug-22

CLIENT: ALS Environmental
Project: 2207722

Work Order: 22080488

Lab ID: 22080488-04A

Collection Date: 7/29/2022 10:30:00 AM

Client Sample ID: SW-3@2'

Matrix: SOIL

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)		SW8270E					Analyst: EEW
1-Methylnaphthalene	U	5.5	3.3		µg/Kg-dry	1	8/8/2022 11:22 PM
2-Methylnaphthalene	U	5.5	3.8		µg/Kg-dry	1	8/8/2022 11:22 PM
Acenaphthene	U	5.5	4.6		µg/Kg-dry	1	8/8/2022 11:22 PM
Acenaphthylene	U	5.5	4.4		µg/Kg-dry	1	8/8/2022 11:22 PM
Anthracene	U	5.5	4.9		µg/Kg-dry	1	8/8/2022 11:22 PM
Benzo(a)anthracene	U	5.5	5.3		µg/Kg-dry	1	8/8/2022 11:22 PM
Benzo(a)pyrene	U	5.5	4.4		µg/Kg-dry	1	8/8/2022 11:22 PM
Benzo(b)fluoranthene	U	5.5	4.6		µg/Kg-dry	1	8/8/2022 11:22 PM
Benzo(g,h,i)perylene	U	5.5	3.1		µg/Kg-dry	1	8/8/2022 11:22 PM
Benzo(k)fluoranthene	U	5.5	4.5		µg/Kg-dry	1	8/8/2022 11:22 PM
Chrysene	U	5.5	5.0		µg/Kg-dry	1	8/8/2022 11:22 PM
Dibenzo(a,h)anthracene	U	5.5	4.4		µg/Kg-dry	1	8/8/2022 11:22 PM
Fluoranthene	U	5.5	4.3		µg/Kg-dry	1	8/8/2022 11:22 PM
Fluorene	U	5.5	4.3		µg/Kg-dry	1	8/8/2022 11:22 PM
Indeno(1,2,3-cd)pyrene	U	5.5	4.8		µg/Kg-dry	1	8/8/2022 11:22 PM
Naphthalene	110	5.5	5.3		µg/Kg-dry	1	8/8/2022 11:22 PM
Phenanthrene	U	5.5	3.4		µg/Kg-dry	1	8/8/2022 11:22 PM
Pyrene	U	5.5	5.2		µg/Kg-dry	1	8/8/2022 11:22 PM
Surr: 2-Fluorobiphenyl	19.0	20-140	0	S	%REC	1	8/8/2022 11:22 PM
Surr: 4-Terphenyl-d14	8.17	22-172	0	S	%REC	1	8/8/2022 11:22 PM
Surr: Nitrobenzene-d5	11.6	28-140	0	S	%REC	1	8/8/2022 11:22 PM
MOISTURE		SW3550C					Analyst: ALG
Moisture	26	0.10	0.10		% of sample	1	8/5/2022 03:13 PM

Qualifiers: U - Analyzed for but Not Detected S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limits P - Dual Column results RPD > 40%
B - Analyte detected in the associated Method Blank E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level H - Analyzed outside of Hold Time

AR Page 4 of 5

ALS Group USA, Corp

Date: 10-Aug-22

CLIENT: ALS Environmental
Project: 2207722

Work Order: 22080488

Lab ID: 22080488-05A

Collection Date: 7/29/2022 10:35:00 AM

Client Sample ID: SW-4@2'

Matrix: SOIL

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)		SW8270E					Analyst: EEW
1-Methylnaphthalene	U	5.8	3.4		µg/Kg-dry	1	8/8/2022 11:37 PM
2-Methylnaphthalene	U	5.8	4.0		µg/Kg-dry	1	8/8/2022 11:37 PM
Acenaphthene	U	5.8	4.9		µg/Kg-dry	1	8/8/2022 11:37 PM
Acenaphthylene	U	5.8	4.6		µg/Kg-dry	1	8/8/2022 11:37 PM
Anthracene	U	5.8	5.2		µg/Kg-dry	1	8/8/2022 11:37 PM
Benzo(a)anthracene	U	5.8	5.6		µg/Kg-dry	1	8/8/2022 11:37 PM
Benzo(a)pyrene	U	5.8	4.6		µg/Kg-dry	1	8/8/2022 11:37 PM
Benzo(b)fluoranthene	U	5.8	4.9		µg/Kg-dry	1	8/8/2022 11:37 PM
Benzo(g,h,i)perylene	U	5.8	3.3		µg/Kg-dry	1	8/8/2022 11:37 PM
Benzo(k)fluoranthene	U	5.8	4.7		µg/Kg-dry	1	8/8/2022 11:37 PM
Chrysene	U	5.8	5.3		µg/Kg-dry	1	8/8/2022 11:37 PM
Dibenzo(a,h)anthracene	U	5.8	4.7		µg/Kg-dry	1	8/8/2022 11:37 PM
Fluoranthene	U	5.8	4.6		µg/Kg-dry	1	8/8/2022 11:37 PM
Fluorene	U	5.8	4.5		µg/Kg-dry	1	8/8/2022 11:37 PM
Indeno(1,2,3-cd)pyrene	U	5.8	5.0		µg/Kg-dry	1	8/8/2022 11:37 PM
Naphthalene	U	5.8	5.6		µg/Kg-dry	1	8/8/2022 11:37 PM
Phenanthrene	U	5.8	3.5		µg/Kg-dry	1	8/8/2022 11:37 PM
Pyrene	U	5.8	5.5		µg/Kg-dry	1	8/8/2022 11:37 PM
Surr: 2-Fluorobiphenyl	12.7	20-140	0	S	%REC	1	8/8/2022 11:37 PM
Surr: 4-Terphenyl-d14	3.77	22-172	0	S	%REC	1	8/8/2022 11:37 PM
Surr: Nitrobenzene-d5	9.78	28-140	0	S	%REC	1	8/8/2022 11:37 PM
MOISTURE		SW3550C					Analyst: ALG
Moisture	29	0.10	0.10		% of sample	1	8/5/2022 03:13 PM

Qualifiers:
U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results RPD > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

Client: ALS Environmental

QC BATCH REPORT

Work Order: 22080488

Project: 2207722

Batch ID: 200991

Instrument ID SVMS6

Method: SW8270E

MBLK		Sample ID: SBLKS1-200991-200991				Units: µg/Kg		Analysis Date: 8/8/2022 05:40 PM			
Client ID:		Run ID: SVMS6_220808A				SeqNo: 8691979		Prep Date: 8/8/2022		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	2.5	4.2								
2-Methylnaphthalene	U	2.9	4.2								
Acenaphthene	U	3.5	4.2								
Acenaphthylene	U	3.3	4.2								
Anthracene	U	3.8	4.2								
Benzo(a)anthracene	U	4	4.2								
Benzo(a)pyrene	U	3.3	4.2								
Benzo(b)fluoranthene	U	3.5	4.2								
Benzo(g,h,i)perylene	U	2.4	4.2								
Benzo(k)fluoranthene	U	3.4	4.2								
Chrysene	U	3.8	4.2								
Dibenzo(a,h)anthracene	U	3.4	4.2								
Fluoranthene	U	3.3	4.2								
Fluorene	U	3.3	4.2								
Indeno(1,2,3-cd)pyrene	U	3.6	4.2								
Naphthalene	U	4	4.2								
Phenanthrene	U	2.6	4.2								
Pyrene	U	4	4.2								
Surr: 2-Fluorobiphenyl	604.7	0	0	666.6	0	90.7	20-140	0			
Surr: 4-Terphenyl-d14	532.6	0	0	666.6	0	79.9	22-172	0			
Surr: Nitrobenzene-d5	566.6	0	0	666.6	0	85	28-140	0			

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

Client: ALS Environmental
 Work Order: 22080488
 Project: 2207722

QC BATCH REPORT

Batch ID: **200991** Instrument ID **SVMS6** Method: **SW8270E**

LCS					Sample ID: SLCSS1-200991-200991			Units: µg/Kg		Analysis Date: 8/8/2022 05:56 PM		
Client ID:					Run ID: SVMS6_220808A			SeqNo: 8691980		Prep Date: 8/8/2022		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1-Methylnaphthalene	568.1	2.5	4.2	666.6	0	85.2	40-140	0				
2-Methylnaphthalene	555.6	2.9	4.2	666.6	0	83.3	40-140	0				
Acenaphthene	563.1	3.5	4.2	666.6	0	84.5	40-140	0				
Acenaphthylene	549.8	3.3	4.2	666.6	0	82.5	40-140	0				
Anthracene	622.8	3.8	4.2	666.6	0	93.4	40-140	0				
Benzo(a)anthracene	541.4	4	4.2	666.6	0	81.2	40-140	0				
Benzo(a)pyrene	510.6	3.3	4.2	666.6	0	76.6	40-140	0				
Benzo(b)fluoranthene	500.6	3.5	4.2	666.6	0	75.1	40-140	0				
Benzo(g,h,i)perylene	533.5	2.4	4.2	666.6	0	80	40-140	0				
Benzo(k)fluoranthene	514.3	3.4	4.2	666.6	0	77.2	40-140	0				
Chrysene	599.9	3.8	4.2	666.6	0	90	40-140	0				
Dibenzo(a,h)anthracene	526.9	3.4	4.2	666.6	0	79	40-140	0				
Fluoranthene	634.8	3.3	4.2	666.6	0	95.2	40-140	0				
Fluorene	528.5	3.3	4.2	666.6	0	79.3	40-140	0				
Indeno(1,2,3-cd)pyrene	510.9	3.6	4.2	666.6	0	76.6	40-140	0				
Naphthalene	579	4	4.2	666.6	0	86.9	40-140	0				
Phenanthrene	578.5	2.6	4.2	666.6	0	86.8	40-140	0				
Pyrene	470.5	4	4.2	666.6	0	70.6	40-140	0				
Surr: 2-Fluorobiphenyl	592.2	0	0	666.6	0	88.8	20-140	0				
Surr: 4-Terphenyl-d14	541.1	0	0	666.6	0	81.2	22-172	0				
Surr: Nitrobenzene-d5	507.6	0	0	666.6	0	76.1	28-140	0				

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

Client: ALS Environmental

Work Order: 22080488

Project: 2207722

QC BATCH REPORT

Batch ID: 200991

Instrument ID SVMS6

Method: SW8270E

MS Sample ID: 22080489-03A MS					Units: µg/Kg			Analysis Date: 8/8/2022 06:11 PM			
Client ID:		Run ID: SVMS6_220808A			SeqNo: 8691981		Prep Date: 8/8/2022		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	242.3	2.4	4.1	654.4	0	37	40-140	0			S
2-Methylnaphthalene	234.4	2.9	4.1	654.4	0	35.8	40-140	0			S
Acenaphthene	219.9	3.5	4.1	654.4	0	33.6	40-140	0			S
Acenaphthylene	202.8	3.3	4.1	654.4	0	31	40-140	0			S
Anthracene	168.7	3.7	4.1	654.4	0	25.8	40-140	0			S
Benzo(a)anthracene	91.49	4	4.1	654.4	0	14	40-140	0			S
Benzo(a)pyrene	66.2	3.3	4.1	654.4	0	10.1	40-140	0			S
Benzo(b)fluoranthene	72.25	3.5	4.1	654.4	0	11	40-140	0			S
Benzo(g,h,i)perylene	71.97	2.4	4.1	654.4	1.761	10.7	40-140	0			S
Benzo(k)fluoranthene	71.02	3.3	4.1	654.4	0	10.9	40-140	0			S
Chrysene	84.33	3.8	4.1	654.4	0	12.9	40-140	0			S
Dibenzo(a,h)anthracene	55.79	3.3	4.1	654.4	0	8.53	40-140	0			S
Fluoranthene	166.1	3.2	4.1	654.4	0	25.4	40-140	0			S
Fluorene	179.3	3.2	4.1	654.4	0	27.4	40-140	0			S
Indeno(1,2,3-cd)pyrene	56.56	3.6	4.1	654.4	0	8.64	40-140	0			S
Naphthalene	242	4	4.1	654.4	0	37	40-140	0			S
Phenanthrene	164.6	2.5	4.1	654.4	0	25.1	40-140	0			S
Pyrene	139.9	3.9	4.1	654.4	0	21.4	40-140	0			S
Surr: 2-Fluorobiphenyl	251.2	0	0	654.4	0	38.4	20-140	0			
Surr: 4-Terphenyl-d14	74.43	0	0	654.4	0	11.4	22-172	0			S
Surr: Nitrobenzene-d5	130.1	0	0	654.4	0	19.9	28-140	0			S

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

Client: ALS Environmental
 Work Order: 22080488
 Project: 2207722

QC BATCH REPORT

Batch ID: **200991** Instrument ID **SVMS6** Method: **SW8270E**

MSD					Sample ID: 22080489-03A MSD			Units: µg/Kg		Analysis Date: 8/8/2022 06:27 PM		
Client ID:			Run ID: SVMS6_220808A			SeqNo: 8691982		Prep Date: 8/8/2022		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1-Methylnaphthalene	102.1	2.4	4.1	653.5	0	15.6	40-140	242.3	81.5	30	SR	
2-Methylnaphthalene	103.2	2.9	4.1	653.5	0	15.8	40-140	234.4	77.8	30	SR	
Acenaphthene	95.29	3.5	4.1	653.5	0	14.6	40-140	219.9	79.1	30	SR	
Acenaphthylene	92.63	3.3	4.1	653.5	0	14.2	40-140	202.8	74.6	30	SR	
Anthracene	75.03	3.7	4.1	653.5	0	11.5	40-140	168.7	76.9	30	SR	
Benzo(a)anthracene	42.84	4	4.1	653.5	0	6.56	40-140	91.49	72.4	30	SR	
Benzo(a)pyrene	31.94	3.3	4.1	653.5	0	4.89	40-140	66.2	69.8	30	SR	
Benzo(b)fluoranthene	33.76	3.5	4.1	653.5	0	5.17	40-140	72.25	72.6	30	SR	
Benzo(g,h,i)perylene	37.42	2.4	4.1	653.5	1.761	5.46	40-140	71.97	63.2	30	SR	
Benzo(k)fluoranthene	35.54	3.3	4.1	653.5	0	5.44	40-140	71.02	66.6	30	SR	
Chrysene	41.88	3.8	4.1	653.5	0	6.41	40-140	84.33	67.3	30	SR	
Dibenzo(a,h)anthracene	30.33	3.3	4.1	653.5	0	4.64	40-140	55.79	59.1	30	SR	
Fluoranthene	74.76	3.2	4.1	653.5	0	11.4	40-140	166.1	75.9	30	SR	
Fluorene	77.5	3.2	4.1	653.5	0	11.9	40-140	179.3	79.3	30	SR	
Indeno(1,2,3-cd)pyrene	30.67	3.6	4.1	653.5	0	4.69	40-140	56.56	59.4	30	SR	
Naphthalene	104.4	4	4.1	653.5	0	16	40-140	242	79.4	30	SR	
Phenanthrene	62.91	2.5	4.1	653.5	0	9.63	40-140	164.6	89.4	30	SR	
Pyrene	64.77	3.9	4.1	653.5	0	9.91	40-140	139.9	73.4	30	SR	
Surr: 2-Fluorobiphenyl	119.4	0	0	653.5	0	18.3	20-140	251.2	71.1	30	SR	
Surr: 4-Terphenyl-d14	42.61	0	0	653.5	0	6.52	22-172	74.43	54.4	30	SR	
Surr: Nitrobenzene-d5	79.79	0	0	653.5	0	12.2	28-140	130.1	47.9	30	SR	

The following samples were analyzed in this batch:

22080488-01A	22080488-02A	22080488-03A
22080488-04A	22080488-05A	

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

Client: ALS Environmental

Work Order: 22080488

Project: 2207722

QC BATCH REPORT

Batch ID: **R350579**

Instrument ID **MOIST**

Method: **SW3550C**

MBLK		Sample ID: WBLKS-R350579				Units: % of sample			Analysis Date: 8/5/2022 02:18 PM		
Client ID:		Run ID: MOIST_220805C				SeqNo: 8685144			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.1	0.10								

LCS		Sample ID: LCS-R350579				Units: % of sample			Analysis Date: 8/5/2022 02:18 PM		
Client ID:		Run ID: MOIST_220805C				SeqNo: 8685143			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	99.98	0.1	0.10	100	0	100	98-102	0			

DUP		Sample ID: 22080469-37A DUP				Units: % of sample			Analysis Date: 8/5/2022 02:18 PM		
Client ID:		Run ID: MOIST_220805C				SeqNo: 8685129			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	10.05	0.1	0.10	0	0	0	0-0	10.31	2.55	10	

DUP		Sample ID: 22080488-01A DUP				Units: % of sample			Analysis Date: 8/5/2022 02:18 PM		
Client ID: BH-1@4'		Run ID: MOIST_220805C				SeqNo: 8685140			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	27.13	0.1	0.10	0	0	0	0-0	28.58	5.21	10	

The following samples were analyzed in this batch:

22080488-01A	22080488-02A	22080488-03A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental

Work Order: 22080488

Project: 2207722

QC BATCH REPORT

Batch ID: **R350580**

Instrument ID **MOIST**

Method: **SW3550C**

MBLK		Sample ID: WBLKS-R350580				Units: % of sample			Analysis Date: 8/5/2022 03:13 PM		
Client ID:		Run ID: MOIST_220805D				SeqNo: 8685153			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.1	0.10								

LCS		Sample ID: LCS-R350580				Units: % of sample			Analysis Date: 8/5/2022 03:13 PM		
Client ID:		Run ID: MOIST_220805D				SeqNo: 8685152			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.1	0.10	100	0	100	98-102	0			

DUP		Sample ID: 22080488-04A DUP				Units: % of sample			Analysis Date: 8/5/2022 03:13 PM		
Client ID: SW-3@2'		Run ID: MOIST_220805D				SeqNo: 8685146			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	26.04	0.1	0.10	0	0	0	0-0	25.7	1.31	10	

The following samples were analyzed in this batch:

22080488-04A 22080488-05A

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



ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524

TF: (800) 443-1511 w PH: (970) 490-1511 w FX: (970) 490-1522

Chain-of-Custody

LAB ID

DATE

8/3/2022

PAGE

of

PROJECT NAME Wildhorse 06-13H E-MAIL alannah.liebert@alsglobal.com TURNAROUND Standard DISPOSAL By Lab or Return to Client

PROJECT No. Wildhorse 06-13H PHONE 970-490-1511

REPORT TO Alannah Liebert FAX 970-490-1522

COMPANY ALS Environmental

ADDRESS 225 Commerce Drive, Fort Collins, Colorado 80524

4oz soil

8270SIM - See list

22080488

ALS - FORT COLLINS: ALS Laboratory Group
Project: 2207722



Lab ID

Field ID

Matrix

Sample Date

Sample Time

Btls

QC

BH-1@4'	SOIL	07/29/2022	10:15	1	X
SW-1@2'	SOIL	07/29/2022	10:20	1	X
SW-2@2'	SOIL	07/29/2022	10:25	1	X
SW-3@2'	SOIL	07/29/2022	10:30	1	X
SW-4@2'	SOIL	07/29/2022	10:35	1	X

COMMENTS ALS 2207722

Summary Report, COGCC_EDD

See included SIM-PAH list. Report to the MDL.

3.4°C 123

SIGNATURE

DATE

TIME

COMPANY

Relinquished By

Karen Graven

Karen Graven

8-3-22

1570

ACS

Received By

Keith Wierenga

Keith Wierenga

8/4/22

1600

ALS

Sample Receipt Checklist

Client Name: **ALS - FORT COLLINS**

Date/Time Received: **04-Aug-22 16:00**

Work Order: **22080488**

Received by: **KRW**

Checklist completed by **Keith Wierenga**

05-Aug-22

Reviewed by: **Jodi Blouw**

05-Aug-22

eSignature

Date

eSignature

Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Sample(s) received on ice?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

3.4/4.4 C

IR3

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

8/5/2022 9:01:56 AM

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

pH adjusted?

Yes ☐

No ☐

N/A ☒

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: