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May 21, 2019

New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division, District 1
1625 French Drive
Hobbs, NM 88240

Yolanda Jimenez
Carlsbad Field Office
United States Department of the Interior
Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220

**Re: Remediation Summary and Closure Report
Young Deep Koch Station Historical
API No. Not Applicable
GPS: Latitude 32.68414 Longitude -103.76801
UL "O", Sec. 4, T19S, R32E
Lea County, NM
NMOCD Ref. No. 1RP-5157**

TRC Environmental Corporation (TRC), on behalf of Plains Pipeline, LP, has prepared this Remediation Summary and Closure Report for the Release Site known as the **Young Deep Koch Station Historical**. Details of the release are summarized below:

RELEASE DETAILS			
Type of Release:	Crude Oil	Volume of Release:	Unknown
		Volume Recovered:	Unknown
Source of Release:	Unknown	Date of Discovery:	5/31/18
Was Immediate Notice Given?	Not Required	If, YES, to Whom?	Not Applicable
Was a Watercourse Reached?	No	If YES, Volume Impacting the Watercourse:	NA
Surface Owner:	Federal	Mineral Owner:	Federal
Describe Cause of Problem and Remedial Action Taken:			
Historical hydrocarbon impacted soil identified at Station. Impacted soil affected above the NMOCD Closure Criteria will be remediated as per applicable NMOCD Guidelines.			

Topographical and Aerial Maps are provided as Attachments #1 and #2. General Site Photographs are provided as Attachment #8. A Copy of the Initial Release Notification and Corrective Action (NMOCD Form C-141) is provided as Attachment #9.

REGULATORY FRAMEWORK

Surface impacts from unauthorized releases of crude oil, gases, produced water, condensate or other oil field waste which occur during normal oilfield operations are generally regulated by the New Mexico Oil Conservation Division (NMOCD) in accordance with 19.15.29 of the New Mexico Administrative Code (NMAC). 19.15.29 NMAC establishes reporting, site assessment, remediation and closure procedures based on the type and volume of the release and site characterizations, including proximity to sensitive receptors and depth to groundwater, which may be used to determine a Total Ranking Score as follows:

Site Characteristics	
Approximate Depth to Groundwater	~350 ft
Within 300 ft. of any continuously flowing or significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 200 ft. of any lakebed, sinkhole, or playa lake?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 ft. of an occupied permanent residence, school, hospital, or institution?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 ft. of a spring or private, domestic fresh water well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 1,000 ft. of any fresh water well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the incorporated municipal boundaries or within a municipal well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 ft. of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

A search of a groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) was conducted to determine the average depth to groundwater within a 1 Mile radius of the Release Site and identify any registered water wells within a 1/2 Mile of the Release Site. If none were identified, the approximate depth to groundwater was extrapolated from a Depth to Groundwater Map utilized by the NMOCD. Depth to groundwater information is provided as Attachment #4.

Based on the approximate depth to groundwater and site characteristics, the NMOCD Closure Criteria are as follows:

Table I Criteria for Soils Impacted by a Release			Closure
Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/l TDS	Constituent	Method*	Limit**
>100 ft	Chloride***	EPA 300.0 or SM4500 Cl B	20,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	2,500 mg/kg
	TPH (GRO+DRO)	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg

INITIAL SITE ASSESSMENT

On August 21, 2018, an initial site investigation was conducted at the Site. During the initial site investigation, two (2) hand-augured soil bores (HA-1 and HA-2) were advanced within the affected area in an effort to determine the vertical extent of hydrocarbon impact. During the advancement of the soil bores, five (5) soil samples (HA-1 @ 1', HA-1 @ 4', HA-1 @ 5', HA-2 @ 1' and HA-2 @ 3') were collected and submitted to an NMOCD-approved laboratory for analysis of BTEX and TPH. Soil samples (HA-1 @ 1' and HA-2 @ 1') were also analyzed for concentrations of chloride. In addition, four (4) soil samples (N @ 1.5', E @ 1.5', W @ 1.5' and S @ 1.5') were collected from the inferred edges of the affected area in an effort to determine the horizontal extent of hydrocarbon impact. The collected soil samples were submitted to an NMOCD-approved laboratory for analysis of BTEX and TPH. A table summarizing laboratory analytical results from soil samples collected during the initial site assessment is provided below:

On December 12, 2018, personal from TRC Companies and Plains Pipeline, LP, met with representatives from the NMOCD. After review, the NMOCD representative verbally approved the proposed workplan.

Concentrations of BTEX, TPH and/or Chloride in Soil											
Sample ID	Date	Depth	Soil Status	SW 846 8021B		SW 846 8015M Ext.					4500 C-B
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C ₆ -C ₁₀ (mg/kg)	DRO C ₁₀ -C ₂₈ (mg/kg)	GRO + DRO C ₆ -C ₂₈ (mg/kg)	ORO C ₂₈ -C ₃₅ (mg/kg)	TPH C ₆ -C ₃₅ (mg/kg)	Chloride (mg/kg)
HA-1 @ 1'	8/21/2018	1'	Excavated	<0.050	<0.300	<10.0	2,230	2,230	560	2,790	16.0
HA-1 @ 4'	8/21/2018	4'	In-Situ	<0.050	<0.300	<10.0	410	410	121	531	-
HA-1 @ 5'	8/21/2018	5'	In-Situ	<0.050	<0.300	<10.0	694	694	210	904	-
HA-2 @ 1'	8/21/2018	1'	Excavated	<0.050	<0.300	<10.0	1,100	1,100	379	1,479	96.0
HA-2 @ 3'	8/21/2018	3'	In-Situ	<0.050	<0.300	<10.0	45.0	45.0	<10.0	45.0	-
N @ 1.5'	8/21/2018	1.5'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	-
E @ 1.5'	8/21/2018	1.5'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	-
W @ 1.5'	8/21/2018	1.5'	In-Situ	<0.050	<0.300	<10.0	131	131	67.6	198.6	-
S @ 1.5'	8/21/2018	1.5'	In-Situ	<0.050	<0.300	<10.0	10.1	10.1	<10.0	10.1	-
Closure Criteria				10	50	-	-	1,000	-	2,500	20,000

A "Initial Site & Sample Location Map" is provided as Attachment #3A. Field Data, if applicable, is provided as Attachment #5. Laboratory analytical reports are provided as Attachment #6.

REMEDIATION PLAN

Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment, Plains proposes the following remediation activities designed to advance the Release Site toward an NMOCD and BLM approved closure:

- Utilizing mechanical equipment, excavate impacted soil within the release margins in the areas characterized by sample points HA-1 and HA-2 to a depth greater than one (1) ft. bgs, or until laboratory analytical results from excavation confirmation soil samples indicate concentrations of BTEX and TPH are below the applicable NMOCD Closure Criteria.
- Advance the sidewalls of the excavation until laboratory analytical results from excavation confirmation soil samples indicate concentrations of BTEX and TPH are below the applicable NMOCD Closure Criteria.
- Excavated soil will be temporarily stockpiled on-site, atop a poly liner, pending transportation under manifest to a NMOCD-approved disposal facility.
- After receiving favorable laboratory analytical results from confirmation soil samples (below the NMOCD Closure Criteria) excavated areas will be backfilled with locally sourced, non-impacted "like" material. The affected area will be contoured and/or compacted to achieve erosion control, stability and preservation of surface water flow to the extent practicable.

SAMPLING PLAN

After completion of excavation activities, representative five-point composite excavation confirmation soil samples will be collected from the excavation sidewalls in each cardinal direction, representing no more than 50 linear ft. A minimum of one (1) representative five-point composite excavation confirmation soil sample will be collected from the base of the excavated area representing every 600 square feet. Additional "discrete" confirmation soil samples will be collected from wet or visibly stained areas inferred to have been affected by the Release, if applicable.

SUMMARY OF FIELD ACTIVITIES

Impacted soil within the inferred release margins was excavated and temporarily stockpiled on-site, atop an impermeable polyethylene liner, pending final disposition. The floor and sidewalls of the excavation were advanced until visual and olfactory evidence suggested BTEX and TPH concentrations were below the NMOCD Closure Criteria. After excavating impacted soil from within the inferred release margins, eight (8) 5-point composite confirmation soil samples were collected from the floor and sidewalls of the excavated area. The collected soil samples were submitted to the laboratory for analysis of BTEX and TPH concentrations. After review of laboratory analytical data, each soil sample, with the exception of NSW @ 1', exhibited concentrations of BTEX and TPH below NMOCD Closure Criteria. The sidewall represented by soil sample NSW @ 1' was horizontally advanced until visual and olfactory evidence suggested BTEX and TPH concentrations were below NMOCD Closure Criteria. An additional sidewall 5-point composite confirmation soil sample (NSW-b @ 1') was collected and submitted for analysis of BTEX and TPH concentrations. A review of laboratory analytical results indicated the sample exhibited BTEX and TPH concentrations below NMOCD Closure Criteria. The impacted soil was transported under manifest to a NMOCD-approved facility. The Site was backfilled with locally sourced, non-impacted "like" material. A table summarizing laboratory analytical results from confirmation soil samples is provided below:

Concentrations of BTEX, TPH and/or Chloride in Soil												
Sample ID	Date	Depth	Soil Status	SW 846 8021B		SW 846 8015M Ext.					E 300	
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C ₆ -C ₁₀ (mg/kg)	DRO C ₁₀ -C ₂₈ (mg/kg)	GRO + DRO C ₆ -C ₂₈ (mg/kg)	EXT DRO C ₂₈ -C ₃₅ (mg/kg)	TPH C ₆ -C ₃₅ (mg/kg)	Chloride (mg/kg)	
FL-1 @ 2'	12/19/2018	2'	In-Situ	<0.000385	<0.000344	<7.99	312	312	86.3	398.3	-	
FL-2 @ 2'	12/19/2018	2'	In-Situ	<0.000387	<0.000346	32.3	645	677.3	160	837.3	-	
NSW @ 1'	12/19/2018	1'	Excavated	<0.000383	<0.000343	9.70	1,890	1,899.7	359	2,258.7	-	
NSW-b @ 1'	1/9/2019	1'	In-Situ	<0.000383	<0.000343	<8.00	77.3	77.3	20.7	98	-	
SSW @ 1'	12/19/2018	1'	In-Situ	<0.000386	<0.000345	<7.98	312	312	84.5	396.5	-	
ESW-1 @ 1'	12/19/2018	1'	In-Situ	<0.000384	<0.000344	14.2	14.8	29.0	<8.10	29.0	-	
ESW-2 @ 1'	12/19/2018	1'	In-Situ	<0.000388	<0.000347	23.2	138	161.2	52.5	213.7	-	
WSW-1 @ 1'	12/19/2018	1'	In-Situ	<0.000386	<0.000345	11.9	133	144.9	47.3	192.2	-	
WSW-2 @ 1'	12/19/2018	1'	In-Situ	<0.000383	<0.000342	8.35	535	543.35	161	704.35	-	
Closure Criteria				10	50	-	-	1,000	-	2,500	20,000	

A "Confirmation Site & Sample Location Map" is provided as Attachment #3BA Photographic Log is provided as Attachment #8

SITE CLOSURE REQUEST

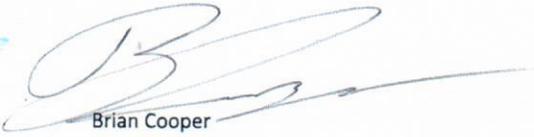
Based on laboratory analytical results from soil samples collected during the Remediation Activities, impacted soil within the release margins has been determined to be remediated below the Table I of 19.15.29.12 NMAC Closure Criteria of Soils Impacted by a Release. TRC on behalf of Plains Pipeline, respectfully requests the NMOCD and BLM grant closure approval for the Young Deep Koch Station Historical.

RESTORATION, RECLAMATION AND RE-VEGETATION

Areas affected by the Release and the associated remediation activities will be restored to the condition which existed prior to the Release, to the maximum extent practical. Excavated areas were backfilled with locally sourced, non-impacted "like" material. A "Soil Profile" is provided as Attachment #7.

If you have any questions, or if additional information is required, please feel free to contact Camille Bryant, Amber Groves or either of the undersigned by phone or email.

Respectfully,

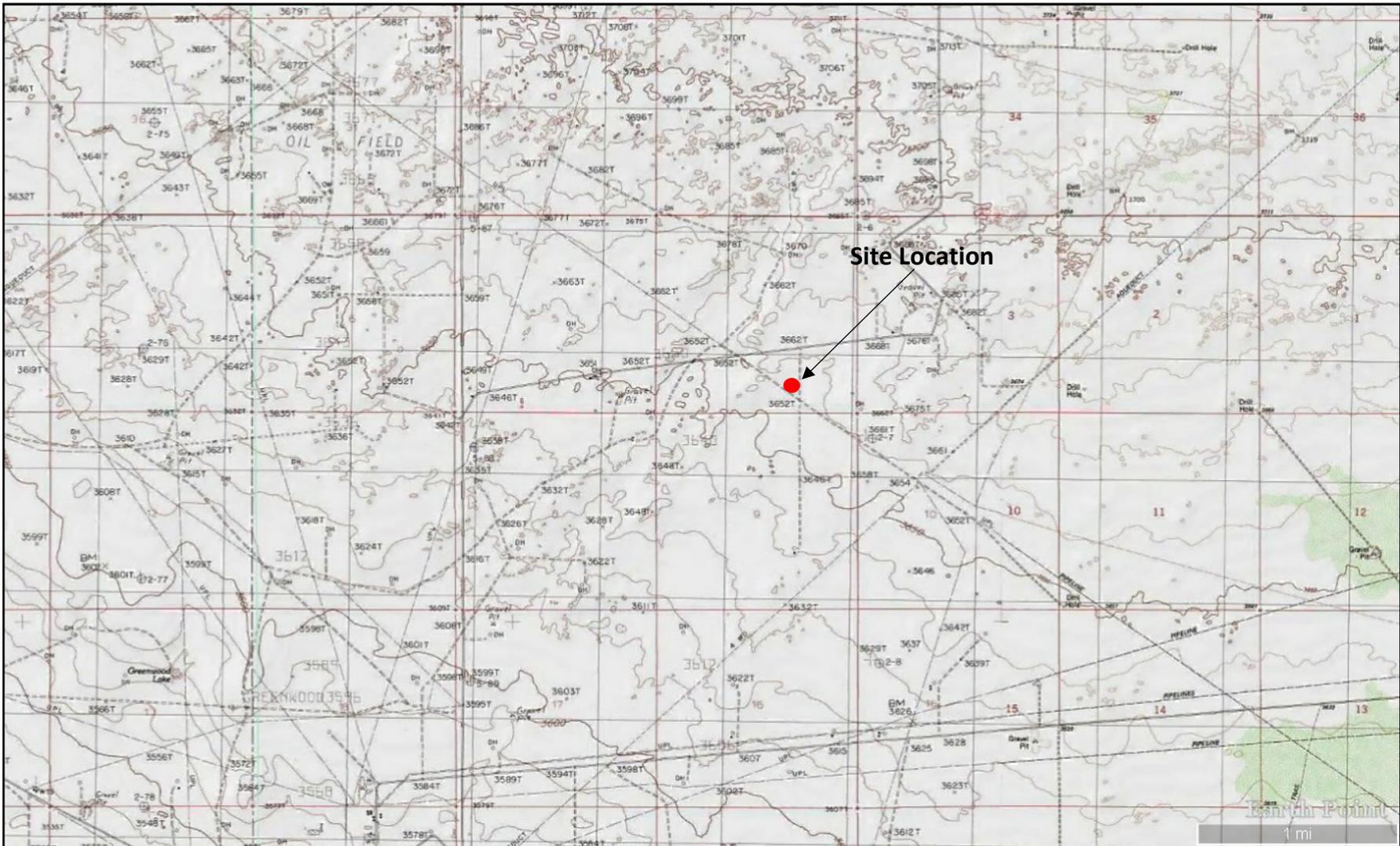


Brian Cooper
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Jared E. Stoffel, P.G.
Staff Geologist
jstoffel@trccompanies.com
(432) 238-3003

Attachments:	Attachment #1-	Figure 1 - Topographical Map
	Attachment #2-	Figure 2 - Aerial Map
	Attachment #3A-	Figure 3A - Site & Confirmation Sample Location Map (Initial)
	Attachment #3B-	Figure 3B - Site & Confirmation Sample Location Map (Confirmation)
	Attachment #4-	Depth to Groundwater Information
	Attachment #5-	Field Data (If Applicable)
	Attachment #6-	Laboratory Analytical Reports
	Attachment #7-	Soil Profile
	Attachment #8-	General Site Photographs
	Attachment #9-	Release Notification and Corrective Action (FORM C-141)



LEGEND:

●	Site Location
------------------------------------	---------------

Figure 1
 Topographical Map
 Plains Pipeline, LP
 Young Deep Koch Station
 Historical
 Lea County, NM

Drafted by: ZC Checked by: JL	
Draft: October 8, 2018	
GPS:	32.68414 -103.76801
UL "O", Sec. 4, T19S, R32E	
TRC Proj. No:	312837





LEGEND:

	Site Location		Non-Industrial Building
	Fresh Water Well		Municipal Well Field
	100-Year Floodplain		Subsurface Mine
	High/Critical Karst		1/2 Mile Radius

Figure 2
 Aerial Map
 Plains Pipeline, LP
 Young Deep Koch Station
 Historical
 Lea County, NM

Drafted by: ZC Checked by: JL		
Draft: October 8, 2018		
GPS:	32.68414	-103.76801
UL "O", Sec. 4, T19S, R32E		
TRC Proj. No:	312837	





LEGEND:

- Sample Location
- Inferred Release Area

Figure 3A - Initial Site & Sample Location Map
 Plains Pipeline, LP
 Young Deep Koch Station Historical
 Lea County, New Mexico

Scale 1" = ~50'	
Drafted by: BC	Checked by: JL
Draft: August 31, 2018	
Lat. N 32.68414 Long. W -103.76801	
UL "O", Sec. 4, T19S, R32E	
TRC Proj. No.: 312837	



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Google Earth

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LEGEND:  5 Point Composite Sample Location  Inferred Release Area  Excavated Area 1'	Figure 3B - Confirmation Site & Sample Location Map Plains Pipeline, LP Young Deep Koch Station Historical Lea County, New Mexico	Scale 1" = ~50'		 10 Desta Drive Suite 150E Midland, TX 79705 432.520.7720 PHONE 432.520.7701 FAX www.trcsolutions.com
		Drafted by: BC	Checked by: JS	
		Draft: May 05, 2019		
		Lat. N 32.68414 Long. W -103.76801		
		UL "O", Sec. 4, T19S, R32E		
		TRC Proj. No.: 312837		



New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

UTMNA83 Radius Search (in meters):

Easting (X): 615478.7

Northing (Y): 3616933.5

Radius: 1610

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

10/1/18 1:01 PM

WATER COLUMN/ AVERAGE
DEPTH TO WATER



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q	Q	Q	Sec	Tw	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
CP 01656 POD1		CP	LE	3	4	3	17	19S	32E	613368	3613646	3906	70		
CP 00640 POD1		CP	LE		2	2	19	19S	32E	612621	3613280*	4638	260	102	158
CP 00639 POD1		CP	LE		3	1	20	19S	32E	613029	3612880*	4736	350	345	5
CP 00563 POD1		CP	LE		1	1	2	19	19S	612118	3613376*	4893	300		
CP 00677		CP	LE		1	1	26	18S	32E	617750	3621373*	4986	700		

Average Depth to Water: **223 feet**
 Minimum Depth: **102 feet**
 Maximum Depth: **345 feet**

Record Count: 5

UTMNAD83 Radius Search (in meters):

Easting (X): 615478.7

Northing (Y): 3616933.5

Radius: 5000

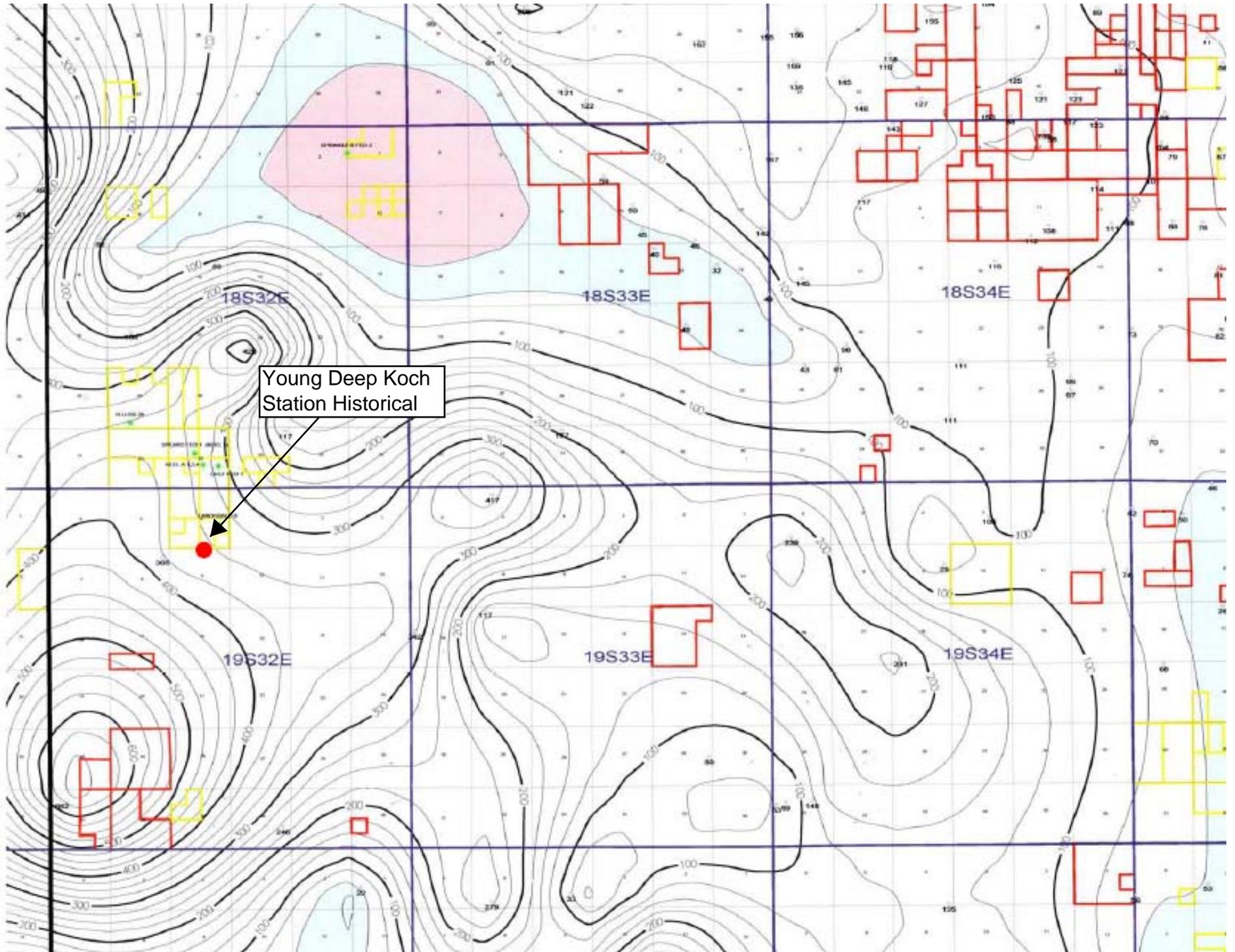
*UTM location was derived from PLSS - see Help

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

10/1/18 1:02 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

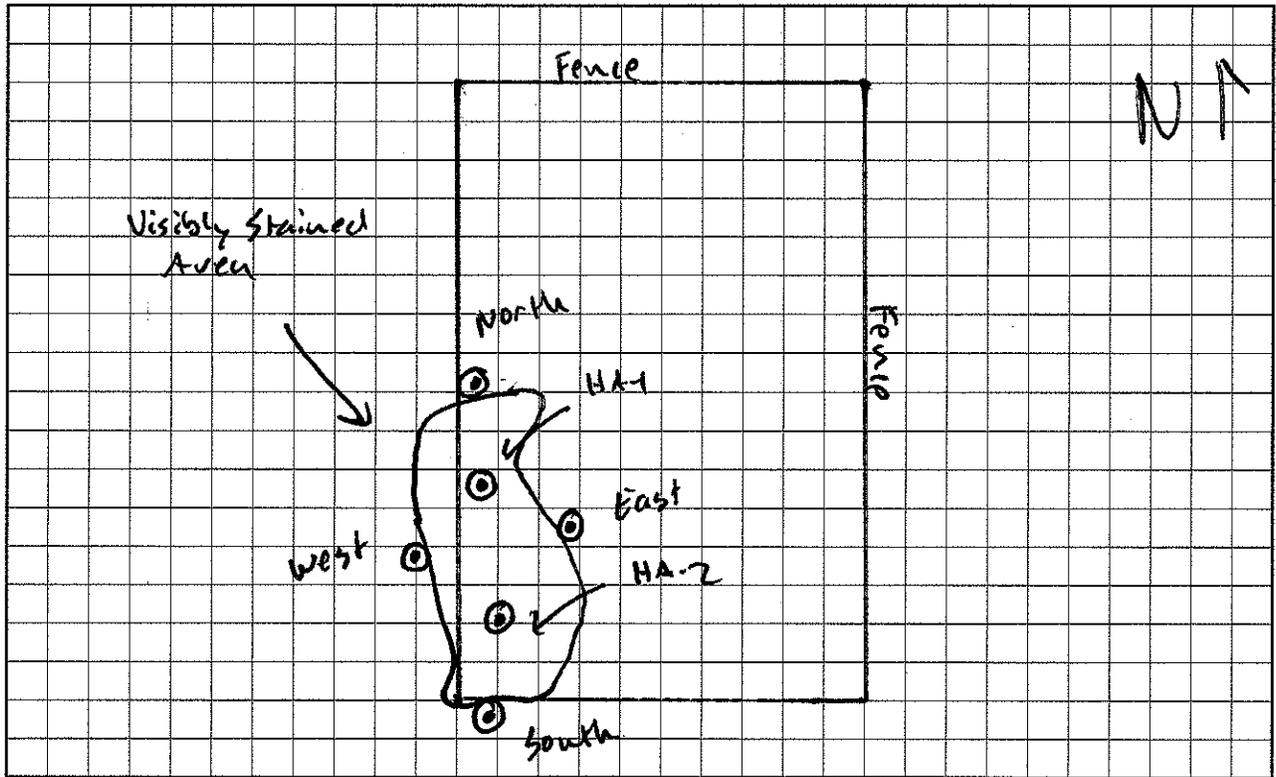
Lea County Groundwater Trend Map



Site Name: Young Deep Historical

Date: 8/21/2018

Field Observation Log



ID	Cl-	Odor/PID
HA-101	<120	Moderate
HA-102		Light
HA-104		Light
HA-105		Light
GPS:		

ID	Cl-	Odor/PID
HA-201	<120	Moderate
HA-207		Light
HA-203		None
GPS:		

ID	Cl-	Odor/PID
N01.5'	-	None
GPS:		

ID	Cl-	Odor/PID
W01.5'	-	None
GPS:		

ID	Cl-	Odor/PID
S01.5'	-	None
GPS:		

ID	Cl-	Odor/PID
E01.5'	-	None
GPS:		

ID	Cl-	Odor/PID
GPS:		

ID	Cl-	Odor/PID
GPS:		

ID	Cl-	Odor/PID
GPS:		



August 29, 2018

JOEL LOWRY

PLAINS ALL AMERICAN PIPELINE

505 NORTH BIG SPRINGS ST STE. 600

MIDLAND, TX 79701

RE: YOUNG DEEP STATION

Enclosed are the results of analyses for samples received by the laboratory on 08/23/18 16:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: HA - 1 @ 1' (H802372-01)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18	
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40	
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34	
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68	
Total BTEX	<0.300	0.300	08/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	08/28/2018	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/24/2018	ND	214	107	200	1.38	
DRO >C10-C28*	2230	10.0	08/24/2018	ND	202	101	200	2.21	
EXT DRO >C28-C36	560	10.0	08/24/2018	ND					

Surrogate: 1-Chlorooctane 67.6 % 41-142

Surrogate: 1-Chlorooctadecane 138 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: HA - 1 @ 4' (H802372-02)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18		
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40		
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34		
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68		
Total BTEX	<0.300	0.300	08/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.8-142

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	08/24/2018	ND	214	107	200	1.38		
DRO >C10-C28*	410	10.0	08/24/2018	ND	202	101	200	2.21		
EXT DRO >C28-C36	121	10.0	08/24/2018	ND						

Surrogate: 1-Chlorooctane 92.3 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: HA - 1 @ 5' (H802372-03)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18	
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40	
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34	
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68	
Total BTEX	<0.300	0.300	08/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.8-142

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/24/2018	ND	214	107	200	1.38	
DRO >C10-C28*	694	10.0	08/24/2018	ND	202	101	200	2.21	
EXT DRO >C28-C36	210	10.0	08/24/2018	ND					

Surrogate: 1-Chlorooctane 94.3 % 41-142

Surrogate: 1-Chlorooctadecane 114 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: HA - 2 @ 1' (H802372-05)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18	
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40	
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34	
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68	
Total BTEX	<0.300	0.300	08/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	08/28/2018	ND	448	112	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	08/27/2018	ND	201	101	200	1.56		
DRO >C10-C28*	1100	10.0	08/27/2018	ND	214	107	200	4.26		
EXT DRO >C28-C36	379	10.0	08/27/2018	ND						

Surrogate: 1-Chlorooctane 95.3 % 41-142

Surrogate: 1-Chlorooctadecane 148 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: HA - 2 @ 3' (H802372-06)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18	
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40	
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34	
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68	
Total BTEX	<0.300	0.300	08/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 69.8-142

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/24/2018	ND	201	101	200	1.56	
DRO >C10-C28*	45.0	10.0	08/24/2018	ND	214	107	200	4.26	
EXT DRO >C28-C36	<10.0	10.0	08/24/2018	ND					

Surrogate: 1-Chlorooctane 97.1 % 41-142

Surrogate: 1-Chlorooctadecane 98.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: NORTH @ 1.5' (H802372-08)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18		
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40		
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34		
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68		
Total BTEX	<0.300	0.300	08/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 69.8-142

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	08/24/2018	ND	201	101	200	1.56		
DRO >C10-C28*	<10.0	10.0	08/24/2018	ND	214	107	200	4.26		
EXT DRO >C28-C36	<10.0	10.0	08/24/2018	ND						

Surrogate: 1-Chlorooctane 100 % 41-142

Surrogate: 1-Chlorooctadecane 94.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: EAST @ 1.5' (H802372-09)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18		
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40		
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34		
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68		
Total BTEX	<0.300	0.300	08/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	08/24/2018	ND	201	101	200	1.56		
DRO >C10-C28*	<10.0	10.0	08/24/2018	ND	214	107	200	4.26		
EXT DRO >C28-C36	<10.0	10.0	08/24/2018	ND						

Surrogate: 1-Chlorooctane 105 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: WEST @ 1.5' (H802372-10)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18		
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40		
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34		
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68		
Total BTEX	<0.300	0.300	08/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 69.8-142

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	08/24/2018	ND	201	101	200	1.56		
DRO >C10-C28*	131	10.0	08/24/2018	ND	214	107	200	4.26		
EXT DRO >C28-C36	67.6	10.0	08/24/2018	ND						

Surrogate: 1-Chlorooctane 90.7 % 41-142

Surrogate: 1-Chlorooctadecane 93.6 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 PLAINS ALL AMERICAN PIPELINE
 JOEL LOWRY
 505 NORTH BIG SPRINGS ST STE. 600
 MIDLAND TX, 79701
 Fax To:

Received:	08/23/2018	Sampling Date:	08/21/2018
Reported:	08/29/2018	Sampling Type:	Soil
Project Name:	YOUNG DEEP STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	PLAINS - LEA CO NM		

Sample ID: SOUTH @ 1.5' (H802372-11)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/27/2018	ND	1.91	95.7	2.00	3.18	
Toluene*	<0.050	0.050	08/27/2018	ND	1.96	98.1	2.00	4.40	
Ethylbenzene*	<0.050	0.050	08/27/2018	ND	2.01	101	2.00	4.34	
Total Xylenes*	<0.150	0.150	08/27/2018	ND	5.80	96.6	6.00	3.68	
Total BTEX	<0.300	0.300	08/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 69.8-142

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/24/2018	ND	201	101	200	1.56	
DRO >C10-C28*	10.1	10.0	08/24/2018	ND	214	107	200	4.26	
EXT DRO >C28-C36	<10.0	10.0	08/24/2018	ND					

Surrogate: 1-Chlorooctane 98.4 % 41-142

Surrogate: 1-Chlorooctadecane 96.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report



Analytical Report 609178

for
TRC Solutions, Inc

Project Manager: Zach Conder
Young Deep Koch

31-DEC-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

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31-DEC-18

Project Manager: **Zach Conder**
TRC Solutions, Inc
2057 Commerce
Midland, TX 79703

Reference: XENCO Report No(s): **609178**
Young Deep Koch
Project Address: Lea Co, NM

Zach Conder:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 609178. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 609178 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer
Project Assistant

*Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY*

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 609178



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
WC	S	12-18-18 10:00		609178-001



CASE NARRATIVE

Client Name: TRC Solutions, Inc

Project Name: Young Deep Koch

Project ID:
Work Order Number(s): 609178

Report Date: 31-DEC-18
Date Received: 12/19/2018

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3073921 Inorganic Anions by EPA 300/300.1

Lab Sample ID 609341-051 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 609178-001.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results

609178



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: WC	Matrix: Soil	Sample Depth:
Lab Sample Id: 609178-001	Date Collected: 12.18.18 10.00	Date Received: 12.19.18 10.30
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Analyst: CHE	% Moist:	Tech: CHE
Seq Number: 3073921	Date Prep: 12.22.18 14.15	
	Prep seq: 7668702	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	40.9	5.00	0.858	mg/kg	12.22.18 23:12	X	1

Analytical Method: TCLP Metals by SW846 6010B	Prep Method: 3010A
Analyst: DEP	Tech: MLI
Seq Number: 3073938	Date Prep: 12.23.18 13.30
Subcontractor: SUB: T104704215-18-28	Prep seq: 7668654

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<0.0168	0.0500	0.0168	mg/L	12.24.18 14:14	U	5
Barium	7440-39-3	0.826	0.0500	0.000700	mg/L	12.24.18 14:14		5
Cadmium	7440-43-9	<0.000656	0.0250	0.000656	mg/L	12.24.18 14:14	U	5
Chromium	7440-47-3	<0.00681	0.0500	0.00681	mg/L	12.24.18 14:14	U	5
Lead	7439-92-1	<0.00916	0.0500	0.00916	mg/L	12.24.18 14:14	U	5
Selenium	7782-49-2	0.195	0.100	0.0278	mg/L	12.24.18 14:14		5
Silver	7440-22-4	<0.00802	0.100	0.00802	mg/L	12.24.18 14:14	U	5

Analytical Method: Reactive Cyanide by SW 846-Section7.3.3	Prep Method: SW9012P
Analyst: KCS	Tech: KCS
Seq Number: 3074301	Date Prep: 12.27.18 10.00
Subcontractor: SUB: T104704215-18-28	Prep seq: 7668915

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Cyanide +	57-12-5	<0.0117	0.0250	0.0117	mg/kg	12.28.18 13:15	U	1

Analytical Method: TCLP Mercury by SW-846 1311/7470A	Prep Method: SW7470P
Analyst: MLI	Tech: MLI
Seq Number: 3074002	Date Prep: 12.26.18 09.55
Subcontractor: SUB: T104704215-18-28	Prep seq: 7668726

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	<0.000100	0.000200	0.000100	mg/L	12.26.18 14:46	U	1



Certificate of Analytical Results

609178



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: WC	Matrix: Soil	Sample Depth:
Lab Sample Id: 609178-001	Date Collected: 12.18.18 10:00	Date Received: 12.19.18 10:30
Analytical Method: Soil pH		Prep Method:
Analyst: CHE	% Moist:	Tech: CHE
Seq Number: 3073942	Date Prep:	
	Prep seq:	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
pH	12408-02-5	7.25			SU	12.26.18 08:00		
Temperature +	TEMP	19.6			Deg C	12.26.18 08:00		1

Analytical Method: Flash Point (Closed Cup Tester)	Prep Method:
Analyst: TRS	Tech: TRS
Seq Number: 3073966	
Subcontractor: SUB: T104704215-18-28	
	% Moist:
	Date Prep:
	Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Flash Point		>180			Deg F	12.26.18 10:20	U	1

Analytical Method: Reactive Sulfide by SW9034	Prep Method:
Analyst: TRS	Tech: TRS
Seq Number: 3074300	
Subcontractor: SUB: T104704215-18-28	
	% Moist:
	Date Prep:
	Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Reactive Sulfide	18496-25-8	15.0	25.0	0.500	mg/kg	12.27.18 16:00	J	1

Analytical Method: Paint Filter Liquids Test	Prep Method:
Analyst: WRU	Tech: WRU
Seq Number: 3074171	
	% Moist:
	Date Prep:
	Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Paint Filter	PAIFILTER	Pass			?A/100mL	12.27.18 12:05		1



Certificate of Analytical Results

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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: WC	Matrix: Soil	Sample Depth:
Lab Sample Id: 609178-001	Date Collected: 12.18.18 10.00	Date Received: 12.19.18 10.30
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3074143	Date Prep: 12.25.18 08.00	
	Prep seq: 7668811	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.97	14.9	7.97	mg/kg	12.25.18 13:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	1950	14.9	8.10	mg/kg	12.25.18 13:16		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	486	14.9	8.10	mg/kg	12.25.18 13:16		1
Total TPH	PHC635	2436		7.97	mg/kg	12.25.18 13:16		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	94	70 - 135	%		
o-Terphenyl	115	70 - 135	%		

Analytical Method: TCLP BTEX by SW 8260B	Prep Method: 5030B
Analyst: JOL	% Moist:
Seq Number: 3074278	Date Prep: 12.27.18 11.10
Subcontractor: SUB: T104704215-18-28	Prep seq: 7668901

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.00250	0.00500	0.00250	mg/L	12.27.18 19:59	U	5

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	101	75 - 131	%		
1,2-Dichloroethane-D4	98	63 - 144	%		
Toluene-D8	100	80 - 117	%		



Certificate of Analytical Results

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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: 3074300-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 3074300-1-BLK	Date Collected:	Date Received:
Analytical Method: Reactive Sulfide by SW9034		Prep Method:
Analyst: TRS	% Moist:	Tech: TRS
Seq Number: 3074300	Date Prep:	
Subcontractor: SUB: T104704215-18-28	Prep seq:	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Reactive Sulfide	18496-25-8	<0.500	25.0	0.500	mg/kg	12.27.18 16:00	U	1

Sample Id: 7668654-1-BLK	Matrix: Water	Sample Depth:
Lab Sample Id: 7668654-1-BLK	Date Collected:	Date Received:
Analytical Method: TCLP Metals by SW846 6010B		Prep Method: 3010A
Analyst: DEP	% Moist:	Tech: MLI
Seq Number: 3073938	Date Prep: 12.23.18 13.30	
Subcontractor: SUB: T104704215-18-28	Prep seq: 7668654	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<0.00336	0.0100	0.00336	mg/L	12.24.18 13:07	U	1
Barium	7440-39-3	<0.000140	0.0100	0.000140	mg/L	12.24.18 13:07	U	1
Cadmium	7440-43-9	<0.000131	0.00500	0.000131	mg/L	12.24.18 13:07	U	1
Chromium	7440-47-3	<0.00136	0.0100	0.00136	mg/L	12.24.18 13:07	U	1
Lead	7439-92-1	<0.00183	0.0100	0.00183	mg/L	12.24.18 13:07	U	1
Selenium	7782-49-2	0.0103	0.0200	0.00555	mg/L	12.24.18 13:07	J	1
Silver	7440-22-4	<0.00160	0.0200	0.00160	mg/L	12.24.18 13:07	U	1

Sample Id: 7668702-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7668702-1-BLK	Date Collected:	Date Received:
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Analyst: CHE	% Moist:	Tech: CHE
Seq Number: 3073921	Date Prep: 12.22.18 14.15	
	Prep seq: 7668702	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.858	5.00	0.858	mg/kg	12.22.18 21:20	U	1



Certificate of Analytical Results

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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: 7668726-1-BLK **Matrix:** Water **Sample Depth:**
Lab Sample Id: 7668726-1-BLK **Date Collected:** **Date Received:**
Analytical Method: TCLP Mercury by SW-846 1311/7470A **Prep Method:** SW7470P
Analyst: MLI **% Moist:** **Tech:** MLI
Seq Number: 3074002 **Date Prep:** 12.26.18 09.55
Subcontractor: SUB: T104704215-18-28 **Prep seq:** 7668726

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	<0.000100	0.000200	0.000100	mg/L	12.26.18 14:23	U	1

Sample Id: 7668811-1-BLK **Matrix:** Solid **Sample Depth:**
Lab Sample Id: 7668811-1-BLK **Date Collected:** **Date Received:**
Analytical Method: TPH by SW8015 Mod **Prep Method:** 1005
Analyst: ARM **% Moist:** **Tech:** ARM
Seq Number: 3074143 **Date Prep:** 12.25.18 08.00
Prep seq: 7668811

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<8.00	15.0	8.00	mg/kg	12.25.18 11:05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.13	15.0	8.13	mg/kg	12.25.18 11:05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.13	15.0	8.13	mg/kg	12.25.18 11:05	U	1
Total TPH	PHC635	<8		8	mg/kg	12.25.18 11:05	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	101	70 - 135	%		
o-Terphenyl	105	70 - 135	%		

Sample Id: 7668901-1-BLK **Matrix:** Water **Sample Depth:**
Lab Sample Id: 7668901-1-BLK **Date Collected:** **Date Received:**
Analytical Method: TCLP BTEX by SW 8260B **Prep Method:** 5030B
Analyst: JOL **% Moist:** **Tech:** JOL
Seq Number: 3074278 **Date Prep:** 12.27.18 11.10
Subcontractor: SUB: T104704215-18-28 **Prep seq:** 7668901

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.00250	0.00500	0.00250	mg/L	12.27.18 14:39	U	5

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	101	75 - 131	%		
1,2-Dichloroethane-D4	100	63 - 144	%		
Toluene-D8	98	80 - 117	%		



Certificate of Analytical Results
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TRC Solutions, Inc, Midland, TX
Young Deep Koch

Sample Id: 7668915-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7668915-1-BLK	Date Collected:	Date Received:
Analytical Method: Reactive Cyanide by SW 846-Section7.3.3		Prep Method: SW9012P
Analyst: KCS	% Moist:	Tech: KCS
Seq Number: 3074301	Date Prep: 12.27.18 10.00	
Subcontractor: SUB: T104704215-18-28	Prep seq: 7668915	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Cyanide +	57-12-5	<0.0117	0.0250	0.0117	mg/kg	12.28.18 12:45	U	1

Form 2 - Surrogate Recoveries

Project Name: Young Deep Koch

Work Orders : 609178,

Project ID:

Lab Batch #: 3074278

Sample: 7668901-1-BKS / BKS

Batch: 1 **Matrix:** Water

Units: mg/L	Date Analyzed: 12/27/18 12:00	SURROGATE RECOVERY STUDY			
TCLP BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0523	0.0500	105	75-131	
1,2-Dichloroethane-D4	0.0484	0.0500	97	63-144	
Toluene-D8	0.0490	0.0500	98	80-117	

Lab Batch #: 3074278

Sample: 7668901-1-BSD / BSD

Batch: 1 **Matrix:** Water

Units: mg/L	Date Analyzed: 12/27/18 12:23	SURROGATE RECOVERY STUDY			
TCLP BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0528	0.0500	106	75-131	
1,2-Dichloroethane-D4	0.0509	0.0500	102	63-144	
Toluene-D8	0.0495	0.0500	99	80-117	

Lab Batch #: 3074278

Sample: 609386-001 S / MS

Batch: 1 **Matrix:** Soil

Units: mg/L	Date Analyzed: 12/27/18 12:48	SURROGATE RECOVERY STUDY			
TCLP BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0534	0.0500	107	75-131	
1,2-Dichloroethane-D4	0.0505	0.0500	101	63-144	
Toluene-D8	0.0486	0.0500	97	80-117	

Lab Batch #: 3074278

Sample: 609386-001 SD / MSD

Batch: 1 **Matrix:** Soil

Units: mg/L	Date Analyzed: 12/27/18 13:11	SURROGATE RECOVERY STUDY			
TCLP BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0522	0.0500	104	75-131	
1,2-Dichloroethane-D4	0.0477	0.0500	95	63-144	
Toluene-D8	0.0483	0.0500	97	80-117	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Young Deep Koch

Work Orders : 609178,

Project ID:

Lab Batch #: 3074278

Sample: 7668901-1-BLK / BLK

Batch: 1 **Matrix:** Water

Units: mg/L

Date Analyzed: 12/27/18 14:39

SURROGATE RECOVERY STUDY					
TCLP BTEX by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0507	0.0500	101	75-131	
1,2-Dichloroethane-D4	0.0501	0.0500	100	63-144	
Toluene-D8	0.0488	0.0500	98	80-117	

Lab Batch #: 3074143

Sample: 7668811-1-BLK / BLK

Batch: 1 **Matrix:** Solid

Units: mg/kg

Date Analyzed: 12/25/18 11:05

SURROGATE RECOVERY STUDY					
TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	52.6	50.0	105	70-135	

Lab Batch #: 3074143

Sample: 7668811-1-BKS / BKS

Batch: 1 **Matrix:** Solid

Units: mg/kg

Date Analyzed: 12/25/18 11:26

SURROGATE RECOVERY STUDY					
TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	127	100	127	70-135	
o-Terphenyl	60.4	50.0	121	70-135	

Lab Batch #: 3074143

Sample: 7668811-1-BSD / BSD

Batch: 1 **Matrix:** Solid

Units: mg/kg

Date Analyzed: 12/25/18 11:48

SURROGATE RECOVERY STUDY					
TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	130	100	130	70-135	
o-Terphenyl	56.5	50.0	113	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Young Deep Koch

Work Orders : 609178,

Project ID:

Lab Batch #: 3074143

Sample: 609175-002 S / MS

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 12/25/18 12:32	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by SW8015 Mod						
Analytes						
1-Chlorooctane		128	99.9	128	70-135	
o-Terphenyl		49.0	50.0	98	70-135	

Lab Batch #: 3074143

Sample: 609175-002 SD / MSD

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 12/25/18 12:54	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by SW8015 Mod						
Analytes						
1-Chlorooctane		123	99.8	123	70-135	
o-Terphenyl		49.5	49.9	99	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries



Project Name: Young Deep Koch

Work Order #: 609178

Project ID:

Analyst: CHE

Date Prepared: 12/22/2018

Date Analyzed: 12/22/2018

Lab Batch ID: 3073921

Sample: 7668702-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.858	250	260	104	250	256	102	2	90-110	20	

Analyst: KCS

Date Prepared: 12/27/2018

Date Analyzed: 12/28/2018

Lab Batch ID: 3074301

Sample: 7668915-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Reactive Cyanide by SW 846-Section7.3.3	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Cyanide	<0.0583	20.0	2.69	13	20.0	2.65	13	1	5-40	20	

Analyst: TRS

Date Prepared: 12/27/2018

Date Analyzed: 12/27/2018

Lab Batch ID: 3074300

Sample: 3074300-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Reactive Sulfide by SW9034	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Reactive Sulfide	<0.500	50.0	44.0	88	50.0	44.0	88	0	30-120	20	

Relative Percent Difference RPD = 200*(C-F)/(C+F)

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Young Deep Koch

Work Order #: 609178

Project ID:

Analyst: JOL

Date Prepared: 12/27/2018

Date Analyzed: 12/27/2018

Lab Batch ID: 3074278

Sample: 7668901-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TCLP BTEX by SW 8260B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00250	0.250	0.250	100	0.250	0.234	94	7	66-142	20	

Analyst: MLI

Date Prepared: 12/26/2018

Date Analyzed: 12/26/2018

Lab Batch ID: 3074002

Sample: 7668726-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TCLP Mercury by SW-846 1311/7470A	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Mercury	<0.000100	0.00200	0.00188	94	0.00200	0.00193	97	3	80-120	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Young Deep Koch

Work Order #: 609178

Project ID:

Analyst: DEP

Date Prepared: 12/23/2018

Date Analyzed: 12/24/2018

Lab Batch ID: 3073938

Sample: 7668654-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TCLP Metals by SW846 6010B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Arsenic	<0.00336	1.00	1.02	102	1.00	1.04	104	2	75-125	20	
Barium	<0.000140	1.00	1.02	102	1.00	1.04	104	2	75-125	20	
Cadmium	<0.000131	1.00	1.05	105	1.00	1.07	107	2	75-125	20	
Chromium	<0.00136	1.00	1.06	106	1.00	1.07	107	1	75-125	20	
Lead	<0.00183	1.00	1.05	105	1.00	1.07	107	2	75-125	20	
Selenium	0.0103	1.00	1.02	102	1.00	1.04	104	2	75-125	20	
Silver	<0.00160	0.500	0.529	106	0.500	0.537	107	2	75-125	20	

Analyst: ARM

Date Prepared: 12/25/2018

Date Analyzed: 12/25/2018

Lab Batch ID: 3074143

Sample: 7668811-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	990	99	1000	1010	101	2	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1030	103	1000	1020	102	1	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Young Deep Koch

Work Order # : 609178

Project ID:

Lab Batch ID: 3073921

QC- Sample ID: 609178-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/22/2018

Date Prepared: 12/22/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	40.9	250	318	111	250	276	94	14	90-110	20	X

Lab Batch ID: 3073921

QC- Sample ID: 609341-051 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/22/2018

Date Prepared: 12/22/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	133	250	343	84	250	354	88	3	90-110	20	X

Lab Batch ID: 3074278

QC- Sample ID: 609386-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/27/2018

Date Prepared: 12/27/2018

Analyst: JOL

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TCLP BTEX by SW 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.0250	2.50	2.54	102	2.50	2.15	86	17	66-142	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Young Deep Koch

Work Order # : 609178

Project ID:

Lab Batch ID: 3074002

QC- Sample ID: 609160-001 S

Batch #: 1 **Matrix:** Ground Water

Date Analyzed: 12/26/2018

Date Prepared: 12/26/2018

Analyst: MLI

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TCLP Mercury by SW-846 1311/7470A Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Mercury	<0.000100	0.00200	0.00153	77	0.00200	0.00155	78	1	75-125	20	

Lab Batch ID: 3073938

QC- Sample ID: 609350-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/24/2018

Date Prepared: 12/23/2018

Analyst: DEP

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TCLP Metals by SW846 6010B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Arsenic	<0.0168	5.00	5.53	111	5.00	5.34	107	3	75-125	20	
Barium	1.32	5.00	6.50	104	5.00	6.31	100	3	75-125	20	
Cadmium	<0.000656	5.00	5.60	112	5.00	5.46	109	3	75-125	20	
Chromium	<0.00681	5.00	5.45	109	5.00	5.26	105	4	75-125	20	
Lead	<0.00916	5.00	5.43	109	5.00	5.27	105	3	75-125	20	
Selenium	0.255	5.00	5.87	112	5.00	5.80	111	1	75-125	20	
Silver	<0.00802	2.50	2.84	114	2.50	2.75	110	3	75-125	20	

Lab Batch ID: 3074143

QC- Sample ID: 609175-002 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 12/25/2018

Date Prepared: 12/25/2018

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	2360	999	1410	0	998	1430	0	1	70-135	20	X
Diesel Range Organics (DRO)	4130	999	1580	0	998	1610	0	2	70-135	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Project Name: Young Deep Koch

Work Order #: 609178

Lab Batch #: 3073966

Project ID:

Date Analyzed: 12/26/2018 09:55

Date Prepared: 12/26/2018

Analyst: TRS

QC- Sample ID: 609585-001 D

Batch #: 1

Matrix: Oil

Reporting Units: Deg F

SAMPLE / SAMPLE DUPLICATE RECOVERY

Flash Point (Closed Cup Tester)	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Flash Point	115	115	0	25	U

Lab Batch #: 3074171

Date Analyzed: 12/27/2018 12:05

Date Prepared: 12/27/2018

Analyst: WRU

QC- Sample ID: 609697-001 D

Batch #: 1

Matrix: Soil

Reporting Units: PA/100mL

SAMPLE / SAMPLE DUPLICATE RECOVERY

Paint Filter Liquids Test	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Paint Filter	Pass	Pass	0	20	U

Lab Batch #: 3074301

Date Analyzed: 12/28/2018 12:51

Date Prepared: 12/27/2018

Analyst: KCS

QC- Sample ID: 608940-001 D

Batch #: 1

Matrix: Sludge

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY

Reactive Cyanide by SW 846-Section7.3.3	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Cyanide	<0.0117	<0.0117	0	20	U

Lab Batch #: 3074301

Date Analyzed: 12/28/2018 13:09

Date Prepared: 12/27/2018

Analyst: KCS

QC- Sample ID: 608940-012 D

Batch #: 1

Matrix: Sludge

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY

Reactive Cyanide by SW 846-Section7.3.3	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Cyanide	<0.0117	<0.0117	0	20	U

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)
 Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
 All Results are based on MDL and validated for QC purposes.
 BRL - Below Reporting Limit

Project Name: Young Deep Koch

Work Order #: 609178

Lab Batch #: 3074300

Project ID:

Date Analyzed: 12/27/2018 16:00

Date Prepared: 12/27/2018

Analyst: TRS

QC- Sample ID: 608940-001 D

Batch #: 1

Matrix: Sludge

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY

Reactive Sulfide by SW9034	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Reactive Sulfide	10.0	10.0	0	20	J

Lab Batch #: 3074300

Date Analyzed: 12/27/2018 16:00

Date Prepared: 12/27/2018

Analyst: TRS

QC- Sample ID: 608940-012 D

Batch #: 1

Matrix: Sludge

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY

Reactive Sulfide by SW9034	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Reactive Sulfide	25.0	25.0	0	20	J

Lab Batch #: 3073942

Date Analyzed: 12/26/2018 08:00

Date Prepared: 12/26/2018

Analyst: CHE

QC- Sample ID: 609178-001 D

Batch #: 1

Matrix: Soil

Reporting Units: Deg C

SAMPLE / SAMPLE DUPLICATE RECOVERY

Soil pH	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Temperature	19.6	19.4	1	25	

Lab Batch #: 3073942

Date Analyzed: 12/26/2018 08:00

Date Prepared: 12/26/2018

Analyst: CHE

QC- Sample ID: 609178-001 D

Batch #: 1

Matrix: Soil

Reporting Units: SU

SAMPLE / SAMPLE DUPLICATE RECOVERY

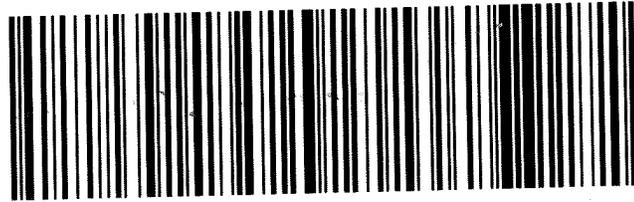
Soil pH	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
pH	7.25	7.23	0	20	

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

Spike Relative Difference RPD 200 * |(B-A)/(B+A)|

All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit



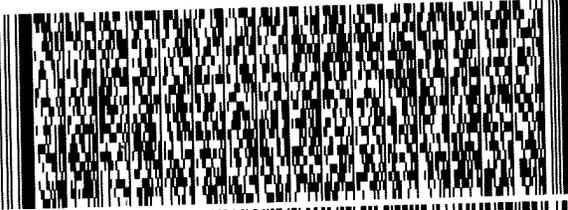
Postnet barcode

41 MAFB

MAFB TX-US LBB

MED - 19 DEC HOLD
STANDARD OVERNIGHT
HLD

TRK# 4705 2519 6703



J1811118050501LV

MIDLAND TX 79711
REF: (432) 563-1800
DEPT:

TO XENCO LABORATORIES
FEDEX EXPRESS SHIP CENTER
FEDEX EXPRESS SHIP CENTER
3600 COUNTY ROAD 1276 SOUTH

ORIGIN ID: H08A (575) 392-7550
MAIL SERVICES ETC, LLC
4008 N GRIMES
HOBBS, NM 88240
UNITED STATES US
SHIP DATE: 18DEC18
ACTWGT: 12.00 LB MAN
CAD: 0909328/CRFE3211
DIMS: 14X11X11 IN
BILL RECIPIENT

551CL/F1FE/104C



Inter-Office Shipment

IOS Number 119456

Date/Time: 12/19/18 11:25

Created by: Katie Lowe

Please send report to: Kelsey Brooks

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave, Midland TX 79701

Lab# To: **Houston**

Air Bill No.: 774026373050

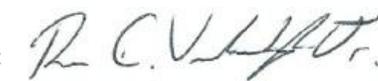
F-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
609178-001	S	WC	12/18/18 10:00	SW1010	Flash Point (Closed Cup Tester)	12/27/18	01/17/19	KEB	FLASHPT	
609178-001	W	WC	12/18/18 10:00	SW6010BTCLP	TCLP Metals by SW846 6010B	12/27/18	06/16/19	KEB	AG AS BA CD CR PB SE	
609178-001	W	WC	12/18/18 10:00	SW7470A_TCLP	TCLP Mercury by SW-846 1311/7470A	12/27/18	01/15/19	KEB	HG	
609178-001	W	WC	12/18/18 10:00	SW8260BTX_TCLP	TCLP BTEX by SW 8260B	12/27/18	01/01/19	KEB	BZ	
609178-001	S	WC	12/18/18 10:00	SW9012_RCI	Reactive Cyanide by SW 846-Section7.3.3	12/27/18	01/01/19	KEB	CN	
609178-001	S	WC	12/18/18 10:00	SW9034_RCI	Reactive Sulfide by SW9034	12/27/18	01/01/19	KEB	RS	

Inter Office Shipment or Sample Comments:

Relinquished By: 
Katie Lowe

Date Relinquished: 12/19/2018

Received By: 
Rene Vandenberghe

Date Received: 12/20/2018 11:10

Cooler Temperature: 1.3



XENCO Laboratories



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 119456

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-068

Sent By: Katie Lowe

Date Sent: 12/19/2018 11:25 AM

Received By: Rene Vandenberghe

Date Received: 12/20/2018 11:10 AM

Sample Receipt Checklist

Comments

- #1 *Temperature of cooler(s)? 1.3
- #2 *Shipping container in good condition? Yes
- #3 *Samples received with appropriate temperature? Yes
- #4 *Custody Seals intact on shipping container/ cooler? Yes
- #5 *Custody Seals Signed and dated for Containers/coolers Yes
- #6 *IOS present? Yes
- #7 Any missing/extra samples? No
- #8 IOS agrees with sample label(s)/matrix? Yes
- #9 Sample matrix/ properties agree with IOS? Yes
- #10 Samples in proper container/ bottle? Yes
- #11 Samples properly preserved? Yes
- #12 Sample container(s) intact? Yes
- #13 Sufficient sample amount for indicated test(s)? Yes
- #14 All samples received within hold time? Yes

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

R. C. Vandenberghe
Rene Vandenberghe

Date: 12/20/2018

Client: TRC Solutions, Inc

Date/ Time Received: 12/19/2018 10:30:00 AM

Work Order #: 609178

Acceptable Temperature Range: 0 - 6 degC
 Air and Metal samples Acceptable Range: Ambient
 Temperature Measuring device used : R8

Sample Receipt Checklist	Comments	
#1 *Temperature of cooler(s)?	2	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	N/A	
#5 Custody Seals intact on sample bottles?	N/A	
#6 *Custody Seals Signed and dated?	N/A	
#7 *Chain of Custody present?	Yes	
#8 Any missing/extra samples?	No	
#9 Chain of Custody signed when relinquished/ received?	Yes	
#10 Chain of Custody agrees with sample labels/matrix?	Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	Yes	
#13 Samples properly preserved?	Yes	
#14 Sample container(s) intact?	Yes	
#15 Sufficient sample amount for indicated test(s)?	Yes	limited sample
#16 All samples received within hold time?	Yes	
#17 Subcontract of sample(s)?	Yes	Xenco Stafford
#18 Water VOC samples have zero headspace?	N/A	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: 
 Katie Lowe

Date: 12/19/2018

Checklist reviewed by: 
 Kelsey Brooks

Date: 12/19/2018



TRC Solutions

ATTN: Zack Conder
2057 Commerce
Midland, TX 79703
432-520-7720

Sample Type: Soil
Sample Condition: Intact/ Ambient deg C
Lab ID#: 609178-001
Project Name: Young Deep Koch
Project # :
Project Location: Lea County, NM

Sample Date: 12/18/2018
Sample Time: 10:00
Receiving Date: 12/19/18
Analysis Date: 12/22/18
Analysis Time: 13:02
Field Code: W.C.

Analysis Description	Analysis Results pCi/G	Analysis Error +/- 2s	Analysis Results Bq/G	Analysis Error +/- 2s	Analysis Test Method	Analysis Technician
Ra-226	<2.3	N/A	<.09	N/A	EPA 901.1M	KEB
Ra-228	<.85	N/A	<.03	N/A	EPA 901.1M	KEB
Pb-210	<2.48	N/A	<.09	N/A	EPA 901.1M	KEB
Th-228	<4.84	N/A	<.18	N/A	EPA 901.1M	KEB
Bi-214	<.44	N/A	<.02	N/A	EPA 901.1M	KEB
Total Activity	0.00	N/A	0.00	N/A	EPA 901.1M	KEB

Notes:

Quality Assurance Review

Xenco Laboratories assumes no liability for the use or interpretation of any analytical results other than the cost of the performed analysis itself. Reproduction of this report in less than full requires the written consent of the client.

Xenco Laboratories 1211 W Florida Ave, Midland TX 79701 (432)-704-5440

Analytical Report 609627

for
TRC Solutions, Inc

Project Manager: Zach Conder
Young Deep Koch

02-JAN-19

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

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02-JAN-19

Project Manager: **Zach Conder**
TRC Solutions, Inc
2057 Commerce
Midland, TX 79703

Reference: XENCO Report No(s): **609627**
Young Deep Koch
Project Address: Lea County NM

Zach Conder:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 609627. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 609627 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 609627



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FL-1 @ 2'	S	12-19-18 10:00	2 ft	609627-001
FL-2 @ 2'	S	12-19-18 10:10	2 ft	609627-002
NSW @ 1'	S	12-19-18 10:20	1 ft	609627-003
SSW @ 1'	S	12-19-18 10:30	1 ft	609627-004
ESW-1 @ 1'	S	12-19-18 10:40	1 ft	609627-005
ESW-2 @ 1'	S	12-19-18 10:50	1 ft	609627-006
WSW-1 @ 1'	S	12-19-18 11:00	1 ft	609627-007
WSW-2 @ 1'	S	12-19-18 11:10	1 ft	609627-008



CASE NARRATIVE

Client Name: TRC Solutions, Inc

Project Name: Young Deep Koch

Project ID:
Work Order Number(s): 609627

Report Date: 02-JAN-19
Date Received: 12/21/2018

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3074458 BTEX by EPA 8021

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Lab Sample ID 609627-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Ethylbenzene, m_p-Xylenes , o-Xylene recovered below QC limits in the Matrix Spike Duplicate.

Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 609627-001, -002, -003, -004, -005, -006, -007, -008.

The Laboratory Control Sample for Ethylbenzene, m_p-Xylenes , o-Xylene is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results

609627



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: FL-1 @ 2'	Matrix: Soil	Sample Depth: 2 ft
Lab Sample Id: 609627-001	Date Collected: 12.19.18 10.00	Date Received: 12.21.18 13.10
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.99	15.0	7.99	mg/kg	12.25.18 07:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	312	15.0	8.12	mg/kg	12.25.18 07:22		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	86.3	15.0	8.12	mg/kg	12.25.18 07:22		1
Total TPH	PHC635	398.3		7.99	mg/kg	12.25.18 07:22		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	92	70 - 135	%		
o-Terphenyl	96	70 - 135	%		

Analytical Method: BTEX by EPA 8021	Prep Method: 5030B
Analyst: SCM	% Moist:
Seq Number: 3074458	Date Prep: 12.28.18 08.30
	Prep seq: 7668998
	Tech: SCM

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000385	0.00200	0.000385	mg/kg	12.28.18 23:33	U	1
Toluene	108-88-3	<0.000456	0.00200	0.000456	mg/kg	12.28.18 23:33	U	1
Ethylbenzene	100-41-4	<0.000565	0.00200	0.000565	mg/kg	12.28.18 23:33	UX	1
m_p-Xylenes	179601-23-1	<0.00101	0.00400	0.00101	mg/kg	12.28.18 23:33	UX	1
o-Xylene	95-47-6	<0.000344	0.00200	0.000344	mg/kg	12.28.18 23:33	UX	1
Xylenes, Total	1330-20-7	<0.000344		0.000344	mg/kg	12.28.18 23:33	U	
Total BTEX		<0.000344		0.000344	mg/kg	12.28.18 23:33	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	109	70 - 130	%		
4-Bromofluorobenzene	86	70 - 130	%		



Certificate of Analytical Results

609627



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: FL-2 @ 2'	Matrix: Soil	Sample Depth: 2 ft
Lab Sample Id: 609627-002	Date Collected: 12.19.18 10.10	Date Received: 12.21.18 13.10
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	32.3	15.0	7.98	mg/kg	12.25.18 07:43		1
Diesel Range Organics (DRO)	C10C28DRO	645	15.0	8.10	mg/kg	12.25.18 07:43		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	160	15.0	8.10	mg/kg	12.25.18 07:43		1
Total TPH	PHC635	837.3		7.98	mg/kg	12.25.18 07:43		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	101	70 - 135	%		
o-Terphenyl	104	70 - 135	%		

Analytical Method: BTEX by EPA 8021	Prep Method: 5030B
Analyst: SCM	% Moist:
Seq Number: 3074458	Date Prep: 12.28.18 08.30
	Prep seq: 7668998
	Tech: SCM

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000387	0.00201	0.000387	mg/kg	12.28.18 23:52	U	1
Toluene	108-88-3	<0.000458	0.00201	0.000458	mg/kg	12.28.18 23:52	U	1
Ethylbenzene	100-41-4	<0.000568	0.00201	0.000568	mg/kg	12.28.18 23:52	U	1
m_p-Xylenes	179601-23-1	<0.00102	0.00402	0.00102	mg/kg	12.28.18 23:52	U	1
o-Xylene	95-47-6	<0.000346	0.00201	0.000346	mg/kg	12.28.18 23:52	U	1
Xylenes, Total	1330-20-7	<0.000346		0.000346	mg/kg	12.28.18 23:52	U	
Total BTEX		<0.000346		0.000346	mg/kg	12.28.18 23:52	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	110	70 - 130	%		
4-Bromofluorobenzene	92	70 - 130	%		



Certificate of Analytical Results

609627



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: NSW @ 1'	Matrix: Soil	Sample Depth: 1 ft
Lab Sample Id: 609627-003	Date Collected: 12.19.18 10.20	Date Received: 12.21.18 13.10
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	9.70	15.0	8.00	mg/kg	12.25.18 08:03	J	1
Diesel Range Organics (DRO)	C10C28DRO	1890	15.0	8.13	mg/kg	12.25.18 08:03		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	359	15.0	8.13	mg/kg	12.25.18 08:03		1
Total TPH	PHC635	2258.7		8	mg/kg	12.25.18 08:03		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	85	70 - 135	%		
o-Terphenyl	80	70 - 135	%		

Analytical Method: BTEX by EPA 8021		Prep Method: 5030B
Analyst: SCM	% Moist:	Tech: SCM
Seq Number: 3074458	Date Prep: 12.28.18 08.30	
	Prep seq: 7668998	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000383	0.00199	0.000383	mg/kg	12.29.18 00:11	U	1
Toluene	108-88-3	<0.000454	0.00199	0.000454	mg/kg	12.29.18 00:11	U	1
Ethylbenzene	100-41-4	<0.000563	0.00199	0.000563	mg/kg	12.29.18 00:11	U	1
m_p-Xylenes	179601-23-1	<0.00101	0.00398	0.00101	mg/kg	12.29.18 00:11	U	1
o-Xylene	95-47-6	<0.000343	0.00199	0.000343	mg/kg	12.29.18 00:11	U	1
Xylenes, Total	1330-20-7	<0.000343		0.000343	mg/kg	12.29.18 00:11	U	
Total BTEX		<0.000343		0.000343	mg/kg	12.29.18 00:11	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	113	70 - 130	%		
4-Bromofluorobenzene	90	70 - 130	%		



Certificate of Analytical Results

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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: SSW @ 1'	Matrix: Soil	Sample Depth: 1 ft
Lab Sample Id: 609627-004	Date Collected: 12.19.18 10.30	Date Received: 12.21.18 13.10
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.98	15.0	7.98	mg/kg	12.25.18 08:24	U	1
Diesel Range Organics (DRO)	C10C28DRO	312	15.0	8.10	mg/kg	12.25.18 08:24		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	84.5	15.0	8.10	mg/kg	12.25.18 08:24		1
Total TPH	PHC635	396.5		7.98	mg/kg	12.25.18 08:24		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	90	70 - 135	%		
o-Terphenyl	95	70 - 135	%		

Analytical Method: BTEX by EPA 8021	Prep Method: 5030B
Analyst: SCM	% Moist:
Seq Number: 3074458	Date Prep: 12.28.18 08.30
	Prep seq: 7668998
	Tech: SCM

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000386	0.00200	0.000386	mg/kg	12.29.18 00:30	U	1
Toluene	108-88-3	<0.000457	0.00200	0.000457	mg/kg	12.29.18 00:30	U	1
Ethylbenzene	100-41-4	<0.000566	0.00200	0.000566	mg/kg	12.29.18 00:30	U	1
m_p-Xylenes	179601-23-1	<0.00102	0.00401	0.00102	mg/kg	12.29.18 00:30	U	1
o-Xylene	95-47-6	<0.000345	0.00200	0.000345	mg/kg	12.29.18 00:30	U	1
Xylenes, Total	1330-20-7	<0.000345		0.000345	mg/kg	12.29.18 00:30	U	
Total BTEX		<0.000345		0.000345	mg/kg	12.29.18 00:30	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	110	70 - 130	%		
4-Bromofluorobenzene	91	70 - 130	%		



Certificate of Analytical Results

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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: ESW-1 @ 1'	Matrix: Soil	Sample Depth: 1 ft
Lab Sample Id: 609627-005	Date Collected: 12.19.18 10.40	Date Received: 12.21.18 13.10
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	14.2	14.9	7.97	mg/kg	12.25.18 04:19	J	1
Diesel Range Organics (DRO)	C10C28DRO	14.8	14.9	8.10	mg/kg	12.25.18 04:19	J	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.10	14.9	8.10	mg/kg	12.25.18 04:19	U	1
Total TPH	PHC635	29		7.97	mg/kg	12.25.18 04:19		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	90	70 - 135	%		
o-Terphenyl	85	70 - 135	%		

Analytical Method: BTEX by EPA 8021	Prep Method: 5030B
Analyst: SCM	% Moist:
Seq Number: 3074458	Date Prep: 12.28.18 08.30
	Prep seq: 7668998
	Tech: SCM

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000384	0.00200	0.000384	mg/kg	12.29.18 00:49	U	1
Toluene	108-88-3	<0.000455	0.00200	0.000455	mg/kg	12.29.18 00:49	U	1
Ethylbenzene	100-41-4	<0.000564	0.00200	0.000564	mg/kg	12.29.18 00:49	U	1
m_p-Xylenes	179601-23-1	<0.00101	0.00399	0.00101	mg/kg	12.29.18 00:49	U	1
o-Xylene	95-47-6	<0.000344	0.00200	0.000344	mg/kg	12.29.18 00:49	U	1
Xylenes, Total	1330-20-7	<0.000344		0.000344	mg/kg	12.29.18 00:49	U	
Total BTEX		<0.000344		0.000344	mg/kg	12.29.18 00:49	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	110	70 - 130	%		
4-Bromofluorobenzene	90	70 - 130	%		



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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: ESW-2 @ 1'	Matrix: Soil	Sample Depth: 1 ft
Lab Sample Id: 609627-006	Date Collected: 12.19.18 10.50	Date Received: 12.21.18 13.10
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	23.2	14.9	7.97	mg/kg	12.25.18 04:39		1
Diesel Range Organics (DRO)	C10C28DRO	138	14.9	8.10	mg/kg	12.25.18 04:39		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	52.5	14.9	8.10	mg/kg	12.25.18 04:39		1
Total TPH	PHC635	213.7		7.97	mg/kg	12.25.18 04:39		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	98	70 - 135	%		
o-Terphenyl	97	70 - 135	%		

Analytical Method: BTEX by EPA 8021	Prep Method: 5030B
Analyst: SCM	% Moist:
Seq Number: 3074458	Date Prep: 12.28.18 08.30
	Prep seq: 7668998
	Tech: SCM

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000388	0.00202	0.000388	mg/kg	12.29.18 01:08	U	1
Toluene	108-88-3	<0.000459	0.00202	0.000459	mg/kg	12.29.18 01:08	U	1
Ethylbenzene	100-41-4	<0.000569	0.00202	0.000569	mg/kg	12.29.18 01:08	U	1
m_p-Xylenes	179601-23-1	<0.00102	0.00403	0.00102	mg/kg	12.29.18 01:08	U	1
o-Xylene	95-47-6	<0.000347	0.00202	0.000347	mg/kg	12.29.18 01:08	U	1
Xylenes, Total	1330-20-7	<0.000347		0.000347	mg/kg	12.29.18 01:08	U	
Total BTEX		<0.000347		0.000347	mg/kg	12.29.18 01:08	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	112	70 - 130	%		
4-Bromofluorobenzene	92	70 - 130	%		



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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: WSW-1 @ 1'	Matrix: Soil	Sample Depth: 1 ft
Lab Sample Id: 609627-007	Date Collected: 12.19.18 11.00	Date Received: 12.21.18 13.10
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	11.9	15.0	7.99	mg/kg	12.25.18 05:00	J	1
Diesel Range Organics (DRO)	C10C28DRO	133	15.0	8.11	mg/kg	12.25.18 05:00		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	47.3	15.0	8.11	mg/kg	12.25.18 05:00		1
Total TPH	PHC635	192.2		7.99	mg/kg	12.25.18 05:00		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	84	70 - 135	%		
o-Terphenyl	81	70 - 135	%		

Analytical Method: BTEX by EPA 8021	Prep Method: 5030B
Analyst: SCM	% Moist:
Seq Number: 3074458	Date Prep: 12.28.18 08.30
	Prep seq: 7668998
	Tech: SCM

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000386	0.00200	0.000386	mg/kg	12.29.18 01:27	U	1
Toluene	108-88-3	<0.000457	0.00200	0.000457	mg/kg	12.29.18 01:27	U	1
Ethylbenzene	100-41-4	<0.000566	0.00200	0.000566	mg/kg	12.29.18 01:27	U	1
m_p-Xylenes	179601-23-1	<0.00102	0.00401	0.00102	mg/kg	12.29.18 01:27	U	1
o-Xylene	95-47-6	<0.000345	0.00200	0.000345	mg/kg	12.29.18 01:27	U	1
Xylenes, Total	1330-20-7	<0.000345		0.000345	mg/kg	12.29.18 01:27	U	
Total BTEX		<0.000345		0.000345	mg/kg	12.29.18 01:27	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	110	70 - 130	%		
4-Bromofluorobenzene	91	70 - 130	%		



Certificate of Analytical Results

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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: WSW-2 @ 1'	Matrix: Soil	Sample Depth: 1 ft
Lab Sample Id: 609627-008	Date Collected: 12.19.18 11.10	Date Received: 12.21.18 13.10
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	8.35	15.0	7.98	mg/kg	12.25.18 05:20	J	1
Diesel Range Organics (DRO)	C10C28DRO	535	15.0	8.10	mg/kg	12.25.18 05:20		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	161	15.0	8.10	mg/kg	12.25.18 05:20		1
Total TPH	PHC635	704.35		7.98	mg/kg	12.25.18 05:20		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	87	70 - 135	%		
o-Terphenyl	90	70 - 135	%		

Analytical Method: BTEX by EPA 8021	Prep Method: 5030B
Analyst: SCM	% Moist:
Seq Number: 3074458	Date Prep: 12.28.18 08.30
	Prep seq: 7668998
	Tech: SCM

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000383	0.00199	0.000383	mg/kg	12.29.18 01:46	U	1
Toluene	108-88-3	<0.000453	0.00199	0.000453	mg/kg	12.29.18 01:46	U	1
Ethylbenzene	100-41-4	<0.000561	0.00199	0.000561	mg/kg	12.29.18 01:46	U	1
m_p-Xylenes	179601-23-1	<0.00101	0.00398	0.00101	mg/kg	12.29.18 01:46	U	1
o-Xylene	95-47-6	<0.000342	0.00199	0.000342	mg/kg	12.29.18 01:46	U	1
Xylenes, Total	1330-20-7	<0.000342		0.000342	mg/kg	12.29.18 01:46	U	
Total BTEX		<0.000342		0.000342	mg/kg	12.29.18 01:46	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	112	70 - 130	%		
4-Bromofluorobenzene	93	70 - 130	%		



Certificate of Analytical Results

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TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: 7668692-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7668692-1-BLK	Date Collected:	Date Received:
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ARM	% Moist:	Tech: ARM
Seq Number: 3073959	Date Prep: 12.23.18 15.00	
	Prep seq: 7668692	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<8.00	15.0	8.00	mg/kg	12.24.18 21:23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.13	15.0	8.13	mg/kg	12.24.18 21:23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.13	15.0	8.13	mg/kg	12.24.18 21:23	U	1
Total TPH	PHC635	<8		8	mg/kg	12.24.18 21:23	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	107	70 - 135	%		
o-Terphenyl	111	70 - 135	%		

Sample Id: 7668998-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7668998-1-BLK	Date Collected:	Date Received:
Analytical Method: BTEX by EPA 8021		Prep Method: 5030B
Analyst: SCM	% Moist:	Tech: SCM
Seq Number: 3074458	Date Prep: 12.28.18 08.30	
	Prep seq: 7668998	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000385	0.00200	0.000385	mg/kg	12.28.18 23:14	U	1
Toluene	108-88-3	<0.000456	0.00200	0.000456	mg/kg	12.28.18 23:14	U	1
Ethylbenzene	100-41-4	<0.000565	0.00200	0.000565	mg/kg	12.28.18 23:14	U	1
m_p-Xylenes	179601-23-1	<0.00101	0.00400	0.00101	mg/kg	12.28.18 23:14	U	1
o-Xylene	95-47-6	<0.000344	0.00200	0.000344	mg/kg	12.28.18 23:14	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	108	70 - 130	%		
4-Bromofluorobenzene	78	70 - 130	%		

Form 2 - Surrogate Recoveries

Project Name: Young Deep Koch

Work Orders : 609627,

Project ID:

Lab Batch #: 3074458

Sample: 7668998-1-BKS / BKS

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/28/18 21:40				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0317	0.0300	106	70-130	
4-Bromofluorobenzene	0.0256	0.0300	85	70-130	

Lab Batch #: 3074458

Sample: 7668998-1-BSD / BSD

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/28/18 22:00				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0319	0.0300	106	70-130	
4-Bromofluorobenzene	0.0259	0.0300	86	70-130	

Lab Batch #: 3074458

Sample: 609627-001 S / MS

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/28/18 22:18				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0322	0.0300	107	70-130	
4-Bromofluorobenzene	0.0257	0.0300	86	70-130	

Lab Batch #: 3074458

Sample: 609627-001 SD / MSD

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/28/18 22:37				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0322	0.0300	107	70-130	
4-Bromofluorobenzene	0.0260	0.0300	87	70-130	

Lab Batch #: 3074458

Sample: 7668998-1-BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/28/18 23:14				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0325	0.0300	108	70-130	
4-Bromofluorobenzene	0.0233	0.0300	78	70-130	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Young Deep Koch

Work Orders : 609627,

Project ID:

Lab Batch #: 3073959

Sample: 7668692-1-BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/24/18 21:23				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	100	107	70-135	
o-Terphenyl	55.5	50.0	111	70-135	

Lab Batch #: 3073959

Sample: 7668692-1-BKS / BKS

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/24/18 21:44				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	126	100	126	70-135	
o-Terphenyl	63.5	50.0	127	70-135	

Lab Batch #: 3073959

Sample: 7668692-1-BSD / BSD

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/24/18 22:05				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	120	100	120	70-135	
o-Terphenyl	54.7	50.0	109	70-135	

Lab Batch #: 3073959

Sample: 609032-001 S / MS

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/24/18 22:47				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.3	99.8	92	70-135	
o-Terphenyl	42.3	49.9	85	70-135	

Lab Batch #: 3073959

Sample: 609032-001 SD / MSD

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 12/24/18 23:07				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.6	100	89	70-135	
o-Terphenyl	39.4	50.0	79	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries



Project Name: Young Deep Koch

Work Order #: 609627

Project ID:

Analyst: SCM

Date Prepared: 12/28/2018

Date Analyzed: 12/28/2018

Lab Batch ID: 3074458

Sample: 7668998-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.000383	0.0996	0.105	105	0.100	0.108	108	3	70-130	35	
Toluene	<0.000454	0.0996	0.0921	92	0.100	0.0940	94	2	70-130	35	
Ethylbenzene	<0.000563	0.0996	0.0975	98	0.100	0.0995	100	2	70-130	35	
m_p-Xylenes	<0.00101	0.199	0.176	88	0.200	0.180	90	2	70-130	35	
o-Xylene	<0.000343	0.0996	0.0864	87	0.100	0.0880	88	2	70-130	35	

Analyst: ARM

Date Prepared: 12/23/2018

Date Analyzed: 12/24/2018

Lab Batch ID: 3073959

Sample: 7668692-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1020	102	1000	949	95	7	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1070	107	1000	952	95	12	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Young Deep Koch

Work Order # : 609627
Lab Batch ID: 3074458
Date Analyzed: 12/28/2018
Reporting Units: mg/kg

Project ID:
QC- Sample ID: 609627-001 S **Batch #:** 1 **Matrix:** Soil
Date Prepared: 12/28/2018 **Analyst:** SCM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.000387	0.101	0.0981	97	0.100	0.0986	99	1	70-130	35	
Toluene	<0.000458	0.101	0.0817	81	0.100	0.0749	75	9	70-130	35	
Ethylbenzene	<0.000568	0.101	0.0814	81	0.100	0.0648	65	23	70-130	35	X
m_p-Xylenes	<0.00102	0.201	0.146	73	0.201	0.116	58	23	70-130	35	X
o-Xylene	<0.000346	0.101	0.0709	70	0.100	0.0574	57	21	70-130	35	X

Lab Batch ID: 3073959 **QC- Sample ID:** 609032-001 S **Batch #:** 1 **Matrix:** Soil
Date Analyzed: 12/24/2018 **Date Prepared:** 12/23/2018 **Analyst:** ARM
Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<7.99	998	830	83	1000	816	82	2	70-135	20	
Diesel Range Organics (DRO)	36.0	998	844	81	1000	839	80	1	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
 Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Setting the Standard Since 1990
 Stafford, Texas (281-240-4200)
 Dallas Texas (214-902-0300)

CHAIN OF CUSTODY

Page 1 of 1

San Antonio, Texas (210-509-3334)
 Midland, Texas (432-704-5251)

www.xenco.com

Phoenix, Arizona (480-355-0900)

Xenco Quote #

Xenco Job #

10091027

Client / Reporting Information

Company Name / Branch: TRC Environmental Corporation

Company Address: 10 Desha Dr, Suite 150E Midland, TX 79705

Email: zcoonder@trcsolutions.com

Phone No: 432-234-5094

Project Information

Project Name/Number: DPSUG DEEP KCH

Project Location: LER Co, PA

Invoice To: Plains Marketing c/o Amber Groves

Invoice:

Project Contact: Zach Conder

Sampler's Name: BECCY GRIFFIN

Field ID / Point of Collection

No.	Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles								TPH 8015 M Ext	Chloride E 300	BTEX 8021B	Notes:	Field Comments
						HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE					
1	FL-1 @ 2'	2/12/19	10:00	S	1													
2	FL-2 @ 2'	2/12/19	10:10	S	1													
3	KSUS @ 1'	1/17	10:20	S	1													
4	KSUS @ 1'	1/17	10:30	S	1													
5	ESUS-1 @ 1'	1/17	10:40	S	1													
6	ESUS-2 @ 1'	1/17	10:50	S	1													
7	USUS-1 @ 1'	1/17	11:00	S	1													
8	USUS-2 @ 1'	1/17	11:10	S	1													
9																		
10																		

Turnaround Time (Business days)

Same Day TAT
 5 Day TAT
 Next Day EMERGENCY
 7 Day TAT
 2 Day EMERGENCY
 Contract TAT
 3 Day EMERGENCY
 TRRP Checklist

TAT Starts Day received by Lab, if received by 5:00 pm

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:
1. <i>Becky Griffin</i>	12-19-18	2. <i>Becky Griffin</i>		3. <i>Becky Griffin</i>		4. <i>Becky Griffin</i>		5. <i>Becky Griffin</i>		6. <i>Becky Griffin</i>	

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

On Ice Cooler Temp. *3.2* Thermo. Corr. Factor *1.0*

128 4.6/4.5

IN ID: H0BA (5/5) 392-7550
SERVICES ETC, LLC
4008 N GRIMES
HOBBS, NM 88240
UNITED STATES US

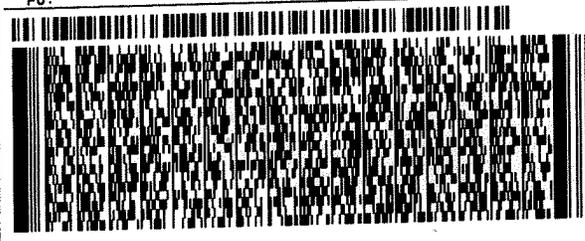
SHIP DATE: 19DEC18
ACTWGT: 15.00 LB MAN
CAD: 0909328/CAFE3211
DIMS: 14x11x11 IN
BILL RECIPIENT

TO XENCO LABORATORIES
FEDEX EXPRESS SHIP CENTER
FEDEX SHIP CENTER
3600 COUNTY RD 1276 S

MIDLAND TX 79711

(432) 563-1800 REF: DEPT:
INV: PO:

551C1/F1EE/104C



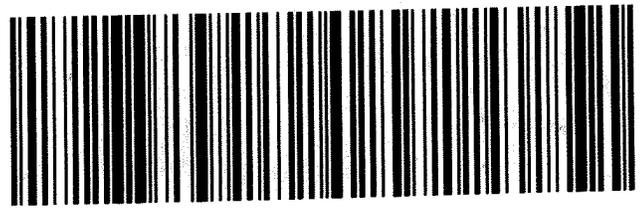
J1811180605010V

TRK# 4705 2519 7309
0201

THU - 20 DEC HOLD
STANDARD OVERNIGHT
HLD
MAFA
TX-US LBB

41 MAFA

Part #: 156148-434 RTT EXP 03/16 *





XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: TRC Solutions, Inc

Date/ Time Received: 12/21/2018 01:10:00 PM

Work Order #: 609627

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6* Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 12/26/2018
Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 12/26/2018
Jessica Kramer

Analytical Report 610954

for
TRC Solutions, Inc

Project Manager: B Cooper
Young Deep Koch

18-JAN-19

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

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18-JAN-19

Project Manager: **B Cooper**
TRC Solutions, Inc
2057 Commerce
Midland, TX 79703

Reference: XENCO Report No(s): **610954**
Young Deep Koch
Project Address: Lea Co, NM

B Cooper:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 610954. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 610954 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer
Project Assistant

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Sample Cross Reference 610954



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NSW-b @1'	S	01-09-19 10:00	1 ft	610954-001



CASE NARRATIVE

Client Name: TRC Solutions, Inc

Project Name: Young Deep Koch

Project ID:
Work Order Number(s): 610954

Report Date: 18-JAN-19
Date Received: 01/10/2019

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3075767 BTEX by EPA 8021

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Lab Sample ID 610954-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, m_p-Xylenes , o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 610954-001.

The Laboratory Control Sample for Ethylbenzene, m_p-Xylenes , o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3075858 TPH by SW8015 Mod

Surrogate 1-Chlorooctane, Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 610951-001 S,610951-001 SD.



Certificate of Analytical Results

610954



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: NSW-b @1'	Matrix: Soil	Sample Depth: 1 ft
Lab Sample Id: 610954-001	Date Collected: 01.09.19 10.00	Date Received: 01.10.19 13.00
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ALJ	% Moist:	Tech: ALJ
Seq Number: 3075858	Date Prep: 01.15.19 10.00	
	Prep seq: 7669780	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<8.00	15.0	8.00	mg/kg	01.15.19 15:53	U	1
Diesel Range Organics (DRO)	C10C28DRO	77.3	15.0	8.13	mg/kg	01.15.19 15:53		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	20.7	15.0	8.13	mg/kg	01.15.19 15:53		1
Total TPH	PHC635	98		8	mg/kg	01.15.19 15:53		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	113	70 - 135	%		
o-Terphenyl	114	70 - 135	%		

Analytical Method: BTEX by EPA 8021		Prep Method: 5030B
Analyst: SCM	% Moist:	Tech: SCM
Seq Number: 3075767	Date Prep: 01.14.19 14.00	
	Prep seq: 7669731	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000383	0.00199	0.000383	mg/kg	01.14.19 23:22	U	1
Toluene	108-88-3	<0.000454	0.00199	0.000454	mg/kg	01.14.19 23:22	U	1
Ethylbenzene	100-41-4	<0.000563	0.00199	0.000563	mg/kg	01.14.19 23:22	UX	1
m_p-Xylenes	179601-23-1	<0.00101	0.00398	0.00101	mg/kg	01.14.19 23:22	UX	1
o-Xylene	95-47-6	<0.000343	0.00199	0.000343	mg/kg	01.14.19 23:22	UX	1
Xylenes, Total	1330-20-7	<0.000343		0.000343	mg/kg	01.14.19 23:22	U	
Total BTEX		<0.000343		0.000343	mg/kg	01.14.19 23:22	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	105	70 - 130	%		
4-Bromofluorobenzene	101	70 - 130	%		



Certificate of Analytical Results

610954



TRC Solutions, Inc, Midland, TX

Young Deep Koch

Sample Id: 7669731-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7669731-1-BLK	Date Collected:	Date Received:
Analytical Method: BTEX by EPA 8021		Prep Method: 5030B
Analyst: SCM	% Moist:	Tech: SCM
Seq Number: 3075767	Date Prep: 01.14.19 14.00	
	Prep seq: 7669731	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000383	0.00199	0.000383	mg/kg	01.14.19 23:03	U	1
Toluene	108-88-3	<0.000453	0.00199	0.000453	mg/kg	01.14.19 23:03	U	1
Ethylbenzene	100-41-4	<0.000561	0.00199	0.000561	mg/kg	01.14.19 23:03	U	1
m_p-Xylenes	179601-23-1	<0.00101	0.00398	0.00101	mg/kg	01.14.19 23:03	U	1
o-Xylene	95-47-6	<0.000342	0.00199	0.000342	mg/kg	01.14.19 23:03	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1,4-Difluorobenzene	101	70 - 130	%		
4-Bromofluorobenzene	86	70 - 130	%		

Sample Id: 7669780-1-BLK	Matrix: Solid	Sample Depth:
Lab Sample Id: 7669780-1-BLK	Date Collected:	Date Received:
Analytical Method: TPH by SW8015 Mod		Prep Method: 1005
Analyst: ALJ	% Moist:	Tech: ALJ
Seq Number: 3075858	Date Prep: 01.15.19 10.00	
	Prep seq: 7669780	

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<8.00	15.0	8.00	mg/kg	01.15.19 12:30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.13	15.0	8.13	mg/kg	01.15.19 12:30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<8.13	15.0	8.13	mg/kg	01.15.19 12:30	U	1
Total TPH	PHC635	<8		8	mg/kg	01.15.19 12:30	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	108	70 - 135	%		
o-Terphenyl	112	70 - 135	%		

Form 2 - Surrogate Recoveries

Project Name: Young Deep Koch

Work Orders : 610954,

Project ID:

Lab Batch #: 3075767

Sample: 7669731-1-BKS / BKS

Batch: 1 **Matrix:** Solid

Units: mg/kg Date Analyzed: 01/14/19 21:30	SURROGATE RECOVERY STUDY				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	70-130	
4-Bromofluorobenzene	0.0279	0.0300	93	70-130	

Lab Batch #: 3075767

Sample: 7669731-1-BSD / BSD

Batch: 1 **Matrix:** Solid

Units: mg/kg Date Analyzed: 01/14/19 21:49	SURROGATE RECOVERY STUDY				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	70-130	
4-Bromofluorobenzene	0.0276	0.0300	92	70-130	

Lab Batch #: 3075767

Sample: 610954-001 S / MS

Batch: 1 **Matrix:** Soil

Units: mg/kg Date Analyzed: 01/14/19 22:08	SURROGATE RECOVERY STUDY				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	70-130	
4-Bromofluorobenzene	0.0279	0.0300	93	70-130	

Lab Batch #: 3075767

Sample: 610954-001 SD / MSD

Batch: 1 **Matrix:** Soil

Units: mg/kg Date Analyzed: 01/14/19 22:27	SURROGATE RECOVERY STUDY				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	70-130	
4-Bromofluorobenzene	0.0287	0.0300	96	70-130	

Lab Batch #: 3075767

Sample: 7669731-1-BLK / BLK

Batch: 1 **Matrix:** Solid

Units: mg/kg Date Analyzed: 01/14/19 23:03	SURROGATE RECOVERY STUDY				
BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	70-130	
4-Bromofluorobenzene	0.0259	0.0300	86	70-130	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Young Deep Koch

Work Orders : 610954,

Project ID:

Lab Batch #: 3075858

Sample: 7669780-1-BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 01/15/19 12:30				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	56.2	50.0	112	70-135	

Lab Batch #: 3075858

Sample: 7669780-1-BKS / BKS

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 01/15/19 12:50				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.3	100	98	70-135	
o-Terphenyl	47.1	50.0	94	70-135	

Lab Batch #: 3075858

Sample: 7669780-1-BSD / BSD

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 01/15/19 13:10				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	100	109	70-135	
o-Terphenyl	52.5	50.0	105	70-135	

Lab Batch #: 3075858

Sample: 610951-001 S / MS

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 01/15/19 14:53				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	197	100	197	70-135	**
o-Terphenyl	101	50.0	202	70-135	**

Lab Batch #: 3075858

Sample: 610951-001 SD / MSD

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 01/15/19 15:13				
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	197	100	197	70-135	**
o-Terphenyl	98.0	50.0	196	70-135	**

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries



Project Name: Young Deep Koch

Work Order #: 610954

Project ID:

Analyst: SCM

Date Prepared: 01/14/2019

Date Analyzed: 01/14/2019

Lab Batch ID: 3075767

Sample: 7669731-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.000385	0.100	0.106	106	0.0998	0.106	106	0	70-130	35	
Toluene	<0.000456	0.100	0.100	100	0.0998	0.0992	99	1	70-130	35	
Ethylbenzene	<0.000565	0.100	0.0971	97	0.0998	0.0957	96	1	70-130	35	
m_p-Xylenes	<0.00101	0.200	0.192	96	0.200	0.189	95	2	70-130	35	
o-Xylene	<0.000344	0.100	0.0964	96	0.0998	0.0953	95	1	70-130	35	

Analyst: ALJ

Date Prepared: 01/15/2019

Date Analyzed: 01/15/2019

Lab Batch ID: 3075858

Sample: 7669780-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	701	70	1000	771	77	10	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	804	80	1000	902	90	11	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Young Deep Koch

Work Order # : 610954

Project ID:

Lab Batch ID: 3075767

QC- Sample ID: 610954-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 01/14/2019

Date Prepared: 01/14/2019

Analyst: SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.000388	0.101	0.0812	80	0.100	0.0738	74	10	70-130	35	
Toluene	<0.000459	0.101	0.0750	74	0.100	0.0699	70	7	70-130	35	
Ethylbenzene	<0.000569	0.101	0.0662	66	0.100	0.0620	62	7	70-130	35	X
m_p-Xylenes	<0.00102	0.202	0.131	65	0.200	0.123	62	6	70-130	35	X
o-Xylene	<0.000347	0.101	0.0665	66	0.100	0.0631	63	5	70-130	35	X

Lab Batch ID: 3075858

QC- Sample ID: 610951-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 01/15/2019

Date Prepared: 01/15/2019

Analyst: ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	2130	213	1000	2100	210	1	70-135	20	X
Diesel Range Organics (DRO)	<8.13	1000	2320	232	1000	2300	230	1	70-135	20	X

Matrix Spike Percent Recovery $[D] = 100*(C-A)/B$
 Relative Percent Difference $RPD = 200*((C-F)/(C+F))$

Matrix Spike Duplicate Percent Recovery $[G] = 100*(F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: TRC Solutions, Inc

Date/ Time Received: 01/10/2019 01:00:00 PM

Work Order #: 610954

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6*Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by: *Katie Lowe*
Katie Lowe

Date: 01/10/2019

Checklist reviewed by: _____

Date: 01/10/2019

Site Name: Young Deep Historical

Date: 8/21/2018

Soil Profile

Description	ft. bgs
Stained sand	0
	1
Red sand	2
	3
"	4
	5
	TD
	6
	7
	8
	9
	10
	11
	12
	13
	14
	15
	16



Aug 21, 2018 at 10:41:54 AM
+32.684030,-103.768353
Hobbs, NM 88240

Photo 1 - View of surface staining and sample locations, facing North.



Aug 21, 2018 at 10:41:30 AM
+32.684199,-103.768290
Hobbs, NM 88240

Photo 2 - View of surface staining and sample locations, facing Southwest.



Photo 3 - View of surface staining and sample locations, facing Southwest.

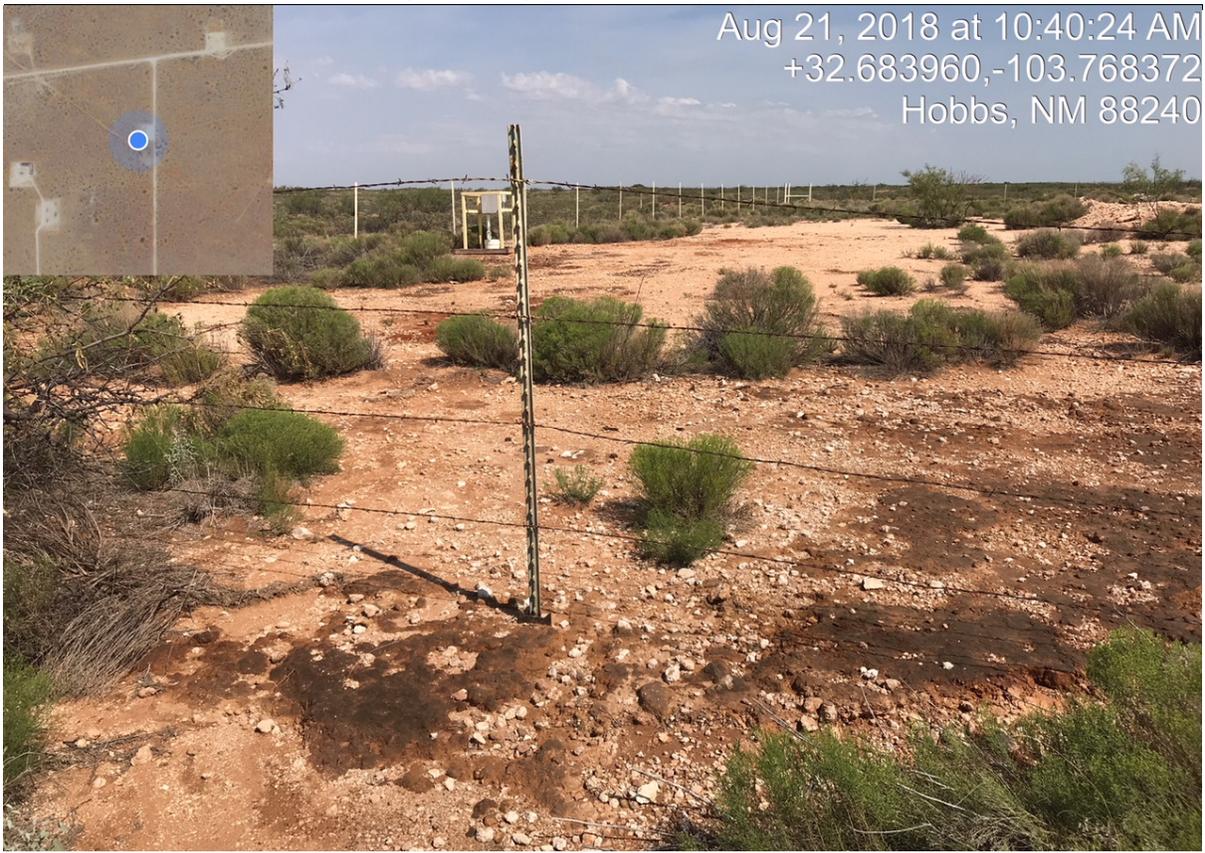


Photo 4 - View of surface staining and sample locations, facing Northwest.



Photo 5 - View of affected area after excavation activities, facing South.



Photo 6 - View of affected area after excavation activities, facing North.



Photo 7 - View of affected area after remediation activites, facing North.



Photo 8 - View of affected area after remediation activites, facing South.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

Initial Report Final Report

Name of Company	Plains Pipeline LP	Contact	Amber Groves
Address	505 N. Big Spring Suite 600, Midland, TX 79701	Telephone No.	(575) 200-5517
Facility Name	Young Deep Koch Station Historical	Facility Type	

Surface Owner	BLM	Mineral Owner		Lease No.	
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	4	19S	32E					Lea

Latitude N 32.68414° Longitude W 103.76801°

NATURE OF RELEASE

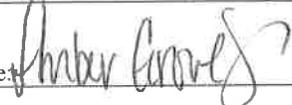
Type of Release	Crude Oil	Volume of Release	Unknown	Volume Recovered	Unknown
Source of Release	Unknown	Date and Hour of Occurrence	Unknown	Date and Hour of Discovery	05/31/2018
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required		If YES, To Whom?		
By Whom?			Date and Hour		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If YES, Volume Impacting the Watercourse.		

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Historical impact identified at station.

Describe Area Affected and Cleanup Action Taken. Visually stained crude oil impacted soil located at the station will be remediated as per applicable NMOCD guidelines.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: 	<u>OIL CONSERVATION DIVISION</u>		
Printed Name: Amber Groves	Approved by District Supervisor:		
Title: Remediation Coordinator	Approval Date:	Expiration Date:	
E-mail Address: algroves@paalp.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 8/13/18	Phone: (575) 200-5517		

* Attach Additional Sheets If Necessary

Incident ID	
District RP	1RP-5157
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?	~ 350 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 1/2-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.

Incident ID	
District RP	1RP-5157
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: Amber Groves Title: Remediation Coordinator
 Signature: Amber Groves Date: 10/22/18
 email: agroves@paa.lp.com Telephone: 575-200-5517

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	1RP-5157
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: Amber Groves Title: Remediation Coordinator
 Signature: Amber Groves Date: 10/23/2012
 email: agroves@paalp.com Telephone: 575-200-5517

OCD Only

Received by: _____ Date: _____

- Approved Approved with Attached Conditions of Approval Denied Deferral Approved

Signature: Bradford Billings Date: 01/13/2020