October 10, 2018

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

RE: Closure Request
Morris Boyd State Com. #4H
Eddy County, New Mexico
2RP-4894-0

Ms. Pruett/Mr. Bratcher:

WSP USA, Inc. (WSP) was engaged by Percussion Petroleum, LLC (Percussion) to perform soil assessment and remediation services at the Morris Boyd State Com #4H facility in Eddy County, New Mexico (Figure 1). The facility was remediated within 90 days and WSP is requesting closure on behalf of Percussion under the updated "Spill Rule" (19.15.29 NMAC). WSP's preliminary soil assessment results, remediation activities, and post remediation assessment results are as follows:

INCIDENT DESCRIPTION

On June 10, 2018, approximately 250 barrels of produced water was released at the Morris Boyd State Com #4H well pad. All fluid was contained on location with no impacts to any nearby watercourses or receptors. During the freshwater tank emptying process the #10 brine tank was mistaken as a freshwater tank and emptied to the surface.

BACKGROUND INFORMATION

The Morris Boyd State Com #4H well pad is located 14 miles south of Artesia, New Mexico. The legal location for the site is Section 23, Township 19S, Range 25E in Eddy County, New Mexico. The attached Figure 1 depicts the facility's location.

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Suite 1600
Dallas, TX 75207

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wsp.com

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 loam, 0 to 9 percent slopes and Pima silt loam, 0 to 1 percent slopes. Reagan-Upton association soils and Pima silt loams are described as loams from the surface to greater than six-feet in depth. The United States Geological Survey (USGS) National Water Information Service (NWIS) identified the nearest water well, with groundwater depth information available, to be located in Section 22, Township 19S, Range 25E, 5,342 feet to the west of the facility. The depth to groundwater was identified at 19 feet below ground surface (bgs). The referenced groundwater data has been included in the appendix.

ACTION TAKEN

Percussion's initial response included containing the fluid on location. On July 12, 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 chlorides. Based on the site ranking criteria and corresponding action levels, WSP identified elevated levels of chlorides in the upper 0.5 feet of four sample locations on the pad site, and a maximum depth of 1 foot at sample location 1 (S-1), which was nearest the release point. The pre-remediation analytical results have been summarized in the attached Table 1 and the attached Figure 2 identifies the sample locations. As part of the immediate response, surface soils were scraped and placed on plastic and covered on-site. Percussion excavated the top 1.5 feet of the impacted area, an area approximately 50 feet wide by 100 feet in length. The soils were transported to R360 landfill in Lea County for disposal. Following the excavation, WSP collected additional soil samples.

POST REMEDIATION SAMPLING RESULTS

On October 2, 2018 WSP staff collected soil samples from the impacted area to confirm the effectiveness of the remediation efforts by Percussion. WSP collected samples from five spots within the excavation and from each sidewall. The results for the sampling event have been summarized in Table 1 and the sampling locations have been identified on Figure 3. WSP utilized the New Mexico Oil Conservation Division (NMOCD) updated "Spill Rule" (19.15.29 NMAC) in preparing this closure request. Based on the site inspection, the impacts would be classified as Unsaturated Contaminated Soils. Following the ranking criteria, WSP identified the facility with a depth to ground water of 19 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. According to Table 1 of the rule, a chloride level of 600 ppm was used as an action level, 100 ppm for total petroleum hydrocarbons (TPH) and 50 for benzene, toluene, ethylbenzene and total xylenes (BTEX).

SUMMARY and CONCLUSIONS

The post remediation analytical results identified all soil samples were found to be less than 600 ppm for chlorides, 100 ppm for TPH and 50 for BTEX. Based on the analytical results, WSP is requesting closure on Percussion behalf for this release, 2RP-4894-0.

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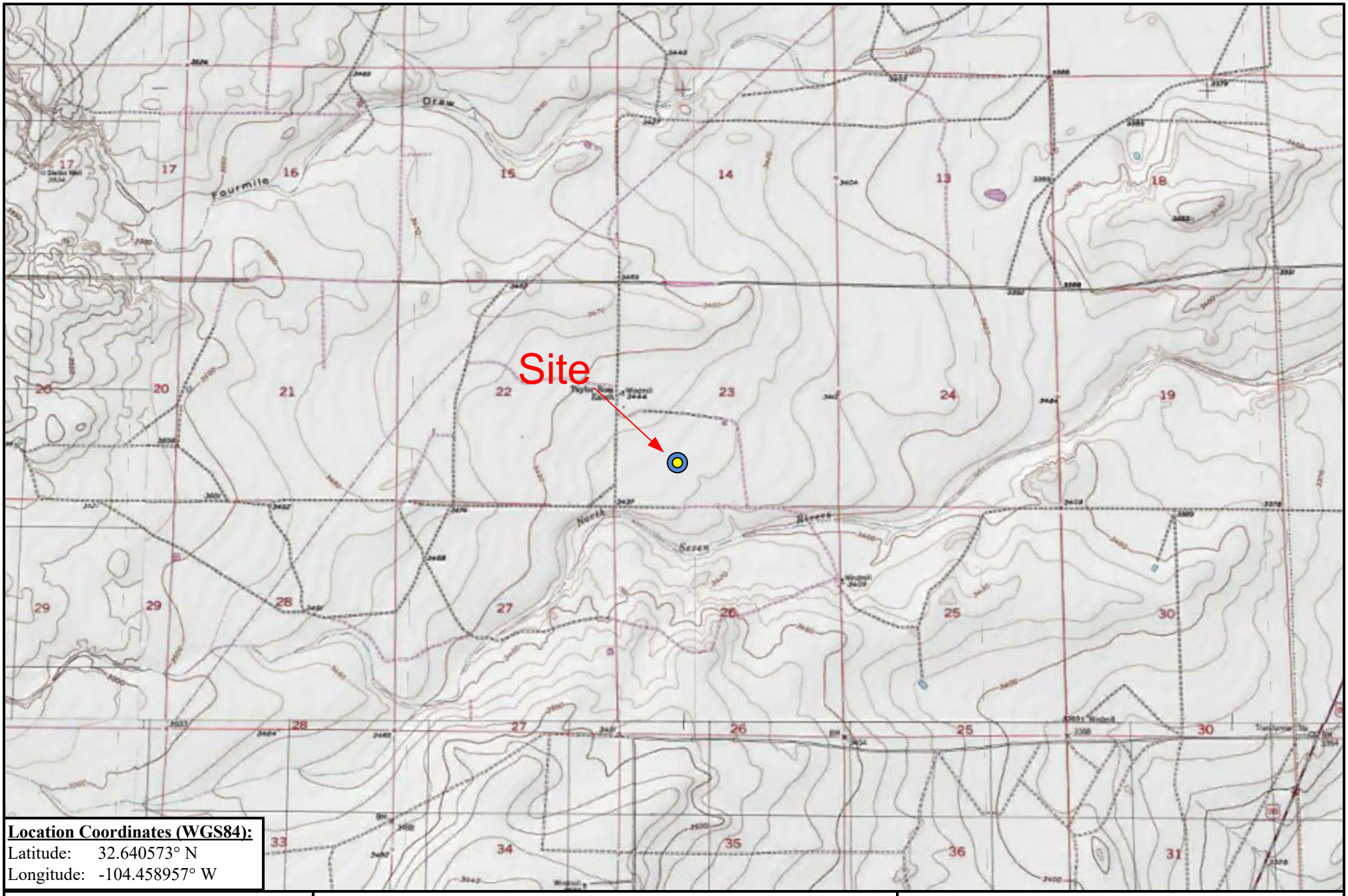
If you have any questions or require additional information concerning the proposed plan of action, please contact Matthew Boyle at (214) 561-7424 or (817) 713-0262.

Sincerely,

Matthew Boyle
Sr. Environmental Scientist

Charles D. Harlan, P.G.
Director, Business Development – Water & Environment
TX/Mountain Region



Location Coordinates (WGS84):
Latitude: 32.640573° N
Longitude: -104.458957° W

Percussion Petroleum
Morris Boyd State Com # 4H
Eddy County, New Mexico

Legend:

- Site Location

(Source): Google Earth

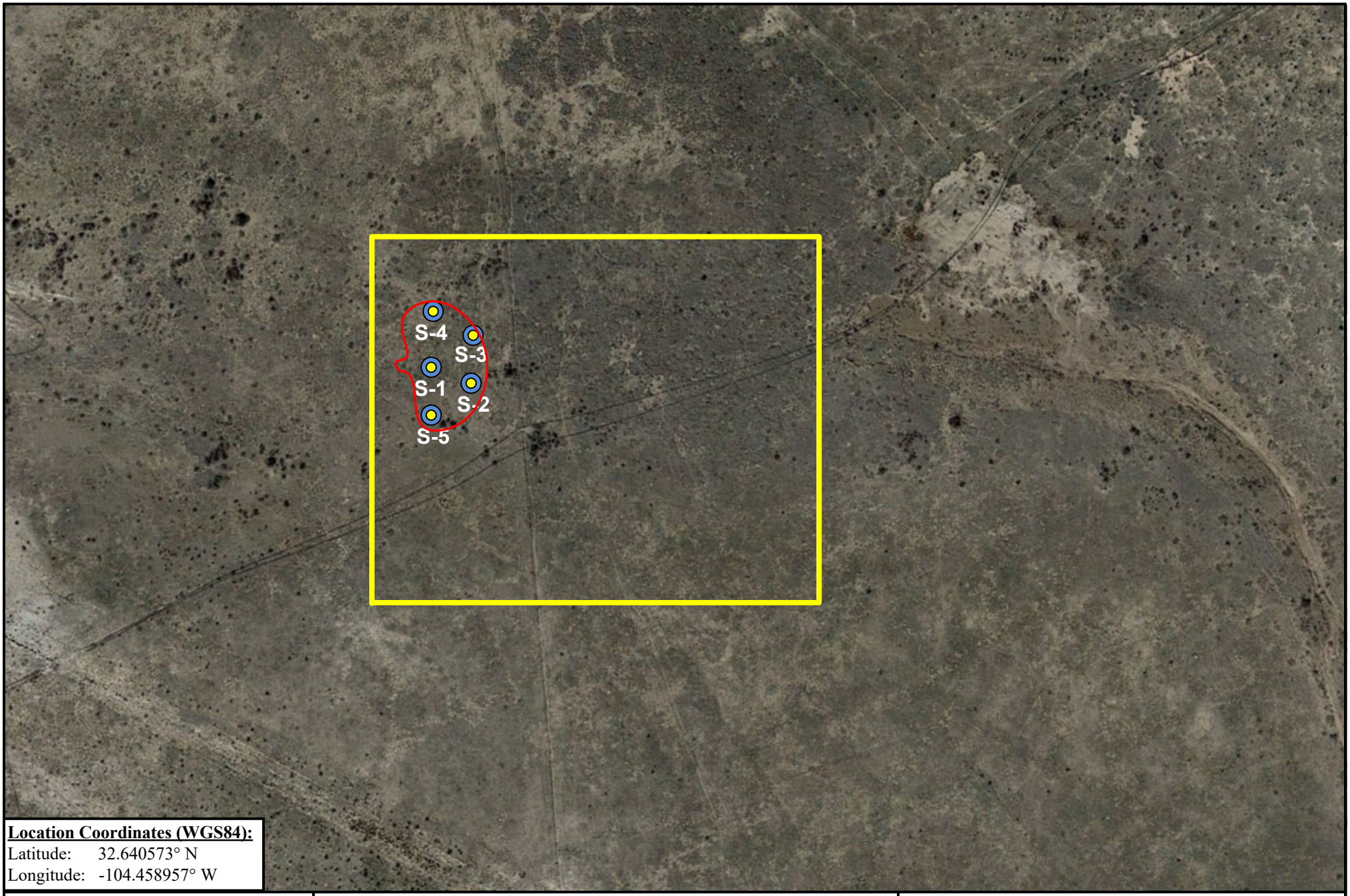
N

(Not to Scale)

WSP

Site Location Map

WSP Project#: 31401117.010	8/16/2018	Figure 1



Location Coordinates (WGS84):
Latitude: 32.640573° N
Longitude: -104.458957° W

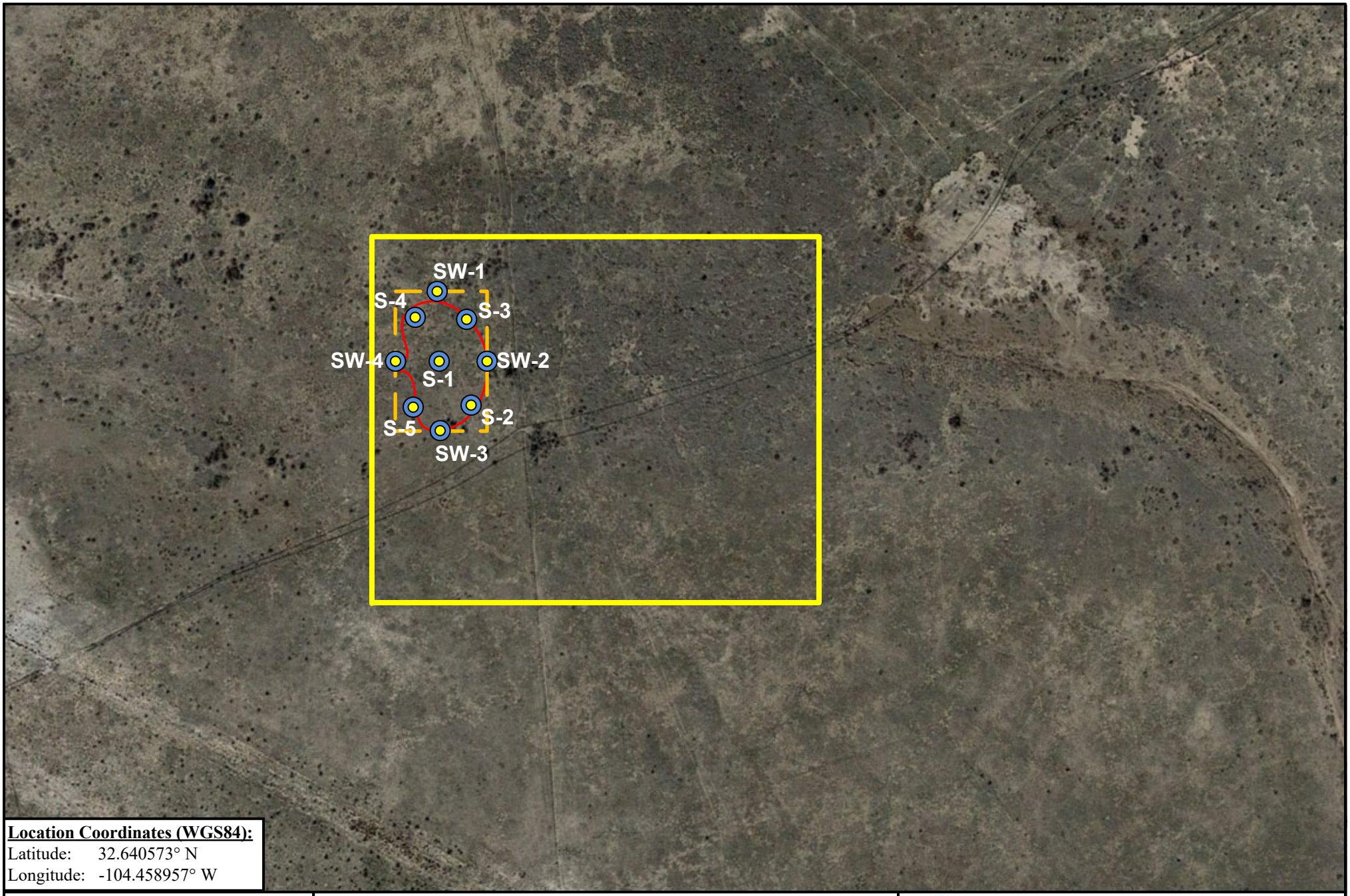
Percussion Petroleum
Morris Boyd State Com # 4H
Eddy County, New Mexico

Legend:
- Well Pad Boundary
- Impacted Area
- Sample Location

N
(1"=35')

Pre-Remediation Sample Location Map

WSP Project#: 31401117.010	8/16/2018	Figure 2



Location Coordinates (WGS84):
Latitude: 32.640573° N
Longitude: -104.458957° W

Percussion Petroleum
Morris Boyd State Com # 4H
Eddy County, New Mexico

Legend:
- Well Pad Boundary
- Impacted Area
- Excavated Area
- Sample Location

N
(1"=35')

Post Remediation Sample Location Map

WSP Project#: 31401117.010	8/16/2018	Figure 3

Table 1

Summary of Soil Sample Analytical Results

Sample ID	Sample Depth	Sample Date	Parameter							
			Chloride mg/kg	TPH-GRO	TPH-DRO	TPH-ORO	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Total Xylene mg/kg
CAS Number			16887-00-6	PHC612	PHCG1028	PHCG2835	71-43-2	108-88-3	100-41-4	1330-20-7
PCLs for Soil to GW			600	100			10	50		
S-1	Surface	7/10/2018	**43,600**	Not Analyzed for Pre-Remediation Sampling Event						
S-1	1'	7/10/2018	54							
S-1	2'	7/10/2018	128							
S-2	Surface	7/10/2018	**6,260**							
S-2	1'	7/10/2018	**808**							
S-2	2'	7/10/2018	457							
S-3	Surface	7/10/2018	**7,790**							
S-3	1'	7/10/2018	U							
S-4	Surface	7/10/2018	**647**							
S-4	1'	7/10/2018	27.6							
S-5	1'	7/10/2018	13.9							
S-1	2'	10/2/2018	u	u	u	3.7	u	u	u	u
S-1	3'	10/2/2018	u	u	2.3	5.7	u	u	u	u
S-2	2'	10/2/2018	u	u	u	u	u	u	u	u
S-2	3'	10/2/2018	u	u	u	3.4	u	u	u	u
S-3	2'	10/2/2018	u	u	11	31	u	u	u	u
S-3	3'	10/2/2018	u	u	u	5.8	u	u	u	u
S-4	2'	10/2/2018	u	u	u	4.5	u	u	u	u
S-4	3'	10/2/2018	u	u	2.2	5.3	u	u	u	u
S-5	1.5'	10/2/2018	553	u	u	4.2	u	u	u	u
SW-1	1'	10/2/2018	u	u	u	u	u	u	u	u
SW-2	1'	10/2/2018	9	u	u	u	u	u	u	u
SW-3	1'	10/2/2018	104	u	1.9	16	u	u	u	u
SW-4	1'	10/2/2018	120	u	u	5.8	u	u	u	u

U - Not Detected - less than Standard Detection Limit, Bold numbers indicate results above action levels

PHOTOGRAPHIC LOG		
Percussion Petroleum	**Morris Boyd 4H**	**WSP Project #: 31401117.010**

Photo No.	**Date**
1	October 2, 2018

Excavation

Photo No.	**Date**
2	October 2, 2018

Excavation west wall

PHOTOGRAPHIC LOG		
Percussion Petroleum	**Morris Boyd 4H**	**WSP Project #: 31401117.010**

Photo No.	**Date**
3	October 2, 2018

Excavation north wall

Photo No.	**Date**
4	October 2, 2018

Excavation east wall

National Water Information System: Web Interface

Click to hideNews Bulletins

- Please see news on new formats
- Full News

USGS 323842104283501 19S.25E.22.31430

Available data for this site SUMMARY OF ALL AVAILABLE DATA GO

Well Site

DESCRIPTION:

Latitude 32°38'42", Longitude 104°28'35" NAD27
Eddy County, New Mexico
Well depth: 180 feet
Land surface altitude: 3,463 feet above NAVD88.
Well completed in "Alluvium, Bolson Deposits and Other Surface Deposits" (110AVMB) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1955-01-04	2015-01-13	19
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

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Questions about sites/data?
Feedback on this web site

Automated retrievals
Help
Data Tips
Explanation of terms
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Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey

Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=323842104283501

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2018-10-10 21:46:52 EDT
0.35 0.32 caww01

Eddy Area, New Mexico

PM—Pima silt loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 1w56
Elevation: 600 to 4,200 feet
Mean annual precipitation: 8 to 25 inches
Mean annual air temperature: 60 to 70 degrees F
Frost-free period: 195 to 290 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Pima and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pima

Setting

Landform: Alluvial fans, alluvial flats, flood plains
Landform position (three-dimensional): Rise, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Alluvium

Typical profile

H1 - 0 to 3 inches: silt loam
H2 - 3 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: High (about 11.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: Bottomland (R042XC017NM)
Hydric soil rating: No

Minor Components

Reagan

Percent of map unit:
Ecological site: Loamy (R042XC007NM)

Hydric soil rating: No

Dev

Percent of map unit:
Ecological site: Bottomland (R042XC017NM)
Hydric soil rating: No

RE—Reagan-Upton association, 0 to 9 percent slopes

Map Unit Setting

National map unit symbol: 1w5d
Elevation: 1,100 to 5,400 feet
Mean annual precipitation: 6 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 180 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Reagan and similar soils: 70 percent
Upton and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reagan

Setting

Landform: Fan remnants, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: Loamy (R070DY153NM)
Hydric soil rating: No

Description of Upton

Setting

Landform: Ridges, fans
Landform position (three-dimensional): Side slope, rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 13 inches: gravelly loam
H3 - 13 to 21 inches: cemented
H4 - 21 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 75 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Shallow Loamy (R070DY159NM)
Hydric soil rating: No

Minor Components

Pima

Percent of map unit:
Ecological site: Bottomland (R042XC017NM)
Hydric soil rating: No

Atoka

Percent of map unit:
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

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July 25, 2018

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

Work Order: **HS18071108**

Laboratory Results for: **Morris Boyd**

Dear Matthew,

ALS Environmental received 11 sample(s) on Jul 24, 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 Environment & Energy
Project: Morris Boyd
Work Order: HS18071108

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18071108-01	S-1 1'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-02	S-1 2'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-03	S-1 0'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-04	S-2 0'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-05	S-2 1'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-06	S-3 0'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-07	S-3 1'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-08	S-4 0'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-09	S-4 1'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-10	S-5 1'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐
HS18071108-11	S-2 2'	Soil		12-Jul-2018 00:00	24-Jul-2018 09:00	☐

Client: WSP Environment & Energy **CASE NARRATIVE**
Project: Morris Boyd
Work Order: HS18071108

Work Order Comments

- Extra sample received not on chain S-2 2'. Per client logged in for analysis.

WetChemistry by Method E300

Batch ID: 130769

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-1 1'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-01
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**54.2**		**4.98**	**mg/Kg**	1	25-Jul-2018 05:40

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-1 2'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-02
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**128**		**4.91**	**mg/Kg**	1	25-Jul-2018 06:45

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-1 0'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-03
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**43,600**		**982**	**mg/Kg**	200	25-Jul-2018 07:06

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-2 0'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-04
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**6,260**		**98.9**	**mg/Kg**	20	25-Jul-2018 07:28

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-2 1'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-05
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**808**		**24.9**	**mg/Kg**	5	25-Jul-2018 07:50

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-3 0'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-06
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**7,790**		**99.8**	**mg/Kg**	20	25-Jul-2018 08:11

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-3 1'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-07
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	ND		4.97	mg/Kg	1	25-Jul-2018 08:33

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-4 0'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-08
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**647**		**24.8**	**mg/Kg**	5	25-Jul-2018 09:38

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-4 1'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-09
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**27.6**		**4.94**	**mg/Kg**	1	25-Jul-2018 10:00

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-5 1'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-10
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**13.9**		**4.95**	**mg/Kg**	1	25-Jul-2018 10:22

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-2 2'
Collection Date: 12-Jul-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18071108
Lab ID:HS18071108-11
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 24-Jul-2018		Analyst: KMU
Chloride	**457**		**24.9**	**mg/Kg**	5	25-Jul-2018 10:43

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

WEIGHT LOG

Client: WSP Environment & Energy
Project: Morris Boyd
WorkOrder: HS18071108

Batch ID: 130769 **Method:** ANIONS BY E300.0 **Prep:** 300_S_PR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18071108-01	1	5.0211	50 (mL)	9.958
HS18071108-02	1	5.0881	50 (mL)	9.827
HS18071108-03	1	5.0918	50 (mL)	9.82
HS18071108-04	1	5.0549	50 (mL)	9.891
HS18071108-05	1	5.0141	50 (mL)	9.972
HS18071108-06	1	5.0102	50 (mL)	9.98
HS18071108-07	1	5.0271	50 (mL)	9.946
HS18071108-08	1	5.0343	50 (mL)	9.932
HS18071108-09	1	5.0651	50 (mL)	9.871
HS18071108-10	1	5.0491	50 (mL)	9.903
HS18071108-11	1	5.0211	50 (mL)	9.958

Client: WSP Environment & Energy
Project: Morris Boyd
WorkOrder: HS18071108

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 130769	**Test Name :** ANIONS BY E300.0			**Matrix:** Soil		
HS18071108-01	S-1 1'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 05:40	1
HS18071108-02	S-1 2'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 06:45	1
HS18071108-03	S-1 0'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 07:06	200
HS18071108-04	S-2 0'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 07:28	20
HS18071108-05	S-2 1'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 07:50	5
HS18071108-06	S-3 0'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 08:11	20
HS18071108-07	S-3 1'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 08:33	1
HS18071108-08	S-4 0'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 09:38	5
HS18071108-09	S-4 1'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 10:00	1
HS18071108-10	S-5 1'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 10:22	1
HS18071108-11	S-2 2'	12 Jul 2018 00:00		24 Jul 2018 13:05	25 Jul 2018 10:43	5

Client: WSP Environment & Energy
Project: Morris Boyd
WorkOrder: HS18071108

QC BATCH REPORT

Batch ID: 130769 **Instrument: ICS3K2** **Method: E300**

MBLK Sample ID: **MBLK-130769** Units: **mg/Kg** Analysis Date: **25-Jul-2018 00:58**
Client ID: Run ID: **ICS3K2_320382** SeqNo: **4663315** PrepDate: **24-Jul-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-130769** Units: **mg/Kg** Analysis Date: **25-Jul-2018 01:19**
Client ID: Run ID: **ICS3K2_320382** SeqNo: **4663316** PrepDate: **24-Jul-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	214.2	5.00	200	0	107	90 - 110				

LCSD Sample ID: **LCSD-130769** Units: **mg/Kg** Analysis Date: **25-Jul-2018 01:41**
Client ID: Run ID: **ICS3K2_320382** SeqNo: **4663317** PrepDate: **24-Jul-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	210.4	5.00	200	0	105	90 - 110	214.2	1.77	20	

MS Sample ID: **HS18071108-01MS** Units: **mg/Kg** Analysis Date: **25-Jul-2018 06:01**
Client ID: **S-1 1'** Run ID: **ICS3K2_320382** SeqNo: **4663329** PrepDate: **24-Jul-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	162.8	5.00	99.96	54.23	109	75 - 125				

MS Sample ID: **HS18070482-03MS** Units: **mg/Kg** Analysis Date: **25-Jul-2018 02:46**
Client ID: Run ID: **ICS3K2_320382** SeqNo: **4663320** PrepDate: **24-Jul-2018** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2443	49.5	989.1	1412	104	75 - 125				

MSD Sample ID: **HS18071108-01MSD** Units: **mg/Kg** Analysis Date: **25-Jul-2018 06:23**
Client ID: **S-1 1'** Run ID: **ICS3K2_320382** SeqNo: **4663330** PrepDate: **24-Jul-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	165.1	4.99	99.86	54.23	111	75 - 125	162.8	1.42	20	

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

Client: WSP Environment & Energy
Project: Morris Boyd
WorkOrder: HS18071108

QC BATCH REPORT

Batch ID: 130769 **Instrument: ICS3K2** **Method: E300**

MSD Sample ID: **HS18070482-03MSD** Units: **mg/Kg** Analysis Date: **25-Jul-2018 03:08**
Client ID: Run ID: **ICS3K2_320382** SeqNo: **4663321** PrepDate: **24-Jul-2018** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2474	49.9	997.7	1412	106	75 - 125	2443	1.25	20	

The following samples were analyzed in this batch:

HS18071108-01	HS18071108-02	HS18071108-03	HS18071108-04
HS18071108-05	HS18071108-06	HS18071108-07	HS18071108-08
HS18071108-09	HS18071108-10	HS18071108-11	

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

Client: WSP Environment & Energy
Project: Morris Boyd
WorkOrder: **HS18071108**

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 Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2016-2018	31-Jul-2018
Oklahoma	2017-088	31-Aug-2018
North Carolina	624-2018	31-Dec-2018
Arkansas	88-0356	27-Mar-2019
Kansas	E-10352 2017-218	31-Jul-2018
Texas	T10470231-18-21	30-Apr-2019
North Dakota	R193 2018-2019	30-Apr-2019
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	L2231 Rev 3-30-2018	22-Dec-2018
Kentucky	123043 - 2018	30-Apr-2019

Sample Receipt Checklist

Client Name: WSP Dallas
Work Order: HS18071108
Date/Time Received: **24-Jul-2018 09:00**
Received by: **RPG**

Checklist completed by: *Paresh M. Giga* eSignature — 24-Jul-2018 Date
Reviewed by: *Bernadette A. Fini* eSignature — 24-Jul-2018 Date

Matrices: **Soil**
Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
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):	0.7c/0.3c U/c	IR11	
Cooler(s)/Kit(s):	25793		
Date/Time sample(s) sent to storage:	7/24/18 11:00		
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: No times on COC. No dates/times on jar labels.
Extra sample received not on COC :
S-2 2'. Logged in with analysis

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

+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: 27145

HS18071108

WV

WSP Parsons Brinckerhoff
Morris Boyd

ALS Environmental

ALS Project Manager:

Customer Information		Project Information	
Purchase Order		Project Name	Morris Boyd
Work Order		Project Number	
Company Name	WSP	Bill To Company	
Send Report To	Matthew Boyle	Invoice Attn	
Address	2777 N Stemmons Pkwy Suite 1600	Address	Same
City/State/Zip	Dallas TX 75207	City/State/Zip	
Phone	817 713 0262	Phone	
Fax		Fax	
e-Mail Address	Matthew.Boyle@wsp.com	e-Mail Address	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	S-1 1'	7-12-18		Soil	Ice	2	✓										
2	S-1 2'					2	✓										
3	S-1 0'					2	✓										
4	S-2 0'					1	✓										
5	S-2 1'					1	✓										
6	S-3 0'					1	✓										
7	S-3 1'					1	✓										
8	S-4 0'					1	✓										
9	S-4 1'					1	✓										
10	S-5 1'					1	✓										

Chlorides

Sampler(s) Please Print & Sign: Matthew Boyle

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ____ ☐ STD 10 Wk Days ☐ 5 Wk Days ☒ 2 Wk Days ☒ 24 Hour

Results Due Date:

Relinquished by: Matthew Boyle	Date: 7-23-18	Time: 7:30	Received by:	
Relinquished by:	Date:	Time:	Received by (Laboratory): RC 7/24/18	09:00
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Notes:

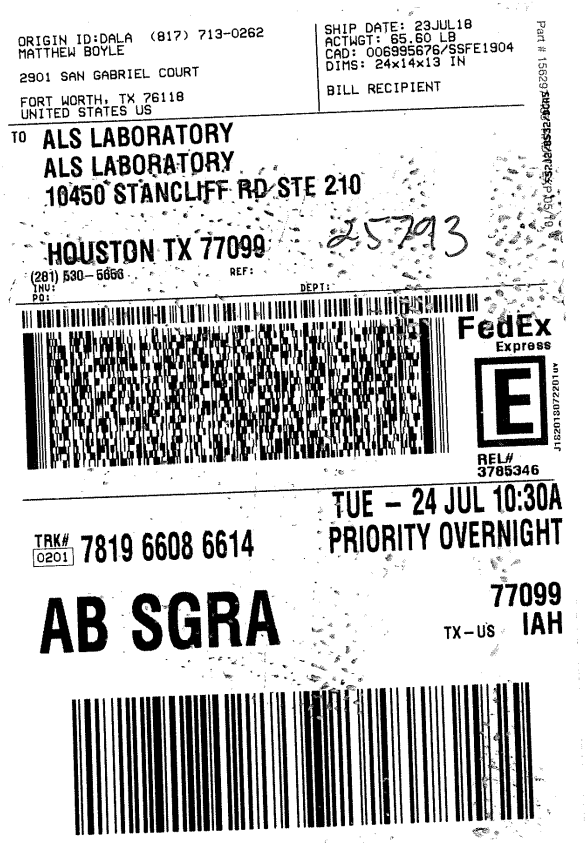
Cooler ID	Cooler Temp
25 793	UIC.
	0.7°
	#11
	CF. 0.4°

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other ____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 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.

25793 JUL 24 2018


ORIGIN ID:DALA (817) 713-0262
MATTHEW BOYLE
2901 SAN GABRIEL COURT
FORT WORTH, TX 76118
UNITED STATES US

SHIP DATE: 23JUL18
ACTWGT: 65.60 LB
CAD: 006995676/SSFE1904
DIMS: 24x14x13 IN
BILL RECIPIENT

TO ALS LABORATORY
ALS LABORATORY
10450 STANCLIFF RD STE 210
HOUSTON TX 77099
25793
(281) 530-5656
REF:
INV:
PO:
DEPT:

FedEx Express
REL# 3785346

TUE - 24 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7819 6608 6614

AB SGRA

77099
TX-US IAH

Client: WSP Environment & Energy
Project: Morris Boyd
Work Order: HS18100327

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18100327-01	S-1 @ 2'	Soil		02-Oct-2018 13:00	06-Oct-2018 09:40	☐
HS18100327-02	S-1 @ 3'	Soil		02-Oct-2018 13:10	06-Oct-2018 09:40	☐
HS18100327-03	S-2 @ 2'	Soil		02-Oct-2018 13:15	06-Oct-2018 09:40	☐
HS18100327-04	S-2 @ 3'	Soil		02-Oct-2018 13:20	06-Oct-2018 09:40	☐
HS18100327-05	S-3 @ 2'	Soil		02-Oct-2018 13:30	06-Oct-2018 09:40	☐
HS18100327-06	S-3 @ 3'	Soil		02-Oct-2018 13:40	06-Oct-2018 09:40	☐
HS18100327-07	S-4 @ 2'	Soil		02-Oct-2018 13:50	06-Oct-2018 09:40	☐
HS18100327-08	S-4 @ 3'	Soil		02-Oct-2018 14:00	06-Oct-2018 09:40	☐
HS18100327-09	SW-1	Soil		02-Oct-2018 14:10	06-Oct-2018 09:40	☐
HS18100327-10	SW-2	Soil		02-Oct-2018 14:20	06-Oct-2018 09:40	☐
HS18100327-11	SW-3	Soil		02-Oct-2018 14:30	06-Oct-2018 09:40	☐
HS18100327-12	SW-4	Soil		02-Oct-2018 14:40	06-Oct-2018 09:40	☐
HS18100327-13	S-5	Soil		02-Oct-2018 15:00	06-Oct-2018 09:40	☐

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-1 @ 2'
Collection Date: 02-Oct-2018 13:00

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-01
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		4.98	mg/Kg	1	10-Oct-2018 08:23

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-1 @ 3'
Collection Date: 02-Oct-2018 13:10

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-02
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		4.95	mg/Kg	1	10-Oct-2018 08:37

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-2 @ 2'
Collection Date: 02-Oct-2018 13:15

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-03
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		4.96	mg/Kg	1	10-Oct-2018 08:52

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-2 @ 3'
Collection Date: 02-Oct-2018 13:20

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-04
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		5.00	mg/Kg	1	10-Oct-2018 10:19

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-3 @ 2'
Collection Date: 02-Oct-2018 13:30

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-05
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		4.97	mg/Kg	1	10-Oct-2018 10:34

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-3 @ 3'
Collection Date: 02-Oct-2018 13:40

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-06
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		4.96	mg/Kg	1	10-Oct-2018 13:21

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-4 @ 2'
Collection Date: 02-Oct-2018 13:50

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-07
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		4.92	mg/Kg	1	10-Oct-2018 13:35

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-4 @ 3'
Collection Date: 02-Oct-2018 14:00

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-08
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		4.99	mg/Kg	1	10-Oct-2018 13:50

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: SW-1
Collection Date: 02-Oct-2018 14:10

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-09
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	ND		4.97	mg/Kg	1	10-Oct-2018 14:04

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: SW-2
Collection Date: 02-Oct-2018 14:20

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-10
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	**9.00**		**4.98**	**mg/Kg**	1	10-Oct-2018 14:19

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: SW-3
Collection Date: 02-Oct-2018 14:30

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-11
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	**104**		**4.97**	**mg/Kg**	1	10-Oct-2018 14:33

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: SW-4
Collection Date: 02-Oct-2018 14:40

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-12
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	**120**		**5.00**	**mg/Kg**	1	10-Oct-2018 14:48

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-5
Collection Date: 02-Oct-2018 15:00

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-13
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY E300.0	**Method:E300**			Prep:E300 / 09-Oct-2018		Analyst: KMU
Chloride	**553**		**5.00**	**mg/Kg**	1	10-Oct-2018 15:31

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

Client: WSP Environment & Energy
Project: Morris Boyd
Work Order: HS18100327

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18100327-01	S-1 @ 2'	Soil		02-Oct-2018 13:00	06-Oct-2018 09:40	☐
HS18100327-02	S-1 @ 3'	Soil		02-Oct-2018 13:10	06-Oct-2018 09:40	☐
HS18100327-03	S-2 @ 2'	Soil		02-Oct-2018 13:15	06-Oct-2018 09:40	☐
HS18100327-04	S-2 @ 3'	Soil		02-Oct-2018 13:20	06-Oct-2018 09:40	☐
HS18100327-05	S-3 @ 2'	Soil		02-Oct-2018 13:30	06-Oct-2018 09:40	☐
HS18100327-06	S-3 @ 3'	Soil		02-Oct-2018 13:40	06-Oct-2018 09:40	☐
HS18100327-07	S-4 @ 2'	Soil		02-Oct-2018 13:50	06-Oct-2018 09:40	☐
HS18100327-08	S-4 @ 3'	Soil		02-Oct-2018 14:00	06-Oct-2018 09:40	☐
HS18100327-09	SW-1	Soil		02-Oct-2018 14:10	06-Oct-2018 09:40	☐
HS18100327-10	SW-2	Soil		02-Oct-2018 14:20	06-Oct-2018 09:40	☐
HS18100327-11	SW-3	Soil		02-Oct-2018 14:30	06-Oct-2018 09:40	☐
HS18100327-12	SW-4	Soil		02-Oct-2018 14:40	06-Oct-2018 09:40	☐
HS18100327-13	S-5	Soil		02-Oct-2018 15:00	06-Oct-2018 09:40	☐

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-1 @ 2'
Collection Date: 02-Oct-2018 13:00

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-01
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 15:46
Surr: 4-Bromofluorobenzene	*90.7*		*70-123*	*%REC*	*1*	*08-Oct-2018 15:46*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 19:13
TPH (Motor Oil Range)	**3.7**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 19:13
Surr: 2-Fluorobiphenyl	*80.3*		*60-129*	*%REC*	*1*	*08-Oct-2018 19:13*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-1 @ 3'
Collection Date: 02-Oct-2018 13:10

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-02
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 16:34
Surr: 4-Bromofluorobenzene	*74.7*		*70-123*	*%REC*	*1*	*08-Oct-2018 16:34*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	**2.3**		**1.7**	**mg/Kg**	1	08-Oct-2018 20:26
TPH (Motor Oil Range)	**5.7**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 20:26
Surr: 2-Fluorobiphenyl	*101*		*60-129*	*%REC*	*1*	*08-Oct-2018 20:26*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-2 @ 2'
Collection Date: 02-Oct-2018 13:15

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-03
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 16:50
Surr: 4-Bromofluorobenzene	*72.6*		*70-123*	*%REC*	*1*	*08-Oct-2018 16:50*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 20:51
TPH (Motor Oil Range)	ND	n	3.4	mg/Kg	1	08-Oct-2018 20:51
Surr: 2-Fluorobiphenyl	*86.3*		*60-129*	*%REC*	*1*	*08-Oct-2018 20:51*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-2 @ 3'
Collection Date: 02-Oct-2018 13:20

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-04
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 17:07
Surr: 4-Bromofluorobenzene	*72.7*		*70-123*	*%REC*	*1*	*08-Oct-2018 17:07*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 21:15
TPH (Motor Oil Range)	**3.4**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 21:15
Surr: 2-Fluorobiphenyl	*79.8*		*60-129*	*%REC*	*1*	*08-Oct-2018 21:15*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-3 @ 2'
Collection Date: 02-Oct-2018 13:30

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-05
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 17:23
Surr: 4-Bromofluorobenzene	*71.0*		*70-123*	*%REC*	*1*	*08-Oct-2018 17:23*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	**11**		**1.7**	**mg/Kg**	1	08-Oct-2018 21:39
TPH (Motor Oil Range)	**31**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 21:39
Surr: 2-Fluorobiphenyl	*79.9*		*60-129*	*%REC*	*1*	*08-Oct-2018 21:39*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-3 @ 3'
Collection Date: 02-Oct-2018 13:40

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-06
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 18:27
Surr: 4-Bromofluorobenzene	*72.7*		*70-123*	*%REC*	*1*	*08-Oct-2018 18:27*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 22:04
TPH (Motor Oil Range)	**5.8**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 22:04
Surr: 2-Fluorobiphenyl	*78.2*		*60-129*	*%REC*	*1*	*08-Oct-2018 22:04*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-4 @ 2'
Collection Date: 02-Oct-2018 13:50

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-07
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 18:44
Surr: 4-Bromofluorobenzene	*72.0*		*70-123*	*%REC*	*1*	*08-Oct-2018 18:44*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 19:38
TPH (Motor Oil Range)	**4.5**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 19:38
Surr: 2-Fluorobiphenyl	*60.9*		*60-129*	*%REC*	*1*	*08-Oct-2018 19:38*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-4 @ 3'
Collection Date: 02-Oct-2018 14:00

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-08
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 19:00
Surr: 4-Bromofluorobenzene	*73.5*		*70-123*	*%REC*	*1*	*08-Oct-2018 19:00*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	**2.2**		**1.7**	**mg/Kg**	1	08-Oct-2018 20:02
TPH (Motor Oil Range)	**5.3**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 20:02
Surr: 2-Fluorobiphenyl	*69.3*		*60-129*	*%REC*	*1*	*08-Oct-2018 20:02*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: SW-1
Collection Date: 02-Oct-2018 14:10

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-09
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 19:16
Surr: 4-Bromofluorobenzene	*72.3*		*70-123*	*%REC*	*1*	*08-Oct-2018 19:16*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 20:26
TPH (Motor Oil Range)	ND	n	3.4	mg/Kg	1	08-Oct-2018 20:26
Surr: 2-Fluorobiphenyl	*66.0*		*60-129*	*%REC*	*1*	*08-Oct-2018 20:26*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: SW-2
Collection Date: 02-Oct-2018 14:20

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-10
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 19:32
Surr: 4-Bromofluorobenzene	*71.4*		*70-123*	*%REC*	*1*	*08-Oct-2018 19:32*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 20:51
TPH (Motor Oil Range)	ND	n	3.4	mg/Kg	1	08-Oct-2018 20:51
Surr: 2-Fluorobiphenyl	*73.7*		*60-129*	*%REC*	*1*	*08-Oct-2018 20:51*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: SW-3
Collection Date: 02-Oct-2018 14:30

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-11
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 19:48
Surr: 4-Bromofluorobenzene	*73.1*		*70-123*	*%REC*	*1*	*08-Oct-2018 19:48*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	**1.9**		**1.7**	**mg/Kg**	1	08-Oct-2018 21:15
TPH (Motor Oil Range)	**16**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 21:15
Surr: 2-Fluorobiphenyl	*75.0*		*60-129*	*%REC*	*1*	*08-Oct-2018 21:15*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: SW-4
Collection Date: 02-Oct-2018 14:40

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-12
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 20:05
Surr: 4-Bromofluorobenzene	*73.4*		*70-123*	*%REC*	*1*	*08-Oct-2018 20:05*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 21:39
TPH (Motor Oil Range)	**5.8**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 21:39
Surr: 2-Fluorobiphenyl	*65.8*		*60-129*	*%REC*	*1*	*08-Oct-2018 21:39*

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

Client: WSP Environment & Energy
Project: Morris Boyd
Sample ID: S-5
Collection Date: 02-Oct-2018 15:00

ANALYTICAL REPORT
WorkOrder:HS18100327
Lab ID:HS18100327-13
Matrix:Soil

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
GASOLINE RANGE ORGANICS BY SW8015C		**Method:SW8015**				Analyst: NPI
Gasoline Range Organics	ND		0.050	mg/Kg	1	08-Oct-2018 20:21
Surr: 4-Bromofluorobenzene	*77.0*		*70-123*	*%REC*	*1*	*08-Oct-2018 20:21*
TPH DRO/ORO BY SW8015C		**Method:SW8015M**		Prep:SW3541 / 08-Oct-2018		Analyst: PVL
TPH (Diesel Range)	ND		1.7	mg/Kg	1	08-Oct-2018 22:04
TPH (Motor Oil Range)	**4.2**	n	**3.4**	**mg/Kg**	1	08-Oct-2018 22:04
Surr: 2-Fluorobiphenyl	*65.1*		*60-129*	*%REC*	*1*	*08-Oct-2018 22:04*

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