



April 19, 2018

Ms. Crystal Weaver/Mr. Mike Bratcher
New Mexico Oil Conservation Division – District 2
811 S. First Street
Artesia, NM 88210

**RE: Release Remediation Work Plan
Aikman SWD Facility
Eddy County, New Mexico
NMOCD Case Number – 2RP-4648**

Ms. Weaver/Mr. Bratcher:

WSP USA, Inc. (WSP) was engaged by Percussion Petroleum, LLC (Percussion) to perform soil assessment and remediation services at the Aikman Saltwater Disposal Well (SWD) facility in Eddy County, New Mexico (Figure 1). WSP's preliminary soil assessment results and proposed remediation activities consist of the following:

Incident Description

On February 27, 2018 approximately 560 barrels of produced water was released from the Aikman battery and approximately 550 barrels was recovered. A shut off valve malfunctioned and the tanks were overfilled causing spillage from the top of the tanks through the thief hatch, the release was contained to the pad site. The incident was reported to the Mr. Mike Bratcher at 11:00 AM Mountain Standard Time on February 27, 2018.

Action Taken

Percussion's initial response included utilizing a vacuum truck to remove free fluids and scraping the top layer of soil with a backhoe and stockpiled on site. The soil will be disposed of in accordance with local, state, and federal regulations. On March 7, 2018 WSP staff collected soil samples from the impacted area to preliminarily delineate the vertical and horizontal extent of the spill. Soil samples were collected utilizing a decontaminated hand auger and gloved hands. Soil was placed in clean jars supplied by the laboratory, placed in a cooler on ice and shipped to ALS Laboratory in Houston, Texas for analysis for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX) and chlorides. Based on the site ranking criteria and

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corresponding action levels, WSP identified elevated levels of TPH in the upper 1.5 feet of three sample locations, BTEX in the upper 0.5 feet of one sample location, and elevated levels of chlorides in the upper 1.5 feet of three sample locations. The analytical results have been summarized in the attached Table 1 and the attached Figure 2 identifies the sample locations.

Background Information

The Aikman Saltwater Disposal Well facility is located 15 miles south-southeast of Artesia, New Mexico. The legal location for the site is Section 27, Township 19S, Range 25E in Eddy County, New Mexico. The attached Figure 1 depicts the facility's location.

According to the United States Department of Agricultural, Natural Resource Conservation Service, Web Soil Survey, the soil in the vicinity of the facility is Reagan-Upton association, 0 to 9 percent slopes. Reagan-Upton soils are described as loams. The New Mexico State Engineer's office identified the nearest water well, with groundwater depth information available, to be located in Section 27, Township 19S, Range 25E, 3,500 feet to the north of the Aikman facility. The depth to groundwater was identified at 60 feet below ground surface (bgs). The referenced groundwater data has been included in the appendix.

WSP utilized the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Spills, Leaks and Releases (1993) in preparing this work plan. Based on the site inspection the impacts would be classified as Unsaturated Contaminated Soils. Following the ranking criteria in the Guide, WSP identified the facility with a depth to ground water of 60 feet, well head protection area greater than 1,000 feet from a water source and greater than 200 feet from a private domestic water source, and greater than 1,000 feet to a surface body of water. The total score for the facility is 10, the correlating action levels for this ranking score are 10 parts per million (ppm) for benzene, 50 ppm for toluene, ethylbenzene, and total xylenes, and 1,000 ppm for TPH. A chloride level of 600 ppm was used as an action level.

Summary and Conclusion

According to the New Mexico State Engineer's Database groundwater is located between 50 and 100 feet bgs. Preliminary soil sampling results documented TPH and chloride impacts extending to approximately 1.5 feet bgs. Based on the depth to groundwater and contamination levels detected in the soil, it is unlikely that the impacts will pose a threat to groundwater resources after the proposed remedial actions are complete. In response to the NMOCD's request for a work plan to be submitted, the following remedial activities are proposed:

Proposed Remedial Actions

- Using a backhoe soil will be excavated to a depth of approximately 1.5 bgs;
- Excavated soil will be hauled away for disposal at an approved landfill;
- Per the 1993 Sampling Guidelines, Section III B. Percussion proposes to determine the final soil contaminant concentrations after remediation;
- A final report documenting all field activities and lab reports from the confirmation sampling will be provided to the NMOCD Artesia Office demonstrating that all remedial requirements have been achieved.

If you have any questions or require additional information concerning the proposed plan of action please contact me at (214) 561-7424 or (817) 713-0262.

Sincerely,

A handwritten signature in dark ink, appearing to read "Matthew J. Boyle". The signature is fluid and cursive, with the first name "Matthew" being more prominent.

Matthew Boyle
Sr. Environmental Scientist

A handwritten signature in dark ink, appearing to read "Charles D. Harlan". The signature is cursive and elegant, with the last name "Harlan" being the most distinct part.

Charles D. Harlan, P.G.
Director, Business Development - Environment



Location Coordinates (WGS84):
Latitude: 32.626128° N
Longitude: -104.474464° W

Percussion Petroleum
Aikman SWD
Eddy County, New Mexico

Legend:

 - Site Location

(Source): Google Earth


(Not to Scale)



Site Location Map

WSP Project#: 31401117.002	3/7/2018	Figure 1
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Location Coordinates (WGS84):

Latitude: 32.626128° N

Longitude: -104.474464° W

Percussion Petroleum
Aikman SWD
Eddy County, New Mexico

Legend:

-  Impacted Area
-  Sample Location



(Not to Scale)



Facility Map

WSP Project#: 31401117.002

3/7/2018

Figure 2

Table 1
Summary of Soil Sample Analytical Results

Sample ID	Sample Depth	Sample Date	Parameter								
			Chloride mg/kg	C6-C12 mg/kg	C12-C28 mg/kg	C28-C35 mg/kg	Total TPH mg/kg	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Total Xylene mg/kg
CAS Number			16887-00-6	PHC612	PHCG1028	PHCG2835	PHC635	71-43-2	108-88-3	100-41-4	1330-20-7
NMOCD Action Levels			600				1,000	10	50	50	50
S-1	.5'	3/7/2018	5,600	6,300	16,000	3,100	25,400	14	67	40	68
S-2	.5'	3/7/2018	981	1,300	4,200	930	6,430	7	27	10	18
S-2	1.5'	3/7/2018	678	u	58	u	58	0.19	0.40	0.36	1.10
S-3	.5'	3/7/2018	191	100	270	u	370	u	2.80	2.10	4.30
S-3	1.5'	3/7/2018	180	71	180	u	251	u	2.70	3.10	6.50
S-4	.5'	3/7/2018	2,850	1,100	6,200	1,400	8,700	u	11	12	24
S-4	1.5'	3/7/2018	1,230	55	310	96	461	0.012	1.00	1.50	0.19

U - Not Detected - less than Standard Detection Limit

"Action Level" represents the NMOCD Action Levels.

Bold numbers exhibit concentrations above the Action Levels.



New Mexico Office of the State Engineer Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)			
		(quarters are smallest to largest)		(NAD83 UTM in meters)	
Well Tag	POD Number	Q64 Q16 Q4	Sec Tws Rng	X	Y
RA 03304		1 27 19S 25E		549081	3610973* 

x

Driller License: 62	Driller Company: BEATTY, J.R.
Driller Name: BEATTY, J.R.	

Drill Start Date: 10/13/1954	Drill Finish Date: 10/15/1954	Plug Date:
Log File Date: 11/22/1954	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield:
Casing Size: 7.00	Depth Well: 130 feet	Depth Water: 60 feet

x

Water Bearing Stratifications:	Top	Bottom	Description
	90	100	Sandstone/Gravel/Conglomerate
	103	118	Sandstone/Gravel/Conglomerate

x

Casing Perforations:	Top	Bottom
	90	118

x

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

4/11/18 9:28 PM

POINT OF DIVERSION SUMMARY



10450 Stancliff Rd. Suite 210
Houston, TX 77099
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March 19, 2018

Matthew Boyle
WSP Parsons Brinckerhoff
15305 N. Dallas Parkway
Suite 300
Addison, TX 75001

Work Order: **HS18030634**

Laboratory Results for: **Aikman SWD**

Dear Matthew,

ALS Environmental received 7 sample(s) on Mar 09, 2018 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: JumoKe.Lawal
Bernadette A. Fini
Project Manager

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
Work Order: HS18030634

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18030634-01	S-1 0.5'	Soil		07-Mar-2018 16:00	09-Mar-2018 08:50	☐
HS18030634-02	S-2 0.5'	Soil		07-Mar-2018 16:10	09-Mar-2018 08:50	☐
HS18030634-03	S-2 1.5'	Soil		07-Mar-2018 16:20	09-Mar-2018 08:50	☐
HS18030634-04	S-3 0.5'	Soil		07-Mar-2018 16:30	09-Mar-2018 08:50	☐
HS18030634-05	S-3 1.5'	Soil		07-Mar-2018 16:40	09-Mar-2018 08:50	☐
HS18030634-06	S-4 0.5'	Soil		07-Mar-2018 16:50	09-Mar-2018 08:50	☐
HS18030634-07	S-4 1.5'	Soil		07-Mar-2018 17:00	09-Mar-2018 08:50	☐

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
Work Order: HS18030634

CASE NARRATIVE

GC Semivolatiles by Method TX1005**Batch ID: 126186****Sample ID: HS18030637-05MS**

- MS and MSD are for an unrelated sample

Sample ID: S-1 0.5' (HS18030634-01)

- The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: S-2 0.5' (HS18030634-02)

- The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: S-4 0.5' (HS18030634-06)

- The surrogate recoveries could not be determined due to dilution below the calibration range.

GCMS Volatiles by Method SW8260**Batch ID: R312500**

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

Batch ID: R312569

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

Batch ID: R312622

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

WetChemistry by Method E300**Batch ID: 126242**

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

Client: WSP Parsons Brinckerhoff
 Project: Aikman SWD
 Sample ID: S-1 0.5'
 Collection Date: 07-Mar-2018 16:00

ANALYTICAL REPORT

WorkOrder:HS18030634
 Lab ID:HS18030634-01
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260		Analyst: CL		
Benzene	14		5.0	mg/Kg	1000	16-Mar-2018 22:54
Ethylbenzene	40		5.0	mg/Kg	1000	16-Mar-2018 22:54
m,p-Xylene	50		10	mg/Kg	1000	16-Mar-2018 22:54
o-Xylene	18		5.0	mg/Kg	1000	16-Mar-2018 22:54
Toluene	67		5.0	mg/Kg	1000	16-Mar-2018 22:54
Xylenes, Total	68		5.0	mg/Kg	1000	16-Mar-2018 22:54
Surr: 1,2-Dichloroethane-d4	81.3		70-126	%REC	1000	16-Mar-2018 22:54
Surr: 4-Bromofluorobenzene	88.3		73-120	%REC	1000	16-Mar-2018 22:54
Surr: Dibromofluoromethane	85.8		70-130	%REC	1000	16-Mar-2018 22:54
Surr: Toluene-d8	106		82-121	%REC	1000	16-Mar-2018 22:54
TEXAS TPH BY TX1005		Method:TX1005		Prep:TX1005PR / 14-Mar-2018 Analyst: JLJ		
nC6 to nC12	6,300		950	mg/Kg	20	16-Mar-2018 16:04
>nC12 to nC28	16,000		950	mg/Kg	20	16-Mar-2018 16:04
>nC28 to nC35	3,100		950	mg/Kg	20	16-Mar-2018 16:04
Total Petroleum Hydrocarbon	25,400		950	mg/Kg	20	16-Mar-2018 16:04
Surr: 2-Fluorobiphenyl	0	S	70-130	%REC	20	16-Mar-2018 16:04
Surr: Trifluoromethyl benzene	0	S	70-130	%REC	20	16-Mar-2018 16:04
ANIONS BY E300.0		Method:E300		Prep:E300 / 15-Mar-2018 Analyst: KMU		
Chloride	5,600		100	mg/Kg	20	16-Mar-2018 16:06

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

Client: WSP Parsons Brinckerhoff
 Project: Aikman SWD
 Sample ID: S-2 0.5'
 Collection Date: 07-Mar-2018 16:10

ANALYTICAL REPORT

WorkOrder:HS18030634
 Lab ID:HS18030634-02
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260		Analyst: CL		
Benzene	6.5		0.25	mg/Kg	50	15-Mar-2018 21:33
Ethylbenzene	9.5		0.25	mg/Kg	50	16-Mar-2018 22:07
m,p-Xylene	12		0.50	mg/Kg	50	16-Mar-2018 22:07
o-Xylene	5.5		0.25	mg/Kg	50	16-Mar-2018 22:07
Toluene	27		2.5	mg/Kg	500	16-Mar-2018 23:17
Xylenes, Total	18		0.25	mg/Kg	50	16-Mar-2018 22:07
Surr: 1,2-Dichloroethane-d4	93.1		70-126	%REC	50	15-Mar-2018 21:33
Surr: 1,2-Dichloroethane-d4	86.7		70-126	%REC	500	16-Mar-2018 23:17
Surr: 1,2-Dichloroethane-d4	95.2		70-126	%REC	50	16-Mar-2018 22:07
Surr: 4-Bromofluorobenzene	104		73-120	%REC	50	15-Mar-2018 21:33
Surr: 4-Bromofluorobenzene	90.2		73-120	%REC	500	16-Mar-2018 23:17
Surr: 4-Bromofluorobenzene	89.8		73-120	%REC	50	16-Mar-2018 22:07
Surr: Dibromofluoromethane	90.4		70-130	%REC	50	15-Mar-2018 21:33
Surr: Dibromofluoromethane	94.0		70-130	%REC	50	16-Mar-2018 22:07
Surr: Dibromofluoromethane	86.3		70-130	%REC	500	16-Mar-2018 23:17
Surr: Toluene-d8	109		82-121	%REC	50	15-Mar-2018 21:33
Surr: Toluene-d8	111		82-121	%REC	500	16-Mar-2018 23:17
Surr: Toluene-d8	92.3		82-121	%REC	50	16-Mar-2018 22:07
TEXAS TPH BY TX1005		Method:TX1005		Prep:TX1005PR / 14-Mar-2018 Analyst: JLJ		
nC6 to nC12	1,300		490	mg/Kg	10	14-Mar-2018 18:48
>nC12 to nC28	4,200		490	mg/Kg	10	14-Mar-2018 18:48
>nC28 to nC35	930		490	mg/Kg	10	14-Mar-2018 18:48
Total Petroleum Hydrocarbon	6,430		490	mg/Kg	10	14-Mar-2018 18:48
Surr: 2-Fluorobiphenyl	0	S	70-130	%REC	10	14-Mar-2018 18:48
Surr: Trifluoromethyl benzene	0	S	70-130	%REC	10	14-Mar-2018 18:48
ANIONS BY E300.0		Method:E300		Prep:E300 / 15-Mar-2018 Analyst: KMU		
Chloride	981		49.9	mg/Kg	10	16-Mar-2018 14:09

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

Client: WSP Parsons Brinckerhoff
 Project: Aikman SWD
 Sample ID: S-2 1.5'
 Collection Date: 07-Mar-2018 16:20

ANALYTICAL REPORT

WorkOrder:HS18030634
 Lab ID:HS18030634-03
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260		Analyst: CL		
Benzene	0.19		0.0050	mg/Kg	1	15-Mar-2018 14:34
Ethylbenzene	0.36		0.12	mg/Kg	25	16-Mar-2018 18:39
m,p-Xylene	0.81		0.25	mg/Kg	25	16-Mar-2018 18:39
o-Xylene	0.27		0.12	mg/Kg	25	16-Mar-2018 18:39
Toluene	0.40		0.12	mg/Kg	25	16-Mar-2018 18:39
Xylenes, Total	1.1		0.12	mg/Kg	25	16-Mar-2018 18:39
Surr: 1,2-Dichloroethane-d4	90.8		70-126	%REC	1	15-Mar-2018 14:34
Surr: 1,2-Dichloroethane-d4	93.9		70-126	%REC	25	16-Mar-2018 18:39
Surr: 4-Bromofluorobenzene	97.0		73-120	%REC	1	15-Mar-2018 14:34
Surr: 4-Bromofluorobenzene	93.8		73-120	%REC	25	16-Mar-2018 18:39
Surr: Dibromofluoromethane	95.9		70-130	%REC	1	15-Mar-2018 14:34
Surr: Dibromofluoromethane	91.9		70-130	%REC	25	16-Mar-2018 18:39
Surr: Toluene-d8	108		82-121	%REC	1	15-Mar-2018 14:34
Surr: Toluene-d8	98.4		82-121	%REC	25	16-Mar-2018 18:39
TEXAS TPH BY TX1005		Method:TX1005		Prep:TX1005PR / 14-Mar-2018 Analyst: JLJ		
nC6 to nC12	ND		48	mg/Kg	1	14-Mar-2018 19:17
>nC12 to nC28	58		48	mg/Kg	1	14-Mar-2018 19:17
>nC28 to nC35	ND		48	mg/Kg	1	14-Mar-2018 19:17
Total Petroleum Hydrocarbon	58.0		48	mg/Kg	1	14-Mar-2018 19:17
Surr: 2-Fluorobiphenyl	70.0		70-130	%REC	1	14-Mar-2018 19:17
Surr: Trifluoromethyl benzene	75.7		70-130	%REC	1	14-Mar-2018 19:17
ANIONS BY E300.0		Method:E300		Prep:E300 / 15-Mar-2018 Analyst: KMU		
Chloride	678		49.6	mg/Kg	10	16-Mar-2018 14:24

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

Client: WSP Parsons Brinckerhoff
 Project: Aikman SWD
 Sample ID: S-3 0.5'
 Collection Date: 07-Mar-2018 16:30

ANALYTICAL REPORT

WorkOrder:HS18030634
 Lab ID:HS18030634-04
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260				Analyst: CL
Benzene	ND		0.25	mg/Kg	50	16-Mar-2018 19:03
Ethylbenzene	2.1		0.25	mg/Kg	50	16-Mar-2018 19:03
m,p-Xylene	3.1		0.50	mg/Kg	50	16-Mar-2018 19:03
o-Xylene	1.2		0.25	mg/Kg	50	16-Mar-2018 19:03
Toluene	2.8		0.25	mg/Kg	50	16-Mar-2018 19:03
Xylenes, Total	4.3		0.25	mg/Kg	50	16-Mar-2018 19:03
Surr: 1,2-Dichloroethane-d4	109		70-126	%REC	50	16-Mar-2018 19:03
Surr: 4-Bromofluorobenzene	97.3		73-120	%REC	50	16-Mar-2018 19:03
Surr: Dibromofluoromethane	100		70-130	%REC	50	16-Mar-2018 19:03
Surr: Toluene-d8	117		82-121	%REC	50	16-Mar-2018 19:03
TEXAS TPH BY TX1005		Method:TX1005			Prep:TX1005PR / 14-Mar-2018	Analyst: JLJ
nC6 to nC12	100		49	mg/Kg	1	14-Mar-2018 19:46
>nC12 to nC28	270		49	mg/Kg	1	14-Mar-2018 19:46
>nC28 to nC35	ND		49	mg/Kg	1	14-Mar-2018 19:46
Total Petroleum Hydrocarbon	370		49	mg/Kg	1	14-Mar-2018 19:46
Surr: 2-Fluorobiphenyl	81.3		70-130	%REC	1	14-Mar-2018 19:46
Surr: Trifluoromethyl benzene	95.1		70-130	%REC	1	14-Mar-2018 19:46
ANIONS BY E300.0		Method:E300			Prep:E300 / 15-Mar-2018	Analyst: KMU
Chloride	191		9.89	mg/Kg	2	16-Mar-2018 15:08

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

Client: WSP Parsons Brinckerhoff
 Project: Aikman SWD
 Sample ID: S-3 1.5'
 Collection Date: 07-Mar-2018 16:40

ANALYTICAL REPORT

WorkOrder:HS18030634
 Lab ID:HS18030634-05
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260		Analyst: CL		
Benzene	ND		0.25	mg/Kg	50	16-Mar-2018 19:26
Ethylbenzene	3.1		0.25	mg/Kg	50	16-Mar-2018 19:26
m,p-Xylene	4.7		0.50	mg/Kg	50	16-Mar-2018 19:26
o-Xylene	1.8		0.25	mg/Kg	50	16-Mar-2018 19:26
Toluene	2.7		0.25	mg/Kg	50	16-Mar-2018 19:26
Xylenes, Total	6.5		0.25	mg/Kg	50	16-Mar-2018 19:26
Surr: 1,2-Dichloroethane-d4	95.2		70-126	%REC	50	16-Mar-2018 19:26
Surr: 4-Bromofluorobenzene	88.7		73-120	%REC	50	16-Mar-2018 19:26
Surr: Dibromofluoromethane	95.3		70-130	%REC	50	16-Mar-2018 19:26
Surr: Toluene-d8	117		82-121	%REC	50	16-Mar-2018 19:26
TEXAS TPH BY TX1005		Method:TX1005		Prep:TX1005PR / 14-Mar-2018 Analyst: JLJ		
nC6 to nC12	71		48	mg/Kg	1	14-Mar-2018 20:15
>nC12 to nC28	180		48	mg/Kg	1	14-Mar-2018 20:15
>nC28 to nC35	ND		48	mg/Kg	1	14-Mar-2018 20:15
Total Petroleum Hydrocarbon	251		48	mg/Kg	1	14-Mar-2018 20:15
Surr: 2-Fluorobiphenyl	80.3		70-130	%REC	1	14-Mar-2018 20:15
Surr: Trifluoromethyl benzene	75.2		70-130	%REC	1	14-Mar-2018 20:15
ANIONS BY E300.0		Method:E300		Prep:E300 / 15-Mar-2018 Analyst: KMU		
Chloride	180		9.96	mg/Kg	2	16-Mar-2018 15:22

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

Client: WSP Parsons Brinckerhoff
 Project: Aikman SWD
 Sample ID: S-4 0.5'
 Collection Date: 07-Mar-2018 16:50

ANALYTICAL REPORT

WorkOrder:HS18030634
 Lab ID:HS18030634-06
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260		Analyst: CL		
Benzene	ND		1.2	mg/Kg	250	16-Mar-2018 19:49
Ethylbenzene	12		1.2	mg/Kg	250	16-Mar-2018 19:49
m,p-Xylene	17		2.5	mg/Kg	250	16-Mar-2018 19:49
o-Xylene	6.7		1.2	mg/Kg	250	16-Mar-2018 19:49
Toluene	11		1.2	mg/Kg	250	16-Mar-2018 19:49
Xylenes, Total	24		1.2	mg/Kg	250	16-Mar-2018 19:49
Surr: 1,2-Dichloroethane-d4	87.1		70-126	%REC	250	16-Mar-2018 19:49
Surr: 4-Bromofluorobenzene	84.4		73-120	%REC	250	16-Mar-2018 19:49
Surr: Dibromofluoromethane	85.0		70-130	%REC	250	16-Mar-2018 19:49
Surr: Toluene-d8	96.5		82-121	%REC	250	16-Mar-2018 19:49
TEXAS TPH BY TX1005		Method:TX1005		Prep:TX1005PR / 14-Mar-2018 Analyst: JLJ		
nC6 to nC12	1,100		460	mg/Kg	10	14-Mar-2018 20:44
>nC12 to nC28	6,200		460	mg/Kg	10	14-Mar-2018 20:44
>nC28 to nC35	1,400		460	mg/Kg	10	14-Mar-2018 20:44
Total Petroleum Hydrocarbon	8,700		460	mg/Kg	10	14-Mar-2018 20:44
Surr: 2-Fluorobiphenyl	0	S	70-130	%REC	10	14-Mar-2018 20:44
Surr: Trifluoromethyl benzene	0	S	70-130	%REC	10	14-Mar-2018 20:44
ANIONS BY E300.0		Method:E300		Prep:E300 / 15-Mar-2018 Analyst: KMU		
Chloride	2,850		50.0	mg/Kg	10	16-Mar-2018 15:37

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

Client: WSP Parsons Brinckerhoff
 Project: Aikman SWD
 Sample ID: S-4 1.5'
 Collection Date: 07-Mar-2018 17:00

ANALYTICAL REPORT

WorkOrder:HS18030634
 Lab ID:HS18030634-07
 Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260		Analyst: CL		
Benzene	0.012		0.0050	mg/Kg	1	15-Mar-2018 14:11
Ethylbenzene	1.5		0.12	mg/Kg	25	16-Mar-2018 18:16
m,p-Xylene	2.3		0.25	mg/Kg	25	16-Mar-2018 18:16
o-Xylene	0.19		0.0050	mg/Kg	1	15-Mar-2018 14:11
Toluene	1.0		0.12	mg/Kg	25	16-Mar-2018 18:16
Xylenes, Total	0.19		0.0050	mg/Kg	1	15-Mar-2018 14:11
Surr: 1,2-Dichloroethane-d4	96.2		70-126	%REC	1	15-Mar-2018 14:11
Surr: 1,2-Dichloroethane-d4	94.1		70-126	%REC	25	16-Mar-2018 18:16
Surr: 4-Bromofluorobenzene	102		73-120	%REC	1	15-Mar-2018 14:11
Surr: 4-Bromofluorobenzene	95.4		73-120	%REC	25	16-Mar-2018 18:16
Surr: Dibromofluoromethane	105		70-130	%REC	1	15-Mar-2018 14:11
Surr: Dibromofluoromethane	93.7		70-130	%REC	25	16-Mar-2018 18:16
Surr: Toluene-d8	104		82-121	%REC	1	15-Mar-2018 14:11
Surr: Toluene-d8	98.7		82-121	%REC	25	16-Mar-2018 18:16
TEXAS TPH BY TX1005		Method:TX1005		Prep:TX1005PR / 14-Mar-2018 Analyst: JLJ		
nC6 to nC12	55		44	mg/Kg	1	14-Mar-2018 21:13
>nC12 to nC28	310		44	mg/Kg	1	14-Mar-2018 21:13
>nC28 to nC35	96		44	mg/Kg	1	14-Mar-2018 21:13
Total Petroleum Hydrocarbon	461		44	mg/Kg	1	14-Mar-2018 21:13
Surr: 2-Fluorobiphenyl	74.0		70-130	%REC	1	14-Mar-2018 21:13
Surr: Trifluoromethyl benzene	88.6		70-130	%REC	1	14-Mar-2018 21:13
ANIONS BY E300.0		Method:E300		Prep:E300 / 15-Mar-2018 Analyst: KMU		
Chloride	1,230		49.8	mg/Kg	10	16-Mar-2018 15:51

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

WEIGHT LOG

Client: WSP Parsons Brinckerhoff

Project: Aikman SWD

WorkOrder: HS18030634

Batch ID: 2325 Method: VOLATILES BY SW8260C

SampleID	Container	Sample Wt/Vol	Final Volume	Weight Factor	Container Type
HS18030634-01	1	5.01 (g)	5 (mL)	1	Bulk (5030B)
HS18030634-02	1	5.006 (g)	5 (mL)	1	Bulk (5030B)
HS18030634-03	1	5.011 (g)	5 (mL)	1	Bulk (5030B)
HS18030634-04	1	5.017 (g)	5 (mL)	1	Bulk (5030B)
HS18030634-05	1	5.01 (g)	5 (mL)	1	Bulk (5030B)
HS18030634-06	1	5.004 (g)	5 (mL)	1	Bulk (5030B)
HS18030634-07	1	5.047 (g)	5 (mL)	0.99	Bulk (5030B)

Batch ID: 126186 Method: TEXAS TPH BY TX1005 Prep: TX 1005_S PR

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18030634-01	1	10.52	10 (mL)	0.9506
HS18030634-02	1	10.15	10 (mL)	0.9852
HS18030634-03	1	10.51	10 (mL)	0.9515
HS18030634-04	1	10.24	10 (mL)	0.9766
HS18030634-05	1	10.42	10 (mL)	0.9597
HS18030634-06	1	10.77	10 (mL)	0.9285
HS18030634-07	1	11.32	10 (mL)	0.8834

Batch ID: 126242 Method: ANIONS BY E300.0 Prep: 300_S_PR

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18030634-01	1	5.0015	50 (mL)	9.997
HS18030634-02	1	5.0122	50 (mL)	9.976
HS18030634-03	1	5.036	50 (mL)	9.929
HS18030634-04	1	5.0567	50 (mL)	9.888
HS18030634-05	1	5.0195	50 (mL)	9.961
HS18030634-06	1	5.0019	50 (mL)	9.996
HS18030634-07	1	5.0151	50 (mL)	9.97

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
WorkOrder: HS18030634

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 126186 Test Name : TEXAS TPH BY TX1005 Matrix: Soil						
HS18030634-01	S-1 0.5'	07 Mar 2018 16:00		14 Mar 2018 10:05	16 Mar 2018 16:04	20
HS18030634-02	S-2 0.5'	07 Mar 2018 16:10		14 Mar 2018 10:05	14 Mar 2018 18:48	10
HS18030634-03	S-2 1.5'	07 Mar 2018 16:20		14 Mar 2018 10:05	14 Mar 2018 19:17	1
HS18030634-04	S-3 0.5'	07 Mar 2018 16:30		14 Mar 2018 10:05	14 Mar 2018 19:46	1
HS18030634-05	S-3 1.5'	07 Mar 2018 16:40		14 Mar 2018 10:05	14 Mar 2018 20:15	1
HS18030634-06	S-4 0.5'	07 Mar 2018 16:50		14 Mar 2018 10:05	14 Mar 2018 20:44	10
HS18030634-07	S-4 1.5'	07 Mar 2018 17:00		14 Mar 2018 10:05	14 Mar 2018 21:13	1
Batch ID 126242 Test Name : ANIONS BY E300.0 Matrix: Soil						
HS18030634-01	S-1 0.5'	07 Mar 2018 16:00		15 Mar 2018 10:25	16 Mar 2018 16:06	20
HS18030634-02	S-2 0.5'	07 Mar 2018 16:10		15 Mar 2018 10:25	16 Mar 2018 14:09	10
HS18030634-03	S-2 1.5'	07 Mar 2018 16:20		15 Mar 2018 10:25	16 Mar 2018 14:24	10
HS18030634-04	S-3 0.5'	07 Mar 2018 16:30		15 Mar 2018 10:25	16 Mar 2018 15:08	2
HS18030634-05	S-3 1.5'	07 Mar 2018 16:40		15 Mar 2018 10:25	16 Mar 2018 15:22	2
HS18030634-06	S-4 0.5'	07 Mar 2018 16:50		15 Mar 2018 10:25	16 Mar 2018 15:37	10
HS18030634-07	S-4 1.5'	07 Mar 2018 17:00		15 Mar 2018 10:25	16 Mar 2018 15:51	10
Batch ID R312500 Test Name : VOLATILES BY SW8260C Matrix: Soil						
HS18030634-03	S-2 1.5'	07 Mar 2018 16:20			15 Mar 2018 14:34	1
HS18030634-07	S-4 1.5'	07 Mar 2018 17:00			15 Mar 2018 14:11	1
Batch ID R312569 Test Name : VOLATILES BY SW8260C Matrix: Soil						
HS18030634-02	S-2 0.5'	07 Mar 2018 16:10			15 Mar 2018 21:33	50
Batch ID R312622 Test Name : VOLATILES BY SW8260C Matrix: Soil						
HS18030634-01	S-1 0.5'	07 Mar 2018 16:00			16 Mar 2018 22:54	1000
HS18030634-02	S-2 0.5'	07 Mar 2018 16:10			16 Mar 2018 23:17	500
HS18030634-02	S-2 0.5'	07 Mar 2018 16:10			16 Mar 2018 22:07	50
HS18030634-03	S-2 1.5'	07 Mar 2018 16:20			16 Mar 2018 18:39	25
HS18030634-04	S-3 0.5'	07 Mar 2018 16:30			16 Mar 2018 19:03	50
HS18030634-05	S-3 1.5'	07 Mar 2018 16:40			16 Mar 2018 19:26	50
HS18030634-06	S-4 0.5'	07 Mar 2018 16:50			16 Mar 2018 19:49	250
HS18030634-07	S-4 1.5'	07 Mar 2018 17:00			16 Mar 2018 18:16	25

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: 126186		Instrument: FID-13		Method: TX1005					
MBLK	Sample ID: MBLK-126186	Units: mg/Kg		Analysis Date: 14-Mar-2018 13:57					
Client ID:	Run ID: FID-13_312628	SeqNo: 4476775		PrepDate: 14-Mar-2018		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
nC6 to nC12	ND	50							
>nC12 to nC28	ND	50							
>nC28 to nC35	ND	50							
Total Petroleum Hydrocarbon	ND	50							
Surr: 2-Fluorobiphenyl	17.79	0	25	0	71.1	70 - 130			
Surr: Trifluoromethyl benzene	21.09	0	25	0	84.4	70 - 130			
LCS	Sample ID: LCS-126186	Units: mg/Kg		Analysis Date: 14-Mar-2018 14:26					
Client ID:	Run ID: FID-13_312628	SeqNo: 4476776		PrepDate: 14-Mar-2018		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
nC6 to nC12	237.9	50	250	0	95.2	75 - 125			
>nC12 to nC28	219.6	50	250	0	87.8	75 - 125			
Surr: 2-Fluorobiphenyl	18.99	0	25	0	76.0	70 - 130			
Surr: Trifluoromethyl benzene	24.03	0	25	0	96.1	70 - 130			
LCSD	Sample ID: LCSD-126186	Units: mg/Kg		Analysis Date: 14-Mar-2018 14:55					
Client ID:	Run ID: FID-13_312628	SeqNo: 4476777		PrepDate: 14-Mar-2018		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
nC6 to nC12	237.5	50	250	0	95.0	75 - 125	237.9	0.183	20
>nC12 to nC28	223	50	250	0	89.2	75 - 125	219.6	1.57	20
Surr: 2-Fluorobiphenyl	19.01	0	25	0	76.0	70 - 130	18.99	0.0863	20
Surr: Trifluoromethyl benzene	23.92	0	25	0	95.7	70 - 130	24.03	0.446	20
MS	Sample ID: HS18030637-05MS	Units: mg/Kg		Analysis Date: 14-Mar-2018 15:53					
Client ID:	Run ID: FID-13_312628	SeqNo: 4476779		PrepDate: 14-Mar-2018		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
nC6 to nC12	186.9	41	204.1	0	91.6	75 - 125			
>nC12 to nC28	303.7	41	204.1	158.2	71.3	75 - 125			S
Surr: 2-Fluorobiphenyl	17.04	0	20.41	0	83.5	70 - 130			
Surr: Trifluoromethyl benzene	16.69	0	20.41	0	81.8	70 - 130			

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

Client: WSP Parsons Brinckerhoff

Project: Aikman SWD

WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: 126186		Instrument: FID-13		Method: TX1005						
MSD		Sample ID: HS18030637-05MSD		Units: mg/Kg		Analysis Date: 14-Mar-2018 16:23				
Client ID:		Run ID: FID-13_312628		SeqNo: 4476780		PrepDate: 14-Mar-2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	190.9	38	189.3	0	101	75 - 125	186.9	2.12	20	
>nC12 to nC28	297.7	38	189.3	158.2	73.7	75 - 125	303.7	2	20	S
Surr: 2-Fluorobiphenyl	13.41	0	18.93	0	70.9	70 - 130	17.04	23.8	20	R
Surr: Trifluoromethyl benzene	16.43	0	18.93	0	86.8	70 - 130	16.69	1.55	20	

The following samples were analyzed in this batch:

HS18030634-01	HS18030634-02	HS18030634-03	HS18030634-04
HS18030634-05	HS18030634-06	HS18030634-07	

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

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: R312500		Instrument: VOA5		Method: SW8260					
MBLK	Sample ID: VBLKS1-031518	Units: ug/Kg		Analysis Date: 15-Mar-2018 12:14					
Client ID:	Run ID: VOA5_312500	SeqNo: 4475437		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							
o-Xylene	ND	5.0							
Xylenes, Total	ND	5.0							
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>49.49</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>99.0</i>	<i>76 - 125</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>49.23</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>98.5</i>	<i>83 - 120</i>			
<i>Surr: Dibromofluoromethane</i>	<i>51.48</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>80 - 119</i>			
<i>Surr: Toluene-d8</i>	<i>51.04</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>102</i>	<i>81 - 118</i>			

LCS	Sample ID: VLCSS1-031518	Units: ug/Kg		Analysis Date: 15-Mar-2018 11:28					
Client ID:	Run ID: VOA5_312500	SeqNo: 4475436		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	48.39	5.0	50	0	96.8	75 - 124			
o-Xylene	47.79	5.0	50	0	95.6	78 - 122			
Xylenes, Total	142.8	5.0	150	0	95.2	77 - 128			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>49.46</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>98.9</i>	<i>76 - 125</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>51.18</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>102</i>	<i>83 - 120</i>			
<i>Surr: Dibromofluoromethane</i>	<i>53.11</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>106</i>	<i>80 - 119</i>			
<i>Surr: Toluene-d8</i>	<i>52.12</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>104</i>	<i>81 - 118</i>			

MS	Sample ID: HS18030637-04MS	Units: ug/Kg		Analysis Date: 15-Mar-2018 17:17					
Client ID:	Run ID: VOA5_312500	SeqNo: 4475449		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	60.6	5.0	50	0	121	70 - 130			
o-Xylene	55	5.0	50	0	110	70 - 130			
Xylenes, Total	168.8	5.0	150	0	113	70 - 130			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>47.23</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>94.5</i>	<i>70 - 126</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>48.34</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>96.7</i>	<i>72 - 120</i>			
<i>Surr: Dibromofluoromethane</i>	<i>51.4</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>70 - 130</i>			
<i>Surr: Toluene-d8</i>	<i>52.64</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>105</i>	<i>82 - 121</i>			

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

Client: WSP Parsons Brinckerhoff

Project: Aikman SWD

WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: R312500		Instrument: VOA5		Method: SW8260						
MSD		Sample ID: HS18030637-04MSD		Units: ug/Kg		Analysis Date: 15-Mar-2018 17:40				
Client ID:		Run ID: VOA5_312500		SeqNo: 4475450		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	47.63	5.0	50	0	95.3	70 - 130	60.6	24	30	
o-Xylene	42.9	5.0	50	0	85.8	70 - 130	55	24.7	30	
Xylenes, Total	132.1	5.0	150	0	88.1	70 - 130	168.8	24.4	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>47.34</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>94.7</i>	<i>70 - 126</i>	<i>47.23</i>	<i>0.234</i>	<i>30</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>49.25</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>98.5</i>	<i>72 - 120</i>	<i>48.34</i>	<i>1.88</i>	<i>30</i>	
<i>Surr: Dibromofluoromethane</i>	<i>51.46</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>70 - 130</i>	<i>51.4</i>	<i>0.115</i>	<i>30</i>	
<i>Surr: Toluene-d8</i>	<i>54.39</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>109</i>	<i>82 - 121</i>	<i>52.64</i>	<i>3.27</i>	<i>30</i>	

The following samples were analyzed in this batch: HS18030634-03 HS18030634-07

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

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: R312569		Instrument: VOA8		Method: SW8260					
MBLK	Sample ID: MBLANK-031518	Units: ug/Kg		Analysis Date: 15-Mar-2018 12:42					
Client ID:	Run ID: VOA8_312569	SeqNo: 4475424		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							
Surr: 1,2-Dichloroethane-d4	50.81	0	50	0	102	76 - 125			
Surr: 4-Bromofluorobenzene	46.48	0	50	0	93.0	83 - 120			
Surr: Dibromofluoromethane	51.27	0	50	0	103	80 - 119			
Surr: Toluene-d8	51.81	0	50	0	104	81 - 118			

LCS	Sample ID: VLCSW1-031518	Units: ug/Kg		Analysis Date: 15-Mar-2018 11:59					
Client ID:	Run ID: VOA8_312569	SeqNo: 4475423		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	54.79	5.0	50	0	110	75 - 124			
Surr: 1,2-Dichloroethane-d4	45.48	0	50	0	91.0	76 - 125			
Surr: 4-Bromofluorobenzene	49.3	0	50	0	98.6	83 - 120			
Surr: Dibromofluoromethane	52.51	0	50	0	105	80 - 119			
Surr: Toluene-d8	50.74	0	50	0	101	81 - 118			

LCSD	Sample ID: VLCSW1-031518	Units: ug/Kg		Analysis Date: 15-Mar-2018 13:05					
Client ID:	Run ID: VOA8_312569	SeqNo: 4475425		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	56.49	5.0	50	0	113	75 - 124	54.79	3.05	20
Surr: 1,2-Dichloroethane-d4	44.62	0	50	0	89.2	76 - 125	45.48	1.9	20
Surr: 4-Bromofluorobenzene	44.53	0	50	0	89.1	83 - 120	49.3	10.2	20
Surr: Dibromofluoromethane	52.29	0	50	0	105	80 - 119	52.51	0.402	20
Surr: Toluene-d8	50.11	0	50	0	100	81 - 118	50.74	1.25	20

The following samples were analyzed in this batch: HS18030634-02

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

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: R312622		Instrument: VOA8		Method: SW8260					
MBLK	Sample ID: MBLKW1-031518	Units: ug/Kg		Analysis Date: 16-Mar-2018 15:30					
Client ID:	Run ID: VOA8_312622	SeqNo: 4477262		PrepDate:		DF: 50			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	ND	250							
Ethylbenzene	ND	250							
m,p-Xylene	ND	500							
o-Xylene	ND	250							
Toluene	ND	250							
Xylenes, Total	ND	250							
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>2351</i>	<i>0</i>	<i>2500</i>	<i>0</i>	<i>94.1</i>	<i>76 - 125</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>2199</i>	<i>0</i>	<i>2500</i>	<i>0</i>	<i>88.0</i>	<i>83 - 120</i>			
<i>Surr: Dibromofluoromethane</i>	<i>2348</i>	<i>0</i>	<i>2500</i>	<i>0</i>	<i>93.9</i>	<i>80 - 119</i>			
<i>Surr: Toluene-d8</i>	<i>2651</i>	<i>0</i>	<i>2500</i>	<i>0</i>	<i>106</i>	<i>81 - 118</i>			

LCS	Sample ID: VLCSW1-031518	Units: ug/Kg		Analysis Date: 16-Mar-2018 14:43					
Client ID:	Run ID: VOA8_312622	SeqNo: 4477260		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	58.43	5.0	50	0	117	75 - 124			
Ethylbenzene	53.25	5.0	50	0	107	70 - 123			
m,p-Xylene	105.2	10	100	0	105	77 - 125			
o-Xylene	50.65	5.0	50	0	101	78 - 122			
Toluene	57.41	5.0	50	0	115	76 - 122			
Xylenes, Total	155.9	5.0	150	0	104	77 - 128			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>51.51</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>76 - 125</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>42.11</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>84.2</i>	<i>83 - 120</i>			
<i>Surr: Dibromofluoromethane</i>	<i>50.55</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>101</i>	<i>80 - 119</i>			
<i>Surr: Toluene-d8</i>	<i>52.76</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>106</i>	<i>81 - 118</i>			

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

Client: WSP Parsons Brinckerhoff

Project: Aikman SWD

WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: R312622		Instrument: VOA8		Method: SW8260					
LCSD		Sample ID: VLCSDW1-031518		Units: ug/Kg		Analysis Date: 16-Mar-2018 15:06			
Client ID:		Run ID: VOA8_312622		SeqNo: 4477261		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	53.13	5.0	50	0	106	75 - 124	58.43	9.51	20
Ethylbenzene	51.18	5.0	50	0	102	70 - 123	53.25	3.97	20
m,p-Xylene	98.22	10	100	0	98.2	77 - 125	105.2	6.87	20
o-Xylene	47.37	5.0	50	0	94.7	78 - 122	50.65	6.7	20
Toluene	52.93	5.0	50	0	106	76 - 122	57.41	8.12	20
Xylenes, Total	145.6	5.0	150	0	97.1	77 - 128	155.9	6.81	20
Surr: 1,2-Dichloroethane-d4	45.88	0	50	0	91.8	76 - 125	51.51	11.6	20
Surr: 4-Bromofluorobenzene	43.25	0	50	0	86.5	83 - 120	42.11	2.69	20
Surr: Dibromofluoromethane	44.5	0	50	0	89.0	80 - 119	50.55	12.7	20
Surr: Toluene-d8	49.33	0	50	0	98.7	81 - 118	52.76	6.71	20

The following samples were analyzed in this batch:

HS18030634-01	HS18030634-02	HS18030634-03	HS18030634-04
HS18030634-05	HS18030634-06	HS18030634-07	

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

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: 126242		Instrument: ICS2100		Method: E300						
MBLK	Sample ID: MBLK-126242	Units: mg/Kg		Analysis Date: 16-Mar-2018 12:57						
Client ID:		Run ID: ICS2100_312645		SeqNo: 4477161	PrepDate: 15-Mar-2018	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	5.00								
LCS	Sample ID: LCS-126242	Units: mg/Kg		Analysis Date: 16-Mar-2018 13:11						
Client ID:		Run ID: ICS2100_312645		SeqNo: 4477162	PrepDate: 15-Mar-2018	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	213.2	5.00	200	0	107	90 - 110				
LCSD	Sample ID: LCSD-126242	Units: mg/Kg		Analysis Date: 16-Mar-2018 13:26						
Client ID:		Run ID: ICS2100_312645		SeqNo: 4477163	PrepDate: 15-Mar-2018	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	202.5	5.00	200	0	101	90 - 110	213.2	5.15	20	
MS	Sample ID: HS18030637-05MS	Units: mg/Kg		Analysis Date: 16-Mar-2018 16:27						
Client ID:		Run ID: ICS3K2_312647		SeqNo: 4477186	PrepDate: 15-Mar-2018	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	100.8	4.96	99.23	7.847	93.7	75 - 125				
MS	Sample ID: HS18030634-01MS	Units: mg/Kg		Analysis Date: 16-Mar-2018 16:20						
Client ID: S-1 0.5'		Run ID: ICS2100_312645		SeqNo: 4477173	PrepDate: 15-Mar-2018	DF: 20				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	7560	99.1	1982	5599	98.9	75 - 125				
MSD	Sample ID: HS18030637-05MSD	Units: mg/Kg		Analysis Date: 16-Mar-2018 17:32						
Client ID:		Run ID: ICS3K2_312647		SeqNo: 4477482	PrepDate: 15-Mar-2018	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	102	4.99	99.85	7.847	94.3	75 - 125	100.8	1.14	20	

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

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
WorkOrder: HS18030634

QC BATCH REPORT

Batch ID: 126242		Instrument: ICS2100		Method: E300	
MSD	Sample ID: HS18030634-01MSD	Units: mg/Kg		Analysis Date: 16-Mar-2018 16:35	
Client ID: S-1 0.5'	Run ID: ICS2100_312645		SeqNo: 4477174	PrepDate: 15-Mar-2018	DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual

Chloride	7639	99.7	1993	5599	102	75 - 125	7560	1.04	20
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The following samples were analyzed in this batch:

HS18030634-01	HS18030634-02	HS18030634-03	HS18030634-04
HS18030634-05	HS18030634-06	HS18030634-07	

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

Client: WSP Parsons Brinckerhoff
Project: Aikman SWD
WorkOrder: HS18030634

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	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

Acronym	Description
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

Unit Reported	Description
mg/Kg	Milligrams per Kilogram

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	17-027-0	27-Mar-2018
California	2919 2016-2018	31-Jul-2018
Illinois	004112	09-May-2018
Kentucky	123043	30-Apr-2018
Louisiana	03087 2017-2017	30-Jun-2018
North Dakota	R193 2017-2017	30-Apr-2018
Oklahoma	2017-088	31-Aug-2018
Texas	T104704231-17-19	30-Apr-2018
North Carolina	624-2018	31-Dec-2018

Sample Receipt Checklist

Client Name: LBG Addison Texas

Date/Time Received: **09-Mar-2018 08:50**

Work Order: HS18030634

Received by: **PJM**Checklist completed by: Paresh M. Giga
eSignature13-Mar-2018
DateReviewed by: Bernadette A. Fini
eSignature14-Mar-2018
DateMatrices: **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 ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☒	N/A ☐
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	

Temperature(s)/Thermometer(s):

1.0c/0.4c U/C

IR25

Cooler(s)/Kit(s):

43174

Date/Time sample(s) sent to storage:

3/9/18 19:00

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:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Environmental

Everett, WA
+1 425 356 2600

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 141070

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information		Project Information		Parameter/Method Request for Analysis													
Purchase Order		Project Name	Pikman SWD	A	TRH												
Work Order		Project Number		B	BTEX												
Company Name	WSP USA INC	Bill To Company		C	Lnlorides												
Send Report To	Matthew Boyle	Invoice Attn		D													
Address	2777 N STEMMONS SUITE 1100	Address		E													
City/State/Zip	Dallas TX 75207	City/State/Zip		F													
Phone	817 713 0262	Phone		G													
Fax		Fax		H													
e-Mail Address	Matthew.Boyle@wsp.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	S-1 0.5'	3-7-18	4:00	Soil	Ice	1	/	/	/								
2	S-2 0.5'	3-7-18	4:00			1											
3	S-2 1.5'	3-7-18	4:00			1											
4	S-3 0.5'		4:30			1											
5	S-3 1.5'		4:40			1											
6	S-4 0.5'		4:50			1											
7	S-4 1.5'		5:00			1											
8																	
9																	
10																	

Sampler(s) Please Print & Sign Matthew Boyle		Shipment Method FedEx		Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour				Results Due Date:	
Relinquished by:	Date: 3-8-18	Time: 7:50	Received by:	Notes:					
Relinquished by:	Date: 3-9-18	Time: 8:50	Received by (Laboratory): PM	Cooler ID	Cooler Temp	QC Package: (Check One Box Below)			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	43174	1.0C	☐ Level II Std QC ☐ Level III Std QC/Raw Date ☐ Level IV SW846/CLP ☐ Other			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035				IR 25	CF-0.6				

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.

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 ALS Environmental 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL		Seal Broken By:
	Date: 3-8-18	Time: 2:50	SM
	Name: Matt Keyte		Date: 03/09/18
	Company: ASP		

43174 MAR 09 2018

TO SHIPPING DEPT ALS LABORATORY GROUP 10450 STANCLIFF RD SUITE 210 HOUSTON TX 77099 (281) 530-5656 REF: DANIELLE - RETURN SAMPLES RMA:		43174 
FedEx TRK# 6786 7205 2100 0221	RETURNING MON - SAT FRI - 09 MAR 10:30A PRIORITY OVERNIGHT 77099 TX-US IAH	
AB SGRA 		