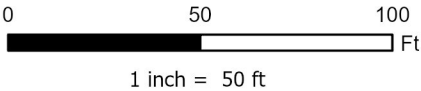


Legend

● Spill Origin ● Soil Sample Location ▨ Spill Area



Project No: 018-065

Map By: NDB

Date: 8/11/2020

UP 22-32 Spill
Chevron USA, Inc.
Rio Blanco County, Colorado
NESE Sec 32 T2S R102W



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

Figure

1

Table 1
UP 22-32 Spill
Soil Data Summary

SAMPLE SUMMARY	
Location Description	UP 22-32 Spill
Sample Type	Soil

LABORATORY DATA SUMMARY							
Sample ID	UP 22-32 SS1	UP 22-32 SS1	UP 22-32 SS1	COGCC TABLE 910-1 CONCENTRATION LEVELS	ECMC TABLE 915-1 CONCENTRATION LEVELS		UNITS
Sample Depth	0-6"	0-1'	0-1'		Residential Soil Levels	Protection of Groundwater	
Collection Date	7/15/2020	10/21/2022	7/1/2024				
Analytical Parameters							
TPH							
TPH (C6-C10)	<2.2	NT	NT	500	500	500	mg/kg
TPH (C10-C28)	170	NT	NT				
TPH (C28-C36)	NT	NT	1600				
BTEX							
Benzene	<0.0054	NT	NT	0.17	1.2	0.0026	mg/kg
Toluene	<0.0086	NT	NT	85	490	0.69	mg/kg
Ethylbenzene	<0.0067	NT	NT	100	5.8	0.78	mg/kg
Total Xylene	<0.042	NT	NT	175	58	9.9	mg/kg
1,2,4-trimethylbenzene	NT	NT	<0.005	NA	30	0.0081	mg/kg
1,3,5-trimethylbenzene	NT	NT	<0.005	NA	27	0.0087	mg/kg
Metals							
Arsenic	6.7	NT	NT	0.39	0.68	0.29	mg/kg
Barium	370	NT	NT	15,000	15,000	82	mg/kg
Cadmium	0.27	NT	NT	70	71	0.38	mg/kg
Chromium	11	NT	NT	NA	NA	NA	mg/kg
Copper	47	NT	NT	3,100	3,100	46	mg/kg
Lead	27	NT	NT	400	400	14	mg/kg
Mercury	0.48	NT	NT	23	NA	NA	mg/kg
Nickel	18	NT	NT	1,600	1,500	26	mg/kg
Selenium	1.0	NT	NT	390	390	0.26	mg/kg
Silver	0.058 J	NT	NT	390	390	0.8	mg/kg
Zinc	76	NT	NT	23,000	23,000	370	mg/kg
SAR Metals Analysis							
Calcium	1800	NT	NT	NA	NA	NA	mg/kg
Magnesium	150	NT	NT	NA	NA	NA	mg/kg
Sodium	2600	NT	NT	NA	NA	NA	mg/kg
Sodium Adsorption Ratio	16	20.6	21.3	<12	<6	<6	ratio
Polynuclear Aromatic Hydrocarbons							
Acenaphthene	0.0060	NT	NT	1,000	360	0.55	mg/kg
Anthracene	0.0092	NT	NT	1,000	1,800	5.8	mg/kg
Benzo(a)anthracene	0.017	NT	NT	0.22	1.1	0.011	mg/kg
Benzo(b)fluoranthene	0.016	NT	NT	0.22	1.1	0.3	mg/kg
Benzo(k)fluoranthene	<0.0012	NT	NT	2.2	11.0	2.9	mg/kg
Benzo(a)pyrene	0.0082	NT	NT	0.022	0.11	0.24	mg/kg
Chrysene	0.021	NT	NT	22	110	9	mg/kg
Dibenzo(a,h)anthracene	<0.00096	NT	NT	0.022	0.11	0.096	mg/kg
Fluoranthene	0.040	NT	NT	1,000	240	8.9	mg/kg
Fluorene	0.0037 J	NT	NT	1,000	240	0.54	mg/kg
Indeno(1,2,3-cd)pyrene	<0.0015	NT	NT	0.22	1.1	0.98	mg/kg
1-methylnaphthalene	NT	NT	<0.0200	NA	18.00	0.006	mg/kg
2-methylnaphthalene	NT	NT	<0.0200	NA	24.00	0.019	mg/kg
Naphthalene	<0.0018	NT	NT	23	2	0.0038	mg/kg
Pyrene	0.027	NT	NT	1,000	180	1.3	mg/kg
General Chemistry							
Chromium, Hexavalent	<0.85	NT	0.411 J	23	0.3	0.00067	mg/kg
Chromium, Trivalent	11	NT	NT	120,000	NA	NA	mg/kg
Hot Water Soluble Boron	NT	NT	0.966	NA	2	2	mg/L
Specific Conductivity	22	7.78	10.9	<4 or 2 x the background	<4	<4	mmhos/cm
pH	8.19	NT	NT	6-9	6-8.3	6-8.3	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
ND - not detected above method detection limit

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



24-Jul-2020

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

Re: **Union Pacific 22-32 Spill**

Work Order: **20071263**

Dear Tim,

ALS Environmental received 1 sample on 17-Jul-2020 10:00 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 23.

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 026-999-449

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: Union Pacific 22-32 Spill
Work Order: 20071263

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>
20071263-01	UP 22-32-SS1	Soil		7/15/2020 12:30	7/17/2020 10:00	<input type="checkbox"/>

Client: Entrada Consulting Group
Project: Union Pacific 22-32 Spill
Work Order: 20071263

Case Narrative

Batch 159451, Method ICP_6020_S, Sample 20071263-01A: The concentration in the Method Blank was greater than the quantitation limit for Copper. The sample result was greater than 10x the concentration in the Method Blank; therefore, no qualification is required.

<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
°C	Degrees Celcius
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: 24-Jul-20

Client: Entrada Consulting Group
Project: Union Pacific 22-32 Spill
Sample ID: UP 22-32-SS1
Collection Date: 7/15/2020 12:30 PM

Work Order: 20071263
Lab ID: 20071263-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW3550 / 7/22/20		Analyst: JZB
DRO (C10-C28)	170		2.8	9.8	mg/Kg-dry	1	7/23/2020 16:10
Surr: 4-Terphenyl-d14	59.5			33-111	%REC	1	7/23/2020 16:10
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 7/17/20		Analyst: JZB
GRO (C6-C10)	U		2.2	5.3	mg/Kg	1	7/18/2020 08:28
Surr: Toluene-d8	95.3			71-123	%REC	1	7/18/2020 08:28
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/22/20		Analyst: MAC
Mercury	0.48		0.023	0.033	mg/Kg-dry	2	7/23/2020 11:28
METALS BY ICP-MS							
			Method: SW6020B		Prep: SW3050B / 7/22/20		Analyst: STP
Arsenic	6.7		0.040	0.33	mg/Kg-dry	1	7/22/2020 20:17
Barium	370		3.0	3.3	mg/Kg-dry	10	7/23/2020 13:29
Cadmium	0.27		0.020	0.13	mg/Kg-dry	1	7/22/2020 20:17
Chromium	11		0.15	0.33	mg/Kg-dry	1	7/23/2020 13:52
Copper	47	B	3.3	3.3	mg/Kg-dry	10	7/23/2020 13:29
Lead	27		0.16	0.33	mg/Kg-dry	1	7/22/2020 20:17
Nickel	18		1.7	3.3	mg/Kg-dry	10	7/23/2020 13:29
Selenium	1.0		0.30	0.33	mg/Kg-dry	1	7/23/2020 13:52
Silver	0.058	J	0.044	0.33	mg/Kg-dry	1	7/22/2020 20:17
Zinc	76		0.65	0.66	mg/Kg-dry	1	7/22/2020 20:17
SOLUBLE CATIONS FOR SAR							
			Method: SW6020B		Prep: USDA Method 20B / 7/22/20		Analyst: STP
Calcium	1,800		2.5	5.0	mg/L	10	7/22/2020 15:24
Magnesium	150		0.50	2.0	mg/L	10	7/22/2020 15:24
Sodium	2,600		4.5	20	mg/L	100	7/22/2020 16:17
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 7/22/20		Analyst: STP
Sodium Adsorption Ratio	16		0.010	0.010	none	1	7/22/2020
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)							
			Method: SW8270E		Prep: SW3546 / 7/20/20		Analyst: EEW
Acenaphthene	0.0060		0.00079	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Anthracene	0.0092		0.0014	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Benzo(a)anthracene	0.017		0.0017	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Benzo(a)pyrene	0.0082		0.0011	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Benzo(b)fluoranthene	0.016		0.00097	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Benzo(k)fluoranthene	U		0.0012	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Chrysene	0.021		0.00084	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Dibenzo(a,h)anthracene	U		0.00096	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Fluoranthene	0.040		0.00075	0.0041	mg/Kg-dry	1	7/20/2020 18:59

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

ALS Group, USA

Date: 24-Jul-20

Client: Entrada Consulting Group
Project: Union Pacific 22-32 Spill
Sample ID: UP 22-32-SS1
Collection Date: 7/15/2020 12:30 PM

Work Order: 20071263
Lab ID: 20071263-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	0.0037	J	0.0013	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Indeno(1,2,3-cd)pyrene	U		0.0015	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Naphthalene	U		0.0018	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Pyrene	0.027		0.00067	0.0041	mg/Kg-dry	1	7/20/2020 18:59
Surr: 2-Fluorobiphenyl	69.7			20-140	%REC	1	7/20/2020 18:59
Surr: 4-Terphenyl-d14	44.3			22-172	%REC	1	7/20/2020 18:59
Surr: Nitrobenzene-d5	57.2			28-140	%REC	1	7/20/2020 18:59
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 7/17/20		Analyst: MF
Benzene	U		0.0054	0.032	mg/Kg-dry	1	7/20/2020 18:18
Ethylbenzene	U		0.0067	0.032	mg/Kg-dry	1	7/20/2020 18:18
m,p-Xylene	U		0.042	0.063	mg/Kg-dry	1	7/20/2020 18:18
o-Xylene	U		0.012	0.032	mg/Kg-dry	1	7/20/2020 18:18
Toluene	U		0.0086	0.032	mg/Kg-dry	1	7/20/2020 18:18
Xylenes, Total	U		0.042	0.095	mg/Kg-dry	1	7/20/2020 18:18
Surr: 1,2-Dichloroethane-d4	101			70-130	%REC	1	7/20/2020 18:18
Surr: 4-Bromofluorobenzene	99.0			70-130	%REC	1	7/20/2020 18:18
Surr: Dibromofluoromethane	84.9			70-130	%REC	1	7/20/2020 18:18
Surr: Toluene-d8	100			70-130	%REC	1	7/20/2020 18:18
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 7/22/20		Analyst: QTN
Electrical Conductivity @ Saturation	22		0.011	0.10	mmhos/cm @25°	20	7/23/2020 11:21
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: JB
Chromium, Trivalent	11		0.86	1.0	mg/Kg-dry	1	7/23/2020 19:10
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 7/22/20		Analyst: KTP
Chromium, Hexavalent	U		0.85	1.0	mg/Kg-dry	1	7/23/2020 16:22
MOISTURE			Method: SW3550C				Analyst: KTP
Moisture	1.7		0.10	0.10	% of sample	1	7/21/2020 13:02
PH			Method: SW9045D		Prep: EXTRACT / 7/20/20		Analyst: QTN
pH	8.19		0.10	0.100	s.u.	1	7/21/2020 11:05
Temperature	20.5		0.10	0.100	°C	1	7/21/2020 11:05

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

Client: Entrada Consulting Group
Work Order: 20071263
Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159445** Instrument ID **GC8** Method: **SW8015D**

MBLK				Sample ID: DBLKS1-159445-159445		Units: mg/Kg		Analysis Date: 7/23/2020 10:18 AM		
Client ID:		Run ID: GC8_200723A		SeqNo: 6584973		Prep Date: 7/22/2020		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	5.139	10								J
Surr: 4-Terphenyl-d14	2.566	0	3.33	0	77.1	33-111	0			

LCS				Sample ID: DLCSS1-159445-159445		Units: mg/Kg		Analysis Date: 7/23/2020 10:57 AM		
Client ID:		Run ID: GC8_200723A		SeqNo: 6584974		Prep Date: 7/22/2020		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	315.2	10	333	0	94.7	80-121	0			
Surr: 4-Terphenyl-d14	1.725	0	3.33	0	51.8	33-111	0			

MS				Sample ID: 20071262-01A MS		Units: mg/Kg		Analysis Date: 7/23/2020 11:36 AM		
Client ID:		Run ID: GC8_200723A		SeqNo: 6584975		Prep Date: 7/22/2020		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	320	9.5	316.2	8.907	98.4	80-121	0			
Surr: 4-Terphenyl-d14	1.649	0	3.162	0	52.2	33-111	0			

MSD				Sample ID: 20071262-01A MSD		Units: mg/Kg		Analysis Date: 7/23/2020 12:15 PM		
Client ID:		Run ID: GC8_200723A		SeqNo: 6584976		Prep Date: 7/22/2020		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	312.4	9.7	324.4	8.907	93.6	80-121	320	2.39	30	
Surr: 4-Terphenyl-d14	1.607	0	3.244	0	49.5	33-111	1.649	2.57	30	

The following samples were analyzed in this batch: 20071263-01A

Client: Entrada Consulting Group
Work Order: 20071263
Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159260** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-159260-159260				Units: µg/Kg-dry		Analysis Date: 7/18/2020 03:09 AM		
Client ID:		Run ID: GC9_200717C				SeqNo: 6573316		Prep Date: 7/17/2020		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								
<i>Surr: Toluene-d8</i>	4374	0	5000	0	87.5	71-123	0			

LCS		Sample ID: LCS-159260-159260				Units: µg/Kg-dry		Analysis Date: 7/18/2020 02:23 AM		
Client ID:		Run ID: GC9_200717C				SeqNo: 6573334		Prep Date: 7/17/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	208400	5,000	250000	0	83.4	71-123	0			
<i>Surr: Toluene-d8</i>	4260	0	5000	0	85.2	71-123	0			

MS		Sample ID: 20071038-01A MS				Units: µg/Kg-dry		Analysis Date: 7/18/2020 07:19 AM		
Client ID:		Run ID: GC9_200717C				SeqNo: 6573327		Prep Date: 7/17/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	371300	9,600	479800	10820	75.1	71-123	0			
<i>Surr: Toluene-d8</i>	8654	0	9596	0	90.2	71-123	0			

MSD		Sample ID: 20071038-01A MSD				Units: µg/Kg-dry		Analysis Date: 7/18/2020 07:42 AM		
Client ID:		Run ID: GC9_200717C				SeqNo: 6573328		Prep Date: 7/17/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	377500	9,600	478300	10820	76.7	71-123	371300	1.67	30	
<i>Surr: Toluene-d8</i>	8241	0	9566	0	86.2	71-123	8654	4.89	30	

The following samples were analyzed in this batch: 20071263-01A

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

Client: Entrada Consulting Group
 Work Order: 20071263
 Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159442** Instrument ID **HG4** Method: **SW7471B**

MBLK		Sample ID: MBLK-159442-159442				Units: mg/Kg		Analysis Date: 7/22/2020 02:53 PM		
Client ID:		Run ID: HG4_200722A				SeqNo: 6580511		Prep Date: 7/22/2020		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-159442-159442				Units: mg/Kg		Analysis Date: 7/22/2020 02:54 PM		
Client ID:		Run ID: HG4_200722A				SeqNo: 6580513		Prep Date: 7/22/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1742 0.020 0.1665 0 105 80-120 0

MS		Sample ID: 20071223-01AMS				Units: mg/Kg		Analysis Date: 7/22/2020 03:14 PM		
Client ID:		Run ID: HG4_200722A				SeqNo: 6581807		Prep Date: 7/22/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1434 0.016 0.1314 0.00744 103 75-125 0

MSD		Sample ID: 20071223-01AMSD				Units: mg/Kg		Analysis Date: 7/22/2020 03:16 PM		
Client ID:		Run ID: HG4_200722A				SeqNo: 6581808		Prep Date: 7/22/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1433 0.016 0.1332 0.00744 102 75-125 0.1434 0.0614 35

The following samples were analyzed in this batch:

20071263-01A

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

Client: Entrada Consulting Group
 Work Order: 20071263
 Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159451** Instrument ID **ICPMS4** Method: **SW6020B**

Sample ID: MBLK-159451-159451				Units: mg/Kg		Analysis Date: 7/22/2020 07:49 PM				
Client ID:		Run ID: ICPMS4_200722B			SeqNo: 6581697		Prep Date: 7/22/2020		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	0.10								
Chromium	U	0.25								
Copper	1.514	0.25								
Lead	0.1303	0.25								J
Nickel	U	0.25								
Selenium	U	0.25								
Silver	U	0.25								
Zinc	U	0.50								

LCS				Sample ID: LCS-159451-159451				Units: mg/Kg			Analysis Date: 7/22/2020 07:50 PM		
Client ID:			Run ID: ICPMS4_200722B				SeqNo: 6581698		Prep Date: 7/22/2020		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Arsenic	4.907	0.25	5	0	98.1	80-120	0						
Barium	5.279	0.25	5	0	106	80-120	0						
Cadmium	5.288	0.10	5	0	106	80-120	0						
Chromium	4.759	0.25	5	0	95.2	80-120	0						
Copper	4.771	0.25	5	0	95.4	80-120	0			B			
Lead	5.401	0.25	5	0	108	80-120	0						
Nickel	4.693	0.25	5	0	93.9	80-120	0						
Selenium	5.132	0.25	5	0	103	80-120	0						
Silver	5.111	0.25	5	0	102	80-120	0						
Zinc	5.052	0.50	5	0	101	80-120	0						

MS				Sample ID: 20071216-01BMS			Units: mg/Kg		Analysis Date: 7/22/2020 07:55 PM		
Client ID:			Run ID: ICPMS4_200722B			SeqNo: 6581701		Prep Date: 7/22/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	7.881	0.38	7.645	0.6975	94	75-125	0				
Barium	12.85	0.38	7.645	4.932	104	75-125	0				
Cadmium	7.453	0.15	7.645	0.0102	97.4	75-125	0				
Chromium	9.105	0.38	7.645	1.875	94.6	75-125	0				
Copper	8.727	0.38	7.645	2.35	83.4	75-125	0			B	
Lead	9.658	0.38	7.645	1.692	104	75-125	0				
Nickel	9.224	0.38	7.645	2.698	85.4	75-125	0				
Selenium	7.405	0.38	7.645	-0.1066	98.2	75-125	0				
Silver	7.134	0.38	7.645	0.006028	93.2	75-125	0				
Zinc	13.06	0.76	7.645	6.374	87.4	75-125	0				

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

Client: Entrada Consulting Group
Work Order: 20071263
Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159451** Instrument ID **ICPMS4** Method: **SW6020B**

MSD				Sample ID: 20071216-01BMSD			Units: mg/Kg		Analysis Date: 7/22/2020 07:57 PM	
Client ID:		Run ID: ICPMS4_200722B			SeqNo: 6581702		Prep Date: 7/22/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.892	0.38	7.622	0.6975	94.4	75-125	7.881	0.139	20	
Barium	13.03	0.38	7.622	4.932	106	75-125	12.85	1.38	20	
Cadmium	7.439	0.15	7.622	0.0102	97.5	75-125	7.453	0.196	20	
Chromium	9.121	0.38	7.622	1.875	95.1	75-125	9.105	0.177	20	
Copper	8.709	0.38	7.622	2.35	83.4	75-125	8.727	0.21	20	B
Lead	9.659	0.38	7.622	1.692	105	75-125	9.658	0.00528	20	
Nickel	9.187	0.38	7.622	2.698	85.1	75-125	9.224	0.402	20	
Selenium	7.41	0.38	7.622	-0.1066	98.6	75-125	7.405	0.0697	20	
Silver	7.102	0.38	7.622	0.006028	93.1	75-125	7.134	0.455	20	
Zinc	13.12	0.76	7.622	6.374	88.5	75-125	13.06	0.474	20	

The following samples were analyzed in this batch:

20071263-01A

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

Client: Entrada Consulting Group
Work Order: 20071263
Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159458** Instrument ID **ICPMS4** Method: **SW6020B**

DUP		Sample ID: 20071262-01BDUP				Units: mg/L		Analysis Date: 7/22/2020 03:23 PM		
Client ID:		Run ID: ICPMS4_200722A				SeqNo: 6580853		Prep Date: 7/22/2020		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	1118	5.0	0	0	0	0-0	1165	4.08		
Magnesium	103	2.0	0	0	0	0-0	118	13.5		
Sodium	39.3	2.0	0	0	0	0-0	45.24	14.1		

The following samples were analyzed in this batch: 20071263-01B

Batch ID: **159458** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 20071262-01BDUP				Units: none		Analysis Date: 7/22/2020		
Client ID:		Run ID: SAR_200722A				SeqNo: 6581227		Prep Date: 7/22/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.3015	0.010	0	0	0		0.3379	11.4	50	

The following samples were analyzed in this batch: 20071263-01B

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

Client: Entrada Consulting Group
 Work Order: 20071263
 Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159307** Instrument ID **SVMS6** Method: **SW8270E**

MBLK				Sample ID: SBLKS1-159307-159307				Units: µg/Kg		Analysis Date: 7/20/2020 03:38 PM		
Client ID:			Run ID: SVMS6_200720A			SeqNo: 6577310		Prep Date: 7/20/2020		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Acenaphthene	U	4.2										
Anthracene	U	4.2										
Benzo(a)anthracene	U	4.2										
Benzo(a)pyrene	U	4.2										
Benzo(b)fluoranthene	U	4.2										
Benzo(k)fluoranthene	U	4.2										
Chrysene	U	4.2										
Dibenzo(a,h)anthracene	U	4.2										
Fluoranthene	U	4.2										
Fluorene	U	4.2										
Indeno(1,2,3-cd)pyrene	U	4.2										
Naphthalene	U	4.2										
Pyrene	U	4.2										
Surr: 2-Fluorobiphenyl	3373	0	3333	0	101	20-140		0				
Surr: 4-Terphenyl-d14	2959	0	3333	0	88.8	22-172		0				
Surr: Nitrobenzene-d5	3038	0	3333	0	91.1	28-140		0				

LCS				Sample ID: SLCSS1-159307-159307		Units: µg/Kg		Analysis Date: 7/21/2020 01:59 PM		
Client ID:			Run ID: SVMS6_200721A			SeqNo: 6577730		Prep Date: 7/20/2020		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1091	21	1333	0	81.8	40-140	0			
Anthracene	1093	21	1333	0	82	40-140	0			
Benzo(a)anthracene	1046	21	1333	0	78.5	40-140	0			
Benzo(a)pyrene	1017	21	1333	0	76.3	40-140	0			
Benzo(b)fluoranthene	930.6	21	1333	0	69.8	40-140	0			
Benzo(k)fluoranthene	942.8	21	1333	0	70.7	40-140	0			
Chrysene	1106	21	1333	0	83	40-140	0			
Dibenzo(a,h)anthracene	1014	21	1333	0	76.1	40-140	0			
Fluoranthene	953.3	21	1333	0	71.5	40-140	0			
Fluorene	1092	21	1333	0	81.9	40-140	0			
Indeno(1,2,3-cd)pyrene	1078	21	1333	0	80.9	40-140	0			
Naphthalene	1133	21	1333	0	85	40-140	0			
Pyrene	888.8	21	1333	0	66.7	40-140	0			
Surr: 2-Fluorobiphenyl	3427	0	3333	0	103	20-140	0			
Surr: 4-Terphenyl-d14	2885	0	3333	0	86.5	22-172	0			
Surr: Nitrobenzene-d5	2889	0	3333	0	86.7	28-140	0			

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

Client: Entrada Consulting Group
 Work Order: 20071263
 Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159307** Instrument ID **SVMS6** Method: **SW8270E**

MS				Sample ID: 20071262-01A MS			Units: µg/Kg		Analysis Date: 7/20/2020 04:09 PM	
Client ID:		Run ID: SVMS6_200720A			SeqNo: 6577311		Prep Date: 7/20/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	640.1	3.9	1259	0	50.8	40-140	0			
Anthracene	674.6	3.9	1259	0	53.6	40-140	0			
Benzo(a)anthracene	633.7	3.9	1259	0	50.3	40-140	0			
Benzo(a)pyrene	601.2	3.9	1259	0	47.8	40-140	0			
Benzo(b)fluoranthene	616	3.9	1259	0	48.9	40-140	0			
Benzo(k)fluoranthene	596.4	3.9	1259	0	47.4	40-140	0			
Chrysene	662	3.9	1259	0	52.6	40-140	0			
Dibenzo(a,h)anthracene	571.9	3.9	1259	0	45.4	40-140	0			
Fluoranthene	644.1	3.9	1259	0	51.2	40-140	0			
Fluorene	645.4	3.9	1259	0	51.3	40-140	0			
Indeno(1,2,3-cd)pyrene	599.5	3.9	1259	0	47.6	40-140	0			
Naphthalene	666.2	3.9	1259	0	52.9	40-140	0			
Pyrene	573.1	3.9	1259	0	45.5	40-140	0			
Surr: 2-Fluorobiphenyl	2139	0	3148	0	68	20-140	0			
Surr: 4-Terphenyl-d14	1994	0	3148	0	63.4	22-172	0			
Surr: Nitrobenzene-d5	2040	0	3148	0	64.8	28-140	0			

MSD				Sample ID: 20071262-01A MSD			Units: µg/Kg		Analysis Date: 7/20/2020 04:24 PM	
Client ID:		Run ID: SVMS6_200720A			SeqNo: 6577312		Prep Date: 7/20/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1136	4.0	1273	0	89.2	40-140	640.1	55.8	30	R
Anthracene	1180	4.0	1273	0	92.7	40-140	674.6	54.5	30	R
Benzo(a)anthracene	1110	4.0	1273	0	87.3	40-140	633.7	54.7	30	R
Benzo(a)pyrene	1044	4.0	1273	0	82.1	40-140	601.2	53.9	30	R
Benzo(b)fluoranthene	1070	4.0	1273	0	84.1	40-140	616	53.9	30	R
Benzo(k)fluoranthene	1045	4.0	1273	0	82.1	40-140	596.4	54.6	30	R
Chrysene	1151	4.0	1273	0	90.4	40-140	662	53.9	30	R
Dibenzo(a,h)anthracene	1023	4.0	1273	0	80.4	40-140	571.9	56.5	30	R
Fluoranthene	1108	4.0	1273	0	87.1	40-140	644.1	52.9	30	R
Fluorene	1146	4.0	1273	0	90.1	40-140	645.4	55.9	30	R
Indeno(1,2,3-cd)pyrene	1078	4.0	1273	0	84.7	40-140	599.5	57.1	30	R
Naphthalene	1158	4.0	1273	0	91	40-140	666.2	54	30	R
Pyrene	1024	4.0	1273	0	80.5	40-140	573.1	56.4	30	R
Surr: 2-Fluorobiphenyl	3046	0	3182	0	95.7	20-140	2139	35	30	R
Surr: 4-Terphenyl-d14	2927	0	3182	0	92	22-172	1994	37.9	30	R
Surr: Nitrobenzene-d5	2628	0	3182	0	82.6	28-140	2040	25.2	30	

The following samples were analyzed in this batch:

20071263-01A

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

Client: Entrada Consulting Group
 Work Order: 20071263
 Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159257** Instrument ID **VMS8** Method: **SW8260C**

Sample ID: MBLK-159257-159257				Units: µg/Kg-dry		Analysis Date: 7/17/2020 09:15 PM				
Client ID:		Run ID: VMS8_200717B			SeqNo: 6573443		Prep Date: 7/17/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30								
Ethylbenzene	U	30								
m,p-Xylene	U	60								
o-Xylene	U	30								
Toluene	U	30								
Xylenes, Total	U	90								
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>1016</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>102</i>	<i>70-130</i>		<i>0</i>		
<i>Surr: 4-Bromofluorobenzene</i>	<i>1039</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>104</i>	<i>70-130</i>		<i>0</i>		
<i>Surr: Dibromofluoromethane</i>	<i>892.5</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>89.2</i>	<i>70-130</i>		<i>0</i>		
<i>Surr: Toluene-d8</i>	<i>998</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>99.8</i>	<i>70-130</i>		<i>0</i>		

LCS				Sample ID: LCS-159257-159257			Units: µg/Kg-dry		Analysis Date: 7/17/2020 08:26 PM		
Client ID:			Run ID: VMS8_200717B			SeqNo: 6573442		Prep Date: 7/17/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	972.5	30	1000	0	97.2	75-125	0				
Ethylbenzene	1018	30	1000	0	102	75-125	0				
m,p-Xylene	2059	60	2000	0	103	80-125	0				
o-Xylene	1024	30	1000	0	102	75-125	0				
Toluene	983	30	1000	0	98.3	70-125	0				
Xylenes, Total	3084	90	3000	0	103	75-125	0				
Surr: 1,2-Dichloroethane-d4	979	0	1000	0	97.9	70-130	0				
Surr: 4-Bromofluorobenzene	1002	0	1000	0	100	70-130	0				
Surr: Dibromofluoromethane	961	0	1000	0	96.1	70-130	0				
Surr: Toluene-d8	1009	0	1000	0	101	70-130	0				

MS				Sample ID: 20071023-07A MS			Units: µg/Kg-dry		Analysis Date: 7/18/2020 03:00 AM		
Client ID:			Run ID: VMS8_200717B			SeqNo: 6573464		Prep Date: 7/17/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1297	39	1302	0	99.7	75-125	0				
Ethylbenzene	1340	39	1302	0	103	75-125	0				
m,p-Xylene	2677	78	2604	0	103	80-125	0				
o-Xylene	1345	39	1302	0	103	75-125	0				
Toluene	1282	39	1302	0	98.5	70-125	0				
Xylenes, Total	4021	120	3906	0	103	75-125	0				
Surr: 1,2-Dichloroethane-d4	1245	0	1302	0	95.7	70-130	0				
Surr: 4-Bromofluorobenzene	1307	0	1302	0	100	70-130	0				
Surr: Dibromofluoromethane	1137	0	1302	0	87.4	70-130	0				
Surr: Toluene-d8	1304	0	1302	0	100	70-130	0				

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

Client: Entrada Consulting Group
 Work Order: 20071263
 Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159257** Instrument ID **VMS8** Method: **SW8260C**

MS					Sample ID: 20071038-01A MS		Units: µg/Kg-dry		Analysis Date: 7/20/2020 07:56 PM		
Client ID:			Run ID: VMS8_200720A			SeqNo: 6576245		Prep Date: 7/17/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1972	58	1919	0	103	75-125	0				
Ethylbenzene	1974	58	1919	0	103	75-125	0				
m,p-Xylene	3845	120	3838	0	100	80-125	0				
o-Xylene	1927	58	1919	0	100	75-125	0				
Toluene	1949	58	1919	0	102	70-125	0				
Xylenes, Total	5772	170	5757	0	100	75-125	0				
Surr: 1,2-Dichloroethane-d4	1850	0	1919	0	96.4	70-130	0				
Surr: 4-Bromofluorobenzene	1952	0	1919	0	102	70-130	0				
Surr: Dibromofluoromethane	1755	0	1919	0	91.4	70-130	0				
Surr: Toluene-d8	1895	0	1919	0	98.7	70-130	0				

MSD				Sample ID: 20071023-07A MSD			Units: µg/Kg-dry		Analysis Date: 7/18/2020 03:17 AM		
Client ID:		Run ID: VMS8_200717B			SeqNo: 6573465		Prep Date: 7/17/2020		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1091	32	1076	0	101	75-125	1297	17.2	30		
Ethylbenzene	1117	32	1076	0	104	75-125	1340	18.2	30		
m,p-Xylene	2209	65	2153	0	103	80-125	2677	19.2	30		
o-Xylene	1118	32	1076	0	104	75-125	1345	18.4	30		
Toluene	1071	32	1076	0	99.5	70-125	1282	18	30		
Xylenes, Total	3327	97	3229	0	103	75-125	4021	18.9	30		
Surr: 1,2-Dichloroethane-d4	1047	0	1076	0	97.3	70-130	1245	17.3	30		
Surr: 4-Bromofluorobenzene	1074	0	1076	0	99.8	70-130	1307	19.6	30		
Surr: Dibromofluoromethane	975.7	0	1076	0	90.7	70-130	1137	15.3	30		
Surr: Toluene-d8	1076	0	1076	0	100	70-130	1304	19.2	30		

MSD				Sample ID: 20071038-01A MSD			Units: µg/Kg-dry		Analysis Date: 7/20/2020 08:13 PM		
Client ID:			Run ID: VMS8_200720A			SeqNo: 6576249		Prep Date: 7/17/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1914	57	1913	0	100	75-125	1972	2.97	30		
Ethylbenzene	1897	57	1913	0	99.2	75-125	1974	3.97	30		
m,p-Xylene	3735	110	3826	0	97.6	80-125	3845	2.91	30		
o-Xylene	1915	57	1913	0	100	75-125	1927	0.61	30		
Toluene	1870	57	1913	0	97.7	70-125	1949	4.12	30		
Xylenes, Total	5650	170	5740	0	98.4	75-125	5772	2.14	30		
Surr: 1,2-Dichloroethane-d4	1864	0	1913	0	97.4	70-130	1850	0.773	30		
Surr: 4-Bromofluorobenzene	1900	0	1913	0	99.3	70-130	1952	2.7	30		
Surr: Dibromofluoromethane	1719	0	1913	0	89.8	70-130	1755	2.07	30		
Surr: Toluene-d8	1888	0	1913	0	98.7	70-130	1895	0.361	30		

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

Client: Entrada Consulting Group
Work Order: 20071263
Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159257** Instrument ID **VMS8** Method: **SW8260C**

The following samples were analyzed in this batch:

20071263-01A

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

Client: Entrada Consulting Group
 Work Order: 20071263
 Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159342** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-159342-159342				Units: s.u.		Analysis Date: 7/21/2020 11:05 AM		
Client ID:		Run ID: WETCHEM_200721B				SeqNo: 6577463		Prep Date: 7/20/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	4.01	0.10	4	0	100	90-110	0			

LCS		Sample ID: LCS-159342-159342				Units: s.u.		Analysis Date: 7/21/2020 11:05 AM		
Client ID:		Run ID: WETCHEM_200721B				SeqNo: 6577731		Prep Date: 7/20/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	4.01	0.10	4	0	100	90-110	0			

DUP		Sample ID: 20071262-01A DUP				Units: s.u.		Analysis Date: 7/21/2020 11:05 AM		
Client ID:		Run ID: WETCHEM_200721B				SeqNo: 6577470		Prep Date: 7/20/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.52	0.10	0	0	0	0-0	8.57	0.585	20	
Temperature	20.5	0.10	0	0	0		20.2	1.47		

DUP		Sample ID: 20071388-05A DUP				Units: s.u.		Analysis Date: 7/21/2020 11:05 AM		
Client ID:		Run ID: WETCHEM_200721B				SeqNo: 6577484		Prep Date: 7/20/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.83	0.10	0	0	0	0-0	7.8	0.384	20	
Temperature	20.3	0.10	0	0	0		20.2	0.494		

The following samples were analyzed in this batch:

20071263-01A

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

Client: Entrada Consulting Group
Work Order: 20071263
Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **159387** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-159387-159387				Units: mg/Kg		Analysis Date: 7/23/2020 04:22 PM		
Client ID:		Run ID: WETCHEM_200723U				SeqNo: 6583923		Prep Date: 7/22/2020		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-159387-159387				Units: mg/Kg		Analysis Date: 7/23/2020 04:22 PM		
Client ID:		Run ID: WETCHEM_200723U				SeqNo: 6583924		Prep Date: 7/22/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.784 0.98 4.902 0 97.6 80-120 0

MS		Sample ID: 20071262-01A MS				Units: mg/Kg		Analysis Date: 7/23/2020 04:22 PM		
Client ID:		Run ID: WETCHEM_200723U				SeqNo: 6583931		Prep Date: 7/22/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.284 0.98 4.902 0.4216 78.8 75-125 0

MS		Sample ID: 20071262-01A MSI				Units: mg/Kg		Analysis Date: 7/23/2020 04:22 PM		
Client ID:		Run ID: WETCHEM_200723U				SeqNo: 6583933		Prep Date: 7/22/2020		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1997 99 1975 0 101 75-125 0

MSD		Sample ID: 20071262-01A MSD				Units: mg/Kg		Analysis Date: 7/23/2020 04:22 PM		
Client ID:		Run ID: WETCHEM_200723U				SeqNo: 6583932		Prep Date: 7/22/2020		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.713 0.99 4.95 0.4216 86.7 75-125 4.284 9.53 20

The following samples were analyzed in this batch:

20071263-01A

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

Client: Entrada Consulting Group
 Work Order: 20071263
 Project: Union Pacific 22-32 Spill

QC BATCH REPORT

Batch ID: **R293439** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R293439				Units: % of sample		Analysis Date: 7/21/2020 01:02 PM		
Client ID:		Run ID: MOIST_200721B				SeqNo: 6579608		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.10								

LCS		Sample ID: LCS-R293439				Units: % of sample		Analysis Date: 7/21/2020 01:02 PM		
Client ID:		Run ID: MOIST_200721B				SeqNo: 6579607		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.10	100	0	100	98-102	0			

DUP		Sample ID: 20071262-01A DUP				Units: % of sample		Analysis Date: 7/21/2020 01:02 PM		
Client ID:		Run ID: MOIST_200721B				SeqNo: 6579596		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	2.66	0.10	0	0	0	0-0	2.91	8.98	10	

DUP		Sample ID: 20071302-01A DUP				Units: % of sample		Analysis Date: 7/21/2020 01:02 PM		
Client ID:		Run ID: MOIST_200721B				SeqNo: 6579599		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.73	0.10	0	0	0	0-0	18.91	0.956	10	

The following samples were analyzed in this batch:

20071263-01A

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



Environmental

Chain of Custody Form

Page 1 of 1

COC ID: 123456

☐ Cincinnati, OH
+1 513 733 5336

☐ Everett, WA
+1 425 356 2600

☐ Fort Collins, CO
+1 970 490 1511

☒ Holland, MI
+1 616 399 6070

☐ Houston, TX
+1 281 530 5656

☐ Middletown, PA
+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7700

☐ Spring City, PA
+1 610 948 4903

☐ York, PA
+1 717 505 5280

Customer Information			Project Information				Parameter/Method Request for Analysis											
Purchase Order		Project Name	Union Pacific 22-32 Spill				A TPH (GRO & DRO)											
Work Order		Project Number	018-065				B BTEX											
Company Name	Entrada Consulting Group	Bill To Company	Entrada Consulting Group				C PAH (See Attached List) CO Table 910											
Send Report To	Tim Dobransky	Invoice Attn	Tim Dobransky				D Electrical Conductivity											
Address	330 Grand Ave, STE C	Address					E Sodium Adsorption Ratio											
City/State/Zip	Grand Junction, CO 81501	City/State/Zip					F pH											
Phone	970.270.2986	Phone					G Metals (See Attached List) CO Table 910											
Fax		Fax					H Arsenic Only											
e-Mail Address	tdobransky@entradainc.com	e-Mail Address					I											
							J											
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	UP 22-32-SS1	07/15/20	1230	Soil	8	2	X	X	X	X	X	X	X					
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:				Results Due Date:										
Jason McLarty		FedEx		<input type="checkbox"/> STD 10 Wk Days <input checked="" type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour														
Relinquished by:		Date:	Time:	Received by:		Notes: Chevron Pricing Applies - Per Bruce Schlatter												
[Signature]		7/16/20	1200	[Signature]														
Relinquished by:		Date:	Time:	Received by (Laboratory):		Cooler Temp.		QC Package: (Check Box Below)										
[Signature]				[Signature]		3.6°C		x		Level II: Standard QC								
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		ER3				Level III: Std QC + Raw Data								
[Signature]		7/17/20	13:14	[Signature]						Level IV: SW846 CLP-Like								
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035																		
Other: _____																		

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: **17-Jul-20 10:00**

Work Order: **20071263**

Received by: **MJG**

Checklist completed by **Matthew Gaylord**

17-Jul-20

Reviewed by: **Chad Whelton**

17-Jul-20

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):

3.6/3.6C

IR3

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

7/17/2020 1:28:49 PM

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:

Scout Energy - Rangely, CO

Sample Delivery Group: L1549536

Samples Received: 10/22/2022

Project Number:

Description: U.P. 22-32 Spill

Report To: Chris Patterson
100 Chevron Road
Rangely, CO 81648

Entire Report Reviewed By:



Chris Ward
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

UP2232-SS1 L1549536-01 Solid

Collected by
Byron Abeyta

Collected date/time
10/21/22 10:40

Received date/time
10/22/22 17:04

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1948090	1	10/26/22 20:57	10/26/22 20:57	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1948678	1	10/25/22 15:00	10/27/22 08:00	NTG	Mt. Juliet, TN

¹Cp

²Tc

³Ss

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⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	20.6		1	10/26/2022 20:57	WG1948090

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	7780		10.0	1	10/27/2022 08:00	WG1948678

Sample Narrative:

L1549536-01 WG1948678: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3853517-1 10/27/22 08:00

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1549536-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1549536-01 10/27/22 08:00 • (DUP) R3853517-3 10/27/22 08:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	7780	7710	1	0.904		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1549554-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1549554-01 10/27/22 08:00 • (DUP) R3853517-4 10/27/22 08:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	23700	23700	1	0.253		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3853517-2 10/27/22 08:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1080	96.0	85.0-115	

Sample Narrative:

LCS: at 25C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122


Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Scout Energy Partners 100 Chevron Road Rangely, CO 81648				Billing Information:				Pres Chk		Analysis / Container / Preservative								Chain of Custody Page ____ of ____	
				Same as left														 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859	
Report to: Chris Patterson				Email To: chris.patterson@scoutep.com															
Project Description: U.P. 22-32 SPILL				City/State Collected: CO															
Phone: 1-970-501-5157		Client Project #		Lab Project #															
Fax:																			
Collected by (print): Byron Abeyta		Site/Facility ID #		P.O. #															
Collected by (signature): Byron Abeyta		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input checked="" type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input checked="" type="checkbox"/> Three Day		Quote #															
Immediately Packed on Ice N ____ Y <input checked="" type="checkbox"/>				Date Results Needed															
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX, TMBs	Table 915 PAHs	Table 915 Metals	Hot Water Soluble Boron	GRO	DRO	ORO	SAR/EC/pH	SAR	EC	Remarks	Sample # (lab only)
UP2232-SS1		Grab	SS	0-1'	10/21/22	1040	2									X	X		-01
* Matrix:		Remarks:																	
SS - Soil AIR - Air F - Filter		Please run for COGCC Protection of GW low level standards.		pH ____ Temp ____ Flow ____ Other ____															
GW - Groundwater B - Bioassay		Samples returned via:		Tracking # 5829 6694 2437															
WW - WasteWater		<input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier																	
DW - Drinking Water																			
OT - Other																			
Relinquished by : (Signature)		Date:	Time:	Received by: (Signature)		Trip Blank Received: Yes / No													
<i>Byron Abeyta</i>		10/21/22	1800			HCL / MeOH TBR													
Relinquished by : (Signature)		Date:	Time:	Received by: (Signature)		Temp: 6.07°C		Bottles Received: 2		If preservation required by Login: Date/Time									
						2.810-28													
Relinquished by : (Signature)		Date:	Time:	Received for lab by: (Signature)		Date:		Time:		Hold:		Condition: NCF <input checked="" type="checkbox"/> OK							
				<i>Hana Muechling</i>		10/22		09:00											



L # **L154 836**
1136

Acctnum: **SCOENERCO**
 Template:
 Prelogin:
 TSR:
 PB:
 Shipped Via:

Sample Receipt Checklist	
COC Seal Present/Intact:	NP <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input type="checkbox"/> Y <input type="checkbox"/> N

Scout Energy - Rangely, CO

Sample Delivery Group: L1752631
Samples Received: 07/02/2024
Project Number:
Description: Union Pacific 22-32 Spill

Report To: Chris Patterson
100 Chevron Road
Rangely, CO 81648

Entire Report Reviewed By:



Chris Ward
Project Manager

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Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

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Wet Chemistry by Method 9050AMod	7
Metals (ICP) by Method 6010B-NE493 Ch 2	8
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¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

UP 22-32 SS1 L1752631-01 Solid

Collected by
M. Schlageter

Collected date/time
07/01/24 12:40

Received date/time
07/02/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2327839	1	07/25/24 11:22	07/25/24 11:22	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2316892	1	07/05/24 10:47	07/10/24 07:33	EKB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2329849	1	07/25/24 09:43	07/25/24 14:15	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2325687	1	07/22/24 13:48	07/22/24 18:28	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2320052	1	07/09/24 08:11	07/10/24 03:08	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2319315	20	07/09/24 08:29	07/10/24 18:36	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2319152	1	07/08/24 15:51	07/09/24 06:06	JCH	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

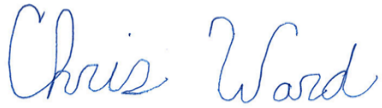
⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte					
Sodium Adsorption Ratio	21.3		1	07/25/2024 11:22	WG2327839

Wet Chemistry by Method 7199

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Hexavalent Chromium	0.411	BJ	0.255	1.00	1	07/10/2024 07:33	WG2316892

Wet Chemistry by Method 9050AMod

	Result umhos/cm	Qualifier	MDL umhos/cm	RDL umhos/cm	Dilution	Analysis date / time	Batch
Analyte							
Specific Conductance	10900		10.0	1	07/25/2024 14:15	WG2329849	

Sample Narrative:
L1752631-01 WG2329849: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Analyte							
Hot Water Sol. Boron	0.966		0.0167	0.200	1	07/22/2024 18:28	WG2325687

Volatile Organic Compounds (GC/MS) by Method 8260B

	Result ug/kg	Qualifier	MDL ug/kg	RDL ug/kg	Dilution	Analysis date / time	Batch
Analyte							
1,2,4-Trimethylbenzene	U		1.58	5.00	1	07/10/2024 03:08	WG2320052
1,3,5-Trimethylbenzene	U		2.00	5.00	1	07/10/2024 03:08	WG2320052
(S) Toluene-d8	96.6			75.0-131		07/10/2024 03:08	WG2320052
(S) 4-Bromofluorobenzene	94.8			67.0-138		07/10/2024 03:08	WG2320052
(S) 1,2-Dichloroethane-d4	92.2			70.0-130		07/10/2024 03:08	WG2320052

Semi-Volatile Organic Compounds (GC) by Method 8015M

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
C28-C36 Motor Oil Range	1600		5.48	80.0	20	07/10/2024 18:36	WG2319315
(S) o-Terphenyl	121	J7		18.0-148		07/10/2024 18:36	WG2319315

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
1-Methylnaphthalene	U		0.00449	0.0200	1	07/09/2024 06:06	WG2319152
2-Methylnaphthalene	U		0.00427	0.0200	1	07/09/2024 06:06	WG2319152
(S) p-Terphenyl-d14	78.2			23.0-120		07/09/2024 06:06	WG2319152
(S) Nitrobenzene-d5	76.6			14.0-149		07/09/2024 06:06	WG2319152
(S) 2-Fluorobiphenyl	79.7			34.0-125		07/09/2024 06:06	WG2319152

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4092041-1 07/10/24 06:29

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	0.354	⬇	0.255	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1752312-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1752312-02 07/10/24 06:53 • (DUP) R4092041-3 07/10/24 07:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	0.303	0.312	1	3.05	⬇	20

L1752840-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1752840-04 07/10/24 08:28 • (DUP) R4092041-4 07/10/24 08:36

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	0.593	0.562	1	5.26	⬇	20

Laboratory Control Sample (LCS)

(LCS) R4092041-2 07/10/24 06:37

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.9	109	80.0-120	

L1752879-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1752879-02 07/10/24 09:08 • (MS) R4092041-6 07/10/24 09:40 • (MSD) R4092041-7 07/10/24 09:48

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	0.322	17.9	14.9	87.9	73.1	1	75.0-125		J6	18.0	20

L1752879-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1752879-02 07/10/24 09:08 • (MS) R4092041-8 07/10/24 09:56

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	648	0.322	719	111	50	75.0-125	

Method Blank (MB)

(MB) R4098404-1 07/25/24 14:15

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1752617-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1752617-01 07/25/24 14:15 • (DUP) R4098404-3 07/25/24 14:15

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	4250	4270	1	0.469		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1752633-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1752633-01 07/25/24 14:15 • (DUP) R4098404-4 07/25/24 14:15

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	12000	12000	1	0.501		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4098404-2 07/25/24 14:15

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	733	752	103	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R4097053-1 07/22/24 18:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4097053-2 07/22/24 18:17 • (LCSD) R4097053-3 07/22/24 18:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.08	1.07	108	107	80.0-120			0.959	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4092471-3 07/09/24 23:18

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
1,2,4-Trimethylbenzene	U		1.58	5.00
1,3,5-Trimethylbenzene	U		2.00	5.00
(S) Toluene-d8	96.3			75.0-131
(S) 4-Bromofluorobenzene	95.7			67.0-138
(S) 1,2-Dichloroethane-d4	91.4			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4092471-1 07/09/24 20:57 • (LCSD) R4092471-2 07/09/24 21:16

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,2,4-Trimethylbenzene	125	143	132	114	106	70.0-126			8.00	20
1,3,5-Trimethylbenzene	125	145	134	116	107	73.0-127			7.89	20
(S) Toluene-d8				95.9	95.8	75.0-131				
(S) 4-Bromofluorobenzene				94.5	96.4	67.0-138				
(S) 1,2-Dichloroethane-d4				94.8	96.9	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4092446-1 07/10/24 15:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	46.5			18.0-148

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4091527-2 07/09/24 00:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) p-Terphenyl-d14	82.4			23.0-120
(S) Nitrobenzene-d5	71.1			14.0-149
(S) 2-Fluorobiphenyl	78.3			34.0-125

Laboratory Control Sample (LCS)

(LCS) R4091527-1 07/09/24 00:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
1-Methylnaphthalene	0.0800	0.0823	103	51.0-121	
2-Methylnaphthalene	0.0800	0.0794	99.3	50.0-120	
(S) p-Terphenyl-d14			92.6	23.0-120	
(S) Nitrobenzene-d5			85.1	14.0-149	
(S) 2-Fluorobiphenyl			93.4	34.0-125	

L1752307-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1752307-01 07/09/24 04:39 • (MS) R4091527-3 07/09/24 04:57 • (MSD) R4091527-4 07/09/24 05:14

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1-Methylnaphthalene	0.0800	0.110	0.0606	0.0613	0.000	0.000	1	10.0-142	J6	J6	1.15	28
2-Methylnaphthalene	0.0800	0.0790	0.0573	0.0586	0.000	0.000	1	10.0-137	J6	J6	2.24	28
(S) p-Terphenyl-d14					44.5	54.6		23.0-120				
(S) Nitrobenzene-d5					79.7	77.8		14.0-149				
(S) 2-Fluorobiphenyl					46.2	57.0		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

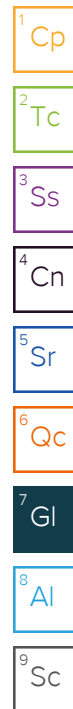
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.



ACCREDITATIONS & LOCATIONS

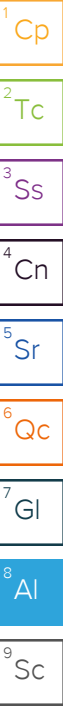
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Scout Energy Partners
100 Chevron Road
Rangely, CO 81648

Report to:
Chris Patterson

Project Description:
Union Pacific 22-32 Spill

Phone: 1-970-501-5157
Fax:

Collected by (print):
m.schiagerer

Collected by (signature):
ms

Immediately Packed on Ice N Y X

Billing Information:
Same as left

Email To:
chris.patterson@scoutep.com

City/State Collected:
CO

Lab Project #

P.O. #

Quote #

Date Results Needed

No. of Cntrs

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

TPH-ORO

TMBs

1 and 2-methylnaphthalene

HSB

SpC

Hex Chromium

SAR

Arsenic

UP 22-32 SS1

Grab

SS

0-6"

7-1-2024

1240

3

X

X

X

X

X

X

X

X

UP 22-32 BGT

Grab

SS

0-8"

X

X

X

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

Samples returned via:
UPS FedEx Courier

Relinquished by: (Signature)
ms

Date:
7-1-24

Time:
1500

Relinquished by: (Signature)

Date:

Time:

Relinquished by: (Signature)

Date:

Time:

Tracking #
6426 8306 9557

Received by: (Signature)
Asht Barth

Received for lab by: (Signature)
Asht Barth

pH Temp
Flow Other

Trip Blank Received: Yes (No)
HCL / MeOH
TBR

Temp: °C Bottles Received:
DPA 7.17=2.0 3

Date: Time:
07/04/2024 0900

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

If preservation required by Login: Date/Time

Chain of Custody Page 1 of 1

Pace Analytical
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L #
G229

Table

Acctnum: SCOENERCO

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks Sample # (lab only)

-61

7/2 NCF-SCOENERCO

R5

Time estimate: 0h

Time spent: 0h

Members

 Nicole Faulk (responsible)  CW Chris Ward

Due on 9 July 2024 5:00 PM for target Done

- ☒ Login Clarification needed
- ☐ Chain of custody is incomplete
- ☐ Please specify Metals requested
- ☐ Please specify TCLP requested
- ☐ Received additional samples not listed on COC
- ☐ Sample IDs on containers do not match IDs on COC
- ☐ Client did not "X" analysis
- ☐ Chain of Custody is missing
- ☐ If no COC: Received by: _____
- ☐ If no COC: Date/Time: _____
- ☐ If no COC: Temp./Cont.Rec./pH: _____
- ☐ If no COC: Carrier: _____
- ☐ If no COC: Tracking #: _____
- ☐ Client informed by call
- ☐ Client informed by Email
- ☐ Client informed by Voicemail
- ☐ Date/Time: _____
- ☐ PM initials: _____
- ☐ Client Contact: _____

Comments

Nicolle Faulk 2 July 2024 9:57 AM

Please clarify the analysis needed for the attached COCs.

Chris Ward 2 July 2024 10:12 AM

DRONM
V8260
SV8270PAHSIM
HWBICP
SAR
SPCONCO
ASG

Chris Ward 2 July 2024 10:13 AM

Nicolle Faulk	
L1752617	
L1752621	
L1752624	
L1752631	
L1752633	
done	