WSP USA
3300 North "A" Street
Building 1, Unit 222
Midland, Texas 79705
432.704.5178

March 16, 2022

District I
New Mexico Oil Conservation Division
1625 N. French Drive
Hobbs, New Mexico 88240

RE: Deferral Request
Red Raider BKS State 001
Incident Number NAPP2129845041
Lea County, New Mexico

To Whom It May Concern:

WSP USA Inc. (WSP) on behalf of COG Operating, LLC (COG), presents the following Deferral Request detailing site assessment and soil sampling activities at the Red Raider BKS State 001 (Site) in Unit J, Section 25, Township 24 South, Range 33 East, in Lea County, New Mexico (Figure 1). The purpose of the site assessment and soil sampling activities was to assess for the presence or absence of impacts to soil following a release of produced water within lined containment at the Site. Based on field observations, field screening activities, and soil sample laboratory analytical results, COG is submitting this Deferral Request, describing site assessment and delineation activities that have occurred and requesting deferral of final remediation for Incident Number NAPP2129845041 until the Site is reconstructed, and/or the well pad is abandoned.

RELEASE BACKGROUND

On October 8, 2021, corrosion on a water dump line resulted in the release of approximately 20 barrels (bbls) of produced water into the lined tank battery containment. A vacuum truck was immediately dispatched to the Site to recover free-standing fluids; all 20 bbls of released produced were recovered from within the lined containment. A 48-hour advance notice of liner inspection was provided via email to New Mexico Oil Conservation Division (NMOCD) District I office on October 27, 2021. A liner integrity inspection was conducted by WSP personnel following the fluid recovery and upon inspection, the liner was determined to be insufficient. COG reported the release to the NMOCD on a Release Notification Form C-141 (Form C-141) on October 25, 2021. The release was assigned Incident Number NAPP2129845041.

SITE CHARACTERIZATION

WSP characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be less than 50 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater

well with depth to groundwater data is USGS well number 321127103310401. The well is located approximately 0.41 miles northeast of the site. The groundwater well has a reported depth to groundwater of 18 feet bgs and a total depth of 258 feet bgs. Ground surface elevation at the groundwater well location is 3,542 feet amsl, which is approximately 2 feet high in elevation than the Site.

The closest continuously flowing or significant watercourse to the Site is a riverine, located approximately 0.21 miles southwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

CLOSURE CRITERIA

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- TPH: 100 mg/kg
- Chloride: 600 mg/kg

SITE ASSESSMENT ACTIVITIES

On November 23, 2021 and February 21, 2022, WSP personnel visited the Site to evaluate the release extent and conduct site assessment activities. WSP personnel advanced one borehole (BH01) via hand auger near the location of the tear in the liner to assess the vertical extent of impacted soil. Four additional boreholes (BH02 through BH05) were advanced via hand auger around the lined containment to confirm the lateral extent of the release. Two soil samples were collected from each borehole (BH01/BH01A through BH05/BH05A) at depths of 1-foot and 4 feet bgs. Soil from the boreholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photo-ionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations from the boreholes were documented on lithologic/soil sampling logs, which are included as Attachment 2. The boreholes were backfilled with the soil removed and COG repaired the tear in the liner. The delineation soil sample locations are depicted on Figure 2. Photographic documentation was conducted during the Site visit. A photographic log is included in Attachment 3.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

SOIL ANALYTICAL RESULTS

Laboratory analytical results for delineation soil sample BH01, collected at 1-foot bgs directly below the tear in the liner, indicated that chloride concentrations exceeded the Closure Criteria. Subsequent delineation sample BH01A, collected at 4 feet bgs, indicated that benzene, BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria. Laboratory analytical results for borehole delineation soil samples BH02/BH02A through BH05/BH05A, collected at depths of 1-foot and 4 feet bgs around the lined containment, indicated that benzene, BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical report is included as Attachment 4.

DEFERRAL REQUEST

COG is requesting deferral of final remediation due to the presence of active production equipment and surface pipelines within the lined containment. The impacted soil is limited to the area immediately beneath the lined containment and active production equipment, where remediation would require a major facility deconstruction.

The impacted soil remaining in place beneath the liner is delineated vertically by delineation soil sample BH01A and laterally by delineation soil samples BH02/BH02A through BH05/BH05A. A maximum of 467 cubic yards of chloride impacted soil remains in place beneath the liner assuming a maximum 4-foot depth based on the delineation soil samples listed above, that were compliant with the Closure Criteria.

WSP and COG do not believe deferment will result in imminent risk to human health, the environment, or groundwater. The release was contained laterally by the lined containment, and the impacted soil remaining in place is limited to the area immediately beneath the liner. The liner has been repaired by COG and will restrict future vertical migration of residual impacts.

Based on the presence of active production equipment within the release area and the complete lateral and vertical delineation of impacted soil remaining in place, COG requests deferral of final remediation for Incident Number NAPP2129845041 until final reclamation of the well pad or major construction, whichever comes first. The Form C-141 is included as Attachment 5.

If you have any questions or comments, please do not hesitate to contact Ms. Aimee Cole at (720) 384-7365.

Sincerely,

WSP USA Inc.

Kalei Jennings
Consultant, Environmental Scientist

Aimee Cole
Sr. Consultant, Environmental Scientist

cc: Charles Beauvais, COG Operating, LLC
New Mexico State Land Office

Attachments:

Figure 1	Site Location Map
Figure 2	Delineation Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Referenced Well Records
Attachment 2	Lithologic/Sampling Logs
Attachment 3	Photographic Log
Attachment 4	Laboratory Analytical Reports
Attachment 5	Final C-141

FIGURES

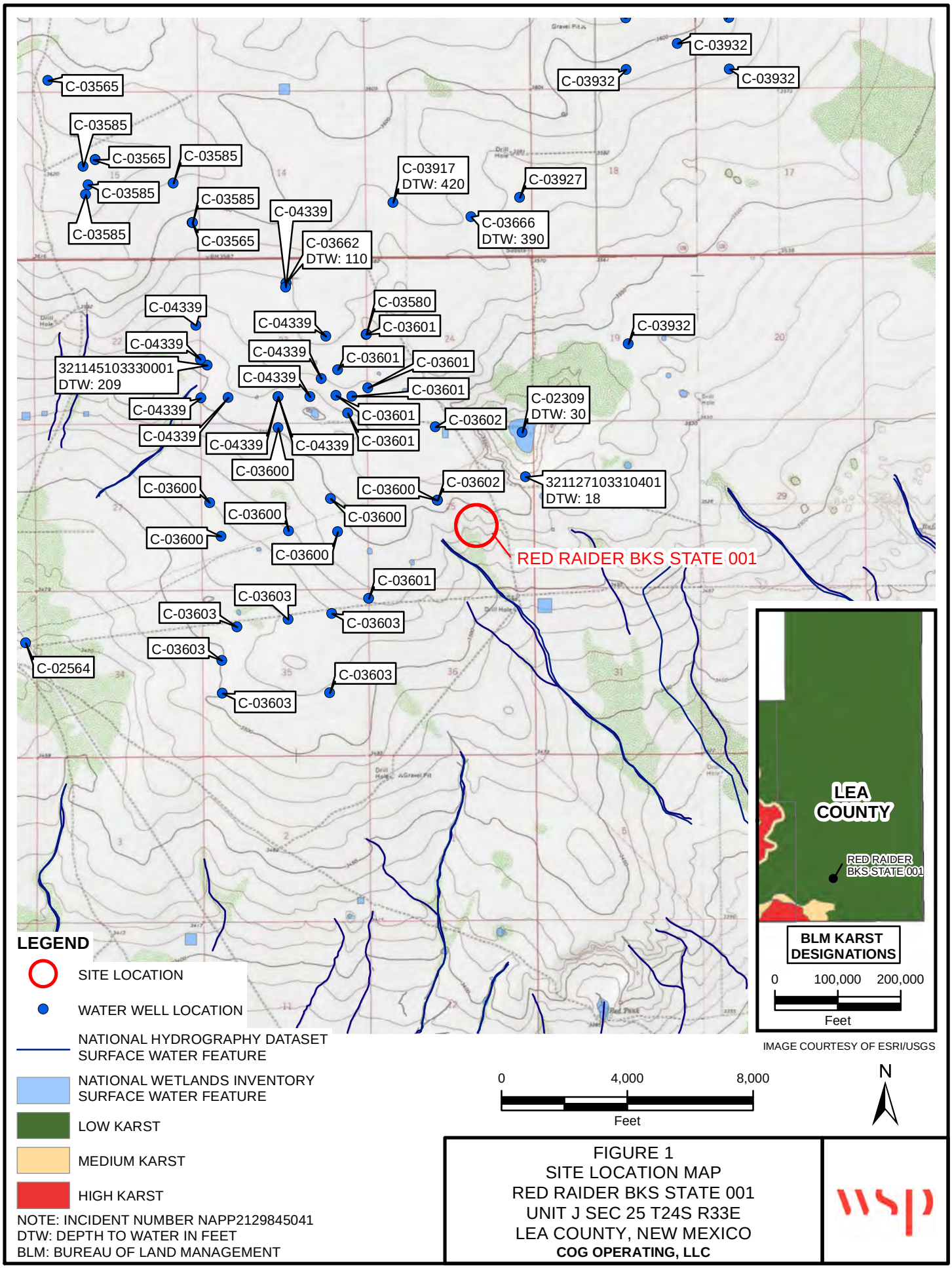


FIGURE 1
SITE LOCATION MAP
RED RAIDER BKS STATE 001
UNIT J SEC 25 T24S R33E
LEA COUNTY, NEW MEXICO
COG OPERATING, LLC

P:\Concho Operating\GIS\31403720.000.09_RED RAIDER BKS STATE 001\MXD\31403720.000.09_FIG01_SL_RECEPTOR_2021.mxd

IMAGE COURTESY OF ESRI

LEGEND

- DELINEATION SOIL SAMPLE WITH CONCENTRATIONS PREVIOUSLY EXCEEDING APPLICABLE CLOSURE CRITERIA
- DELINEATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- CONTAINMENT

0 100 200
Feet

N

FIGURE 2
DELINEATION SOIL SAMPLE LOCATIONS
RED RAIDER BKS STATE 001
UNIT J SEC 25 T24S R33E
LEA COUNTY, NEW MEXICO
COG OPERATING, LLC

NOTE: INCIDENT NUMBER NAPP2129845041

P:\Concho Operating\GIS\31403720.000.09_RED RAIDER BKS STATE 001\MXD\31403720.000.09_FIG02_DELINEATION_2022.mxd

TABLES

Table 1

Soil Analytical Results
Red Raider BKS State 001
Incident Number NAPP2129845041
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft bgs)	Benzene (mg/kg)	BTEX (mg/kg)	TPH-DRO (mg/kg)	TPH-GRO (mg/kg)	TPH-ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Delineation Soil Samples										
BH01	11/23/2021	0.5	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	**7,080**
BH01A	11/23/2021	4	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	273
BH02	02/21/2022	0.5	<0.00200	<0.00400	<50.0	<50.0	<50.0	<50.0	<50.0	162
BH02A	02/21/2022	4	<0.00200	<0.00399	56.1	<50.0	<50.0	56.1	56.1	124
BH03	02/21/2022	0.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	16.5
BH03A	02/21/2022	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	12.1
BH04	02/21/2022	0.5	<0.00200	<0.00400	68.7	<50.0	<50.0	68.7	68.7	9.09
BH04A	02/21/2022	4	<0.00198	<0.00396	<50.0	<50.0	<50.0	<50.0	<50.0	8.44
BH05	02/21/2022	0.5	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	9.36
BH05A	02/21/2022	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	9.98

Notes:

ft - feet/foot
mg/kg - milligrams per kilograms
BTEX - benzene, toluene, ethylbenzene, and total xylenes
TPH - total petroleum hydrocarbons
DRO - diesel range organics
GRO - gasoline range organics
ORO - oil range organics
NMOCD - New Mexico Oil Conservation Division
NMAC - New Mexico Administrative Code
< - indicates result is less than the stated laboratory method practical quantitation limit
NE - Not Established
BOLD - indicates results exceed the higher of the background sample result or applicable regulatory standard

ATTACHMENT 1: REFERENCED WELL RECORD

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information GO | Geographic Area: United States GO

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

USGS 321127103310401 24S.33E.24.44444

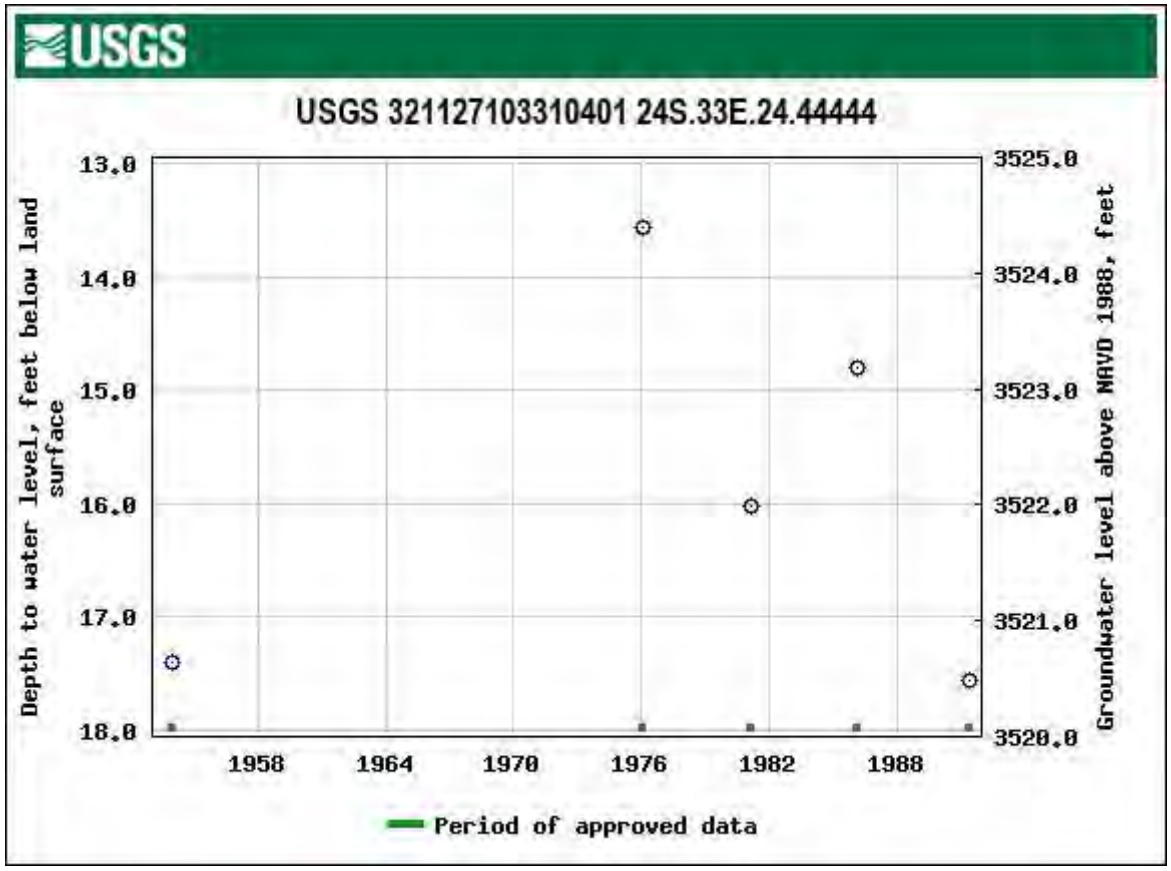
Available data for this site SUMMARY OF ALL AVAILABLE DATA GO

Well Site

DESCRIPTION:
Latitude 32°11'27", Longitude 103°31'04" NAD27
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: not determined.
Land surface altitude: 3,538 feet above NAVD88.
Well completed in "Other aquifers" (N9999OTHER) national aquifer.
Well completed in "Ogallala Formation" (121OGLL) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1953-11-27	1991-05-29	5
Revisions	Unavailable (site:0) (timeseries:0)		


USGS
USGS 321127103310401 24S.33E.24.44444
Depth to water level, feet below land surface
13.0
14.0
15.0
16.0
17.0
18.0
Groundwater level above NAVD 1988, feet
3525.0
3524.0
3523.0
3522.0
3521.0
3520.0
1958
1964
1970
1976
1982
1988
Period of approved data

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- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 321127103310401

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 321127103310401 24S.33E.24.44444

Lea County, New Mexico
Latitude 32°11'27", Longitude 103°31'04" NAD27
Land-surface elevation 3,538 feet above NAVD88
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source measu
1953-11-27		D	62610		3518.95	NGVD29	1	Z		
1953-11-27		D	62611		3520.60	NAVD88	1	Z		
1953-11-27		D	72019	17.40			1	Z		
1976-01-21		D	62610		3522.78	NGVD29	1	Z		
1976-01-21		D	62611		3524.43	NAVD88	1	Z		
1976-01-21		D	72019	13.57			1	Z		
1981-03-19		D	62610		3520.32	NGVD29	1	Z		
1981-03-19		D	62611		3521.97	NAVD88	1	Z		
1981-03-19		D	72019	16.03			1	Z		
1986-03-06		D	62610		3521.55	NGVD29	1	Z		
1986-03-06		D	62611		3523.20	NAVD88	1	Z		
1986-03-06		D	72019	14.80			1	Z		
1991-05-29		D	62610		3518.79	NGVD29	1	Z		
1991-05-29		D	62611		3520.44	NAVD88	1	Z		
1991-05-29		D	72019	17.56			1	Z		

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Method of measurement	Z	Other.
Measuring agency		Not determined
Source of measurement		Not determined
Water-level approval status	A	Approved for publication -- Processing and review completed.

ATTACHMENT 2: LITHOLOGIC/SAMPLING LOG

WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name: BH01

Site Name: Red Raider BKS State 001

RP or Incident Number: NAPP2129845041

WSP Job Number: 31403720.000 Task 09.02

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: PB | Method:

Lat/Long: 32.18675, -103.52338
4'

Field Screening: Hatch Chloride Strips, PID

Hole Diameter: 4.5"

Total Depth:

Comments:
M-moist; D-dry; Y-yes; N-no; SAA-same as above

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	10,102	0.9	N	BH01	0.5	0.5	SP-SM	SAND, dark brown, dry, med-fine grain, abundant silt, moderately sorted, no stain, no odor
D	3,449.6	0.7	N		1	1	SP-SM	SAA
D	2,206.4	0.2	N		2	2	SP-SM	SAA
D	1,064	0.0	N		3	3	SP-SM	SAA
D	274.4	0.0	N	BH01A	4	4	SP-SM	SAND, tan, dry, med-coarse grain, trace silt, poorly sorted, no stain, no odor

TD @ 4 FT BGS

WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name: BH02	
Site Name: Red Raider BKS State 001	
RP or Incident Number: NAPP2129845041	
WSP Job Number: 31403720.000 Task 09.02	

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: PB	Method:		
Lat/Long: 32.18675, -103.52338 4'	Field Screening: Hatch Chloride Strips, PID	Hole Diameter: 4.5"	Total Depth:

Comments:
M-moist; D-dry; Y-yes; N-no; SAA-same as above

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	235	2.0	N	BH02	0.5	0 – 0.5	CCHE	CALICHE, tan, dry, fine-coarse grain, poorly sorted, well graded no stain, no odor
D	168.0	3.1	N	BH02A	4	1 – 4	SP-SC	SAND, brown, dry, fine grain, abundant silt, well sorted,poorly no graded, no stain, no odor

TD @ 4 FT BGS

WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name: BH03	
Site Name: Red Raider BKS State 001	
RP or Incident Number: NAPP2129845041	
WSP Job Number: 31403720.000 Task 09.02	

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: PB	Method:		
Lat/Long: 32.18675, -103.52338 4'	Field Screening: Hatch Chloride Strips, PID	Hole Diameter: 4.5"	Total Depth:

Comments:
M-moist; D-dry; Y-yes; N-no; SAA-same as above

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	<168	0.7	N	BH03	0.5	0 – 0.5	CCHE	CALICHE, tan, dry, fine-coarse grain, poorly sorted, well graded no stain, no odor
D	<168	2.0	N	BH03A	4	1 – 4	CCHE	SAA

TD @ 4 FT BGS

WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name: BH04	
Site Name: Red Raider BKS State 001	
RP or Incident Number: NAPP2129845041	
WSP Job Number: 31403720.000 Task 09.02	

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: PB	Method:		
Lat/Long: 32.18675, -103.52338	Field Screening: Hatch Chloride,PID	Hole Diameter: 4.5"	Total Depth: 4'

Comments:
M-moist; D-dry; Y-yes; N-no; SAA-same as above

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	<168	1.1	N	BH04	0.5	0	CCHE	CALICHE, tan, dry, fine-coarse grain, poorly sorted, well graded no stain, no odor
						0.5		
						1		
						2		
						3		
D	<168	1.1	N	BH04A	4	4	CCHE	SAA

TD @ 4 FT BGS

WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name: BH05	
Site Name: Red Raider BKS State 001	
RP or Incident Number: NAPP2129845041	
WSP Job Number: 31403720.000 Task 09.02	

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: PB	Method:		
Lat/Long: 32.18675, -103.52338	Field Screening: Hatch Chloride, PID	Hole Diameter: 4.5"	Total Depth: 4'

Comments:
M-moist; D-dry; Y-yes; N-no; SAA-same as above

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	<168	0.0	N	BH05	0.5	0.5	SP-SC	SAND, brown, dry, fine grain, abundant silt, well sorted, poorly graded, no stain, no odor
						1		
						2		
						3		
D	<168	0.0	N	BH05A	4	4	SP-SC	SAA, trace caliche gravel

TD @ 4 FT BGS

ATTACHMENT 3: PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG		
COG Operating, LLC	Red Raider BKS State 001 Lea County, New Mexico	NAPP2129845041

Photo No.	Date
1	November 3, 2021

View of breached liner during liner integrity inspection.

Photo No.	Date
2	November 23, 2021

View of bore hole delineation BH01 location inside lines containment.

PHOTOGRAPHIC LOG		
COG Operating, LLC	Red Raider BKS State 001 Lea County, New Mexico	NAPP2129845041

Photo No.	Date
3	February 21, 2022

View of bore hole delineation outside containment to confirm lateral extent.

Photo No.	Date
4	February 21, 2022

View of bore hole delineation outside containment to confirm lateral extent.

ATTACHMENT 4: LABORATORY ANALYTICAL RESULTS

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Xenco, Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-1633-1
Laboratory Sample Delivery Group: 31403720.000 Task 09.02
Client Project/Site: Red Raider BKS State 001

For:
WSP USA Inc.
2777 N. Stemmons Freeway
Suite 1600
Dallas, Texas 75207

Attn: Kalei Jennings

JKramer

Authorized for release by:
12/9/2021 10:22:51 AM

Jessica Kramer, Project Manager
(432)704-5440
jessica.kramer@eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: WSP USA Inc.
Project/Site: Red Raider BKS State 001

Laboratory Job ID: 890-1633-1
SDG: 31403720.000 Task 09.02

Table of Contents

Definitions/Glossary

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Job ID: 890-1633-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative
890-1633-1

Receipt
The samples were received on 11/24/2021 10:43 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-13647 and analytical batch 880-14304 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Client Sample ID: BH01 — Lab Sample ID: 890-1633-1

Date Collected: 11/23/21 12:00 **Matrix: Solid**
Date Received: 11/24/21 10:43
Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		11/30/21 08:45	12/01/21 02:34	1
Toluene	<0.00201	U	0.00201		mg/Kg		11/30/21 08:45	12/01/21 02:34	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		11/30/21 08:45	12/01/21 02:34	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		11/30/21 08:45	12/01/21 02:34	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		11/30/21 08:45	12/01/21 02:34	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		11/30/21 08:45	12/01/21 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*121*		*70 - 130*	*11/30/21 08:45*	*12/01/21 02:34*	*1*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*	*11/30/21 08:45*	*12/01/21 02:34*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			12/03/21 10:31	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			12/06/21 15:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		12/02/21 11:27	12/03/21 12:40	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		12/02/21 11:27	12/03/21 12:40	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		12/02/21 11:27	12/03/21 12:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*80*		*70 - 130*	*12/02/21 11:27*	*12/03/21 12:40*	*1*
o-Terphenyl	*87*		*70 - 130*	*12/02/21 11:27*	*12/03/21 12:40*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7080**		50.0		mg/Kg			12/09/21 02:59	10

Client Sample ID: BH01A` — Lab Sample ID: 890-1633-2

Date Collected: 11/23/21 12:14 **Matrix: Solid**
Date Received: 11/24/21 10:43
Sample Depth: 4

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		11/30/21 08:45	12/01/21 02:54	1
Toluene	<0.00200	U	0.00200		mg/Kg		11/30/21 08:45	12/01/21 02:54	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/30/21 08:45	12/01/21 02:54	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		11/30/21 08:45	12/01/21 02:54	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/30/21 08:45	12/01/21 02:54	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		11/30/21 08:45	12/01/21 02:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*133*	*S1+*	*70 - 130*	*11/30/21 08:45*	*12/01/21 02:54*	*1*

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Client Sample Results

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Client Sample ID: BH01A` **Lab Sample ID: 890-1633-2**
Date Collected: 11/23/21 12:14 **Matrix: Solid**
Date Received: 11/24/21 10:43
Sample Depth: 4

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*11/30/21 08:45*	*12/01/21 02:54*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			12/03/21 10:31	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			12/06/21 15:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		12/02/21 11:27	12/03/21 13:01	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		12/02/21 11:27	12/03/21 13:01	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		12/02/21 11:27	12/03/21 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*89*		*70 - 130*	*12/02/21 11:27*	*12/03/21 13:01*	*1*
o-Terphenyl	*103*		*70 - 130*	*12/02/21 11:27*	*12/03/21 13:01*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**273**		4.98		mg/Kg			12/09/21 03:06	1

Surrogate Summary

Client: WSP USA Inc.
Project/Site: Red Raider BKS State 001

Job ID: 890-1633-1
SDG: 31403720.000 Task 09.02

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-8671-A-1-E MS	Matrix Spike	110	101
880-8671-A-1-F MSD	Matrix Spike Duplicate	104	96
890-1633-1	BH01	121	108
890-1633-2	BH01A`	133 S1+	102
LCS 880-13343/1-A	Lab Control Sample	108	99
LCSD 880-13343/2-A	Lab Control Sample Dup	115	100
MB 880-13339/5-A	Method Blank	122	107
MB 880-13343/5-A	Method Blank	120	98

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-1633-1	BH01	80	87
890-1633-2	BH01A`	89	103
890-1635-A-1-O MS	Matrix Spike	96	98
890-1635-A-1-P MSD	Matrix Spike Duplicate	96	96
LCS 880-13730/2-A	Lab Control Sample	76	77
LCSD 880-13730/3-A	Lab Control Sample Dup	94	97
MB 880-13730/1-A	Method Blank	90	105

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: WSP USA Inc.
Project/Site: Red Raider BKS State 001

Job ID: 890-1633-1
SDG: 31403720.000 Task 09.02

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-13339/5-A
Matrix: Solid
Analysis Batch: 13426

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 13339

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		11/30/21 09:00	11/30/21 12:28	1
Toluene	<0.00200	U	0.00200		mg/Kg		11/30/21 09:00	11/30/21 12:28	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/30/21 09:00	11/30/21 12:28	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		11/30/21 09:00	11/30/21 12:28	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/30/21 09:00	11/30/21 12:28	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		11/30/21 09:00	11/30/21 12:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*	*11/30/21 09:00*	*11/30/21 12:28*	*1*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*	*11/30/21 09:00*	*11/30/21 12:28*	*1*

Lab Sample ID: MB 880-13343/5-A
Matrix: Solid
Analysis Batch: 13426

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 13343

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		11/30/21 08:45	12/01/21 00:02	1
Toluene	<0.00200	U	0.00200		mg/Kg		11/30/21 08:45	12/01/21 00:02	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/30/21 08:45	12/01/21 00:02	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		11/30/21 08:45	12/01/21 00:02	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/30/21 08:45	12/01/21 00:02	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		11/30/21 08:45	12/01/21 00:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*	*11/30/21 08:45*	*12/01/21 00:02*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*11/30/21 08:45*	*12/01/21 00:02*	*1*

Lab Sample ID: LCS 880-13343/1-A
Matrix: Solid
Analysis Batch: 13426

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 13343

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.09692		mg/Kg		97	70 - 130		
Toluene			0.100	0.09859		mg/Kg		99	70 - 130		
Ethylbenzene			0.100	0.09649		mg/Kg		96	70 - 130		
m-Xylene & p-Xylene			0.200	0.1910		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09260		mg/Kg		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 880-13343/2-A
Matrix: Solid
Analysis Batch: 13426

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 13343

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.09954		mg/Kg		100	70 - 130	3	35

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QC Sample Results

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-13343/2-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 13426 **Prep Batch: 13343**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene			0.100	0.09899		mg/Kg		99	70 - 130	0	35
Ethylbenzene			0.100	0.09348		mg/Kg		93	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.1853		mg/Kg		93	70 - 130	3	35
o-Xylene			0.100	0.09161		mg/Kg		92	70 - 130	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 880-8671-A-1-E MS **Client Sample ID: Matrix Spike**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 13426 **Prep Batch: 13343**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.00699		0.100	0.09584		mg/Kg		88	70 - 130
Toluene	0.00793		0.100	0.09453		mg/Kg		86	70 - 130
Ethylbenzene	0.303	F1	0.100	0.09641	F1	mg/Kg		-206	70 - 130
m-Xylene & p-Xylene	0.449	F1	0.201	0.1930	F1	mg/Kg		-128	70 - 130
o-Xylene	0.264	F1	0.100	0.09283	F1	mg/Kg		-170	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: 880-8671-A-1-F MSD **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 13426 **Prep Batch: 13343**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.00699		0.0990	0.08636		mg/Kg		80	70 - 130	10	35
Toluene	0.00793		0.0990	0.09083		mg/Kg		84	70 - 130	4	35
Ethylbenzene	0.303	F1	0.0990	0.09064	F1	mg/Kg		-214	70 - 130	6	35
m-Xylene & p-Xylene	0.449	F1	0.198	0.1786	F1	mg/Kg		-137	70 - 130	8	35
o-Xylene	0.264	F1	0.0990	0.08652	F1	mg/Kg		-179	70 - 130	7	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-13730/1-A **Client Sample ID: Method Blank**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 13825 **Prep Batch: 13730**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		12/02/21 11:27	12/03/21 09:30	1

QC Sample Results

Client: WSP USA Inc.
Project/Site: Red Raider BKS State 001

Job ID: 890-1633-1
SDG: 31403720.000 Task 09.02

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-13730/1-A
Matrix: Solid
Analysis Batch: 13825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 13730

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		12/02/21 11:27	12/03/21 09:30	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		12/02/21 11:27	12/03/21 09:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*90*		*70 - 130*	*12/02/21 11:27*	*12/03/21 09:30*	*1*
o-Terphenyl	*105*		*70 - 130*	*12/02/21 11:27*	*12/03/21 09:30*	*1*

Lab Sample ID: LCS 880-13730/2-A
Matrix: Solid
Analysis Batch: 13825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 13730

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	756.7		mg/Kg		76	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	746.3		mg/Kg		75	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*76*		*70 - 130*
o-Terphenyl	*77*		*70 - 130*

Lab Sample ID: LCSD 880-13730/3-A
Matrix: Solid
Analysis Batch: 13825

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 13730

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	804.9		mg/Kg		80	70 - 130	6	20
Diesel Range Organics (Over C10-C28)			1000	848.7		mg/Kg		85	70 - 130	13	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*94*		*70 - 130*
o-Terphenyl	*97*		*70 - 130*

Lab Sample ID: 890-1635-A-1-O MS
Matrix: Solid
Analysis Batch: 13825

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 13730

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	997	1081		mg/Kg		108	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	997	1092		mg/Kg		106	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*96*		*70 - 130*
o-Terphenyl	*98*		*70 - 130*

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-1635-A-1-P MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 13825 — **Prep Batch: 13730**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1175		mg/Kg		118	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1107		mg/Kg		107	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*96*		*70 - 130*
o-Terphenyl	*96*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-13647/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 14304

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			12/09/21 01:33	1

Lab Sample ID: LCS 880-13647/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 14304

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	268.8		mg/Kg		108	90 - 110		

Lab Sample ID: LCSD 880-13647/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 14304

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	269.1		mg/Kg		108	90 - 110	0	20

Lab Sample ID: 880-8743-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 14304

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	6670	F1	2500	9922	F1	mg/Kg		131	90 - 110		

Lab Sample ID: 880-8743-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 14304

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	6670	F1	2500	9857	F1	mg/Kg		128	90 - 110	1	20

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-1634-A-3-F MS **Client Sample ID: Matrix Spike**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 14304

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	<5.04	U F1	252	294.0	F1	mg/Kg		116	90 - 110		

Lab Sample ID: 890-1634-A-3-G MSD **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 14304

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	<5.04	U F1	252	294.6	F1	mg/Kg		116	90 - 110	0	20

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

GC VOA

Prep Batch: 13339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-13339/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 13343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1633-1	BH01	Total/NA	Solid	5035	
890-1633-2	BH01A`	Total/NA	Solid	5035	
MB 880-13343/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-13343/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-13343/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-8671-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-8671-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 13426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1633-1	BH01	Total/NA	Solid	8021B	13343
890-1633-2	BH01A`	Total/NA	Solid	8021B	13343
MB 880-13339/5-A	Method Blank	Total/NA	Solid	8021B	13339
MB 880-13343/5-A	Method Blank	Total/NA	Solid	8021B	13343
LCS 880-13343/1-A	Lab Control Sample	Total/NA	Solid	8021B	13343
LCSD 880-13343/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	13343
880-8671-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	13343
880-8671-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	13343

Analysis Batch: 13868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1633-1	BH01	Total/NA	Solid	Total BTEX	
890-1633-2	BH01A`	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 13730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1633-1	BH01	Total/NA	Solid	8015NM Prep	
890-1633-2	BH01A`	Total/NA	Solid	8015NM Prep	
MB 880-13730/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-13730/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-13730/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1635-A-1-O MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-1635-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 13825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1633-1	BH01	Total/NA	Solid	8015B NM	13730
890-1633-2	BH01A`	Total/NA	Solid	8015B NM	13730
MB 880-13730/1-A	Method Blank	Total/NA	Solid	8015B NM	13730
LCS 880-13730/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	13730
LCSD 880-13730/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	13730
890-1635-A-1-O MS	Matrix Spike	Total/NA	Solid	8015B NM	13730
890-1635-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	13730

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

GC Semi VOA

Analysis Batch: 14112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1633-1	BH01	Total/NA	Solid	8015 NM	
890-1633-2	BH01A`	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 13647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1633-1	BH01	Soluble	Solid	DI Leach	
890-1633-2	BH01A`	Soluble	Solid	DI Leach	
MB 880-13647/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-13647/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-13647/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-8743-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-8743-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-1634-A-3-F MS	Matrix Spike	Soluble	Solid	DI Leach	
890-1634-A-3-G MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 14304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1633-1	BH01	Soluble	Solid	300.0	13647
890-1633-2	BH01A`	Soluble	Solid	300.0	13647
MB 880-13647/1-A	Method Blank	Soluble	Solid	300.0	13647
LCS 880-13647/2-A	Lab Control Sample	Soluble	Solid	300.0	13647
LCSD 880-13647/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	13647
880-8743-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	13647
880-8743-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	13647
890-1634-A-3-F MS	Matrix Spike	Soluble	Solid	300.0	13647
890-1634-A-3-G MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	13647

Lab Chronicle

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Client Sample ID: BH01 Lab Sample ID: 890-1633-1

Date Collected: 11/23/21 12:00 **Matrix: Solid**
Date Received: 11/24/21 10:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	13343	11/30/21 08:45	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	13426	12/01/21 02:34	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			13868	12/03/21 10:31	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			14112	12/06/21 15:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	13730	12/02/21 11:27	DM	XEN MID
Total/NA	Analysis	8015B NM		1			13825	12/03/21 12:40	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	13647	12/01/21 11:21	CA	XEN MID
Soluble	Analysis	300.0		10			14304	12/09/21 02:59	CH	XEN MID

Client Sample ID: BH01A` Lab Sample ID: 890-1633-2

Date Collected: 11/23/21 12:14 **Matrix: Solid**
Date Received: 11/24/21 10:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	13343	11/30/21 08:45	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	13426	12/01/21 02:54	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			13868	12/03/21 10:31	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			14112	12/06/21 15:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	13730	12/02/21 11:27	DM	XEN MID
Total/NA	Analysis	8015B NM		1			13825	12/03/21 13:01	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	13647	12/01/21 11:21	CA	XEN MID
Soluble	Analysis	300.0		1			14304	12/09/21 03:06	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: WSP USA Inc. Job ID: 890-1633-1
Project/Site: Red Raider BKS State 001 SDG: 31403720.000 Task 09.02

Laboratory: Eurofins Xenco, Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: WSP USA Inc.
Project/Site: Red Raider BKS State 001

Job ID: 890-1633-1
SDG: 31403720.000 Task 09.02

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: WSP USA Inc.
Project/Site: Red Raider BKS State 001

Job ID: 890-1633-1
SDG: 31403720.000 Task 09.02

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1633-1	BH01	Solid	11/23/21 12:00	11/24/21 10:43	0.5
890-1633-2	BH01A`	Solid	11/23/21 12:14	11/24/21 10:43	4

Chain of Custody

Work Order No: _____

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)
www.xenco.com

12/9/2021

Project Manager:	Kalei Jennings	Bill to: (if different)	Kalei Jennings
Company Name:	WSP USA	Company Name:	WSP USA
Address:	3300 North A Street Bldg 1, Unit 222	Address:	3300 North A Street Bldg 1, Unit 222
City, State ZIP:	Midland, Texas 79705	City, State ZIP:	Midland, Texas 79705
Phone:	817-683-2503	Email:	kalei.jennings@wsp.com, payton.benner@wsp.com

Work Order Comments

Program: UST/PST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Red Raider BKS State 001	Turn Around	
Project Number:	31403720.000 Task 09.02	Routine	☒
P.O. Number:		Rush:	
Sampler's Name:	Payton Benner	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Temperature (°C):	1.4/1.2	Thermometer ID	IR-007	
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Total Containers:		

ANALYSIS REQUEST

890-1633 Chain of Custody

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)
BH01	S	11/23/21	12:00	0.5'	1	X	X	X
BH01A	S	11/23/21	12:14	4'	1	X	X	X

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Discrete
Discrete

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 pbenner	Joe Cruz	11.24.21 1043	2		
3			4		
5			6		

Eurofins Xenco, Carlsbad
1089 N Canal St.
Carlsbad NM 88220
Phone: 575-988-3199 Fax 575-988-3199

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer, Jessica	Carrier Tracking No(s):	COC No: 890-523 1
Client Contact: Shipping/Receiving	Phone	E-Mail: jessica kramer@eurofinset com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Louisiana, NELAP - Texas		Job #: 890-1633-1
Address: 1211 W Florida Ave	Due Date Requested: 12/3/2021			
City: Midland	TAT Requested (days):			
State Zip: TX 79701				
Phone: 432-704-5440(Tel)	PO #			
Email	WO #			
Project Name: Red Raider BKS State 001	Project #: 89000048			
Site	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8015MOD_NM/8015NM_S_Prep Full TPH	300_ORGFM_28D/DI_LEACH Chloride	8021B/5036FP_Calc BTEX	Total_BTEX_GCV	8015MOD_Calc	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X							
BH01 (890-1633-1)	11/23/21	12 00 Mountain		Solid			X	X	X	X	X	1	
BH01A (890-1633-2)	11/23/21	12 14 Mountain		Solid			X	X	X	X	X	1	

Preservation Codes

A	HCL	M	Hexane
B	NaOH	N	None
C	Zn Acetate	O	AsNaO2
D	Nitric Acid	P	Na2O4S
E	NaHSO4	Q	Na2SO3
F	MeOH	R	Na2S2O3
G	Amchlor	S	H2SO4
H	Ascorbic Acid	T	TSP Dodecahydrate
I	Ice	U	Acetone
J	DI Water	V	MCAA
K	EDTA	W	pH 4-5
L	EDA	Z	other (specify)

Other:

Note: Since laboratory accreditations are subject to change Eurofins Xenco LLC places the ownership of method analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said complicance to Eurofins Xenco LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	N. Cle	11/29/21		KRAMER	11.29.21	
2					230	
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 3.2/3.3

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1633-1
SDG Number: 31403720.000 Task 09.02

Login Number: 1633
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Xenco, Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1633-1
SDG Number: 31403720.000 Task 09.02

Login Number: 1633
List Number: 2
Creator: Kramer, Jessica

List Source: Eurofins Xenco, Midland
List Creation: 11/29/21 02:35 PM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

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ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-1995-1
Laboratory Sample Delivery Group: 31403720.000 task 09.02
Client Project/Site: RED Raider BKS State 001
Revision: 1

For:
WSP USA Inc.
2777 N. Stemmons Freeway
Suite 1600
Dallas, Texas 75207

Attn: Kalei Jennings

JKramer

Authorized for release by:
3/7/2022 12:24:54 PM

Jessica Kramer, Project Manager
(432)704-5440
jessica.kramer@eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Laboratory Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Table of Contents

Definitions/Glossary

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Job ID: 890-1995-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-1995-1

REVISION

The report being provided is a revision of the original report sent on 2/28/2022. The report (revision 1) is being revised due to Per client email requesting chloride re run sample 1.

Report revision history

Receipt
The samples were received on 2/21/2022 3:09 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-20208 and analytical batch 880-20289 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-11518-A-21-G). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following samples were outside control limits: (880-11518-A-21-E MS) and (880-11518-A-21-F MSD). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-20185 and analytical batch 880-20187 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-20134 and analytical batch 880-20166 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 300_ORGFM_28D: The continuing calibration blank (CCB) for analytical batch 880-20166 contained <AffectedAnalytes> above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Client Sample ID: BH02

Date Collected: 02/21/22 10:51
Date Received: 02/21/22 15:09
Sample Depth: 0.5

Lab Sample ID: 890-1995-1
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 23:19	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 23:19	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 23:19	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/24/22 11:00	02/27/22 23:19	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 23:19	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/24/22 11:00	02/27/22 23:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*02/24/22 11:00*	*02/27/22 23:19*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*02/24/22 11:00*	*02/27/22 23:19*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			02/28/22 11:39	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			02/24/22 19:59	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	50.0		mg/Kg		02/24/22 08:23	02/24/22 14:21	1
Diesel Range Organics (Over C10-C28)	<50.0	U F1	50.0		mg/Kg		02/24/22 08:23	02/24/22 14:21	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/24/22 08:23	02/24/22 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*92*		*70 - 130*	*02/24/22 08:23*	*02/24/22 14:21*	*1*
o-Terphenyl	*96*		*70 - 130*	*02/24/22 08:23*	*02/24/22 14:21*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**162**		4.99		mg/Kg			03/02/22 13:30	1

Client Sample ID: BH02A

Date Collected: 02/21/22 11:15
Date Received: 02/21/22 15:09
Sample Depth: 4

Lab Sample ID: 890-1995-2
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 23:39	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 23:39	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 23:39	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		02/24/22 11:00	02/27/22 23:39	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 23:39	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		02/24/22 11:00	02/27/22 23:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*	*02/24/22 11:00*	*02/27/22 23:39*	*1*

Client Sample Results

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Client Sample ID: BH02A
Date Collected: 02/21/22 11:15
Date Received: 02/21/22 15:09
Sample Depth: 4

Lab Sample ID: 890-1995-2
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*	*02/24/22 11:00*	*02/27/22 23:39*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			02/28/22 11:39	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**56.1**		50.0	mg/Kg			02/24/22 19:59	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		02/24/22 08:23	02/24/22 18:32	1
Diesel Range Organics (Over C10-C28)	**56.1**		50.0	mg/Kg		02/24/22 08:23	02/24/22 18:32	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		02/24/22 08:23	02/24/22 18:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	*103*		*70 - 130*	*02/24/22 08:23*	*02/24/22 18:32*	*1*
o-Terphenyl	*105*		*70 - 130*	*02/24/22 08:23*	*02/24/22 18:32*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**124**		4.99	mg/Kg			02/24/22 21:07	1

Client Sample ID: BH03
Date Collected: 02/21/22 11:35
Date Received: 02/21/22 15:09
Sample Depth: 0.5

Lab Sample ID: 890-1995-3
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		02/24/22 11:00	02/28/22 00:00	1
Toluene	<0.00201	U	0.00201	mg/Kg		02/24/22 11:00	02/28/22 00:00	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		02/24/22 11:00	02/28/22 00:00	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		02/24/22 11:00	02/28/22 00:00	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		02/24/22 11:00	02/28/22 00:00	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		02/24/22 11:00	02/28/22 00:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*	*02/24/22 11:00*	*02/28/22 00:00*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*02/24/22 11:00*	*02/28/22 00:00*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			02/28/22 11:39	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			02/24/22 19:59	1

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Client Sample Results

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Client Sample ID: BH03
Date Collected: 02/21/22 11:35
Date Received: 02/21/22 15:09
Sample Depth: 0.5

Lab Sample ID: 890-1995-3
Matrix: Solid

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		02/24/22 08:23	02/24/22 19:13	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		02/24/22 08:23	02/24/22 19:13	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		02/24/22 08:23	02/24/22 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*98*		*70 - 130*	*02/24/22 08:23*	*02/24/22 19:13*	*1*
o-Terphenyl	*99*		*70 - 130*	*02/24/22 08:23*	*02/24/22 19:13*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**16.5**		4.95		mg/Kg			02/24/22 21:14	1

Client Sample ID: BH03A
Date Collected: 02/21/22 11:52
Date Received: 02/21/22 15:09
Sample Depth: 4

Lab Sample ID: 890-1995-4
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		02/24/22 11:00	02/28/22 00:20	1
Toluene	<0.00199	U	0.00199		mg/Kg		02/24/22 11:00	02/28/22 00:20	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		02/24/22 11:00	02/28/22 00:20	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		02/24/22 11:00	02/28/22 00:20	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		02/24/22 11:00	02/28/22 00:20	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		02/24/22 11:00	02/28/22 00:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*02/24/22 11:00*	*02/28/22 00:20*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*02/24/22 11:00*	*02/28/22 00:20*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			02/28/22 11:39	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			02/24/22 19:59	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		02/24/22 08:23	02/24/22 19:33	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		02/24/22 08:23	02/24/22 19:33	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		02/24/22 08:23	02/24/22 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*110*		*70 - 130*	*02/24/22 08:23*	*02/24/22 19:33*	*1*
o-Terphenyl	*113*		*70 - 130*	*02/24/22 08:23*	*02/24/22 19:33*	*1*

Client Sample Results

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Client Sample ID: BH03A
Lab Sample ID: 890-1995-4
Date Collected: 02/21/22 11:52
Matrix: Solid
Date Received: 02/21/22 15:09
Sample Depth: 4

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12.1**		4.96		mg/Kg			02/24/22 21:20	1

Client Sample ID: BH04
Lab Sample ID: 890-1995-5
Date Collected: 02/21/22 12:19
Matrix: Solid
Date Received: 02/21/22 15:09
Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/28/22 00:41	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/28/22 00:41	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/28/22 00:41	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/24/22 11:00	02/28/22 00:41	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/28/22 00:41	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/24/22 11:00	02/28/22 00:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*02/24/22 11:00*	*02/28/22 00:41*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*	*02/24/22 11:00*	*02/28/22 00:41*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			02/28/22 11:39	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**68.7**		50.0		mg/Kg			02/24/22 19:59	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		02/24/22 08:23	02/24/22 19:53	1
Diesel Range Organics (Over C10-C28)	**68.7**		50.0		mg/Kg		02/24/22 08:23	02/24/22 19:53	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/24/22 08:23	02/24/22 19:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*02/24/22 08:23*	*02/24/22 19:53*	*1*
o-Terphenyl	*107*		*70 - 130*	*02/24/22 08:23*	*02/24/22 19:53*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.09**		5.00		mg/Kg			02/24/22 21:26	1

Client Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Client Sample ID: BH04A

Date Collected: 02/21/22 12:30
Date Received: 02/21/22 15:09
Sample Depth: 4

Lab Sample ID: 890-1995-6

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		02/24/22 11:00	02/28/22 01:01	1
Toluene	<0.00198	U	0.00198		mg/Kg		02/24/22 11:00	02/28/22 01:01	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		02/24/22 11:00	02/28/22 01:01	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		02/24/22 11:00	02/28/22 01:01	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		02/24/22 11:00	02/28/22 01:01	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		02/24/22 11:00	02/28/22 01:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*	*02/24/22 11:00*	*02/28/22 01:01*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*02/24/22 11:00*	*02/28/22 01:01*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396		mg/Kg			02/28/22 11:39	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			02/28/22 20:00	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		02/23/22 11:20	02/24/22 19:38	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/23/22 11:20	02/24/22 19:38	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/23/22 11:20	02/24/22 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*78*		*70 - 130*	*02/23/22 11:20*	*02/24/22 19:38*	*1*
o-Terphenyl	*83*		*70 - 130*	*02/23/22 11:20*	*02/24/22 19:38*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.44**		5.02		mg/Kg			02/24/22 21:33	1

Client Sample ID: BH05

Date Collected: 02/21/22 12:52
Date Received: 02/21/22 15:09
Sample Depth: 0.5

Lab Sample ID: 890-1995-7

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		02/24/22 11:00	02/28/22 01:22	1
Toluene	<0.00202	U	0.00202		mg/Kg		02/24/22 11:00	02/28/22 01:22	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		02/24/22 11:00	02/28/22 01:22	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		02/24/22 11:00	02/28/22 01:22	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		02/24/22 11:00	02/28/22 01:22	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		02/24/22 11:00	02/28/22 01:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*02/24/22 11:00*	*02/28/22 01:22*	*1*

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Client Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Client Sample ID: BH05

Date Collected: 02/21/22 12:52
Date Received: 02/21/22 15:09
Sample Depth: 0.5

Lab Sample ID: 890-1995-7
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*	*02/24/22 11:00*	*02/28/22 01:22*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			02/28/22 11:39	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			02/28/22 20:00	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/23/22 11:20	02/24/22 19:58	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/23/22 11:20	02/24/22 19:58	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/23/22 11:20	02/24/22 19:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*74*		*70 - 130*	*02/23/22 11:20*	*02/24/22 19:58*	*1*
o-Terphenyl	*74*		*70 - 130*	*02/23/22 11:20*	*02/24/22 19:58*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.36**		4.95	mg/Kg			02/25/22 21:04	1

Client Sample ID: BH05A

Date Collected: 02/21/22 13:10
Date Received: 02/21/22 15:09
Sample Depth: 4

Lab Sample ID: 890-1995-8
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		02/24/22 11:00	02/28/22 01:42	1
Toluene	<0.00199	U	0.00199	mg/Kg		02/24/22 11:00	02/28/22 01:42	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		02/24/22 11:00	02/28/22 01:42	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/24/22 11:00	02/28/22 01:42	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		02/24/22 11:00	02/28/22 01:42	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/24/22 11:00	02/28/22 01:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*	*02/24/22 11:00*	*02/28/22 01:42*	*1*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*	*02/24/22 11:00*	*02/28/22 01:42*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/28/22 11:39	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			02/28/22 20:00	1

Eurofins Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Client Sample ID: BH05A

Date Collected: 02/21/22 13:10
Date Received: 02/21/22 15:09
Sample Depth: 4

Lab Sample ID: 890-1995-8

Matrix: Solid

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		02/23/22 11:20	02/24/22 20:19	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		02/23/22 11:20	02/24/22 20:19	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		02/23/22 11:20	02/24/22 20:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*92*		*70 - 130*	*02/23/22 11:20*	*02/24/22 20:19*	*1*
o-Terphenyl	*92*		*70 - 130*	*02/23/22 11:20*	*02/24/22 20:19*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.98**		5.00		mg/Kg			02/25/22 21:23	1

Surrogate Summary

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-11518-A-21-E MS	Matrix Spike	149 S1+	95
880-11518-A-21-F MSD	Matrix Spike Duplicate	134 S1+	96
890-1995-1	BH02	106	100
890-1995-2	BH02A	114	88
890-1995-3	BH03	103	99
890-1995-4	BH03A	104	99
890-1995-5	BH04	104	97
890-1995-6	BH04A	103	99
890-1995-7	BH05	106	96
890-1995-8	BH05A	102	96
LCS 880-20208/1-A	Lab Control Sample	100	101
LCSD 880-20208/2-A	Lab Control Sample Dup	101	100
MB 880-20208/5-A	Method Blank	101	94
MB 880-20241/5-A	Method Blank	99	94

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-1994-A-21-B MS	Matrix Spike	83	88
890-1994-A-21-C MSD	Matrix Spike Duplicate	71	73
890-1995-1	BH02	92	96
890-1995-1 MS	BH02	107	96
890-1995-1 MSD	BH02	100	91
890-1995-2	BH02A	103	105
890-1995-3	BH03	98	99
890-1995-4	BH03A	110	113
890-1995-5	BH04	104	107
890-1995-6	BH04A	78	83
890-1995-7	BH05	74	74
890-1995-8	BH05A	92	92
LCS 880-20185/2-A	Lab Control Sample	92	86
LCSD 880-20185/3-A	Lab Control Sample Dup	120	116
MB 880-20185/1-A	Method Blank	123	123

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

Surrogate Summary

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	1CO2 (70-130)	OTPH2 (70-130)								
LCS 880-20142/2-A	Lab Control Sample	110	123								
LCSD 880-20142/3-A	Lab Control Sample Dup	102	101								
MB 880-20142/1-A	Method Blank	96	100								

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-20208/5-A
Matrix: Solid
Analysis Batch: 20289

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20208

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 18:29	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 18:29	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 18:29	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/24/22 11:00	02/27/22 18:29	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/24/22 11:00	02/27/22 18:29	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/24/22 11:00	02/27/22 18:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*02/24/22 11:00*	*02/27/22 18:29*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*02/24/22 11:00*	*02/27/22 18:29*	*1*

Lab Sample ID: LCS 880-20208/1-A
Matrix: Solid
Analysis Batch: 20289

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20208

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.1079		mg/Kg		108	70 - 130		
Toluene			0.100	0.1058		mg/Kg		106	70 - 130		
Ethylbenzene			0.100	0.1046		mg/Kg		105	70 - 130		
m-Xylene & p-Xylene			0.200	0.2188		mg/Kg		109	70 - 130		
o-Xylene			0.100	0.1060		mg/Kg		106	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-20208/2-A
Matrix: Solid
Analysis Batch: 20289

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20208

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.1021		mg/Kg		102	70 - 130	6	35
Toluene			0.100	0.1001		mg/Kg		100	70 - 130	5	35
Ethylbenzene			0.100	0.09987		mg/Kg		100	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.2088		mg/Kg		104	70 - 130	5	35
o-Xylene			0.100	0.1015		mg/Kg		102	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 880-11518-A-21-E MS
Matrix: Solid
Analysis Batch: 20289

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 20208

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<0.00199	U	0.100	0.07535		mg/Kg		74	70 - 130		
Toluene	0.00303		0.100	0.08383		mg/Kg		80	70 - 130		

QC Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-11518-A-21-E MS
Matrix: Solid
Analysis Batch: 20289

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 20208

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	0.0161		0.100	0.1073		mg/Kg		91	70 - 130
m-Xylene & p-Xylene	0.00443		0.201	0.2606		mg/Kg		128	70 - 130
o-Xylene	0.0713	F1	0.100	0.1218	F1	mg/Kg		50	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*149*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 880-11518-A-21-F MSD
Matrix: Solid
Analysis Batch: 20289

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 20208

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.0996	0.07177		mg/Kg		71	70 - 130	5	35
Toluene	0.00303		0.0996	0.07672		mg/Kg		74	70 - 130	9	35
Ethylbenzene	0.0161		0.0996	0.09418		mg/Kg		78	70 - 130	13	35
m-Xylene & p-Xylene	0.00443		0.199	0.2172		mg/Kg		107	70 - 130	18	35
o-Xylene	0.0713	F1	0.0996	0.1042	F1	mg/Kg		33	70 - 130	16	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*134*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: MB 880-20241/5-A
Matrix: Solid
Analysis Batch: 20289

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20241

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/25/22 16:00	02/27/22 07:06	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/25/22 16:00	02/27/22 07:06	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/25/22 16:00	02/27/22 07:06	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		02/25/22 16:00	02/27/22 07:06	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/25/22 16:00	02/27/22 07:06	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		02/25/22 16:00	02/27/22 07:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*	*02/25/22 16:00*	*02/27/22 07:06*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*02/25/22 16:00*	*02/27/22 07:06*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-20142/1-A
Matrix: Solid
Analysis Batch: 20195

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20142

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		02/23/22 11:20	02/24/22 11:50	1

QC Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-20142/1-A
Matrix: Solid
Analysis Batch: 20195

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20142

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/23/22 11:20	02/24/22 11:50	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/23/22 11:20	02/24/22 11:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*96*		*70 - 130*	*02/23/22 11:20*	*02/24/22 11:50*	*1*
o-Terphenyl	*100*		*70 - 130*	*02/23/22 11:20*	*02/24/22 11:50*	*1*

Lab Sample ID: LCS 880-20142/2-A
Matrix: Solid
Analysis Batch: 20195

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20142

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	974.0		mg/Kg		97	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1032		mg/Kg		103	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*110*		*70 - 130*
o-Terphenyl	*123*		*70 - 130*

Lab Sample ID: LCSD 880-20142/3-A
Matrix: Solid
Analysis Batch: 20195

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20142

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	924.9		mg/Kg		92	70 - 130	5	20
Diesel Range Organics (Over C10-C28)			1000	912.6		mg/Kg		91	70 - 130	12	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*102*		*70 - 130*
o-Terphenyl	*101*		*70 - 130*

Lab Sample ID: 890-1994-A-21-B MS
Matrix: Solid
Analysis Batch: 20195

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 20142

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	1000	1170		mg/Kg		117	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	1000	1298		mg/Kg		130	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*83*		*70 - 130*
o-Terphenyl	*88*		*70 - 130*

QC Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-1994-A-21-C MSD
Matrix: Solid
Analysis Batch: 20195

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 20142

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	953.0		mg/Kg		95	70 - 130	20	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	1072		mg/Kg		107	70 - 130	19	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*71*		*70 - 130*
o-Terphenyl	*73*		*70 - 130*

Lab Sample ID: MB 880-20185/1-A
Matrix: Solid
Analysis Batch: 20187

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20185

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		02/24/22 08:23	02/24/22 10:12	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/24/22 08:23	02/24/22 10:12	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/24/22 08:23	02/24/22 10:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*123*		*70 - 130*	*02/24/22 08:23*	*02/24/22 10:12*	*1*
o-Terphenyl	*123*		*70 - 130*	*02/24/22 08:23*	*02/24/22 10:12*	*1*

Lab Sample ID: LCS 880-20185/2-A
Matrix: Solid
Analysis Batch: 20187

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20185

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	908.8		mg/Kg		91	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1082		mg/Kg		108	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*92*		*70 - 130*
o-Terphenyl	*86*		*70 - 130*

Lab Sample ID: LCSD 880-20185/3-A
Matrix: Solid
Analysis Batch: 20187

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20185

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	915.5		mg/Kg		92	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	1114		mg/Kg		111	70 - 130	3	20

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-20185/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 20187 **Prep Batch: 20185**

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	120		70 - 130
o-Terphenyl	116		70 - 130

Lab Sample ID: 890-1995-1 MS **Client Sample ID: BH02**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 20187 **Prep Batch: 20185**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	1000	1252		mg/Kg		121	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U F1	1000	1467	F1	mg/Kg		147	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	107		70 - 130
o-Terphenyl	96		70 - 130

Lab Sample ID: 890-1995-1 MSD **Client Sample ID: BH02**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 20187 **Prep Batch: 20185**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	998	1401	F1	mg/Kg		136	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	<50.0	U F1	998	1400	F1	mg/Kg		140	70 - 130	5	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	100		70 - 130
o-Terphenyl	91		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-20134/1-A **Client Sample ID: Method Blank**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 20166

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			02/24/22 17:56	1

Lab Sample ID: LCS 880-20134/2-A **Client Sample ID: Lab Control Sample**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 20166

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	254.8		mg/Kg		102	90 - 110		

QC Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-20134/3-A
Matrix: Solid
Analysis Batch: 20166

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	257.5		mg/Kg		103	90 - 110	1	20

Lab Sample ID: 890-1994-A-33-F MS
Matrix: Solid
Analysis Batch: 20166

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	11.9	F1	248	267.7		mg/Kg		103	90 - 110

Lab Sample ID: 890-1994-A-33-G MSD
Matrix: Solid
Analysis Batch: 20166

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	11.9	F1	248	233.6	F1	mg/Kg		89	90 - 110	14	20

Lab Sample ID: MB 880-20129/1-A
Matrix: Solid
Analysis Batch: 20336

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			02/25/22 19:10	1

Lab Sample ID: LCS 880-20129/2-A
Matrix: Solid
Analysis Batch: 20336

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride			250	258.8		mg/Kg		104	90 - 110

Lab Sample ID: LCSD 880-20129/3-A
Matrix: Solid
Analysis Batch: 20336

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	265.2		mg/Kg		106	90 - 110	2	20

Lab Sample ID: 890-1995-7 MS
Matrix: Solid
Analysis Batch: 20336

Client Sample ID: BH05
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	9.36		248	281.4		mg/Kg		110	90 - 110

Lab Sample ID: 890-1995-7 MSD
Matrix: Solid
Analysis Batch: 20336

Client Sample ID: BH05
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	9.36		248	281.3		mg/Kg		110	90 - 110	0	20

QC Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-20497/1-A
Matrix: Solid
Analysis Batch: 20689

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			03/02/22 12:08	1

Lab Sample ID: LCS 880-20497/2-A
Matrix: Solid
Analysis Batch: 20689

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	272.4		mg/Kg		109	90 - 110		

Lab Sample ID: LCSD 880-20497/3-A
Matrix: Solid
Analysis Batch: 20689

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	266.1		mg/Kg		106	90 - 110	2	20

Lab Sample ID: 880-11760-A-1-E MS
Matrix: Solid
Analysis Batch: 20689

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	68.2		252	320.0		mg/Kg		100	90 - 110		

Lab Sample ID: 880-11760-A-1-F MSD
Matrix: Solid
Analysis Batch: 20689

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	68.2		252	316.5		mg/Kg		99	90 - 110	1	20

Lab Sample ID: MB 880-20804/1-A
Matrix: Solid
Analysis Batch: 20846

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			03/04/22 08:37	1

Lab Sample ID: LCS 880-20804/2-A
Matrix: Solid
Analysis Batch: 20846

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	260.0		mg/Kg		104	90 - 110		

Lab Sample ID: LCSD 880-20804/3-A
Matrix: Solid
Analysis Batch: 20846

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	265.7		mg/Kg		106	90 - 110	2	20

QC Sample Results

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 880-12020-A-1-D MS
Matrix: Solid
Analysis Batch: 20846

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	1350		1250	2615		mg/Kg		101	90 - 110		

Lab Sample ID: 880-12020-A-1-E MSD
Matrix: Solid
Analysis Batch: 20846

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1350		1250	2572		mg/Kg		97	90 - 110	2	20

QC Association Summary

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

GC VOA

Prep Batch: 20208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-1	BH02	Total/NA	Solid	5035	
890-1995-2	BH02A	Total/NA	Solid	5035	
890-1995-3	BH03	Total/NA	Solid	5035	
890-1995-4	BH03A	Total/NA	Solid	5035	
890-1995-5	BH04	Total/NA	Solid	5035	
890-1995-6	BH04A	Total/NA	Solid	5035	
890-1995-7	BH05	Total/NA	Solid	5035	
890-1995-8	BH05A	Total/NA	Solid	5035	
MB 880-20208/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-20208/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-20208/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-11518-A-21-E MS	Matrix Spike	Total/NA	Solid	5035	
880-11518-A-21-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 20241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-20241/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 20289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-1	BH02	Total/NA	Solid	8021B	20208
890-1995-2	BH02A	Total/NA	Solid	8021B	20208
890-1995-3	BH03	Total/NA	Solid	8021B	20208
890-1995-4	BH03A	Total/NA	Solid	8021B	20208
890-1995-5	BH04	Total/NA	Solid	8021B	20208
890-1995-6	BH04A	Total/NA	Solid	8021B	20208
890-1995-7	BH05	Total/NA	Solid	8021B	20208
890-1995-8	BH05A	Total/NA	Solid	8021B	20208
MB 880-20208/5-A	Method Blank	Total/NA	Solid	8021B	20208
MB 880-20241/5-A	Method Blank	Total/NA	Solid	8021B	20241
LCS 880-20208/1-A	Lab Control Sample	Total/NA	Solid	8021B	20208
LCSD 880-20208/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	20208
880-11518-A-21-E MS	Matrix Spike	Total/NA	Solid	8021B	20208
880-11518-A-21-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	20208

Analysis Batch: 20484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-1	BH02	Total/NA	Solid	Total BTEX	
890-1995-2	BH02A	Total/NA	Solid	Total BTEX	
890-1995-3	BH03	Total/NA	Solid	Total BTEX	
890-1995-4	BH03A	Total/NA	Solid	Total BTEX	
890-1995-5	BH04	Total/NA	Solid	Total BTEX	
890-1995-6	BH04A	Total/NA	Solid	Total BTEX	
890-1995-7	BH05	Total/NA	Solid	Total BTEX	
890-1995-8	BH05A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 20142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-6	BH04A	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

GC Semi VOA (Continued)

Prep Batch: 20142 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-7	BH05	Total/NA	Solid	8015NM Prep	
890-1995-8	BH05A	Total/NA	Solid	8015NM Prep	
MB 880-20142/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-20142/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-20142/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1994-A-21-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-1994-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Prep Batch: 20185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-1	BH02	Total/NA	Solid	8015NM Prep	
890-1995-2	BH02A	Total/NA	Solid	8015NM Prep	
890-1995-3	BH03	Total/NA	Solid	8015NM Prep	
890-1995-4	BH03A	Total/NA	Solid	8015NM Prep	
890-1995-5	BH04	Total/NA	Solid	8015NM Prep	
MB 880-20185/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-20185/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-20185/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1995-1 MS	BH02	Total/NA	Solid	8015NM Prep	
890-1995-1 MSD	BH02	Total/NA	Solid	8015NM Prep	

Analysis Batch: 20187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-1	BH02	Total/NA	Solid	8015B NM	20185
890-1995-2	BH02A	Total/NA	Solid	8015B NM	20185
890-1995-3	BH03	Total/NA	Solid	8015B NM	20185
890-1995-4	BH03A	Total/NA	Solid	8015B NM	20185
890-1995-5	BH04	Total/NA	Solid	8015B NM	20185
MB 880-20185/1-A	Method Blank	Total/NA	Solid	8015B NM	20185
LCS 880-20185/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	20185
LCSD 880-20185/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	20185
890-1995-1 MS	BH02	Total/NA	Solid	8015B NM	20185
890-1995-1 MSD	BH02	Total/NA	Solid	8015B NM	20185

Analysis Batch: 20195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-6	BH04A	Total/NA	Solid	8015B NM	20142
890-1995-7	BH05	Total/NA	Solid	8015B NM	20142
890-1995-8	BH05A	Total/NA	Solid	8015B NM	20142
MB 880-20142/1-A	Method Blank	Total/NA	Solid	8015B NM	20142
LCS 880-20142/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	20142
LCSD 880-20142/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	20142
890-1994-A-21-B MS	Matrix Spike	Total/NA	Solid	8015B NM	20142
890-1994-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	20142

Analysis Batch: 20277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-1	BH02	Total/NA	Solid	8015 NM	
890-1995-2	BH02A	Total/NA	Solid	8015 NM	
890-1995-3	BH03	Total/NA	Solid	8015 NM	
890-1995-4	BH03A	Total/NA	Solid	8015 NM	

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

GC Semi VOA (Continued)

Analysis Batch: 20277 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-5	BH04	Total/NA	Solid	8015 NM	

Analysis Batch: 20572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-6	BH04A	Total/NA	Solid	8015 NM	
890-1995-7	BH05	Total/NA	Solid	8015 NM	
890-1995-8	BH05A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 20129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-7	BH05	Soluble	Solid	DI Leach	
890-1995-8	BH05A	Soluble	Solid	DI Leach	
MB 880-20129/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-20129/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-20129/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1995-7 MS	BH05	Soluble	Solid	DI Leach	
890-1995-7 MSD	BH05	Soluble	Solid	DI Leach	

Leach Batch: 20134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-2	BH02A	Soluble	Solid	DI Leach	
890-1995-3	BH03	Soluble	Solid	DI Leach	
890-1995-4	BH03A	Soluble	Solid	DI Leach	
890-1995-5	BH04	Soluble	Solid	DI Leach	
890-1995-6	BH04A	Soluble	Solid	DI Leach	
MB 880-20134/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-20134/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-20134/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1994-A-33-F MS	Matrix Spike	Soluble	Solid	DI Leach	
890-1994-A-33-G MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 20166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-2	BH02A	Soluble	Solid	300.0	20134
890-1995-3	BH03	Soluble	Solid	300.0	20134
890-1995-4	BH03A	Soluble	Solid	300.0	20134
890-1995-5	BH04	Soluble	Solid	300.0	20134
890-1995-6	BH04A	Soluble	Solid	300.0	20134
MB 880-20134/1-A	Method Blank	Soluble	Solid	300.0	20134
LCS 880-20134/2-A	Lab Control Sample	Soluble	Solid	300.0	20134
LCSD 880-20134/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	20134
890-1994-A-33-F MS	Matrix Spike	Soluble	Solid	300.0	20134
890-1994-A-33-G MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	20134

Analysis Batch: 20336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-7	BH05	Soluble	Solid	300.0	20129
890-1995-8	BH05A	Soluble	Solid	300.0	20129
MB 880-20129/1-A	Method Blank	Soluble	Solid	300.0	20129

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

HPLC/IC (Continued)

Analysis Batch: 20336 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-20129/2-A	Lab Control Sample	Soluble	Solid	300.0	20129
LCSD 880-20129/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	20129
890-1995-7 MS	BH05	Soluble	Solid	300.0	20129
890-1995-7 MSD	BH05	Soluble	Solid	300.0	20129

Leach Batch: 20497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-1	BH02	Soluble	Solid	DI Leach	
MB 880-20497/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-20497/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-20497/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-11760-A-1-E MS	Matrix Spike	Soluble	Solid	DI Leach	
880-11760-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 20689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1995-1	BH02	Soluble	Solid	300.0	20497
MB 880-20497/1-A	Method Blank	Soluble	Solid	300.0	20497
LCS 880-20497/2-A	Lab Control Sample	Soluble	Solid	300.0	20497
LCSD 880-20497/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	20497
880-11760-A-1-E MS	Matrix Spike	Soluble	Solid	300.0	20497
880-11760-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	20497

Leach Batch: 20804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-20804/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-20804/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-20804/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-12020-A-1-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-12020-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 20846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-20804/1-A	Method Blank	Soluble	Solid	300.0	20804
LCS 880-20804/2-A	Lab Control Sample	Soluble	Solid	300.0	20804
LCSD 880-20804/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	20804
880-12020-A-1-D MS	Matrix Spike	Soluble	Solid	300.0	20804
880-12020-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	20804

Lab Chronicle

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Client Sample ID: BH02
Date Collected: 02/21/22 10:51
Date Received: 02/21/22 15:09

Lab Sample ID: 890-1995-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	20208	02/24/22 11:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	20289	02/27/22 23:19	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			20484	02/28/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			20277	02/24/22 19:59	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	20185	02/24/22 08:23	DM	XEN MID
Total/NA	Analysis	8015B NM		1			20187	02/24/22 14:21	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	20497	02/28/22 12:47	SC	XEN MID
Soluble	Analysis	300.0		1			20689	03/02/22 13:30	CH	XEN MID

Client Sample ID: BH02A
Date Collected: 02/21/22 11:15
Date Received: 02/21/22 15:09

Lab Sample ID: 890-1995-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	20208	02/24/22 11:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	20289	02/27/22 23:39	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			20484	02/28/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			20277	02/24/22 19:59	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	20185	02/24/22 08:23	DM	XEN MID
Total/NA	Analysis	8015B NM		1			20187	02/24/22 18:32	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	20134	02/23/22 10:06	CH	XEN MID
Soluble	Analysis	300.0		1			20166	02/24/22 21:07	CH	XEN MID

Client Sample ID: BH03
Date Collected: 02/21/22 11:35
Date Received: 02/21/22 15:09

Lab Sample ID: 890-1995-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	20208	02/24/22 11:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	20289	02/28/22 00:00	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			20484	02/28/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			20277	02/24/22 19:59	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	20185	02/24/22 08:23	DM	XEN MID
Total/NA	Analysis	8015B NM		1			20187	02/24/22 19:13	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	20134	02/23/22 10:06	CH	XEN MID
Soluble	Analysis	300.0		1			20166	02/24/22 21:14	CH	XEN MID

Client Sample ID: BH03A
Date Collected: 02/21/22 11:52
Date Received: 02/21/22 15:09

Lab Sample ID: 890-1995-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	20208	02/24/22 11:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	20289	02/28/22 00:20	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			20484	02/28/22 11:39	AJ	XEN MID

Eurofins Carlsbad

Lab Chronicle

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Client Sample ID: BH03A
Date Collected: 02/21/22 11:52
Date Received: 02/21/22 15:09

Lab Sample ID: 890-1995-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			20277	02/24/22 19:59	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	20185	02/24/22 08:23	DM	XEN MID
Total/NA	Analysis	8015B NM		1			20187	02/24/22 19:33	AJ	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	20134	02/23/22 10:06	CH	XEN MID
Soluble	Analysis	300.0		1			20166	02/24/22 21:20	CH	XEN MID

Client Sample ID: BH04
Date Collected: 02/21/22 12:19
Date Received: 02/21/22 15:09

Lab Sample ID: 890-1995-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	20208	02/24/22 11:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	20289	02/28/22 00:41	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			20484	02/28/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			20277	02/24/22 19:59	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	20185	02/24/22 08:23	DM	XEN MID
Total/NA	Analysis	8015B NM		1			20187	02/24/22 19:53	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	20134	02/23/22 10:06	CH	XEN MID
Soluble	Analysis	300.0		1			20166	02/24/22 21:26	CH	XEN MID

Client Sample ID: BH04A
Date Collected: 02/21/22 12:30
Date Received: 02/21/22 15:09

Lab Sample ID: 890-1995-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	20208	02/24/22 11:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	20289	02/28/22 01:01	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			20484	02/28/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			20572	02/28/22 20:00	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	20142	02/23/22 11:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			20195	02/24/22 19:38	AJ	XEN MID
Soluble	Leach	DI Leach			4.98 g	50 mL	20134	02/23/22 10:06	CH	XEN MID
Soluble	Analysis	300.0		1			20166	02/24/22 21:33	CH	XEN MID

Client Sample ID: BH05
Date Collected: 02/21/22 12:52
Date Received: 02/21/22 15:09

Lab Sample ID: 890-1995-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	20208	02/24/22 11:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	20289	02/28/22 01:22	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			20484	02/28/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			20572	02/28/22 20:00	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	20142	02/23/22 11:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			20195	02/24/22 19:58	AJ	XEN MID

Eurofins Carlsbad

Lab Chronicle

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Client Sample ID: BH05 Lab Sample ID: 890-1995-7

Date Collected: 02/21/22 12:52 **Matrix: Solid**
Date Received: 02/21/22 15:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.05 g	50 mL	20129	02/23/22 09:37	CH	XEN MID
Soluble	Analysis	300.0		1			20336	02/25/22 21:04	CH	XEN MID

Client Sample ID: BH05A Lab Sample ID: 890-1995-8

Date Collected: 02/21/22 13:10 **Matrix: Solid**
Date Received: 02/21/22 15:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	20208	02/24/22 11:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	20289	02/28/22 01:42	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			20484	02/28/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			20572	02/28/22 20:00	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	20142	02/23/22 11:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			20195	02/24/22 20:19	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	20129	02/23/22 09:37	CH	XEN MID
Soluble	Analysis	300.0		1			20336	02/25/22 21:23	CH	XEN MID

Laboratory References:
XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: WSP USA Inc. Job ID: 890-1995-1
Project/Site: RED Raider BKS State 001 SDG: 31403720.000 task 09.02

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: WSP USA Inc.
Project/Site: RED Raider BKS State 001

Job ID: 890-1995-1
SDG: 31403720.000 task 09.02

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1995-1	BH02	Solid	02/21/22 10:51	02/21/22 15:09	0.5
890-1995-2	BH02A	Solid	02/21/22 11:15	02/21/22 15:09	4
890-1995-3	BH03	Solid	02/21/22 11:35	02/21/22 15:09	0.5
890-1995-4	BH03A	Solid	02/21/22 11:52	02/21/22 15:09	4
890-1995-5	BH04	Solid	02/21/22 12:19	02/21/22 15:09	0.5
890-1995-6	BH04A	Solid	02/21/22 12:30	02/21/22 15:09	4
890-1995-7	BH05	Solid	02/21/22 12:52	02/21/22 15:09	0.5
890-1995-8	BH05A	Solid	02/21/22 13:10	02/21/22 15:09	4

Chain of Custody

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

Work Order No: _____

www.xenco.com Page 1 of 1

Project Manager:	Kalei Jennings	Bill to: (if different)	Kalei Jennings
Company Name:	WSP USA	Company Name:	WSP USA
Address:	3300 North A Street Building 1, unit 222	Address:	3300 North A Street Building 1, unit 222
City, State ZIP:	Midland, Texas 79705	City, State ZIP:	Midland, Texas 79705
Phone:	817-683-2503	Email:	Kalei.jennings@wsp.com

Work Order Comments

Program: UST/PST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Red Raider BKS State 001	Turn Around	
Project Number:	31403720.000 Task 09.02	Routine ☐	
P.O. Number:		Rush:	
Sampler's Name:	Payton Benner	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Temperature (°C):	1.0 / .8	Thermometer ID	
Received Intact:	(Yes) No	T-NM-00?	
Cooler Custody Seals:	Yes No (N/A)	~~Correction Factor:~~	-0.2
Sample Custody Seals:	Yes No (N/A)	Total Containers:	

ANALYSIS REQUEST

890-1995 Chain of Custody

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)	Sample Comments
BH02	S	02/21/22	10:51	0.5	1	X	X	X	DISCRETE
BH02A	S	02/21/22	11:15	4	1	X	X	X	DISCRETE
BH03	S	02/21/22	11:35	0.5	1	X	X	X	DISCRETE
BH03A	S	02/21/22	11:52	4	1	X	X	X	DISCRETE
BH04	S	02/21/22	12:19	0.5	1	X	X	X	DISCRETE
BH04A	S	02/21/22	12:30	4	1	X	X	X	DISCRETE
BH05	S	02/21/22	12:52	0.5	1	X	X	X	DISCRETE
BH05A	S	02/21/22	13:10	4	1	X	X	X	DISCRETE

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 P Benner	N. Cle	2/21/22 3:09	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1995-1
SDG Number: 31403720.000 task 09.02

Login Number: 1995
List Number: 1
Creator: Olivas, Nathaniel

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1995-1
SDG Number: 31403720.000 task 09.02

Login Number: 1995
List Number: 2
Creator: Teel, Brianna

List Source: Eurofins Midland
List Creation: 02/23/22 11:30 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

ATTACHMENT 5: **FINAL C-141**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAPP2129845041
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Kelsy Waggaman	Contact Telephone	(432) 688 - 9057
Contact email	Kelsy.Waggaman@ConocoPhillips.com	Incident # *(assigned by OCD)*	NAPP2129845041
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.18675 Longitude -103.52338

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Red Raider BKS State 001	Site Type	Tank Battery
Date Release Discovered	October 8, 2021	API# *(if applicable)*	30-025-29141

Unit Letter	Section	Township	Range	County
J	25	24S	33E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 20	Volume Recovered (bbls) 20
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by water dump line leak due to corrosion.
The release occurred within the lined facility. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area evaluated for any possible impact from the release.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2129845041
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ■ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ■ The source of the release has been stopped.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Brittany N. Esparza Title: Environmental Technician

Signature: Brittany Esparza Date: 10/25/2021

email: Brittany.Esparza@ConocoPhillips.com Telephone: (432) 221-0398

OCD Only

Received by: _____ Date: _____

L48 Spill Volume Estimate Form

Facility Name & Number:	Red Raider BKS RB
Asset Area:	Northern Delaware Basin - Delaware Basin East Route
Release Discovery Date & Time:	7/17/2021
Release Type:	Oil mixture
Provide any known details about the event:	Internal corrosion of KO bypass line for #5 KO

Spill Calculation - On Pad Surface Pool Spill

Convert Irregular shape into a series of rectangles	Length (ft.)	Width (ft.)	Deepest point in each of the areas (in.)	No. of boundaries of "shore" in each area	Estimated *Pool* Area (sq. ft.)	Estimated Average Depth (ft.)	Estimated volume of each pool area (bbl.)	Penetration allowance (ft.)	Total Estimated Volume of Spill (bbl.)	Percentage of Oil if Spilled Fluid is a Mixture	Total Estimated Volume of Spilled Oil (bbl.)	Total Estimated Volume of Spilled Liquid other than Oil (bbl.)
Rectangle A	8.0	6.0	0.50	2	48.000	0.021	0.178	0.001	0.178	50.00%	0.089	0.089
Rectangle B					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
Rectangle C					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
Rectangle D					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
Rectangle E					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
Rectangle F					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
Rectangle G					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
Rectangle H					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
Rectangle I					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
Rectangle J					0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!
								Total Volume Release:	0.178		0.089	0.089

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2129845041
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	< 50 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2129845041
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Charles Beauvais Title: Senior Environmental Engineer

Signature: Charles R. Beauvais II Date: 3/17/2022

email: Charles.R.Beauvais@conocophillips.com Telephone: 575-988-2043

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2129845041
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- ☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☒ Extents of contamination must be fully delineated.
- ☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Charles Beauvais Title: Senior Environmental Engineer

Signature: Charles R. Beauvais II Date: 3/17/2022

Email: Charles.R.Beauvais@conocophillips.com Telephone: 575-988-2043

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☒ Deferral Approved

Signature: Jennifer Nobui Date: 04/27/2022

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 91335
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Deferral Request Approved. Going forward, please include a copy of the 2 business day notification of liner inspection in report.	4/27/2022