

Contaminant of Concern	S-1 1.5'	Rule 900 Concentrations Limits (Table 910-1)
TPH (total volatile and extractable petroleum hydrocarbons)	345 mg/Kg	500 mg/kg
Benzene	ND	0.17 mg/kg <sup>2</sup>
Toluene	ND	85 mg/kg <sup>2</sup>
Ethylbenzene	ND	100 mg/kg <sup>2</sup>
Xylenes (total)	ND	175 mg/kg <sup>2</sup>
Acenaphthene	ND	1,000 mg/kg <sup>2</sup>
Anthracene	ND	1,000 mg/kg <sup>2</sup>
Benz(a)anthracene	ND	0.22 mg/kg <sup>2</sup>
Benzo(b)fluoranthene	ND	0.22 mg/kg <sup>2</sup>
Benzo(k)fluoranthene	ND	2.2 mg/kg <sup>2</sup>
Benzo(a)pyrene	ND	0.022 mg/kg <sup>2</sup>
Chrysene	ND	22 mg/kg <sup>2</sup>
Dibenzo(a,h)anthracene	ND	0.022 mg/kg <sup>2</sup>
Fluoranthene	ND	1,000 mg/kg <sup>2</sup>
Fluorene	ND	1,000 mg/kg <sup>2</sup>
Indeno(1,2,3,c,d)pyrene	ND	0.22 mg/kg <sup>2</sup>
Naphthalene	ND	23 mg/kg <sup>2</sup>
Pyrene	ND	1,000 mg/kg <sup>2</sup>
Electrical Conductivity (EC)	2.68 mmohs/cm	<4 mmhos/cm or 2x background
Sodium Adsorption Ratio (SAR)	0.423meq/meq	<12 <sup>5</sup>
pH	7.36	6-9
Arsenic	<b>3.43 mg/Kg</b>	0.39 mg/kg <sup>2</sup>
Barium (LDNR True Total Barium)	2,510 mg/Kg	15,000 mg/kg <sup>2</sup>
Boron (Hot Water Soluble)	6.21 mg/Kg*	2 mg/l <sup>3</sup>
Cadmium	ND	70 mg/kg <sup>3,6</sup>
Chromium (III)	10.5 mg/Kg	120,000 mg/kg <sup>2</sup>
Chromium (VI)	ND	23 mg/kg <sup>2,6</sup>
Copper	9.84 mg/Kg	3,100 mg/kg <sup>2</sup>
Lead (inorganic)	11.5 mg/Kg	400 mg/kg <sup>2</sup>
Mercury	0.00915 mg/Kg	23 mg/kg <sup>2</sup>
Nickel (soluble salts)	10.0 mg/Kg	1,600 mg/kg <sup>2,6</sup>
Selenium	0.732 mg/Kg	390 mg/kg <sup>2,6</sup>
Silver	ND	390 mg/kg <sup>2</sup>
Zinc	42.3 mg/Kg	23,000 mg/kg <sup>2,6</sup>

\* Reported as total boron.

Contaminant of Concern	S-2 1.5'	Rule 900 Concentrations Limits (Table 910-1)
TPH (total volatile and extractable petroleum hydrocarbons)	135 mg/Kg	500 mg/kg
Benzene	ND	0.17 mg/kg <sup>2</sup>
Toluene	ND	85 mg/kg <sup>2</sup>
Ethylbenzene	ND	100 mg/kg <sup>2</sup>
Xylenes (total)	ND	175 mg/kg <sup>2</sup>
Acenaphthene	ND	1,000 mg/kg <sup>2</sup>
Anthracene	ND	1,000 mg/kg <sup>2</sup>
Benz(a)anthracene	ND	0.22 mg/kg <sup>2</sup>
Benzo(b)fluoranthene	0.0049 mg/Kg	0.22 mg/kg <sup>2</sup>
Benzo(k)fluoranthene	ND	2.2 mg/kg <sup>2</sup>
Benzo(a)pyrene	ND	0.022 mg/kg <sup>2</sup>
Chrysene	0.011 mg/Kg	22 mg/kg <sup>2</sup>
Dibenzo(a,h)anthracene	ND	0.022 mg/kg <sup>2</sup>
Fluoranthene	ND	1,000 mg/kg <sup>2</sup>
Fluorene	ND	1,000 mg/kg <sup>2</sup>
Indeno(1,2,3,c,d)pyrene	ND	0.22 mg/kg <sup>2</sup>
Naphthalene	0.0042 mg/Kg	23 mg/kg <sup>2</sup>
Pyrene	ND	1,000 mg/kg <sup>2</sup>
Electrical Conductivity (EC)	2.58 mmohs/cm	<4 mmhos/cm or 2x background
Sodium Adsorption Ratio (SAR)	0.225 meq/meq	<12 <sup>5</sup>
pH	7.62	6-9
Arsenic	<b>4.64 mg/Kg</b>	0.39 mg/kg <sup>2</sup>
Barium (LDNR True Total Barium)	<b>77,700 mg/Kg</b>	15,000 mg/kg <sup>2</sup>
Boron (Hot Water Soluble)	7.81 mg/Kg*	2 mg/l <sup>3</sup>
Cadmium	ND	70 mg/kg <sup>3,6</sup>
Chromium (III)	12.6 mg/Kg	120,000 mg/kg <sup>2</sup>
Chromium (VI)	ND	23 mg/kg <sup>2,6</sup>
Copper	17.9 mg/Kg	3,100 mg/kg <sup>2</sup>
Lead (inorganic)	64.8 mg/Kg	400 mg/kg <sup>2</sup>
Mercury	0.0115 mg/Kg	23 mg/kg <sup>2</sup>
Nickel (soluble salts)	14.0 mg/Kg	1,600 mg/kg <sup>2,6</sup>
Selenium	0.982 mg/Kg	390 mg/kg <sup>2,6</sup>
Silver	ND	390 mg/kg <sup>2</sup>
Zinc	74.0 mg/Kg	23,000 mg/kg <sup>2,6</sup>

\* Reported as total boron.

Contaminant of Concern	S-3 1.5'	Rule 900 Concentrations Limits (Table 910-1)
TPH (total volatile and extractable petroleum hydrocarbons)	326 mg/Kg	500 mg/kg
Benzene	ND	0.17 mg/kg <sup>2</sup>
Toluene	ND	85 mg/kg <sup>2</sup>
Ethylbenzene	ND	100 mg/kg <sup>2</sup>
Xylenes (total)	ND	175 mg/kg <sup>2</sup>
Acenaphthene	ND	1,000 mg/kg <sup>2</sup>
Anthracene	ND	1,000 mg/kg <sup>2</sup>
Benz(a)anthracene	ND	0.22 mg/kg <sup>2</sup>
Benzo(b)fluoranthene	ND	0.22 mg/kg <sup>2</sup>
Benzo(k)fluoranthene	ND	2.2 mg/kg <sup>2</sup>
Benzo(a)pyrene	ND	0.022 mg/kg <sup>2</sup>
Chrysene	ND	22 mg/kg <sup>2</sup>
Dibenzo(a,h)anthracene	ND	0.022 mg/kg <sup>2</sup>
Fluoranthene	ND	1,000 mg/kg <sup>2</sup>
Fluorene	ND	1,000 mg/kg <sup>2</sup>
Indeno(1,2,3,c,d)pyrene	ND	0.22 mg/kg <sup>2</sup>
Naphthalene	ND	23 mg/kg <sup>2</sup>
Pyrene	0.0034 mg/Kg	1,000 mg/kg <sup>2</sup>
Electrical Conductivity (EC)	2.10 mmohs/cm	<4 mmhos/cm or 2x background
Sodium Adsorption Ratio (SAR)	0.188 meq/meq	<12 <sup>5</sup>
pH	6.97	6-9
Arsenic	<b>3.72 mg/Kg</b>	0.39 mg/kg <sup>2</sup>
Barium (LDNR True Total Barium)	1,360 mg/Kg	15,000 mg/kg <sup>2</sup>
Boron (Hot Water Soluble)	6.31 mg/Kg*	2 mg/l <sup>3</sup>
Cadmium	ND	70 mg/kg <sup>3,6</sup>
Chromium (III)	10.3 mg/Kg	120,000 mg/kg <sup>2</sup>
Chromium (VI)	ND	23 mg/kg <sup>2,6</sup>
Copper	10.2 mg/Kg	3,100 mg/kg <sup>2</sup>
Lead (inorganic)	11.3 mg/Kg	400 mg/kg <sup>2</sup>
Mercury	0.0109 mg/Kg	23 mg/kg <sup>2</sup>
Nickel (soluble salts)	11.0 mg/Kg	1,600 mg/kg <sup>2,6</sup>
Selenium	0.686 mg/Kg	390 mg/kg <sup>2,6</sup>
Silver	ND	390 mg/kg <sup>2</sup>
Zinc	44.1 mg/Kg	23,000 mg/kg <sup>2,6</sup>

\* Reported as total boron.

Contaminant of Concern	S-4 1.5' (Background)	Rule 900 Concentrations Limits (Table 910-1)
TPH (total volatile and extractable petroleum hydrocarbons)	9.8 mg/Kg	500 mg/kg
Benzene	ND	0.17 mg/kg <sup>2</sup>
Toluene	ND	85 mg/kg <sup>2</sup>
Ethylbenzene	ND	100 mg/kg <sup>2</sup>
Xylenes (total)	ND	175 mg/kg <sup>2</sup>
Acenaphthene	ND	1,000 mg/kg <sup>2</sup>
Anthracene	ND	1,000 mg/kg <sup>2</sup>
Benz(a)anthracene	ND	0.22 mg/kg <sup>2</sup>
Benzo(b)fluoranthene	ND	0.22 mg/kg <sup>2</sup>
Benzo(k)fluoranthene	ND	2.2 mg/kg <sup>2</sup>
Benzo(a)pyrene	ND	0.022 mg/kg <sup>2</sup>
Chrysene	ND	22 mg/kg <sup>2</sup>
Dibenzo(a,h)anthracene	ND	0.022 mg/kg <sup>2</sup>
Fluoranthene	ND	1,000 mg/kg <sup>2</sup>
Fluorene	ND	1,000 mg/kg <sup>2</sup>
Indeno(1,2,3,c,d)pyrene	ND	0.22 mg/kg <sup>2</sup>
Naphthalene	ND	23 mg/kg <sup>2</sup>
Pyrene	ND	1,000 mg/kg <sup>2</sup>
Electrical Conductivity (EC)	2.34 mmhos/cm	<4 mmhos/cm or 2x background
Sodium Adsorption Ratio (SAR)	6.60 meq/meq	<12 <sup>5</sup>
pH	8.42	6-9
Arsenic	<b>3.67 mg/Kg</b>	0.39 mg/kg <sup>2</sup>
Barium (LDNR True Total Barium)	264 mg/Kg	15,000 mg/kg <sup>2</sup>
Boron (Hot Water Soluble)	8.75 mg/Kg*	2 mg/l <sup>3</sup>
Cadmium	ND	70 mg/kg <sup>3,6</sup>
Chromium (III)	13.1 mg/Kg	120,000 mg/kg <sup>2</sup>
Chromium (VI)	ND	23 mg/kg <sup>2,6</sup>
Copper	10.4 mg/Kg	3,100 mg/kg <sup>2</sup>
Lead (inorganic)	10.5 mg/Kg	400 mg/kg <sup>2</sup>
Mercury	0.0112 mg/Kg	23 mg/kg <sup>2</sup>
Nickel (soluble salts)	12.2 mg/Kg	1,600 mg/kg <sup>2,6</sup>
Selenium	0.715 mg/Kg	390 mg/kg <sup>2,6</sup>
Silver	ND	390 mg/kg <sup>2</sup>
Zinc	44.4 mg/Kg	23,000 mg/kg <sup>2,6</sup>

\* Reported as total boron.



---

10450 Stancliff Rd. Suite 210  
Houston, TX 77099  
T: +1 281 530 5656  
F: +1 281 530 5887

June 11, 2019

Matthew Boyle  
WSP Environment & Energy  
2777 N. Stemmons Fwy. Suite 1600  
Dallas, TX 75207

Work Order: **HS19051554**

Laboratory Results for: **Craig 1-7**

Dear Matthew,

ALS Environmental received 5 sample(s) on May 24, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: BERNADETTE.FINI

Bernadette A. Fini  
Project Manager

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**Work Order:** HS19051554

**SAMPLE SUMMARY**

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19051554-01	S-1 @ 1.5	Soil		22-May-2019 14:30	24-May-2019 09:00	<input type="checkbox"/>
HS19051554-02	S-2 @ 1.5	Soil		22-May-2019 15:00	24-May-2019 09:00	<input type="checkbox"/>
HS19051554-03	S-3 @ 1.5	Soil		22-May-2019 15:30	24-May-2019 09:00	<input type="checkbox"/>
HS19051554-04	S-4 @ 1.5	Soil		22-May-2019 16:00	24-May-2019 09:00	<input type="checkbox"/>
HS19051554-05	Trip Blank	Water	C&G- 050119-139	22-May-2019 00:00	24-May-2019 09:00	<input checked="" type="checkbox"/>

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**Work Order:** HS19051554

**CASE NARRATIVE**

---

**Work Order Comments**

- Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.  
The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 °C.

---

**GC Semivolatiles by Method SW8015M****Batch ID: 141602****Sample ID: S-1 @ 1.5 (HS19051554-01)**

- Surrogate recoveries were outside of the control limits due to matrix interference.

---

**GC Volatiles by Method SW8015****Batch ID: R339628****Sample ID: HS19051406-01MS**

- MS and MSD are for an unrelated sample

---

**GCMS Semivolatiles by Method SW8270****Batch ID: 141570**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**GCMS Volatiles by Method SW8260****Batch ID: R339623**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**Metals by Method La29B-6020****Batch ID: 141664**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**Metals by Method Calculation****Batch ID: R340171**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**Metals by Method La29B SAR****Batch ID: R340178**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**Metals by Method LADNR Ba****Batch ID: 141731**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**Metals by Method SW7471A****Batch ID: 141608**

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**Work Order:** HS19051554

**CASE NARRATIVE**

---

**Metals by Method SW7471A**

**Batch ID: 141608**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**Metals by Method SW6020**

**Batch ID: 141234**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**WetChemistry by Method LaDNR-29B EC**

**Batch ID: R340189**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**WetChemistry by Method LaDNR-29B SP**

**Batch ID: R340190**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**WetChemistry by Method SW9045D**

**Batch ID: R339930**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**WetChemistry by Method SW7196**

**Batch ID: 141571**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-



Client: WSP Environment & Energy  
 Project: Craig 1-7  
 Sample ID: S-1 @ 1.5  
 Collection Date: 22-May-2019 14:30

**ANALYTICAL REPORT**

WorkOrder:HS19051554  
 Lab ID:HS19051554-01  
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR		
Benzene	ND		0.0042	mg/Kg	1	02-Jun-2019 21:20
Ethylbenzene	ND		0.0042	mg/Kg	1	02-Jun-2019 21:20
m,p-Xylene	ND		0.0083	mg/Kg	1	02-Jun-2019 21:20
o-Xylene	ND		0.0042	mg/Kg	1	02-Jun-2019 21:20
Toluene	ND		0.0042	mg/Kg	1	02-Jun-2019 21:20
Xylenes, Total	ND		0.0042	mg/Kg	1	02-Jun-2019 21:20
Surr: 1,2-Dichloroethane-d4	104		70-126	%REC	1	02-Jun-2019 21:20
Surr: 4-Bromofluorobenzene	93.7		70-130	%REC	1	02-Jun-2019 21:20
Surr: Dibromofluoromethane	102		70-130	%REC	1	02-Jun-2019 21:20
Surr: Toluene-d8	101		70-130	%REC	1	02-Jun-2019 21:20
<b>GASOLINE RANGE ORGANICS BY SW8015C</b>		<b>Method:SW8015</b>		Analyst: QX		
Gasoline Range Organics	ND		0.037	mg/Kg	1	31-May-2019 15:54
Surr: 4-Bromofluorobenzene	115		70-123	%REC	1	31-May-2019 15:54
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>		Prep:SW3541 / 04-Jun-2019		Analyst: LG
Acenaphthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Benz(a)anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Benzo(a)pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Benzo(b)fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Benzo(k)fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Chrysene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Dibenz(a,h)anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Fluorene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Indeno(1,2,3-cd)pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Naphthalene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:11
Surr: 2-Fluorobiphenyl	70.8		43-125	%REC	1	07-Jun-2019 13:11
Surr: 4-Terphenyl-d14	89.6		32-125	%REC	1	07-Jun-2019 13:11
Surr: Nitrobenzene-d5	47.2		37-125	%REC	1	07-Jun-2019 13:11
<b>TPH DRO/ORO BY SW8015C</b>		<b>Method:SW8015M</b>		Prep:SW3541 / 05-Jun-2019		Analyst: PVL
TPH (Diesel Range)	75		17	mg/Kg	10	06-Jun-2019 20:09
TPH (Motor Oil Range)	270	n	34	mg/Kg	10	06-Jun-2019 20:09
Surr: 2-Fluorobiphenyl	32.3	S	60-129	%REC	10	06-Jun-2019 20:09
<b>TRIVALENT CHROMIUM</b>		<b>Method:Calculation</b>		Analyst: JHD		
Chromium, Trivalent	10.5	n	2.00	mg/Kg	1	10-Jun-2019 15:22
<b>LA29B SODIUM ADSORPTION RATIO</b>		<b>Method:La29B SAR</b>		Analyst: JHD		
Sodium Adsorption Ratio	0.423	n	0.0100	meq/meq	1	10-Jun-2019 16:07

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

Client: WSP Environment & Energy  
 Project: Craig 1-7  
 Sample ID: S-1 @ 1.5  
 Collection Date: 22-May-2019 14:30

**ANALYTICAL REPORT**

WorkOrder:HS19051554  
 Lab ID:HS19051554-01  
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LA 29B - 1:1 SOLUBLE CATIONS FOR SAR</b>		<b>Method:La29B-6020</b>		Prep:La29B-6020 / 05-Jun-2019		Analyst: JHD
Calcium	178	n	5.00	mg/L	10	10-Jun-2019 12:59
Magnesium	31.5	n	5.00	mg/L	10	10-Jun-2019 12:59
Sodium	23.3	n	5.00	mg/L	10	10-Jun-2019 12:59
<b>LA29B TOTAL TRUE BARIUM</b>		<b>Method:LADNR Ba</b>		Prep:LADNR Ba / 07-Jun-2019		Analyst: JC
Barium, Total	2,510	n	50.0	mg/Kg	1	07-Jun-2019 18:16
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>		Prep:SW3050A / 26-May-2019		Analyst: JC
Arsenic	3.43		0.483	mg/Kg	1	28-May-2019 22:31
Boron	6.21		2.42	mg/Kg	1	28-May-2019 22:31
Cadmium	ND		0.483	mg/Kg	1	28-May-2019 22:31
Chromium	10.5		0.483	mg/Kg	1	28-May-2019 22:31
Copper	9.84		0.193	mg/Kg	1	28-May-2019 22:31
Lead	11.5		0.483	mg/Kg	1	28-May-2019 22:31
Nickel	10.0		0.483	mg/Kg	1	28-May-2019 22:31
Selenium	0.732		0.483	mg/Kg	1	28-May-2019 22:31
Silver	ND		0.483	mg/Kg	1	28-May-2019 22:31
Zinc	42.3		0.483	mg/Kg	1	28-May-2019 22:31
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 05-Jun-2019		Analyst: FO
Mercury	0.00915		0.00340	mg/Kg	1	05-Jun-2019 17:38
<b>LA29B ELECTRICAL CONDUCTIVITY</b>		<b>Method:LaDNR-29B EC</b>				Analyst: KMU
Electrical Conductivity @ saturation	2.68	n	0.0100	mmhos/cm @25°C	1	10-Jun-2019 16:40
Electrical Conductivity, 1:1 aqueous	1.06	n	0.0100	mmhos/cm @25°C	1	10-Jun-2019 16:40
Saturation % as decimal	0.395	n	0	mmhos/cm @25°C	1	10-Jun-2019 16:40
<b>LA29B SATURATION POINT (AS FRACTION)</b>		<b>Method:LaDNR-29B SP</b>				Analyst: KAH
Saturation Point	0.395	n	0.100	SP as fraction	1	10-Jun-2019 10:00
<b>HEXAVALENT CHROMIUM BY SW7196A</b>		<b>Method:SW7196</b>		Prep:SW3060A / 03-Jun-2019		Analyst: MZD
Chromium, Hexavalent	ND		1.99	mg/kg	1	04-Jun-2019 11:55
<b>PH SOIL BY SW9045D</b>		<b>Method:SW9045D</b>				Analyst: MWG
pH	7.36	H	0.100	pH Units	1	06-Jun-2019 11:15
Temp Deg C @pH	22.5	H	0	°C	1	06-Jun-2019 11:15

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

Client: WSP Environment & Energy  
 Project: Craig 1-7  
 Sample ID: S-2 @ 1.5  
 Collection Date: 22-May-2019 15:00

**ANALYTICAL REPORT**

WorkOrder:HS19051554  
 Lab ID:HS19051554-02  
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR		
Benzene	ND		0.0055	mg/Kg	1	02-Jun-2019 21:43
Ethylbenzene	ND		0.0055	mg/Kg	1	02-Jun-2019 21:43
m,p-Xylene	ND		0.011	mg/Kg	1	02-Jun-2019 21:43
o-Xylene	ND		0.0055	mg/Kg	1	02-Jun-2019 21:43
Toluene	ND		0.0055	mg/Kg	1	02-Jun-2019 21:43
Xylenes, Total	ND		0.0055	mg/Kg	1	02-Jun-2019 21:43
Surr: 1,2-Dichloroethane-d4	106		70-126	%REC	1	02-Jun-2019 21:43
Surr: 4-Bromofluorobenzene	88.8		70-130	%REC	1	02-Jun-2019 21:43
Surr: Dibromofluoromethane	105		70-130	%REC	1	02-Jun-2019 21:43
Surr: Toluene-d8	107		70-130	%REC	1	02-Jun-2019 21:43
<b>GASOLINE RANGE ORGANICS BY SW8015C</b>		<b>Method:SW8015</b>		Analyst: QX		
Gasoline Range Organics	ND		0.062	mg/Kg	1	31-May-2019 16:10
Surr: 4-Bromofluorobenzene	113		70-123	%REC	1	31-May-2019 16:10
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>		Prep:SW3541 / 04-Jun-2019		Analyst: LG
Acenaphthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
Anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
Benz(a)anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
Benzo(a)pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
<b>Benzo(b)fluoranthene</b>	<b>0.0049</b>		<b>0.0033</b>	<b>mg/Kg</b>	1	07-Jun-2019 13:30
Benzo(k)fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
<b>Chrysene</b>	<b>0.011</b>		<b>0.0033</b>	<b>mg/Kg</b>	1	07-Jun-2019 13:30
Dibenz(a,h)anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
Fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
Fluorene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
Indeno(1,2,3-cd)pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
<b>Naphthalene</b>	<b>0.0042</b>		<b>0.0033</b>	<b>mg/Kg</b>	1	07-Jun-2019 13:30
Pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:30
Surr: 2-Fluorobiphenyl	60.3		43-125	%REC	1	07-Jun-2019 13:30
Surr: 4-Terphenyl-d14	91.9		32-125	%REC	1	07-Jun-2019 13:30
Surr: Nitrobenzene-d5	53.0		37-125	%REC	1	07-Jun-2019 13:30
<b>TPH DRO/ORO BY SW8015C</b>		<b>Method:SW8015M</b>		Prep:SW3541 / 05-Jun-2019		Analyst: PVL
<b>TPH (Diesel Range)</b>	<b>35</b>		<b>8.5</b>	<b>mg/Kg</b>	5	06-Jun-2019 20:34
<b>TPH (Motor Oil Range)</b>	<b>100</b>	n	<b>17</b>	<b>mg/Kg</b>	5	06-Jun-2019 20:34
Surr: 2-Fluorobiphenyl	64.3		60-129	%REC	5	06-Jun-2019 20:34
<b>TRIVALENT CHROMIUM</b>		<b>Method:Calculation</b>		Analyst: JHD		
<b>Chromium, Trivalent</b>	<b>12.6</b>	n	<b>2.00</b>	<b>mg/Kg</b>	1	10-Jun-2019 15:22
<b>LA29B SODIUM ADSORPTION RATIO</b>		<b>Method:La29B SAR</b>		Analyst: JHD		
<b>Sodium Adsorption Ratio</b>	<b>0.225</b>	n	<b>0.0100</b>	<b>meq/meq</b>	1	10-Jun-2019 16:07

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

Client: WSP Environment & Energy  
 Project: Craig 1-7  
 Sample ID: S-2 @ 1.5  
 Collection Date: 22-May-2019 15:00

**ANALYTICAL REPORT**

WorkOrder:HS19051554  
 Lab ID:HS19051554-02  
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LA 29B - 1:1 SOLUBLE CATIONS FOR SAR</b>		<b>Method:La29B-6020</b>		Prep:La29B-6020 / 05-Jun-2019		Analyst: JHD
Calcium	174	n	5.00	mg/L	10	10-Jun-2019 13:00
Magnesium	19.3	n	5.00	mg/L	10	10-Jun-2019 13:00
Sodium	11.7	n	5.00	mg/L	10	10-Jun-2019 13:00
<b>LA29B TOTAL TRUE BARIUM</b>		<b>Method:LADNR Ba</b>		Prep:LADNR Ba / 07-Jun-2019		Analyst: JC
Barium, Total	77,700	n	9900	mg/Kg	200	07-Jun-2019 23:54
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>		Prep:SW3050A / 26-May-2019		Analyst: JC
Arsenic	4.64		0.464	mg/Kg	1	28-May-2019 22:33
Boron	7.81		2.32	mg/Kg	1	28-May-2019 22:33
Cadmium	ND		0.464	mg/Kg	1	28-May-2019 22:33
Chromium	12.6		0.464	mg/Kg	1	28-May-2019 22:33
Copper	17.9		0.186	mg/Kg	1	28-May-2019 22:33
Lead	64.8		0.464	mg/Kg	1	28-May-2019 22:33
Nickel	14.0		0.464	mg/Kg	1	28-May-2019 22:33
Selenium	0.982		0.464	mg/Kg	1	28-May-2019 22:33
Silver	ND		0.464	mg/Kg	1	28-May-2019 22:33
Zinc	74.0		0.464	mg/Kg	1	28-May-2019 22:33
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 05-Jun-2019		Analyst: FO
Mercury	0.0115		0.00350	mg/Kg	1	05-Jun-2019 16:55
<b>LA29B ELECTRICAL CONDUCTIVITY</b>		<b>Method:LaDNR-29B EC</b>				Analyst: KMU
Electrical Conductivity @ saturation	2.58	n	0.0100	mmhos/cm @25°C	1	10-Jun-2019 16:40
Electrical Conductivity, 1:1 aqueous	0.973	n	0.0100	mmhos/cm @25°C	1	10-Jun-2019 16:40
Saturation % as decimal	0.377	n	0	mmhos/cm @25°C	1	10-Jun-2019 16:40
<b>LA29B SATURATION POINT (AS FRACTION)</b>		<b>Method:LaDNR-29B SP</b>				Analyst: KAH
Saturation Point	0.377	n	0.100	SP as fraction	1	10-Jun-2019 10:00
<b>HEXAVALENT CHROMIUM BY SW7196A</b>		<b>Method:SW7196</b>		Prep:SW3060A / 03-Jun-2019		Analyst: MZD
Chromium, Hexavalent	ND		1.99	mg/kg	1	04-Jun-2019 11:55
<b>PH SOIL BY SW9045D</b>		<b>Method:SW9045D</b>				Analyst: MWG
pH	7.62	H	0.100	pH Units	1	06-Jun-2019 11:15
Temp Deg C @pH	22.4	H	0	°C	1	06-Jun-2019 11:15

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

Client: WSP Environment & Energy  
 Project: Craig 1-7  
 Sample ID: S-3 @ 1.5  
 Collection Date: 22-May-2019 15:30

**ANALYTICAL REPORT**

WorkOrder:HS19051554  
 Lab ID:HS19051554-03  
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR		
Benzene	ND		0.0045	mg/Kg	1	02-Jun-2019 22:06
Ethylbenzene	ND		0.0045	mg/Kg	1	02-Jun-2019 22:06
m,p-Xylene	ND		0.0090	mg/Kg	1	02-Jun-2019 22:06
o-Xylene	ND		0.0045	mg/Kg	1	02-Jun-2019 22:06
Toluene	ND		0.0045	mg/Kg	1	02-Jun-2019 22:06
Xylenes, Total	ND		0.0045	mg/Kg	1	02-Jun-2019 22:06
Surr: 1,2-Dichloroethane-d4	110		70-126	%REC	1	02-Jun-2019 22:06
Surr: 4-Bromofluorobenzene	96.6		70-130	%REC	1	02-Jun-2019 22:06
Surr: Dibromofluoromethane	109		70-130	%REC	1	02-Jun-2019 22:06
Surr: Toluene-d8	102		70-130	%REC	1	02-Jun-2019 22:06
<b>GASOLINE RANGE ORGANICS BY SW8015C</b>		<b>Method:SW8015</b>		Analyst: QX		
Gasoline Range Organics	ND		0.051	mg/Kg	1	31-May-2019 16:26
Surr: 4-Bromofluorobenzene	111		70-123	%REC	1	31-May-2019 16:26
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>		Prep:SW3541 / 04-Jun-2019		Analyst: LG
Acenaphthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Benz(a)anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Benzo(a)pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Benzo(b)fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Benzo(k)fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Chrysene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Dibenz(a,h)anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Fluorene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Indeno(1,2,3-cd)pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
Naphthalene	ND		0.0033	mg/Kg	1	07-Jun-2019 13:48
<b>Pyrene</b>	<b>0.0034</b>		<b>0.0033</b>	<b>mg/Kg</b>	1	07-Jun-2019 13:48
Surr: 2-Fluorobiphenyl	82.9		43-125	%REC	1	07-Jun-2019 13:48
Surr: 4-Terphenyl-d14	93.2		32-125	%REC	1	07-Jun-2019 13:48
Surr: Nitrobenzene-d5	75.9		37-125	%REC	1	07-Jun-2019 13:48
<b>TPH DRO/ORO BY SW8015C</b>		<b>Method:SW8015M</b>		Prep:SW3541 / 05-Jun-2019		Analyst: PVL
<b>TPH (Diesel Range)</b>	<b>86</b>		<b>17</b>	<b>mg/Kg</b>	10	06-Jun-2019 20:58
<b>TPH (Motor Oil Range)</b>	<b>240</b>	n	<b>34</b>	<b>mg/Kg</b>	10	06-Jun-2019 20:58
Surr: 2-Fluorobiphenyl	64.5		60-129	%REC	10	06-Jun-2019 20:58
<b>TRIVALENT CHROMIUM</b>		<b>Method:Calculation</b>		Analyst: JHD		
<b>Chromium, Trivalent</b>	<b>10.3</b>	n	<b>2.00</b>	<b>mg/Kg</b>	1	10-Jun-2019 15:22
<b>LA29B SODIUM ADSORPTION RATIO</b>		<b>Method:La29B SAR</b>		Analyst: JHD		
<b>Sodium Adsorption Ratio</b>	<b>0.188</b>	n	<b>0.0100</b>	<b>meq/meq</b>	1	10-Jun-2019 16:07

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

Client: WSP Environment & Energy  
 Project: Craig 1-7  
 Sample ID: S-3 @ 1.5  
 Collection Date: 22-May-2019 15:30

**ANALYTICAL REPORT**

WorkOrder:HS19051554  
 Lab ID:HS19051554-03  
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LA 29B - 1:1 SOLUBLE CATIONS FOR SAR</b>						
	Method:La29B-6020			Prep:La29B-6020 / 05-Jun-2019		Analyst: JHD
Calcium	82.6	n	5.00	mg/L	10	10-Jun-2019 13:02
Magnesium	16.9	n	5.00	mg/L	10	10-Jun-2019 13:02
Sodium	7.18	n	5.00	mg/L	10	10-Jun-2019 13:02
<b>LA29B TOTAL TRUE BARIUM</b>						
	Method:LADNR Ba			Prep:LADNR Ba / 07-Jun-2019		Analyst: JC
Barium, Total	1,360	n	48.5	mg/Kg	1	07-Jun-2019 18:29
<b>METALS BY SW6020A</b>						
	Method:SW6020			Prep:SW3050A / 26-May-2019		Analyst: JC
Arsenic	3.72		0.487	mg/Kg	1	28-May-2019 22:36
Boron	6.31		2.43	mg/Kg	1	28-May-2019 22:36
Cadmium	ND		0.487	mg/Kg	1	28-May-2019 22:36
Chromium	10.3		0.487	mg/Kg	1	28-May-2019 22:36
Copper	10.2		0.195	mg/Kg	1	28-May-2019 22:36
Lead	11.3		0.487	mg/Kg	1	28-May-2019 22:36
Nickel	11.0		0.487	mg/Kg	1	28-May-2019 22:36
Selenium	0.686		0.487	mg/Kg	1	28-May-2019 22:36
Silver	ND		0.487	mg/Kg	1	28-May-2019 22:36
Zinc	44.1		0.487	mg/Kg	1	28-May-2019 22:36
<b>MERCURY BY SW7471B</b>						
	Method:SW7471A			Prep:SW7471A / 05-Jun-2019		Analyst: FO
Mercury	0.0109		0.00350	mg/Kg	1	05-Jun-2019 16:56
<b>LA29B ELECTRICAL CONDUCTIVITY</b>						
	Method:LaDNR-29B EC					Analyst: KMU
Electrical Conductivity @ saturation	2.10	n	0.0100	mmhos/cm @25°C	1	10-Jun-2019 16:40
Electrical Conductivity, 1:1 aqueous	0.717	n	0.0100	mmhos/cm @25°C	1	10-Jun-2019 16:40
Saturation % as decimal	0.342	n	0	mmhos/cm @25°C	1	10-Jun-2019 16:40
<b>LA29B SATURATION POINT (AS FRACTION)</b>						
	Method:LaDNR-29B SP					Analyst: KAH
Saturation Point	0.342	n	0.100	SP as fraction	1	10-Jun-2019 10:00
<b>HEXAVALENT CHROMIUM BY SW7196A</b>						
	Method:SW7196			Prep:SW3060A / 03-Jun-2019		Analyst: MZD
Chromium, Hexavalent	ND		1.99	mg/kg	1	04-Jun-2019 11:55
<b>PH SOIL BY SW9045D</b>						
	Method:SW9045D					Analyst: MWG
pH	6.97	H	0.100	pH Units	1	06-Jun-2019 11:15
Temp Deg C @pH	22.3	H	0	°C	1	06-Jun-2019 11:15

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

Client: WSP Environment & Energy  
 Project: Craig 1-7  
 Sample ID: S-4 @ 1.5  
 Collection Date: 22-May-2019 16:00

**ANALYTICAL REPORT**

WorkOrder:HS19051554  
 Lab ID:HS19051554-04  
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR		
Benzene	ND		0.0043	mg/Kg	1	02-Jun-2019 22:28
Ethylbenzene	ND		0.0043	mg/Kg	1	02-Jun-2019 22:28
m,p-Xylene	ND		0.0086	mg/Kg	1	02-Jun-2019 22:28
o-Xylene	ND		0.0043	mg/Kg	1	02-Jun-2019 22:28
Toluene	ND		0.0043	mg/Kg	1	02-Jun-2019 22:28
Xylenes, Total	ND		0.0043	mg/Kg	1	02-Jun-2019 22:28
Surr: 1,2-Dichloroethane-d4	115		70-126	%REC	1	02-Jun-2019 22:28
Surr: 4-Bromofluorobenzene	102		70-130	%REC	1	02-Jun-2019 22:28
Surr: Dibromofluoromethane	107		70-130	%REC	1	02-Jun-2019 22:28
Surr: Toluene-d8	98.4		70-130	%REC	1	02-Jun-2019 22:28
<b>GASOLINE RANGE ORGANICS BY SW8015C</b>		<b>Method:SW8015</b>		Analyst: QX		
Gasoline Range Organics	ND		0.044	mg/Kg	1	31-May-2019 16:42
Surr: 4-Bromofluorobenzene	108		70-123	%REC	1	31-May-2019 16:42
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>		Prep:SW3541 / 04-Jun-2019		Analyst: LG
Acenaphthene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Benz(a)anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Benzo(a)pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Benzo(b)fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Benzo(k)fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Chrysene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Dibenz(a,h)anthracene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Fluoranthene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Fluorene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Indeno(1,2,3-cd)pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Naphthalene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Pyrene	ND		0.0033	mg/Kg	1	07-Jun-2019 14:30
Surr: 2-Fluorobiphenyl	78.9		43-125	%REC	1	07-Jun-2019 14:30
Surr: 4-Terphenyl-d14	104		32-125	%REC	1	07-Jun-2019 14:30
Surr: Nitrobenzene-d5	55.4		37-125	%REC	1	07-Jun-2019 14:30
<b>TPH DRO/ORO BY SW8015C</b>		<b>Method:SW8015M</b>		Prep:SW3541 / 05-Jun-2019		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	06-Jun-2019 21:22
<b>TPH (Motor Oil Range)</b>	<b>9.8</b>	n	<b>3.4</b>	<b>mg/Kg</b>	1	06-Jun-2019 21:22
Surr: 2-Fluorobiphenyl	89.6		60-129	%REC	1	06-Jun-2019 21:22
<b>TRIVALENT CHROMIUM</b>		<b>Method:Calculation</b>		Analyst: JHD		
Chromium, Trivalent	13.1	n	2.00	mg/Kg	1	10-Jun-2019 15:22
<b>LA29B SODIUM ADSORPTION RATIO</b>		<b>Method:La29B SAR</b>		Analyst: JHD		
Sodium Adsorption Ratio	6.60	n	0.0100	meq/meq	1	10-Jun-2019 16:07

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

Client: WSP Environment & Energy  
 Project: Craig 1-7  
 Sample ID: S-4 @ 1.5  
 Collection Date: 22-May-2019 16:00

**ANALYTICAL REPORT**

WorkOrder:HS19051554  
 Lab ID:HS19051554-04  
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LA 29B - 1:1 SOLUBLE CATIONS FOR SAR</b>		<b>Method:La29B-6020</b>		Prep:La29B-6020 / 05-Jun-2019		Analyst: JHD
Calcium	42.3	n	5.00	mg/L	10	10-Jun-2019 13:10
Magnesium	17.4	n	5.00	mg/L	10	10-Jun-2019 13:10
Sodium	202	n	5.00	mg/L	10	10-Jun-2019 13:10
<b>LA29B TOTAL TRUE BARIUM</b>		<b>Method:LADNR Ba</b>		Prep:LADNR Ba / 07-Jun-2019		Analyst: JC
Barium, Total	264	n	45.9	mg/Kg	1	07-Jun-2019 18:31
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>		Prep:SW3050A / 26-May-2019		Analyst: JC
Arsenic	3.67		0.465	mg/Kg	1	28-May-2019 22:38
Boron	8.75		2.33	mg/Kg	1	28-May-2019 22:38
Cadmium	ND		0.465	mg/Kg	1	28-May-2019 22:38
Chromium	13.1		0.465	mg/Kg	1	28-May-2019 22:38
Copper	10.4		0.186	mg/Kg	1	28-May-2019 22:38
Lead	10.5		0.465	mg/Kg	1	28-May-2019 22:38
Nickel	12.2		0.465	mg/Kg	1	28-May-2019 22:38
Selenium	0.715		0.465	mg/Kg	1	28-May-2019 22:38
Silver	ND		0.465	mg/Kg	1	28-May-2019 22:38
Zinc	44.4		0.465	mg/Kg	1	28-May-2019 22:38
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 05-Jun-2019		Analyst: FO
Mercury	0.0112		0.00355	mg/Kg	1	05-Jun-2019 16:58
<b>LA29B ELECTRICAL CONDUCTIVITY</b>		<b>Method:LaDNR-29B EC</b>				Analyst: KMU
Electrical Conductivity @ saturation	2.34	n	0.0100	mmhos/cm @25°C	1	10-Jun-2019 16:40
Electrical Conductivity, 1:1 aqueous	1.08	n	0.0100	mmhos/cm @25°C	1	10-Jun-2019 16:40
Saturation % as decimal	0.461	n	0	mmhos/cm @25°C	1	10-Jun-2019 16:40
<b>LA29B SATURATION POINT (AS FRACTION)</b>		<b>Method:LaDNR-29B SP</b>				Analyst: KAH
Saturation Point	0.461	n	0.100	SP as fraction	1	10-Jun-2019 10:00
<b>HEXAVALENT CHROMIUM BY SW7196A</b>		<b>Method:SW7196</b>		Prep:SW3060A / 03-Jun-2019		Analyst: MZD
Chromium, Hexavalent	ND		2.00	mg/kg	1	04-Jun-2019 11:55
<b>PH SOIL BY SW9045D</b>		<b>Method:SW9045D</b>				Analyst: MWG
pH	8.42	H	0.100	pH Units	1	06-Jun-2019 11:15
Temp Deg C @pH	22.3	H	0	°C	1	06-Jun-2019 11:15

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



## WEIGHT LOG

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

**Batch ID:** 3109      **Method:** GASOLINE RANGE ORGANICS BY SW8015C      **Prep:**

SamplID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS19051554-01	1	6.785 (g)	5 (mL)	0.74	TerraCore (5035A)
HS19051554-02	1	4.03 (g)	5 (mL)	1.24	TerraCore (5035A)
HS19051554-03	1	4.883 (g)	5 (mL)	1.02	TerraCore (5035A)
HS19051554-04	1	5.645 (g)	5 (mL)	0.89	TerraCore (5035A)

**Batch ID:** 3112      **Method:** VOLATILES BY SW8260C

SamplID	Container	Sample Wt/Vol	Final Volume	Weight Factor	Container Type
HS19051554-01	1	5.995 (g)	5 (mL)	0.83	TerraCore (5035A)
HS19051554-02	1	4.533 (g)	5 (mL)	1.1	TerraCore (5035A)
HS19051554-03	1	5.528 (g)	5 (mL)	0.9	TerraCore (5035A)
HS19051554-04	1	5.793 (g)	5 (mL)	0.86	TerraCore (5035A)

**Batch ID:** 141234      **Method:** METALS BY SW6020A      **Prep:** 3050\_I\_LOW

SamplID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19051554-01	1	0.5174	50 (mL)	96.64
HS19051554-02	1	0.5384	50 (mL)	92.87
HS19051554-03	1	0.5138	50 (mL)	97.31
HS19051554-04	1	0.5371	50 (mL)	93.09

**Batch ID:** 141570      **Method:** LOW-LEVEL PAHS      **Prep:** 3541\_B\_LOW

SamplID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19051554-01	1	30.27	1 (mL)	0.03304
HS19051554-02	1	30.19	1 (mL)	0.03312
HS19051554-03	1	30.22	1 (mL)	0.03309
HS19051554-04	1	30.25	1 (mL)	0.03306

**Batch ID:** 141571      **Method:** HEXAVALENT CHROMIUM BY SW7196A      **Prep:** CR6\_S\_PR3060A

SamplID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19051554-01	1	2.5097	100 (mL)	39.85
HS19051554-02	1	2.5094	100 (mL)	39.85
HS19051554-03	1	2.5074	100 (mL)	39.88
HS19051554-04	1	2.5038	100 (mL)	39.94

**Batch ID:** 141602      **Method:** TPH DRO/ORO BY SW8015C      **Prep:** 8015SPR\_LL

SamplID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19051554-01	1	30	1 (mL)	0.03333
HS19051554-02	1	30	1 (mL)	0.03333
HS19051554-03	1	30	1 (mL)	0.03333
HS19051554-04	1	30.01	1 (mL)	0.03332

## WEIGHT LOG

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

**Batch ID:** 141608      **Method:** MERCURY BY SW7471B      **Prep:** HG\_S\_LOWPR

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19051554-01	1	0.5861	40 (mL)	68.25
HS19051554-02	1	0.5693	40 (mL)	70.26
HS19051554-03	1	0.5702	40 (mL)	70.15
HS19051554-04	1	0.5624	40 (mL)	71.12

**Batch ID:** 141664      **Method:** LA 29B - 1:1 SOLUBLE CATIONS FOR SAR      **Prep:** LA29B SAR CATPR

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19051554-01	1	75.0617	75 (mL)	0.9992
HS19051554-02	1	75.0401	75 (mL)	0.9995
HS19051554-03	1	75.0259	75 (mL)	0.9997
HS19051554-04	1	75.0254	75 (mL)	0.9997

**Batch ID:** 141731      **Method:** LA29B TOTAL TRUE BARIUM      **Prep:** LADNR BAPR

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19051554-01	1	0.01	50 (mL)	5000
HS19051554-02	1	0.0101	50 (mL)	4950
HS19051554-03	1	0.0103	50 (mL)	4854
HS19051554-04	1	0.0109	50 (mL)	4587

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**WorkOrder:** HS19051554

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID 141234 Test Name : METALS BY SW6020A Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30		26 May 2019 11:31	28 May 2019 22:31	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00		26 May 2019 11:31	28 May 2019 22:33	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30		26 May 2019 11:31	28 May 2019 22:36	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00		26 May 2019 11:31	28 May 2019 22:38	1
<b>Batch ID 141570 Test Name : LOW-LEVEL PAHS Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30		04 Jun 2019 12:00	07 Jun 2019 13:11	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00		04 Jun 2019 12:00	07 Jun 2019 13:30	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30		04 Jun 2019 12:00	07 Jun 2019 13:48	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00		04 Jun 2019 12:00	07 Jun 2019 14:30	1
<b>Batch ID 141571 Test Name : HEXAVALENT CHROMIUM BY SW7196A Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30		03 Jun 2019 16:00	04 Jun 2019 11:55	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00		03 Jun 2019 16:00	04 Jun 2019 11:55	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30		03 Jun 2019 16:00	04 Jun 2019 11:55	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00		03 Jun 2019 16:00	04 Jun 2019 11:55	1
<b>Batch ID 141602 Test Name : TPH DRO/ORO BY SW8015C Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30		05 Jun 2019 08:30	06 Jun 2019 20:09	10
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00		05 Jun 2019 08:30	06 Jun 2019 20:34	5
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30		05 Jun 2019 08:30	06 Jun 2019 20:58	10
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00		05 Jun 2019 08:30	06 Jun 2019 21:22	1
<b>Batch ID 141608 Test Name : MERCURY BY SW7471B Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30		05 Jun 2019 10:30	05 Jun 2019 17:38	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00		05 Jun 2019 10:30	05 Jun 2019 16:55	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30		05 Jun 2019 10:30	05 Jun 2019 16:56	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00		05 Jun 2019 10:30	05 Jun 2019 16:58	1
<b>Batch ID 141664 Test Name : LA 29B - 1:1 SOLUBLE CATIONS FOR SAR Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30		05 Jun 2019 12:06	10 Jun 2019 12:59	10
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00		05 Jun 2019 12:06	10 Jun 2019 13:00	10
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30		05 Jun 2019 12:06	10 Jun 2019 13:02	10
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00		05 Jun 2019 12:06	10 Jun 2019 13:10	10
<b>Batch ID 141731 Test Name : LA29B TOTAL TRUE BARIUM Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30		07 Jun 2019 11:00	07 Jun 2019 18:16	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00		07 Jun 2019 11:00	07 Jun 2019 23:54	200
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30		07 Jun 2019 11:00	07 Jun 2019 18:29	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00		07 Jun 2019 11:00	07 Jun 2019 18:31	1

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**WorkOrder:** HS19051554

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID R339623 Test Name : VOLATILES BY SW8260C Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30			02 Jun 2019 21:20	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00			02 Jun 2019 21:43	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30			02 Jun 2019 22:06	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00			02 Jun 2019 22:28	1
<b>Batch ID R339628 Test Name : GASOLINE RANGE ORGANICS BY SW8015C Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30			31 May 2019 15:54	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00			31 May 2019 16:10	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30			31 May 2019 16:26	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00			31 May 2019 16:42	1
<b>Batch ID R339930 Test Name : PH SOIL BY SW9045D Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30			06 Jun 2019 11:15	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00			06 Jun 2019 11:15	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30			06 Jun 2019 11:15	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00			06 Jun 2019 11:15	1
<b>Batch ID R340171 Test Name : TRIVALENT CHROMIUM Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30			10 Jun 2019 15:22	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00			10 Jun 2019 15:22	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30			10 Jun 2019 15:22	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00			10 Jun 2019 15:22	1
<b>Batch ID R340178 Test Name : LA29B SODIUM ADSORPTION RATIO Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30			10 Jun 2019 16:07	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00			10 Jun 2019 16:07	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30			10 Jun 2019 16:07	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00			10 Jun 2019 16:07	1
<b>Batch ID R340189 Test Name : LA29B ELECTRICAL CONDUCTIVITY Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30			10 Jun 2019 16:40	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00			10 Jun 2019 16:40	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30			10 Jun 2019 16:40	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00			10 Jun 2019 16:40	1
<b>Batch ID R340190 Test Name : LA29B SATURATION POINT (AS FRACTION) Matrix: Soil</b>						
HS19051554-01	S-1 @ 1.5	22 May 2019 14:30			10 Jun 2019 10:00	1
HS19051554-02	S-2 @ 1.5	22 May 2019 15:00			10 Jun 2019 10:00	1
HS19051554-03	S-3 @ 1.5	22 May 2019 15:30			10 Jun 2019 10:00	1
HS19051554-04	S-4 @ 1.5	22 May 2019 16:00			10 Jun 2019 10:00	1

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141602 ( 0 )		Instrument: FID-8		Method: TPH DRO/ORO BY SW8015C					
<b>MBLK</b>	Sample ID: <b>MBLK-141602</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>06-Jun-2019 19:21</b>					
Client ID:	Run ID: <b>FID-8_340126</b>	SeqNo: <b>5113783</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
TPH (Diesel Range)	ND	1.7							
TPH (Motor Oil Range)	ND	3.4							
Surr: 2-Fluorobiphenyl	2.583	0.10	3.33	0	77.6	70 - 130			
<b>LCS</b>	Sample ID: <b>LCS-141602</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>06-Jun-2019 19:45</b>					
Client ID:	Run ID: <b>FID-8_340126</b>	SeqNo: <b>5113791</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
TPH (Diesel Range)	38.41	1.7	33.33	0	115	70 - 130			
TPH (Motor Oil Range)	27.72	3.4	33.33	0	83.2	70 - 130			
Surr: 2-Fluorobiphenyl	3.421	0.10	3.33	0	103	70 - 130			
<b>MS</b>	Sample ID: <b>HS19051593-02MS</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>07-Jun-2019 01:00</b>					
Client ID:	Run ID: <b>FID-8_340126</b>	SeqNo: <b>5113793</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
TPH (Diesel Range)	47.71	1.7	33.22	7.772	120	70 - 130			
TPH (Motor Oil Range)	42.83	3.4	33.22	18.48	73.3	70 - 130			
Surr: 2-Fluorobiphenyl	3.326	0.10	3.319	0	100	60 - 129			
<b>MSD</b>	Sample ID: <b>HS19051593-02MSD</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>07-Jun-2019 01:24</b>					
Client ID:	Run ID: <b>FID-8_340126</b>	SeqNo: <b>5113790</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
TPH (Diesel Range)	47.6	1.7	33.12	7.772	120	70 - 130	47.71	0.235	30
TPH (Motor Oil Range)	41.99	3.4	33.12	18.48	71.0	70 - 130	42.83	1.98	30
Surr: 2-Fluorobiphenyl	3.214	0.099	3.309	0	97.1	60 - 129	3.326	3.4	30
The following samples were analyzed in this batch:									
HS19051554-01		HS19051554-02		HS19051554-03		HS19051554-04			

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**WorkOrder:** HS19051554

**QC BATCH REPORT**

Batch ID: R339628 ( 0 )		Instrument: FID-14		Method: GASOLINE RANGE ORGANICS BY SW8015C						
<b>MBLK</b>	Sample ID: MBLK-190531	Units: mg/Kg		Analysis Date: 31-May-2019 11:16						
Client ID:	Run ID: FID-14_339628		SeqNo: 5102595		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	ND	0.050								
Surr: 4-Bromofluorobenzene	0.1075	0.0050	0.1	0	107	75 - 121				
<b>LCS</b>	Sample ID: LCS-190531	Units: mg/Kg		Analysis Date: 31-May-2019 10:44						
Client ID:	Run ID: FID-14_339628		SeqNo: 5102593		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8557	0.050	1	0	85.6	72 - 121				
Surr: 4-Bromofluorobenzene	0.08681	0.0050	0.1	0	86.8	75 - 121				
<b>LCSD</b>	Sample ID: LCSD-190531	Units: mg/Kg		Analysis Date: 31-May-2019 11:00						
Client ID:	Run ID: FID-14_339628		SeqNo: 5102594		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8621	0.050	1	0	86.2	70 - 121	0.8557	0.746	30	
Surr: 4-Bromofluorobenzene	0.09023	0.0050	0.1	0	90.2	75 - 121	0.08681	3.86	30	
<b>MS</b>	Sample ID: HS19051406-01MS	Units: mg/Kg		Analysis Date: 31-May-2019 12:00						
Client ID:	Run ID: FID-14_339628		SeqNo: 5102597		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.5298	0.050	0.99	0	53.5	70 - 130				S
Surr: 4-Bromofluorobenzene	0.05267	0.0050	0.099	0	53.2	70 - 123				S
<b>MSD</b>	Sample ID: HS19051406-01MSD	Units: mg/Kg		Analysis Date: 31-May-2019 12:16						
Client ID:	Run ID: FID-14_339628		SeqNo: 5102598		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.6529	0.050	1	0	65.3	70 - 130	0.5298	20.8	30	S
Surr: 4-Bromofluorobenzene	0.05873	0.0050	0.1	0	58.7	70 - 123	0.05267	10.9	30	S
The following samples were analyzed in this batch:										
HS19051554-01		HS19051554-02		HS19051554-03		HS19051554-04				

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141234 ( 0 )		Instrument: ICPMS04		Method: METALS BY SW6020A					
<b>MBLK</b>	Sample ID: <b>MBLK-141234</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>28-May-2019 21:36</b>					
Client ID:	Run ID: <b>ICPMS04_339237</b>	SeqNo: <b>5095069</b>		PrepDate: <b>26-May-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Arsenic	ND	0.473							
Cadmium	ND	0.473							
Chromium	ND	0.473							
Copper	ND	0.189							
Lead	ND	0.473							
Nickel	ND	0.473							
Selenium	ND	0.473							
Silver	ND	0.473							
Zinc	ND	0.473							

<b>MBLK</b>	Sample ID: <b>MBLK-141234</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>29-May-2019 13:08</b>					
Client ID:	Run ID: <b>ICPMS04_339351</b>	SeqNo: <b>5096387</b>		PrepDate: <b>26-May-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Boron	ND	2.36							
-------	----	------	--	--	--	--	--	--	--

<b>LCS</b>	Sample ID: <b>LCS-141234</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>28-May-2019 21:39</b>					
Client ID:	Run ID: <b>ICPMS04_339237</b>	SeqNo: <b>5095070</b>		PrepDate: <b>26-May-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Arsenic	9.133	0.500	10	0	91.3	80 - 120			
Boron	46.48	2.50	50	0	93.0	80 - 120			
Cadmium	10.1	0.500	10	0	101	80 - 120			
Chromium	8.927	0.500	10	0	89.3	80 - 120			
Copper	9.243	0.200	10	0	92.4	80 - 120			
Lead	10.35	0.500	10	0	103	80 - 120			
Nickel	9.11	0.500	10	0	91.1	80 - 120			
Selenium	9.022	0.500	10	0	90.2	80 - 120			
Silver	8.698	0.500	10	0	87.0	80 - 120			
Zinc	9.329	0.500	10	0	93.3	80 - 120			

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141234 ( 0 )		Instrument: ICPMS04		Method: METALS BY SW6020A					
<b>MS</b>		Sample ID: HS19051523-01MS		Units: mg/Kg		Analysis Date: 28-May-2019 21:45			
Client ID:		Run ID: ICPMS04_339237		SeqNo: 5095073		PrepDate: 26-May-2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	8.688	0.456	9.111	1.165	82.6	75 - 125			
Boron	41.68	2.28	45.55	3.11	84.7	75 - 125			
Cadmium	9.076	0.456	9.111	0.01811	99.4	75 - 125			
Chromium	18.42	0.456	9.111	9.278	100	75 - 125			
Copper	12.04	0.182	9.111	3.707	91.5	75 - 125			
Lead	17.03	0.456	9.111	7.621	103	75 - 125			
Nickel	11.97	0.456	9.111	3.523	92.7	75 - 125			
Selenium	8.381	0.456	9.111	0.5287	86.2	75 - 125			
Silver	7.751	0.456	9.111	0.0329	84.7	75 - 125			
Zinc	22.61	0.456	9.111	13.68	98.0	75 - 125			

<b>MSD</b>		Sample ID: HS19051523-01MSD		Units: mg/Kg		Analysis Date: 28-May-2019 21:47			
Client ID:		Run ID: ICPMS04_339237		SeqNo: 5095074		PrepDate: 26-May-2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	8.956	0.464	9.285	1.165	83.9	75 - 125	8.688	3.04	20
Boron	42.8	2.32	46.43	3.11	85.5	75 - 125	41.68	2.66	20
Cadmium	9.107	0.464	9.285	0.01811	97.9	75 - 125	9.076	0.341	20
Chromium	18.58	0.464	9.285	9.278	100	75 - 125	18.42	0.89	20
Copper	12.25	0.186	9.285	3.707	92.0	75 - 125	12.04	1.75	20
Lead	17.28	0.464	9.285	7.621	104	75 - 125	17.03	1.46	20
Nickel	12.1	0.464	9.285	3.523	92.3	75 - 125	11.97	1.06	20
Selenium	8.582	0.464	9.285	0.5287	86.7	75 - 125	8.381	2.37	20
Silver	7.678	0.464	9.285	0.0329	82.3	75 - 125	7.751	0.937	20
Zinc	22.89	0.464	9.285	13.68	99.2	75 - 125	22.61	1.25	20



Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141234 ( 0 )		Instrument: ICPMS04		Method: METALS BY SW6020A					
<b>PDS</b>		Sample ID: HS19051523-01PDS		Units: mg/Kg		Analysis Date: 28-May-2019 21:49			
Client ID:		Run ID: ICPMS04_339237		SeqNo: 5095075		PrepDate: 26-May-2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	9.69	0.462	9.242	1.165	92.2	75 - 125			
Boron	85.04	2.31	92.42	3.11	88.6	75 - 125			
Cadmium	9.155	0.462	9.242	0.01811	98.9	75 - 125			
Chromium	17.52	0.462	9.242	9.278	89.1	75 - 125			
Copper	12.04	0.185	9.242	3.707	90.2	75 - 125			
Lead	16.65	0.462	9.242	7.621	97.7	75 - 125			
Nickel	11.63	0.462	9.242	3.523	87.7	75 - 125			
Selenium	8.935	0.462	9.242	0.5287	91.0	75 - 125			
Silver	7.638	0.462	9.242	0.0329	82.3	75 - 125			
Zinc	21.89	0.462	9.242	13.68	88.8	75 - 125			

<b>SD</b>		Sample ID: HS19051523-01SD		Units: mg/Kg		Analysis Date: 28-May-2019 21:43			
Client ID:		Run ID: ICPMS04_339237		SeqNo: 5095072		PrepDate: 26-May-2019		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Arsenic	1.253	2.31					1.165	0 10	J
Cadmium	ND	2.31					0.01811	0 10	
Lead	7.368	2.31					7.621	3.32 10	
Selenium	0.8824	2.31					0.5287	0 10	J
Silver	ND	2.31					0.0329	0 10	

<b>SD</b>		Sample ID: HS19051523-01SD		Units: mg/Kg		Analysis Date: 29-May-2019 13:13			
Client ID:		Run ID: ICPMS04_339351		SeqNo: 5096389		PrepDate: 26-May-2019		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Boron	ND	11.6					3.11	0 10	

The following samples were analyzed in this batch:

HS19051554-01	HS19051554-02	HS19051554-03	HS19051554-04
---------------	---------------	---------------	---------------

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141608 ( 0 )		Instrument: HG03		Method: MERCURY BY SW7471B					
<b>MBLK</b>	Sample ID: <b>MBLK-141608</b>	Units: <b>ug/Kg</b>		Analysis Date: <b>05-Jun-2019 16:41</b>					
Client ID:	Run ID: <b>HG03_339891</b>	SeqNo: <b>5108614</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	ND	3.32							
<b>LCS</b>	Sample ID: <b>LCS-141608</b>	Units: <b>ug/Kg</b>		Analysis Date: <b>05-Jun-2019 16:42</b>					
Client ID:	Run ID: <b>HG03_339891</b>	SeqNo: <b>5108615</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	345.3	3.32	333.3	0	104	80 - 120			
<b>MS</b>	Sample ID: <b>HS19051851-01MS</b>	Units: <b>ug/Kg</b>		Analysis Date: <b>05-Jun-2019 16:46</b>					
Client ID:	Run ID: <b>HG03_339891</b>	SeqNo: <b>5108617</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	359.2	3.47	348.1	0.14	103	80 - 120			
<b>MSD</b>	Sample ID: <b>HS19051851-01MSD</b>	Units: <b>ug/Kg</b>		Analysis Date: <b>05-Jun-2019 16:53</b>					
Client ID:	Run ID: <b>HG03_339891</b>	SeqNo: <b>5108618</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	348	3.45	345.9	0.14	101	80 - 120	359.2	3.18	20
The following samples were analyzed in this batch:									
HS19051554-01		HS19051554-02		HS19051554-03		HS19051554-04			

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141664 ( 0 )		Instrument: ICPMS06		Method: LA 29B - 1:1 SOLUBLE CATIONS FOR SAR					
<b>MBLK</b>	Sample ID: <b>MBLK-141664</b>	Units: <b>mg/L</b>		Analysis Date: <b>10-Jun-2019 12:57</b>					
Client ID:	Run ID: <b>ICPMS06_340137</b>		SeqNo: <b>5114382</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	ND	0.500							
Magnesium	ND	0.500							
Sodium	ND	0.500							

<b>DUP</b>	Sample ID: <b>HS19051803-02DUP</b>	Units: <b>mg/L</b>		Analysis Date: <b>10-Jun-2019 13:23</b>					
Client ID:	Run ID: <b>ICPMS06_340137</b>		SeqNo: <b>5114395</b>		PrepDate: <b>05-Jun-2019</b>		DF: <b>10</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Calcium	6.237	5.00					7.355	16.4	30
Magnesium	ND	5.00					2.799	0	30
Sodium	10.84	5.00					10.2	6.09	30

The following samples were analyzed in this batch:

HS19051554-01	HS19051554-02	HS19051554-03	HS19051554-04
---------------	---------------	---------------	---------------

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**WorkOrder:** HS19051554

**QC BATCH REPORT**

Batch ID: 141731 ( 0 )		Instrument: ICPMS04		Method: LA29B TOTAL TRUE BARIUM					
<b>MBLK</b>	Sample ID: <b>MBLK-141731</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>07-Jun-2019 18:12</b>					
Client ID:	Run ID: <b>ICPMS04_340018</b>	SeqNo: <b>5112750</b>		PrepDate: <b>07-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Barium, Total	ND	50.0							
<b>LCS</b>	Sample ID: <b>LCS-141731</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>07-Jun-2019 18:14</b>					
Client ID:	Run ID: <b>ICPMS04_340018</b>	SeqNo: <b>5112751</b>		PrepDate: <b>07-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Barium, Total	516.8	50.0	500	0	103	80 - 120			
<b>MS</b>	Sample ID: <b>HS19051554-01MS</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>07-Jun-2019 18:21</b>					
Client ID: <b>S-1 @ 1.5</b>	Run ID: <b>ICPMS04_340018</b>	SeqNo: <b>5112754</b>		PrepDate: <b>07-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Barium, Total	3039	45.5	454.5	2515	115	75 - 125			O
<b>MSD</b>	Sample ID: <b>HS19051554-01MSD</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>07-Jun-2019 18:23</b>					
Client ID: <b>S-1 @ 1.5</b>	Run ID: <b>ICPMS04_340018</b>	SeqNo: <b>5112755</b>		PrepDate: <b>07-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Barium, Total	2964	49.0	490.2	2515	91.7	75 - 125	3039	2.47 30	O
<b>PDS</b>	Sample ID: <b>HS19051554-01PDS</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>07-Jun-2019 18:25</b>					
Client ID: <b>S-1 @ 1.5</b>	Run ID: <b>ICPMS04_340018</b>	SeqNo: <b>5112756</b>		PrepDate: <b>07-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Barium, Total	3027	50.0	500	2515	102	75 - 125			O
<b>SD</b>	Sample ID: <b>HS19051554-01SD</b>	Units: <b>mg/Kg</b>		Analysis Date: <b>07-Jun-2019 18:18</b>					
Client ID: <b>S-1 @ 1.5</b>	Run ID: <b>ICPMS04_340018</b>	SeqNo: <b>5112753</b>		PrepDate: <b>07-Jun-2019</b>		DF: <b>5</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit Qual
Barium, Total	2465	250					2515	1.98 10	
The following samples were analyzed in this batch:									
HS19051554-01		HS19051554-02		HS19051554-03		HS19051554-04			

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141570 ( 1 )		Instrument: SV-6		Method: LOW-LEVEL SEMIVOLATILES BY 8270D					
MBLK	Sample ID: MBLK-141570	Units: ug/Kg		Analysis Date: 07-Jun-2019 09:59					
Client ID:	Run ID: SV-6_340017	SeqNo: 5113594		PrepDate: 04-Jun-2019		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Acenaphthene	ND	3.3							
Anthracene	ND	3.3							
Benz(a)anthracene	ND	3.3							
Benzo(a)pyrene	ND	3.3							
Benzo(b)fluoranthene	ND	3.3							
Benzo(k)fluoranthene	ND	3.3							
Chrysene	ND	3.3							
Dibenz(a,h)anthracene	ND	3.3							
Fluoranthene	ND	3.3							
Fluorene	ND	3.3							
Indeno(1,2,3-cd)pyrene	ND	3.3							
Naphthalene	ND	3.3							
Pyrene	ND	3.3							
Surr: 2-Fluorobiphenyl	162.4	0	167	0	97.3	43 - 125			
Surr: 4-Terphenyl-d14	179.9	0	167	0	108	32 - 125			
Surr: Nitrobenzene-d5	144.3	0	167	0	86.4	37 - 125			

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141570 ( 1 )		Instrument: SV-6		Method: LOW-LEVEL SEMIVOLATILES BY 8270D					
LCS		Sample ID: LCS-141570		Units: ug/Kg		Analysis Date: 07-Jun-2019 10:18			
Client ID:		Run ID: SV-6_340017		SeqNo: 5113595		PrepDate: 04-Jun-2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Acenaphthene	153.3	3.3	167	0	91.8	50 - 120			
Anthracene	158.7	3.3	167	0	95.0	50 - 123			
Benz(a)anthracene	148.6	3.3	167	0	89.0	50 - 131			
Benzo(a)pyrene	160.7	3.3	167	0	96.2	50 - 130			
Benzo(b)fluoranthene	166.6	3.3	167	0	99.8	50 - 137			
Benzo(k)fluoranthene	165	3.3	167	0	98.8	50 - 143			
Chrysene	160.5	3.3	167	0	96.1	50 - 130			
Dibenz(a,h)anthracene	143.1	3.3	167	0	85.7	50 - 130			
Fluoranthene	164.4	3.3	167	0	98.5	50 - 131			
Fluorene	165.5	3.3	167	0	99.1	50 - 125			
Indeno(1,2,3-cd)pyrene	161.3	3.3	167	0	96.6	45 - 139			
Naphthalene	151.2	3.3	167	0	90.5	50 - 125			
Pyrene	177.9	3.3	167	0	107	45 - 130			
Surr: 2-Fluorobiphenyl	161.3	0	167	0	96.6	43 - 125			
Surr: 4-Terphenyl-d14	166.5	0	167	0	99.7	32 - 125			
Surr: Nitrobenzene-d5	134.8	0	167	0	80.7	37 - 125			

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141570 ( 1 )		Instrument: SV-6		Method: LOW-LEVEL SEMIVOLATILES BY 8270D					
MS		Sample ID: HS19051587-03MS		Units: ug/Kg		Analysis Date: 07-Jun-2019 12:33			
Client ID:		Run ID: SV-6_340017		SeqNo: 5113597		PrepDate: 04-Jun-2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Acenaphthene	153.8	3.3	165.8	0	92.8	50 - 120			
Anthracene	168.8	3.3	165.8	1.136	101	50 - 123			
Benz(a)anthracene	147.4	3.3	165.8	2.334	87.5	50 - 131			
Benzo(a)pyrene	159.6	3.3	165.8	2.427	94.8	50 - 130			
Benzo(b)fluoranthene	161.8	3.3	165.8	3.029	95.8	50 - 137			
Benzo(k)fluoranthene	168.2	3.3	165.8	1.08	101	50 - 143			
Chrysene	162.5	3.3	165.8	3.729	95.8	50 - 130			
Dibenz(a,h)anthracene	149.5	3.3	165.8	0	90.2	50 - 130			
Fluoranthene	177.1	3.3	165.8	5.255	104	50 - 131			
Fluorene	168.8	3.3	165.8	1.073	101	50 - 125			
Indeno(1,2,3-cd)pyrene	161.7	3.3	165.8	0	97.5	45 - 139			
Naphthalene	131	3.3	165.8	5.555	75.7	50 - 125			
Pyrene	187	3.3	165.8	6.305	109	45 - 130			
Surr: 2-Fluorobiphenyl	148.4	0	165.8	0	89.5	43 - 125			
Surr: 4-Terphenyl-d14	160.8	0	165.8	0	97.0	32 - 125			
Surr: Nitrobenzene-d5	114.8	0	165.8	0	69.3	37 - 125			

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141570 ( 1 )		Instrument: SV-6		Method: LOW-LEVEL SEMIVOLATILES BY 8270D						
MSD		Sample ID: HS19051587-03MSD		Units: ug/Kg		Analysis Date: 07-Jun-2019 12:52				
Client ID:		Run ID: SV-6_340017		SeqNo: 5113598		PrepDate: 04-Jun-2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	159.8	3.3	165.6	0	96.5	50 - 120	153.8	3.84	30	
Anthracene	162	3.3	165.6	1.136	97.1	50 - 123	168.8	4.17	30	
Benz(a)anthracene	161.9	3.3	165.6	2.334	96.4	50 - 131	147.4	9.37	30	
Benzo(a)pyrene	170.5	3.3	165.6	2.427	101	50 - 130	159.6	6.61	30	
Benzo(b)fluoranthene	180.5	3.3	165.6	3.029	107	50 - 137	161.8	10.9	30	
Benzo(k)fluoranthene	181.8	3.3	165.6	1.08	109	50 - 143	168.2	7.75	30	
Chrysene	174	3.3	165.6	3.729	103	50 - 130	162.5	6.83	30	
Dibenz(a,h)anthracene	164.7	3.3	165.6	0	99.4	50 - 130	149.5	9.66	30	
Fluoranthene	172.7	3.3	165.6	5.255	101	50 - 131	177.1	2.52	30	
Fluorene	169.3	3.3	165.6	1.073	102	50 - 125	168.8	0.269	30	
Indeno(1,2,3-cd)pyrene	175.5	3.3	165.6	0	106	45 - 139	161.7	8.23	30	
Naphthalene	156.7	3.3	165.6	5.555	91.3	50 - 125	131	17.9	30	
Pyrene	204.3	3.3	165.6	6.305	120	45 - 130	187	8.85	30	
Surr: 2-Fluorobiphenyl	157.4	0	165.6	0	95.0	43 - 125	148.4	5.92	30	
Surr: 4-Terphenyl-d14	182.6	0	165.6	0	110	32 - 125	160.8	12.7	30	
Surr: Nitrobenzene-d5	125.3	0	165.6	0	75.7	37 - 125	114.8	8.77	30	
The following samples were analyzed in this batch:										
HS19051554-01		HS19051554-02		HS19051554-03		HS19051554-04				



Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: R339623 ( 0 )		Instrument: VOA8		Method: VOLATILES BY SW8260C					
<b>MBLK</b>	Sample ID: VBLKS2-060219	Units: ug/Kg		Analysis Date: 02-Jun-2019 20:57					
Client ID:	Run ID: VOA8_339623	SeqNo: 5102367		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	ND	5.0							
Ethylbenzene	ND	5.0							
m,p-Xylene	ND	10							
o-Xylene	ND	5.0							
Toluene	ND	5.0							
Xylenes, Total	ND	5.0							
Surr: 1,2-Dichloroethane-d4	50.62	0	50	0	101	76 - 125			
Surr: 4-Bromofluorobenzene	51.2	0	50	0	102	80 - 120			
Surr: Dibromofluoromethane	50.21	0	50	0	100	80 - 119			
Surr: Toluene-d8	50.93	0	50	0	102	81 - 118			

<b>LCS</b>	Sample ID: VLCSS2-060219	Units: ug/Kg		Analysis Date: 02-Jun-2019 20:11					
Client ID:	Run ID: VOA8_339623	SeqNo: 5102366		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	44.67	5.0	50	0	89.3	75 - 124			
Ethylbenzene	43.89	5.0	50	0	87.8	70 - 123			
m,p-Xylene	87.52	10	100	0	87.5	77 - 125			
o-Xylene	43.65	5.0	50	0	87.3	78 - 122			
Toluene	43.94	5.0	50	0	87.9	76 - 122			
Xylenes, Total	131.2	5.0	150	0	87.4	77 - 128			
Surr: 1,2-Dichloroethane-d4	51.2	0	50	0	102	76 - 125			
Surr: 4-Bromofluorobenzene	50.54	0	50	0	101	80 - 120			
Surr: Dibromofluoromethane	50.14	0	50	0	100	80 - 119			
Surr: Toluene-d8	48.29	0	50	0	96.6	81 - 118			

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: R339623 ( 0 )		Instrument: VOA8		Method: VOLATILES BY SW8260C					
<b>MS</b>		Sample ID: HS19051554-01MS		Units: ug/Kg		Analysis Date: 02-Jun-2019 22:51			
Client ID: S-1 @ 1.5		Run ID: VOA8_339623		SeqNo: 5102372		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	47.01	4.9	49	0	95.9	70 - 130			
Ethylbenzene	43.55	4.9	49	0	88.9	70 - 130			
m,p-Xylene	87.77	9.8	98	0	89.6	70 - 130			
o-Xylene	44.74	4.9	49	0	91.3	70 - 130			
Toluene	44.39	4.9	49	0	90.6	70 - 130			
Xylenes, Total	132.5	4.9	147	0	90.1	70 - 130			
Surr: 1,2-Dichloroethane-d4	54.36	0	49	0	111	70 - 126			
Surr: 4-Bromofluorobenzene	48.84	0	49	0	99.7	70 - 130			
Surr: Dibromofluoromethane	51.03	0	49	0	104	70 - 130			
Surr: Toluene-d8	47.27	0	49	0	96.5	70 - 130			

<b>MSD</b>		Sample ID: HS19051554-01MSD		Units: ug/Kg		Analysis Date: 02-Jun-2019 23:14			
Client ID: S-1 @ 1.5		Run ID: VOA8_339623		SeqNo: 5102373		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	50.43	4.9	49	0	103	70 - 130	47.01	7.02	30
Ethylbenzene	45.75	4.9	49	0	93.4	70 - 130	43.55	4.93	30
m,p-Xylene	92.25	9.8	98	0	94.1	70 - 130	87.77	4.97	30
o-Xylene	47.49	4.9	49	0	96.9	70 - 130	44.74	5.97	30
Toluene	47.41	4.9	49	0	96.8	70 - 130	44.39	6.59	30
Xylenes, Total	139.7	4.9	147	0	95.1	70 - 130	132.5	5.31	30
Surr: 1,2-Dichloroethane-d4	54.16	0	49	0	111	70 - 126	54.36	0.358	30
Surr: 4-Bromofluorobenzene	49.03	0	49	0	100	70 - 130	48.84	0.396	30
Surr: Dibromofluoromethane	50.83	0	49	0	104	70 - 130	51.03	0.39	30
Surr: Toluene-d8	46.93	0	49	0	95.8	70 - 130	47.27	0.722	30

The following samples were analyzed in this batch:									
HS19051554-01		HS19051554-02		HS19051554-03		HS19051554-04			

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: 141571 ( 0 )		Instrument: UV-2450		Method: HEXAVALENT CHROMIUM BY SW7196A						
<b>MBLK</b>	Sample ID: <b>MBLK-141571</b>	Units: <b>mg/kg</b>		Analysis Date: <b>04-Jun-2019 11:55</b>						
Client ID:	Run ID: <b>UV-2450_339743</b>		SeqNo: <b>5105354</b>		PrepDate: <b>03-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	ND	2.00								
<b>LCS</b>	Sample ID: <b>LCS-141571</b>	Units: <b>mg/kg</b>		Analysis Date: <b>04-Jun-2019 11:55</b>						
Client ID:	Run ID: <b>UV-2450_339743</b>		SeqNo: <b>5105353</b>		PrepDate: <b>03-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	10.12	2.00	10	0	101	80 - 120				
<b>MS</b>	Sample ID: <b>HS19051803-01MS</b>	Units: <b>mg/kg</b>		Analysis Date: <b>04-Jun-2019 11:55</b>						
Client ID:	Run ID: <b>UV-2450_339743</b>		SeqNo: <b>5105351</b>		PrepDate: <b>03-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	8.806	1.99	9.961	0	88.4	75 - 125				
<b>MSD</b>	Sample ID: <b>HS19051803-01MSD</b>	Units: <b>mg/kg</b>		Analysis Date: <b>04-Jun-2019 11:55</b>						
Client ID:	Run ID: <b>UV-2450_339743</b>		SeqNo: <b>5105352</b>		PrepDate: <b>03-Jun-2019</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	8.416	1.99	9.972	0	84.4	75 - 125	8.806	4.53	20	
The following samples were analyzed in this batch:										
HS19051554-01			HS19051554-02			HS19051554-03			HS19051554-04	

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**WorkOrder:** HS19051554

**QC BATCH REPORT**

Batch ID: R339930 ( 0 )		Instrument: WetChem_HS		Method: PH SOIL BY SW9045D					
<b>DUP</b>	Sample ID: HS19060136-07DUP	Units: pH Units		Analysis Date: 06-Jun-2019 11:15					
Client ID:	Run ID: WetChem_HS_339930		SeqNo: 5109468		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	8.23	0.100					8.2	0.365	10
Temp Deg C @pH	22.4	0					22.4	0	10

The following samples were analyzed in this batch:

HS19051554-01	HS19051554-02	HS19051554-03	HS19051554-04
---------------	---------------	---------------	---------------

Client: WSP Environment &amp; Energy

Project: Craig 1-7

WorkOrder: HS19051554

## QC BATCH REPORT

Batch ID: R340189 ( 0 )		Instrument: WetChem_HS		Method: LA29B ELECTRICAL CONDUCTIVITY					
DUP	Sample ID: HS19051803-02DUP	Units: mmhos/cm @25° C		Analysis Date: 10-Jun-2019 16:40					
Client ID:	Run ID: WetChem_HS_340189		SeqNo: 5115025		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Electrical Conductivity @ saturation	0.429	0.0100					0.425	0.937	20
Electrical Conductivity, 1:1 aqueous	0.166	0.0100					0.169	1.79	20
Saturation % as decimal	0.388	0					0.399	2.8	20
The following samples were analyzed in this batch:									
HS19051554-01 HS19051554-02 HS19051554-03 HS19051554-04									

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**WorkOrder:** HS19051554

**QC BATCH REPORT**

Batch ID: R340190 ( 0 )		Instrument: Balance1		Method: LA29B SATURATION POINT (AS FRACTION)					
<b>DUP</b>		Sample ID: HS19051803-02DUP		Units: SP as fraction		Analysis Date: 10-Jun-2019 10:00			
Client ID:		Run ID: Balance1_340190		SeqNo: 5115059		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Saturation Point	0.388	0.100					0.399	2.8	30
The following samples were analyzed in this batch:									
HS19051554-01 HS19051554-02 HS19051554-03 HS19051554-04									

**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**WorkOrder:** HS19051554

**QUALIFIERS,  
ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
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/SDL

<b>Acronym</b>	<b>Description</b>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<b>Unit Reported</b>	<b>Description</b>
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter

---

**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

---

<b>Agency</b>	<b>Number</b>	<b>Expire Date</b>
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
Maryland	343, 2018-2019	30-Jun-2019
Arkansas	19-028-0	27-Mar-2020
Texas	TX104704231-19-23	30-Apr-2020



**Client:** WSP Environment & Energy  
**Project:** Craig 1-7  
**Work Order:** HS19051554

**SAMPLE TRACKING**

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19051554-01	S-1 @ 1.5	Login	25/05/2019 10:01:22	LG	SPA120
HS19051554-01	S-1 @ 1.5	Login	25/05/2019 10:01:22	LG	VOA207
HS19051554-01	S-1 @ 1.5	Login	25/05/2019 10:01:22	LG	SPA120
HS19051554-01	S-1 @ 1.5	Login	25/05/2019 10:01:22	LG	J031
HS19051554-01	S-1 @ 1.5	Login	25/05/2019 10:01:22	LG	LF025
HS19051554-02	S-2 @ 1.5	Login	25/05/2019 10:11:00	LG	SPA120
HS19051554-02	S-2 @ 1.5	Login	25/05/2019 10:11:00	LG	VOA207
HS19051554-02	S-2 @ 1.5	Login	25/05/2019 10:11:00	LG	SPA120
HS19051554-02	S-2 @ 1.5	Login	25/05/2019 10:11:00	LG	J031
HS19051554-02	S-2 @ 1.5	Login	25/05/2019 10:11:00	LG	LF025
HS19051554-03	S-3 @ 1.5	Login	25/05/2019 10:11:00	LG	SPA120
HS19051554-03	S-3 @ 1.5	Login	25/05/2019 10:11:00	LG	VOA207
HS19051554-03	S-3 @ 1.5	Login	25/05/2019 10:11:00	LG	SPA120
HS19051554-03	S-3 @ 1.5	Login	25/05/2019 10:11:00	LG	J031
HS19051554-03	S-3 @ 1.5	Login	25/05/2019 10:11:00	LG	LF025
HS19051554-04	S-4 @ 1.5	Login	25/05/2019 10:11:00	LG	SPA120
HS19051554-04	S-4 @ 1.5	Login	25/05/2019 10:11:00	LG	VOA207
HS19051554-04	S-4 @ 1.5	Login	25/05/2019 10:11:00	LG	SPA120
HS19051554-04	S-4 @ 1.5	Login	25/05/2019 10:11:00	LG	J031
HS19051554-04	S-4 @ 1.5	Login	25/05/2019 10:11:00	LG	LF025

## Sample Receipt Checklist

Client Name: WSP Dallas  
Work Order: HS19051554

Date/Time Received: **24-May-2019 09:00**  
Received by: **NDR**

Checklist completed by: Paresh M. Giga 25-May-2019  
eSignature Date

Reviewed by: Bernadette A. Fini 28-May-2019  
eSignature Date

Matrices: **Soil/Water**

Carrier name: **FedEx**

Shipping container/cooler in good condition?  
Custody seals intact on shipping container/cooler?  
Custody seals intact on sample bottles?  
VOA/TX1005/TX1006 Solids in hermetically sealed vials?  
Chain of custody present?  
Chain of custody signed when relinquished and received?  
Samplers name present on COC?  
Chain of custody agrees with sample labels?  
Samples in proper container/bottle?  
Sample containers intact?  
Sufficient sample volume for indicated test?  
All samples received within holding time?  
Container/Temp Blank temperature in compliance?

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	1 Page(s)
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	COC IDs:201322
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Temperature(s)/Thermometer(s):

0.8c U/c IR11

Cooler(s)/Kit(s):

43896

Date/Time sample(s) sent to storage:

5/24/19 20:00

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: Terracores placed in Freezer 5/24/19 @ 10:30am.  
Trip blank logged in on hold.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



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

# Chain of Custody Form

Page 1 of 1

COC ID: 201322

HS19051554


WSP Environment & Energy  
Craig 1-7



Customer Information				Project Information				ALS Project Manager:												
Purchase Order				Project Name	Craig 1-7			A	8260_S (5035/8260 BTEX)											
Work Order				Project Number	Moffat County, CO			B	8015_GRO_S (GRO 5035/8015)											
Company Name	WSP Parsons Brinckerhoff			Bill To Company	WSP Parsons Brinckerhoff			C	8015M_S_LL (8015 DRO/ORO)											
Send Report To	Matthew Boyle			Invoice Attn	Accounts Payable			D	8270_LOW_S (8270 PAHs (13))											
Address	15305 N. Dallas Parkway Suite 300			Address	15305 N. Dallas Parkway Suite 300			E	LA29B SAR (SAR by LA29B)											
City/State/Zip	Addison, TX 75001			City/State/Zip	Addison TX 75001			F	LADNR BA (Total True Barium)											
Phone	(972) -71-5-20			Phone	(972) -71-5-20			G	LADNR-29B - EC (EC by LADNR29B)											
Fax				Fax				H	Metals (6020/7471 11 Metals)											
e-Mail Address	Matthew.Boyle@WSP.com			e-Mail Address	Accountspayable@WSPGroup.com			I	Cr6_S (Hexavalent Cr) & Cr3_S Trivalent Cr											
No.	Sample Description			Date	Time	Matrix	Pres.	# Bottles	J	PH_S (9045 pH)										
1	S-1 @1.5			5-22-19	2:30	Soil	7,8	8	A	B	C	D	E	F	G	H	I	J	Hold	
2	<del>S-1 @1.5</del>					Soil	7,8	8												
3	S-2 @1.5			5-22-19	3:00	Soil	7,8	8												
4	<del>S-2 @1.5</del>					Soil	7,8	8												
5	S-3 @1.5			5-22-19	3:30	Soil	7,8	8												
6	<del>S-3 @1.5</del>					Soil	7,8	8												
7	S-4 @1.5			5-22-19	4:00	Soil	7,8	8												
8	<del>S-4 @1.5</del>					Soil	7,8	8												
9	<del>S-5 @1.5</del>					Soil	7,8	8												
10	<del>S-5 @1.5</del>					Soil	7,8	8												
Sampler(s) Please Print & Sign <i>Matthew Boyle</i> Matthew Boyle				Shipment Method FedEx		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour				Results Due Date:										
Relinquished by: <i>Matthew Boyle</i>		Date: 6-23-19	Time: 1:00	Received by:		Notes: LBG Craig 1-7														
Relinquished by:		Date: 5.24.19	Time: 09.00	Received by (Laboratory): NA		Cooler ID 43896				Cooler Temp. 4.8				QC Package: (Check One Box Below) <input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other						
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):																
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035																				


Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.  
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.  
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

 <b>ALS</b> 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	<b>CUSTODY SEAL</b>		Seal Broken By:
	Date: 5-23-19	Time: 1:00	SM
	Name: M. Boyle	Company: WSP	Date: 05/24/19

43896

MAY 24 2019

 <b>ALS</b> 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	<b>CUSTODY SEAL</b>		Seal Broken By:
	Date: 5-23-19	Time: 1:00	SM
	Name: M. Boyle	Company: WSP	Date: 05/24/19



**Must Deliver Next Business Day  
Time and Temperature Sensitive!**

43896

ORIGIN ID: SGRA (972) 715-2049  
 MATTHEW BOYLE  
 WSP PARSONS BRINCKERHOFF  
 SAN GABRIEL CT

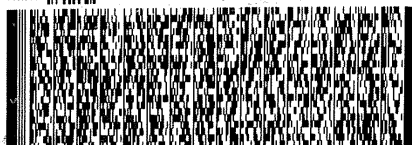
SHIP DATE: 20MAY19  
 ACTWGT: 1.00 LB MAN  
 CAD: 300130/CAFE3211  
 DIMS: 26x14x14 IN

FORT WORTH, TX 76118  
 UNITED STATES US

**CLIENT SERVICES**  
**ALS LABORATORY GROUP**  
**10450 STANCLIFF ROAD**  
**SUITE 210**  
**HOUSTON TX 77099**

(281) 530-5656  
 REF: CRAIG1-7 MOFFAT COUNTY CO -BO 65549 - CG

RMA: |||||



**FedEx  
Express**



**FedEx**  
 TRK# 4809 7833 9796  
 0221

**FRI - 24 MAY 10:30A**  
**PRIORITY OVERNIGHT**

**AB SGRA**

**77099**  
 TX-US IAH

