

SITE INFORMATION

Report Type: Work Plan 2RP-5010

General Site Information:

Site:	King Tut Federal #001H Battery					
Company:	COG Operating LLC					
Section, Township and Range	Unit E	Sec. 19	T 24S	R 32E		
Lease Number:	API No. FMAP1828468531					
County:	Eddy County					
GPS:	32.203915			-103.72301		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of 128 and Buck Johnson Rd., go southwest on Buck Johnson Rd. for 0.43 mi., turn south onto unnamed lease Rd. and go 1.85 miles to location.					

Release Data:

Date Released:	10/4/2018
Type Release:	Produced Water
Source of Contamination:	Flowline
Fluid Released:	44.1 bbl water
Fluids Recovered:	10 bbls water

Official Communication:

Name:	Ike Tavaréz		Clair Gonzales
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		901 West Wall Street
	600 W. Illinois Ave.		Suite 100
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	itavarez@concho.com		Clair.Gonzales@tetrattech.com

Site Characterization

Depth to Groundwater: 160' below surface

Recommended Remedial Action Levels (RRALs)

Benzene	Total BTEX	TPH (GRO+DRO)	TPH (GRO+DRO+MRO)	Chlorides
10 mg/kg	50 mg/kg	1,000 mg/kg	2,500 mg/kg	20,000 mg/kg



TETRA TECH

December 17, 2018

Mr. Mike Bratcher
District Supervisor
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Work Plan for the COG Operating, LLC, King Tut Federal #001H Battery, Unit E, Section 19, Township 24 South, Range 32 East, Eddy County, New Mexico. 2RP-5010

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to assess a release that occurred at the King Tut #1H, Unit E, Section 19, Township 24 South, Range 32 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.203915°, -103.723010°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on October 4, 2018, and released approximately 44.1 barrels of produced water due to a ruptured flowline. Vacuum trucks were used to remove all freestanding fluids, recovering approximately 10 barrels of produced water. The release impacted an area adjacent to the lease road measuring approximately 40' x 100', and then migrated to the south impacting an area measuring approximately 17' x 320'. The initial C-141 Form is included in Appendix A.

Groundwater

No water wells were listed within Section 19 on the New Mexico Office of the State Engineer's (NMOSE) database, the Geology and Groundwater Resources of Eddy County (Report 3), or the USGS National Water Information Database. The nearest well is listed in Township 24 South, Range 31 East, Section 02, on the NMOSE website, approximately 3.45 miles Northwest of the site, and has a reported depth to groundwater of 160' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 300' and 325' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, updated August 14, 2018. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. A site characterization was performed for the site and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. Additionally, the site is located in a low karst potential area. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the site characterization, the proposed RRAL for TPH is 2,500 mg/kg (GRO + DRO + MRO). Additionally, based on the site characterization, the proposed RRAL for chlorides is 20,000 mg/kg.

Soil Assessment and Analytical Results

On October 15, 2018, Tetra Tech personnel were onsite to evaluate and sample the release area. A total of six (6) auger holes (AH-1 through AH-6) were installed in the release area to total depths ranging from 2-2.5' to 4-4.5' below surface. A total of eight (8) horizontal delineation samples (H-1 through H-8) were collected around the perimeter of the spill to total depths of 0-1' below surface. Soil samples were collected and submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Auger Holes

Referring to Table 1, all analyzed samples showed benzene, total BTEX, and TPH concentrations below the laboratory reporting limits. Additionally, none of the samples collected showed any chloride concentrations above the RRAL, with concentrations ranging from below the laboratory reporting limits to 16,600 mg/kg.

Horizontals

Referring to Table 1, none of the samples collected showed benzene, total BTEX, or TPH concentrations above the laboratory reporting limits. Additionally, none of the samples showed any significant chloride concentrations, with concentrations ranging from below the laboratory reporting limits to 188 mg/kg.



Restoration and Reclamation

The areas of auger holes (AH-1, AH-2, and AH-3) showed chloride concentrations above 600 mg/kg in the shallow soils in the pasture adjacent to the lease road. These areas will be excavated to a maximum of four (4) feet below surface, as highlighted (green) on Table 1 and shown on Figure 4. Sidewall samples will be collected to ensure proper removal of the impacted soils. Once the excavation is complete, the areas will be backfilled with clean material to surface grade. COG estimates approximately 590 cubic yards will be excavated, and the remediation to be implemented 90 days after the work plan is approved.

Reseeding will be performed in June 2019 to coincide with the rainy season in Southeastern New Mexico and aid in revegetation. Based on the soils at the site, the BLM Loamy (L) Sites Seed Mixture will be used and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a handheld broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds PLS per acre will be doubled.

Site inspections will be performed to assess the revegetation progress and evaluate the site for the presence of primary or secondary noxious weeds. If noxious weeds are identified, the BLM will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will be reseeded as appropriate. The BLM seed mixture details and corresponding pounds PLS per acre are included in Appendix D.

Conclusion

Once the restoration activities have been completed, a final closure report will be submitted. If you have any questions or comments concerning the assessment or remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

A handwritten signature in blue ink that reads 'Clair Gonzales'.

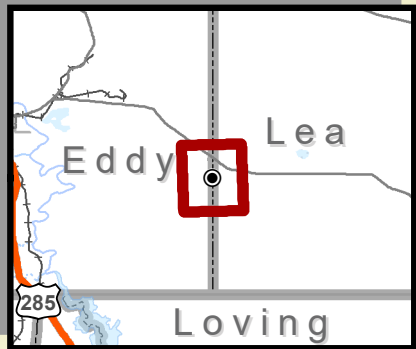
Clair Gonzales,
Project Manager

A handwritten signature in black ink that reads 'Johnathon P. Kell'.

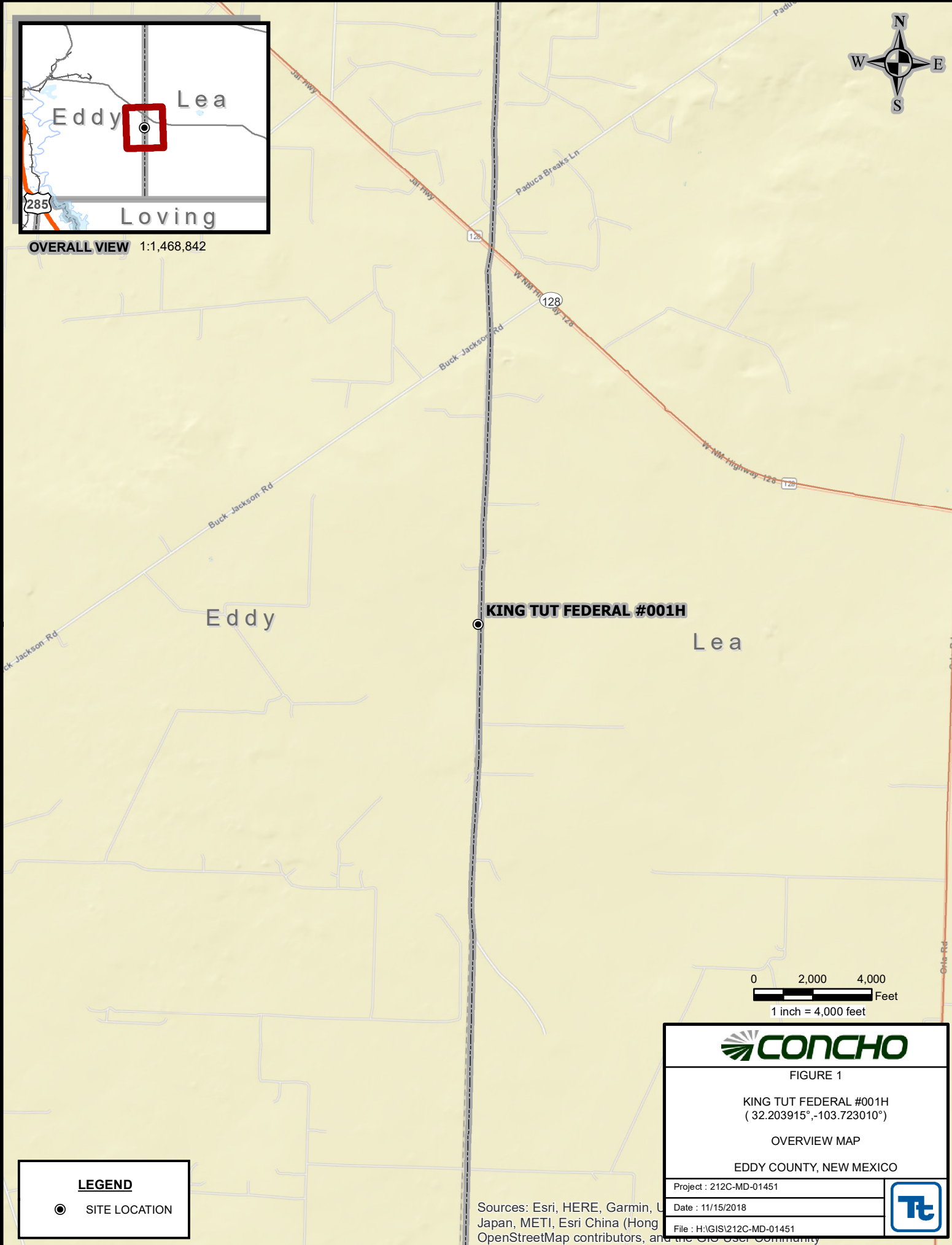
Johnathon Kell,
Geologist II

cc: Shelly Tucker - BLM
Ike Tavaréz - COG
Maria Pruett - NMOCD

Figures



OVERALL VIEW 1:1,468,842



0 2,000 4,000 Feet
1 inch = 4,000 feet



FIGURE 1

KING TUT FEDERAL #001H
(32.203915°,-103.723010°)

OVERVIEW MAP

EDDY COUNTY, NEW MEXICO

Project : 212C-MD-01451

Date : 11/15/2018

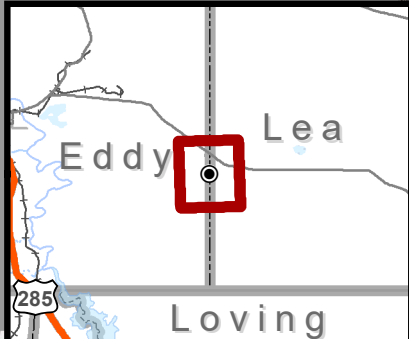
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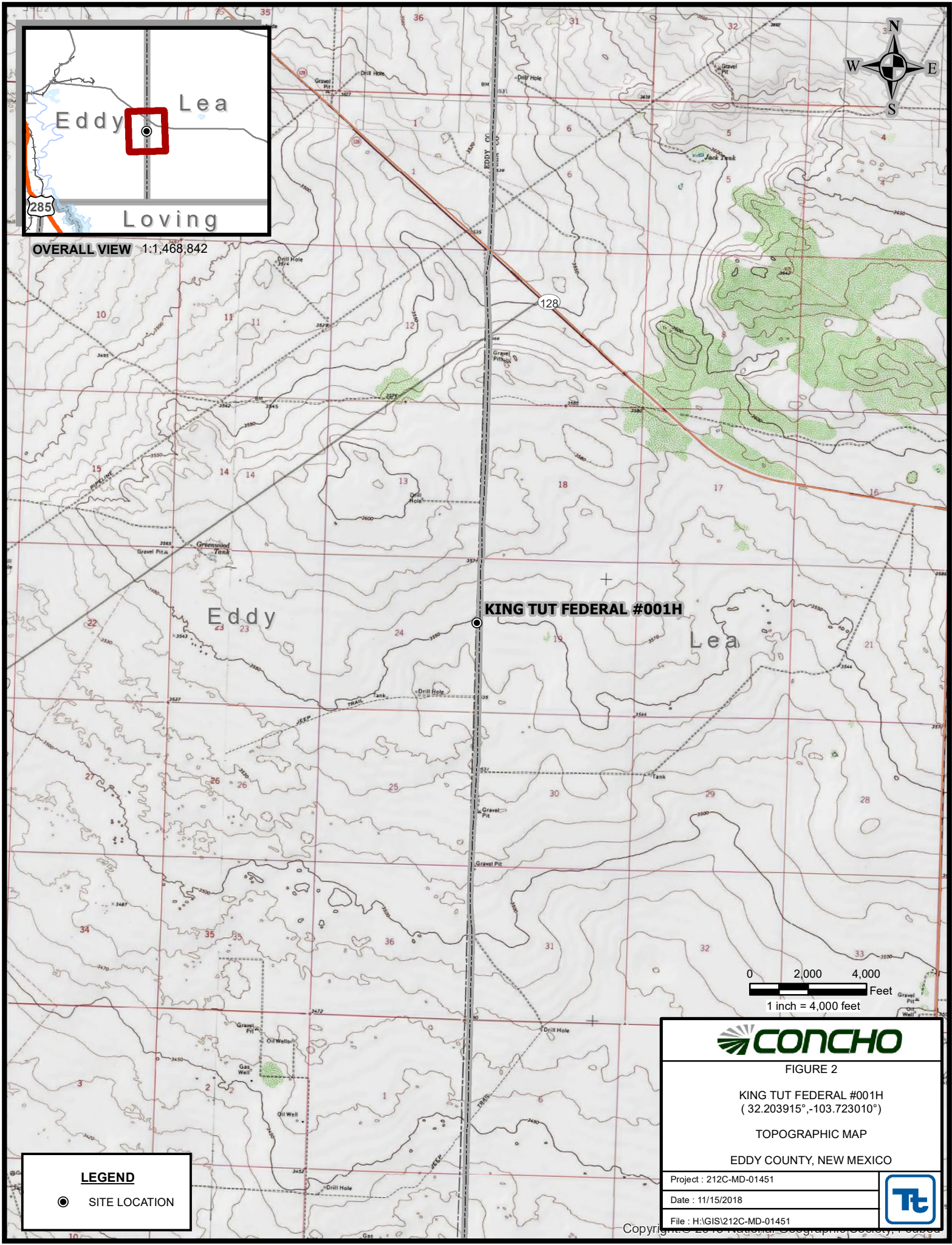
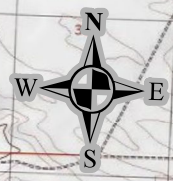
LEGEND

● SITE LOCATION

Sources: Esri, HERE, Garmin, U
Japan, METI, Esri China (Hong
OpenStreetMap contributors, and the GIS User Community



OVERALL VIEW 1:1,468,842



LEGEND

● SITE LOCATION

CONCHO

FIGURE 2

KING TUT FEDERAL #001H
(32.203915°,-103.723010°)

TOPOGRAPHIC MAP

EDDY COUNTY, NEW MEXICO

Project : 212C-MD-01451
Date : 11/15/2018
File : H:\GIS\212C-MD-01451

Tt

SAMPLE DESIGNATIONS	LATITUDE	LONGITUDE
AH-1	32.203918	-103.723007
AH-2	32.203761	-103.722984
AH-3	32.203608	-103.723067
AH-4	32.203412	-103.723066
AH-5	32.203209	-103.723063
AH-6	32.203013	-103.723068
H-1	32.204111	-103.723004
H-2	32.203793	-103.723168
H-3	32.20349	-103.723178
H-4	32.203129	-103.723178
H-5	32.202771	-103.723058
H-6	32.203135	-103.722956
H-7	32.203488	-103.722968
H-8	32.203799	-103.722794

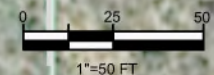
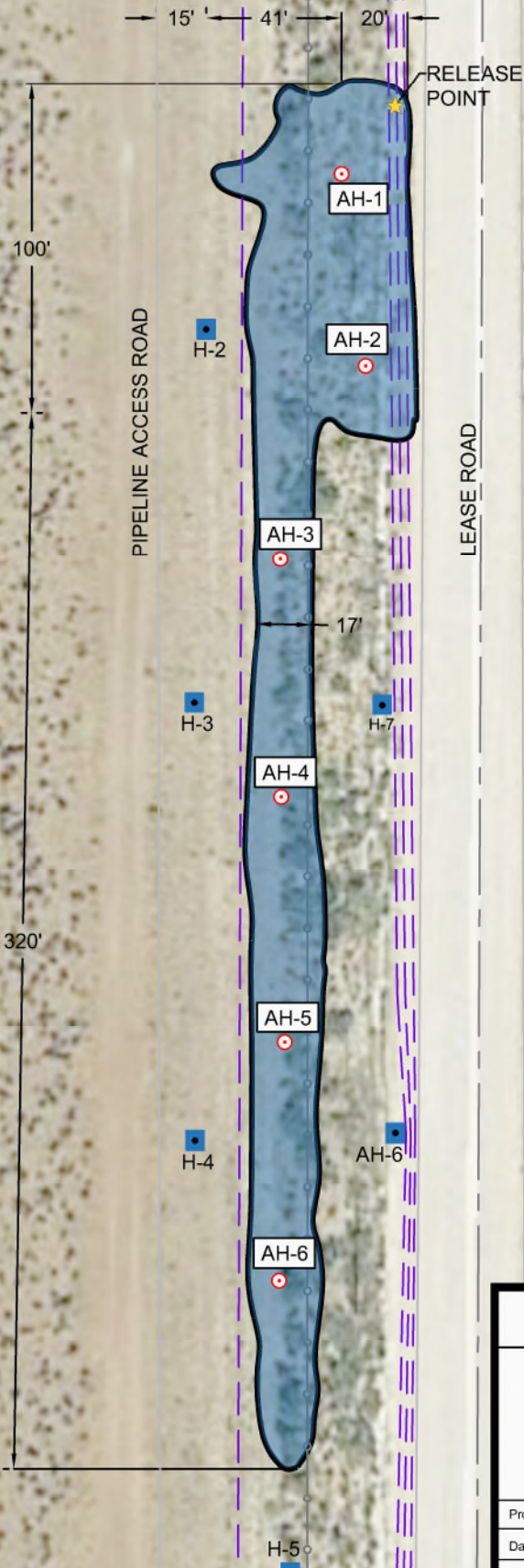
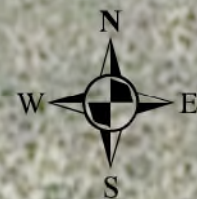
PASTURE

PIPELINE ACCESS ROAD

LEASE ROAD

PASTURE

EDDY COUNTY
LEA COUNTY



LEGEND

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- SAMPLE LOCATIONS
- SPILL AREA
- FLOWLINES

ConocoPhillips

FIGURE 3

KING TUT FEDERAL #001H
(32.203915°, -103.723010°)

SPILL ASSESSMENT MAP
EDDY COUNTY, NEW MEXICO

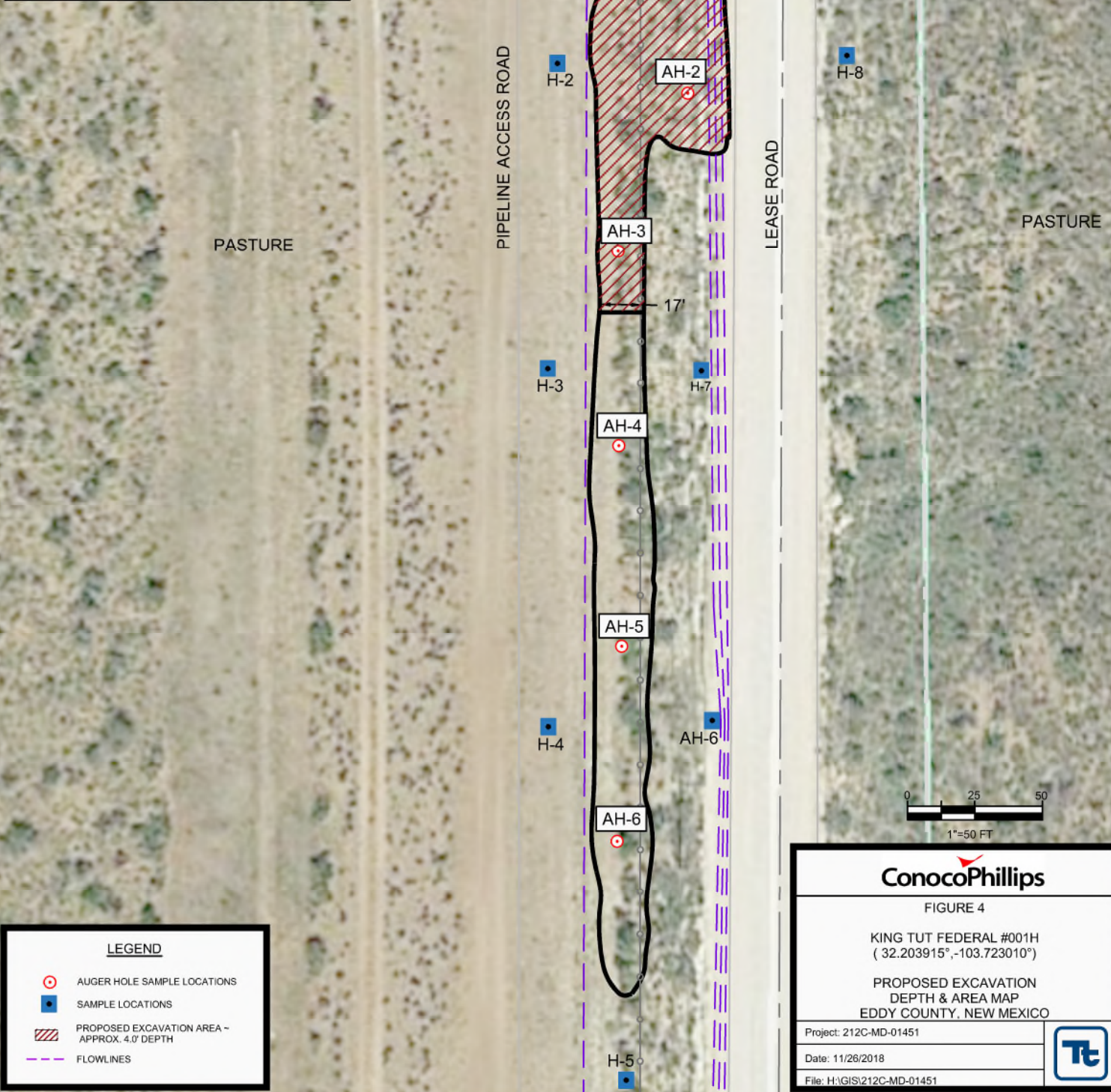
Project: 212C-MD-01451

Date: 11/26/2018

File: H:\GIS\212C-MD-01451



SAMPLE DESIGNATIONS	LATITUDE	LONGITUDE
AH-1	32.203918	-103.723007
AH-2	32.203761	-103.722984
AH-3	32.203608	-103.723067
AH-4	32.203412	-103.723066
AH-5	32.203209	-103.723063
AH-6	32.203013	-103.723068
H-1	32.204111	-103.723004
H-2	32.203793	-103.723168
H-3	32.20349	-103.723178
H-4	32.203129	-103.723178
H-5	32.202771	-103.723058
H-6	32.203135	-103.722956
H-7	32.203488	-103.722968
H-8	32.203799	-103.722794



AUGER HOLE SAMPLE LOCATIONS

SAMPLE LOCATIONS

PROPOSED EXCAVATION AREA - APPROX. 4.0' DEPTH

FLOWLINES

FIGURE 4

KING TUT FEDERAL #001H
(32.203915°, -103.723010°)

PROPOSED EXCAVATION
DEPTH & AREA MAP
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01451

Date: 11/26/2018

File: H:\GIS\212C-MD-01451

Tables

Table 1
COG
King Tut #1H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)					Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	GRO+DRO	ORO	Total						
H-1	10/15/2018	0-1	X		<14.9	<14.9	<14.9	<14.9	<14.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<4.95
H-2	10/15/2018	0-1	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.95
H-3	10/15/2018	0-1	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<4.98
H-4	10/15/2018	0-1	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<4.98
H-5	10/15/2018	0-1	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.97
H-6	10/15/2018	0-1	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	188
H-7	10/15/2018	0-1	X		<14.9	<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.95
H-8	10/15/2018	0-1	X		<14.9	<14.9	<14.9	<14.9	<14.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.98

(-) Not Analyzed

Proposed Excavation Depth

Photos

COG Operating LLC
King Tut #1H
Eddy County, New Mexico



View South – Area of AH-1



View Southeast – Area of AH-2

COG Operating LLC
King Tut #1H
Eddy County, New Mexico



View East – Area of AH-3



View Southeast – Area of AH-4

COG Operating LLC
King Tut #1H
Eddy County, New Mexico



View Southeast – Area of AH-5



View South-southeast – Area of AH-6

Appendix A

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

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

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

Incident ID	NMAP1828469051
District RP	2RP-5010
Facility ID	fMAP1828468531
Application ID	pMAP1828468856

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Robert McNeill	Contact Telephone	(432) 683-7443
Contact email	RMcNeill@conhco.com	Incident # (assigned by OCD)	NMAP1828469051
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.20391 Longitude -103.72288
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	King Tut Federal #001H Battery	Site Type	Flowline
Date Release Discovered	October 4, 2018	API# (if applicable)	fMAP1828468531

Unit Letter	Section	Township	Range	County
E	19	24S	32E	Eddy

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

Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 44.1	Volume Recovered (bbls) 10
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by a ruptured flowline. The flowline is being replaced.
The release was in the pasture. A vacuum truck was dispatched to remove all freestanding fluids.
Concho will evaluate the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

Incident ID	NMAP1828469051
District RP	2RP-5010
Facility ID	fMAP1828468531
Application ID	pMAP1828468856

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? The volume released was greater than 25 barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notice was given by Dakota Neel via e-mail October 4, 2018 at 4:57 pm to Maria Pruet and Shelly Tucker.	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: DeAnn Grant Signature:  email: agrant@concho.com	Title: HSE Administrative Assistant Date: 10/8/2018 Telephone: (432) 253-4513
<u>OCD Only</u> Received by:  Date: 10/11/18	

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input 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 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 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 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 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 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 type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input 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.

<p>Characterization Report Checklist: <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><input type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.<input type="checkbox"/> Field data<input type="checkbox"/> Data table of soil contaminant concentration data<input type="checkbox"/> Depth to water determination<input type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release<input type="checkbox"/> Boring or excavation logs<input type="checkbox"/> Photographs including date and GIS information<input type="checkbox"/> Topographic/Aerial maps<input type="checkbox"/> Laboratory data including chain of custody
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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	
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: _____ Title: _____
Signature:  _____ Date: _____
email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: _____ Title: _____

Signature:  _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - King Tut Federal #001H Battery

23 South			31 East		
6	5	4	3	2	1
85	354	168			
7	8	9	10	11	12
140					
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			31 East		
6	5	4	3	2	1
		436		160	
7	8	9	10	11	12
18	17	16	15	14	13
	74				
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
		474			

25 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
		390			
30	29	28	27	26	25
		290			
31	32	33	34	35	36

23 South			32 East		
6	5	4	3	2	1
			480		
7	639	8	9	10	11
18	17	16	15	14	13
19	20	21	22	23	24
	713	400			
30	29	28	27	26	25
31	32	33	34	35	36

24 South			32 East		
6	5	4	3	2	1
	380				
7	8	9	10	11	12
18	17	16	15	14	13
			20		
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
	290				

23 South			33 East		
6	5	4	3	2	1
7	475	8	9	10	11
					325
18	17	16	15	14	13
19	20	21	22	23	24
400	400				
30	29	28	27	26	25
		400		225	225
31	32	33	34	35	36

24 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
			24.6		
19	20	21	22	23	24
				208	16.9
30	29	28	27	26	25
31	32	33	34	35	36
		93.2			

25 South			33 East		
6	5	4	3	2	1
			172		
7	8	9	10	11	12
				140	200
18	17	16	15	14	13
19	20	21	22	23	24
	200	120			
30	29	28	27	26	25
			125		
31	32	33	34	35	36
257					

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

90 Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

121 Abandoned Waterwell (recently measured)



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 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 02405		CUB	ED	4	1	02	24S	31E		617690	3568631*	275	160	115
C 02440		C	ED	2	3	10	24S	31E		616103	3566599*	350		
C 02460		C	ED		3	02	24S	31E		617496	3568022*	320		
C 02460 POD2		C	ED		3	02	24S	31E		617496	3568022*	320		
C 02464		C	ED	3	4	1	02	24S	31E	617589	3568530*	320	205	115
C 02661		CUB	ED	3	3	1	04	24S	31E	613969	3568485*	708		
C 02783		CUB	ED	3	3	1	04	24S	31E	613911	3568461	708		
C 02783 POD2		CUB	ED	3	3	1	04	24S	31E	613911	3568461	672		
C 02784		C	ED	4	2	4	04	24S	31E	613911	3568461	584		
C 02785		CUB	ED	3	3	1	04	24S	31E	613969	3568485*	692		

Average Depth to Water: **182 feet**

Minimum Depth: **160 feet**

Maximum Depth: **205 feet**

Record Count: 10

PLSS Search:

Township: 24S **Range:** 31E

*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.

10/24/18 1:09 PM

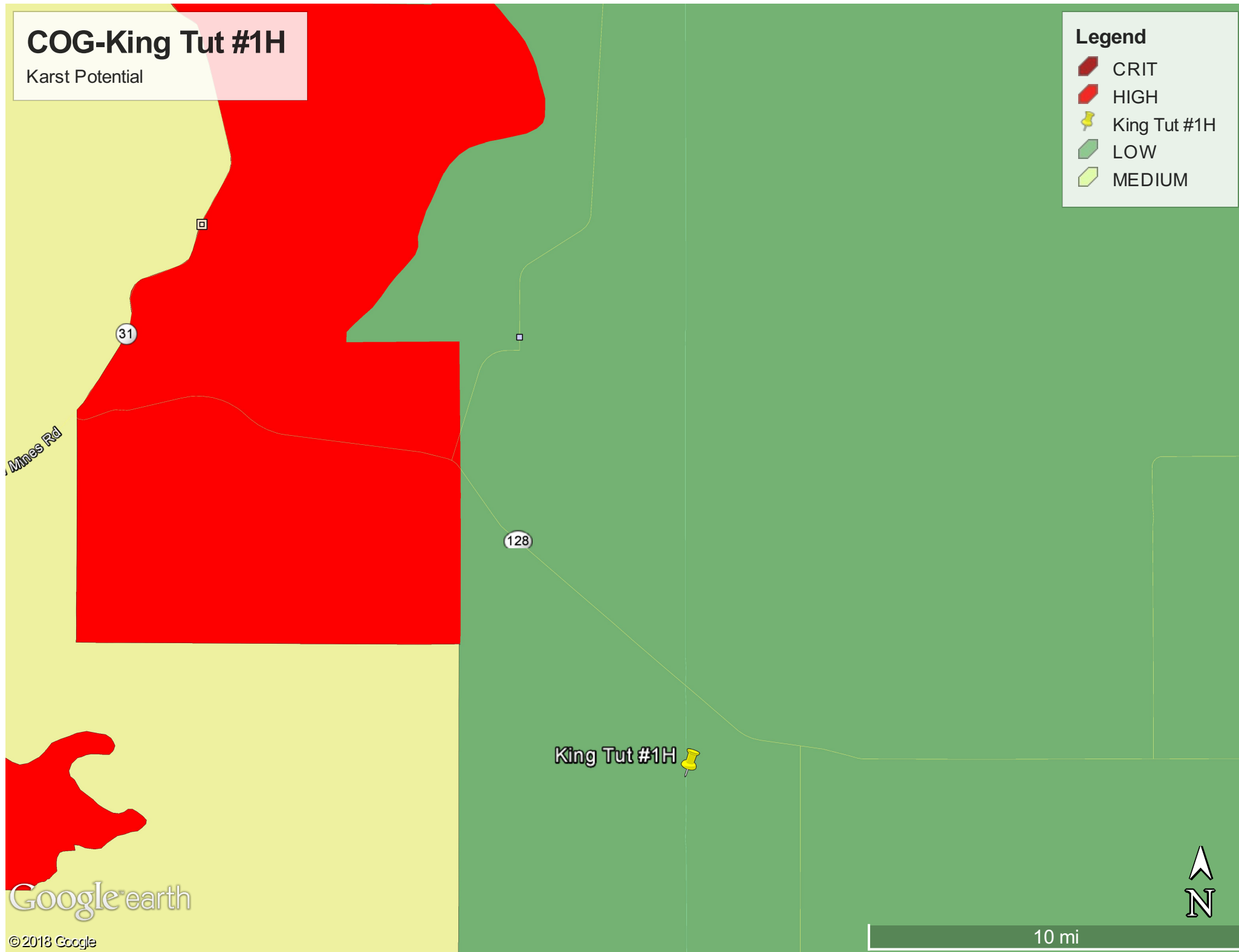
WATER COLUMN/ AVERAGE DEPTH TO WATER

COG-King Tut #1H

Karst Potential

Legend

- CRIT
- HIGH
- King Tut #1H
- LOW
- MEDIUM

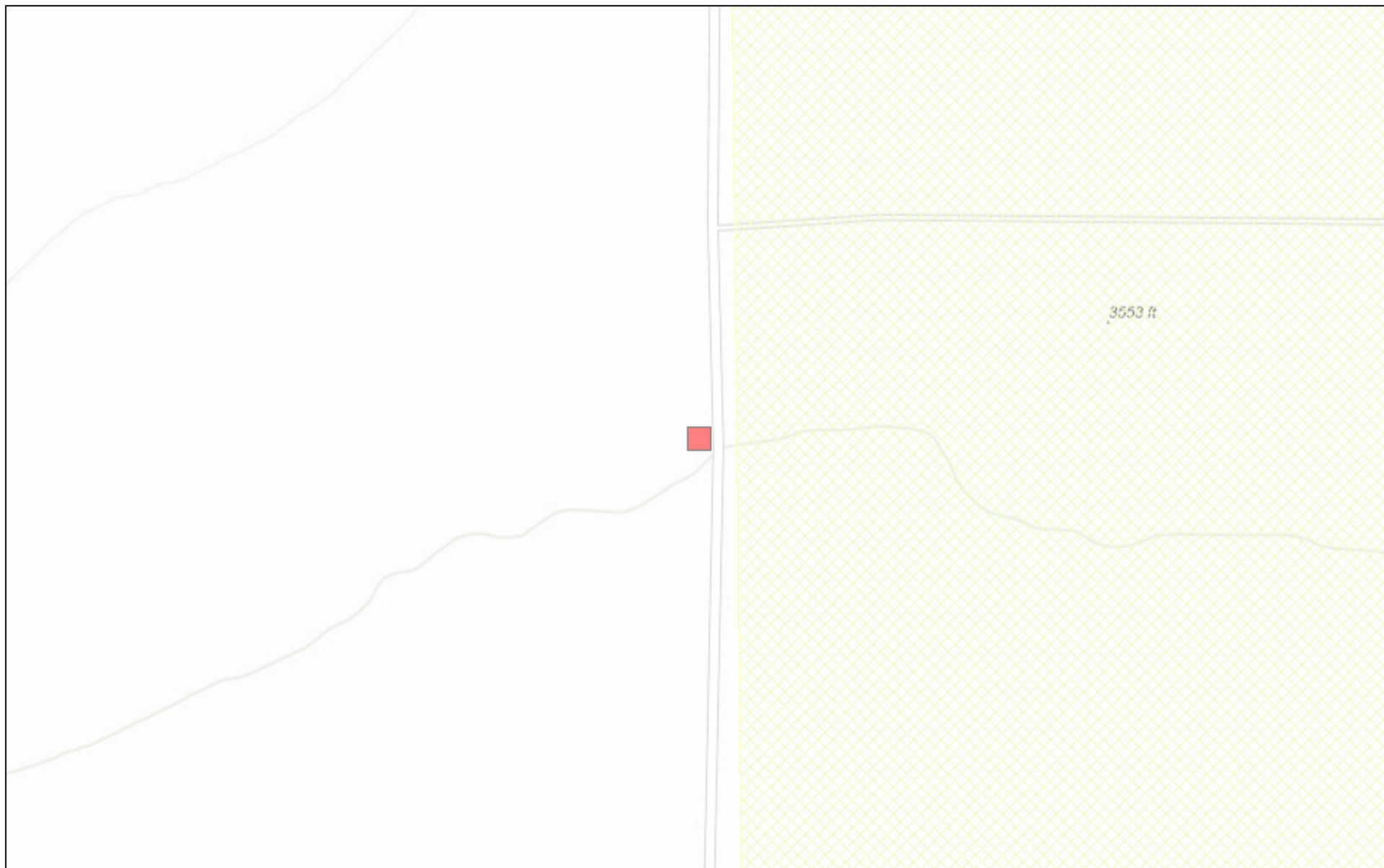


Google earth

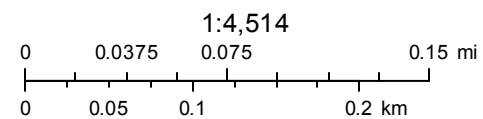
© 2018 Google

10 mi

New Mexico NFHL Data



October 26, 2018



FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

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This is a non-regulatory product for informational use only. Please consult your local floodplain administrator for further information.

Appendix C

Analytical Report 602472

for Tetra Tech- Midland

Project Manager: Clair Gonzales

King Tut #1H

212C-MD-01451

24-OCT-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)



24-OCT-18

Project Manager: **Clair Gonzales**
Tetra Tech- Midland
901 West Wall ST
Midland, TX 79701

Reference: XENCO Report No(s): **602472**
King Tut #1H
Project Address: Lea Co,NM

Clair Gonzales:

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) 602472. 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. 602472 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

Tetra Tech- Midland, Midland, TX

King Tut #1H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-1')	S	10-15-18 00:00		602472-001
AH #1 (1-1.5')	S	10-15-18 00:00		602472-002
AH #1 (2-2.5')	S	10-15-18 00:00		602472-003
AH #1 (3-3.5')	S	10-15-18 00:00		602472-004
AH #1 (4-4.5')	S	10-15-18 00:00		602472-005
AH #2 (0-1')	S	10-15-18 00:00		602472-006
AH #2 (1-1.5')	S	10-15-18 00:00		602472-007
AH #2 (2.5-1')	S	10-15-18 00:00		602472-008
AH #2 (3-3.5')	S	10-15-18 00:00		602472-009
AH #2 (4-4.5')	S	10-15-18 00:00		602472-010
AH #3 (0-1')	S	10-15-18 00:00		602472-011
AH #3 (1-1.5')	S	10-15-18 00:00		602472-012
AH #3 (2-2.5')	S	10-15-18 00:00		602472-013
AH #3 (2-5.3')	S	10-15-18 00:00		602472-014
AH #4 (0-1')	S	10-15-18 00:00		602472-015
AH #4 (1-1.5')	S	10-15-18 00:00		602472-016
AH #4 (2-2.5')	S	10-15-18 00:00		602472-017
AH #5 (0-1')	S	10-15-18 00:00		602472-018
AH #5 (1-1.5')	S	10-15-18 00:00		602472-019
AH #5 (2-2.5')	S	10-15-18 00:00		602472-020
AH #5 (3-3.5')	S	10-15-18 00:00		602472-021
AH #5 (4-4.5')	S	10-15-18 00:00		602472-022
AH #6 (0-1')	S	10-15-18 00:00		602472-026
AH #6 (1-1.5')	S	10-15-18 00:00		602472-027
AH #6 (2-2.5')	S	10-15-18 00:00		602472-028
AH #3 (3-3.5')	S	10-15-18 00:00		602472-029
AH #6 (4-4.5')	S	10-15-18 00:00		602472-030
H-1 (0-1')	S	10-15-18 00:00		602472-031
H-2 (0-1')	S	10-15-18 00:00		602472-032
H-3 (0-1')	S	10-15-18 00:00		602472-033
H-4(0-1')	S	10-15-18 00:00		602472-034
H-5 (0-1')	S	10-15-18 00:00		602472-035
H-6 (0-1')	S	10-15-18 00:00		602472-036
H-7 (0-1')	S	10-15-18 00:00		602472-037
AH #5 (5-5.5')	S	10-15-18 00:00		Not Analyzed
AH #5 (6-6.5')	S	10-15-18 00:00		Not Analyzed
AH #5 (7-7.5')	S	10-15-18 00:00		Not Analyzed



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: King Tut #1H

Project ID: 212C-MD-01451
Work Order Number(s): 602472

Report Date: 24-OCT-18
Date Received: 10/16/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3066785 BTEX by EPA 8021B

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

Batch: LBA-3066907 Inorganic Anions by EPA 300

Lab Sample ID 602472-016 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 602472-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -015, -016.

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

Batch: LBA-3067022 Chloride by EPA 300

Lab Sample ID 602472-028 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 602472-012, -013, -014, -017, -018, -019, -020, -021, -022, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036.

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

Batch: LBA-3067379 BTEX by EPA 8021B

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



Certificate of Analysis Summary 602472

Tetra Tech- Midland, Midland, TX

Project Name: King Tut #1H



Project Id: 212C-MD-01451

Contact: Clair Gonzales

Project Location: Lea Co,NM

Date Received in Lab: Tue Oct-16-18 02:23 pm

Report Date: 24-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	602472-001	602472-002	602472-003	602472-004	602472-005	602472-006
	<i>Field Id:</i>	AH #1 (0-1')	AH #1 (1-1.5')	AH #1 (2-2.5')	AH #1 (3-3.5')	AH #1 (4-4.5')	AH #2 (0-1')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-17-18 14:00	Oct-17-18 14:00				Oct-17-18 14:00
	<i>Analyzed:</i>	Oct-17-18 16:50	Oct-17-18 17:12				Oct-17-18 17:33
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200				<0.00201 0.00201
Toluene		<0.00199 0.00199	<0.00200 0.00200				<0.00201 0.00201
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200				<0.00201 0.00201
m,p-Xylenes		<0.00398 0.00398	<0.00401 0.00401				<0.00402 0.00402
o-Xylene		<0.00199 0.00199	<0.00200 0.00200				<0.00201 0.00201
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200				<0.00201 0.00201
Total BTEX		<0.00199 0.00199	<0.00200 0.00200				<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Oct-18-18 13:00	Oct-18-18 13:00	Oct-18-18 13:00	Oct-18-18 13:00	Oct-18-18 13:00	Oct-18-18 13:00
	<i>Analyzed:</i>	Oct-20-18 20:00	Oct-20-18 20:06	Oct-20-18 20:11	Oct-20-18 20:16	Oct-20-18 20:38	Oct-20-18 20:43
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		2930 25.0	9310 49.9	11400 100	17000 99.6	16000 99.0	8170 49.7
TPH by SW8015 Mod	<i>Extracted:</i>	Oct-18-18 13:00	Oct-18-18 13:00				Oct-18-18 13:00
	<i>Analyzed:</i>	Oct-18-18 18:25	Oct-18-18 19:21				Oct-18-18 19:39
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0				<14.9 14.9
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0				<14.9 14.9
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0				<14.9 14.9
Total TPH		<15.0 15.0	<15.0 15.0				<14.9 14.9

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 602472

Tetra Tech- Midland, Midland, TX

Project Name: King Tut #1H



Project Id: 212C-MD-01451

Contact: Clair Gonzales

Project Location: Lea Co,NM

Date Received in Lab: Tue Oct-16-18 02:23 pm

Report Date: 24-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	602472-007	602472-008	602472-009	602472-010	602472-011	602472-012
	<i>Field Id:</i>	AH #2 (1-1.5')	AH #2 (2.5-1')	AH #2 (3-3.5')	AH #2 (4-4.5')	AH #3 (0-1')	AH #3 (1-1.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-17-18 14:00				Oct-17-18 14:00	Oct-17-18 14:00
	<i>Analyzed:</i>	Oct-17-18 17:55				Oct-17-18 18:17	Oct-17-18 18:38
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199				<0.00200 0.00200	<0.00202 0.00202
Toluene		<0.00199 0.00199				<0.00200 0.00200	<0.00202 0.00202
Ethylbenzene		<0.00199 0.00199				<0.00200 0.00200	<0.00202 0.00202
m,p-Xylenes		<0.00398 0.00398				<0.00399 0.00399	<0.00403 0.00403
o-Xylene		<0.00199 0.00199				<0.00200 0.00200	<0.00202 0.00202
Total Xylenes		<0.00199 0.00199				<0.00200 0.00200	<0.00202 0.00202
Total BTEX		<0.00199 0.00199				<0.00200 0.00200	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	Oct-18-18 13:00	Oct-18-18 13:00	Oct-18-18 13:00	Oct-18-18 13:00	Oct-18-18 13:00	Oct-19-18 08:00
	<i>Analyzed:</i>	Oct-19-18 20:28	Oct-19-18 20:33	Oct-19-18 20:39	Oct-19-18 20:44	Oct-19-18 20:49	Oct-19-18 23:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		9690 99.8	10100 99.2	11100 99.0	3240 25.0	1900 25.0	6320 49.8
TPH by SW8015 Mod	<i>Extracted:</i>	Oct-18-18 13:00				Oct-18-18 13:00	Oct-18-18 13:00
	<i>Analyzed:</i>	Oct-18-18 19:58				Oct-18-18 20:17	Oct-18-18 20:35
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9				<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<14.9 14.9				<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<14.9 14.9				<15.0 15.0	<15.0 15.0
Total TPH		<14.9 14.9				<15.0 15.0	<15.0 15.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 602472

Tetra Tech- Midland, Midland, TX

Project Name: King Tut #1H



Project Id: 212C-MD-01451

Contact: Clair Gonzales

Project Location: Lea Co,NM

Date Received in Lab: Tue Oct-16-18 02:23 pm

Report Date: 24-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	602472-013	602472-014	602472-015	602472-016	602472-017	602472-018
	<i>Field Id:</i>	AH #3 (2-2.5')	AH #3 (2-5.3')	AH #4 (0-1')	AH #4 (1-1.5')	AH #4 (2-2.5')	AH #5 (0-1')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>			Oct-17-18 14:00	Oct-17-18 14:00		Oct-23-18 08:00
	<i>Analyzed:</i>			Oct-17-18 18:59	Oct-17-18 19:21		Oct-23-18 19:22
	<i>Units/RL:</i>			mg/kg RL	mg/kg RL		mg/kg RL
Benzene				<0.00201 0.00201	<0.00199 0.00199		<0.00198 0.00198
Toluene				<0.00201 0.00201	<0.00199 0.00199		<0.00198 0.00198
Ethylbenzene				<0.00201 0.00201	<0.00199 0.00199		<0.00198 0.00198
m,p-Xylenes				<0.00402 0.00402	<0.00398 0.00398		<0.00397 0.00397
o-Xylene				<0.00201 0.00201	<0.00199 0.00199		<0.00198 0.00198
Total Xylenes				<0.00201 0.00201	<0.00199 0.00199		<0.00198 0.00198
Total BTEX				<0.00201 0.00201	<0.00199 0.00199		<0.00198 0.00198
Chloride by EPA 300	<i>Extracted:</i>	Oct-19-18 08:00	Oct-19-18 08:00	Oct-18-18 13:00	Oct-18-18 13:00	Oct-19-18 08:00	Oct-19-18 08:00
	<i>Analyzed:</i>	Oct-19-18 23:25	Oct-19-18 23:31	Oct-19-18 11:27	Oct-20-18 20:22	Oct-19-18 23:04	Oct-19-18 23:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		16600 250	13000 99.6	<4.99 4.99	<5.00 5.00	<5.00 5.00	32.3 4.98
TPH by SW8015 Mod	<i>Extracted:</i>			Oct-18-18 13:00	Oct-18-18 13:00		Oct-23-18 10:00
	<i>Analyzed:</i>			Oct-18-18 20:54	Oct-18-18 21:49		Oct-23-18 17:08
	<i>Units/RL:</i>			mg/kg RL	mg/kg RL		mg/kg RL
Gasoline Range Hydrocarbons (GRO)				<15.0 15.0	<15.0 15.0		<14.9 14.9
Diesel Range Organics (DRO)				<15.0 15.0	<15.0 15.0		<14.9 14.9
Motor Oil Range Hydrocarbons (MRO)				<15.0 15.0	<15.0 15.0		<14.9 14.9
Total TPH				<15.0 15.0	<15.0 15.0		<14.9 14.9

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 602472

Tetra Tech- Midland, Midland, TX

Project Name: King Tut #1H



Project Id: 212C-MD-01451

Contact: Clair Gonzales

Project Location: Lea Co,NM

Date Received in Lab: Tue Oct-16-18 02:23 pm

Report Date: 24-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	602472-019	602472-020	602472-021	602472-022	602472-026	602472-027
	<i>Field Id:</i>	AH #5 (1-1.5')	AH #5 (2-2.5')	AH #5 (3-3.5')	AH #5 (4-4.5')	AH #6 (0-1')	AH #6 (1-1.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-23-18 08:00				Oct-17-18 14:00	Oct-17-18 14:00
	<i>Analyzed:</i>	Oct-23-18 19:44				Oct-17-18 19:43	Oct-17-18 20:04
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198				<0.00199 0.00199	<0.00202 0.00202
Toluene		<0.00198 0.00198				<0.00199 0.00199	<0.00202 0.00202
Ethylbenzene		<0.00198 0.00198				<0.00199 0.00199	<0.00202 0.00202
m,p-Xylenes		<0.00396 0.00396				<0.00398 0.00398	<0.00404 0.00404
o-Xylene		<0.00198 0.00198				<0.00199 0.00199	<0.00202 0.00202
Total Xylenes		<0.00198 0.00198				<0.00199 0.00199	<0.00202 0.00202
Total BTEX		<0.00198 0.00198				<0.00199 0.00199	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00
	<i>Analyzed:</i>	Oct-19-18 23:52	Oct-19-18 23:57	Oct-20-18 00:02	Oct-20-18 00:08	Oct-20-18 00:13	Oct-20-18 00:34
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		110 4.95	55.0 4.99	42.5 4.99	22.8 4.95	<4.95 4.95	<4.98 4.98
TPH by SW8015 Mod	<i>Extracted:</i>	Oct-23-18 10:00				Oct-18-18 13:00	Oct-17-18 17:00
	<i>Analyzed:</i>	Oct-23-18 17:27				Oct-18-18 22:08	Oct-18-18 01:50
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0				<15.0 15.0	<14.9 14.9
Diesel Range Organics (DRO)		<15.0 15.0				<15.0 15.0	<14.9 14.9
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0				<15.0 15.0	<14.9 14.9
Total TPH		<15.0 15.0				<15.0 15.0	<14.9 14.9

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 602472

Tetra Tech- Midland, Midland, TX

Project Name: King Tut #1H



Project Id: 212C-MD-01451

Contact: Clair Gonzales

Project Location: Lea Co,NM

Date Received in Lab: Tue Oct-16-18 02:23 pm

Report Date: 24-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	602472-028	602472-029	602472-030	602472-031	602472-032	602472-033
	<i>Field Id:</i>	AH #6 (2-2.5')	AH #3 (3-3.5')	AH #6 (4-4.5')	H-1 (0-1')	H-2 (0-1')	H-3 (0-1')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>				Oct-17-18 14:00	Oct-17-18 14:00	Oct-17-18 14:00
	<i>Analyzed:</i>				Oct-17-18 21:08	Oct-17-18 21:29	Oct-17-18 21:50
	<i>Units/RL:</i>				mg/kg RL	mg/kg RL	mg/kg RL
Benzene					<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201
Toluene					<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene					<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes					<0.00397 0.00397	<0.00399 0.00399	<0.00402 0.00402
o-Xylene					<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201
Total Xylenes					<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201
Total BTEX					<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00
	<i>Analyzed:</i>	Oct-20-18 00:18	Oct-20-18 00:39	Oct-20-18 00:55	Oct-20-18 01:01	Oct-20-18 01:06	Oct-20-18 01:11
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		9.92 4.99	<4.98 4.98	<4.95 4.95	<4.95 4.95	<4.95 4.95	<4.98 4.98
TPH by SW8015 Mod	<i>Extracted:</i>				Oct-17-18 17:00	Oct-17-18 17:00	Oct-17-18 17:00
	<i>Analyzed:</i>				Oct-18-18 02:09	Oct-18-18 02:27	Oct-18-18 02:46
	<i>Units/RL:</i>				mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)					<14.9 14.9	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)					<14.9 14.9	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)					<14.9 14.9	<15.0 15.0	<15.0 15.0
Total TPH					<14.9 14.9	<15.0 15.0	<15.0 15.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 602472

Tetra Tech- Midland, Midland, TX

Project Name: King Tut #1H



Project Id: 212C-MD-01451

Contact: Clair Gonzales

Project Location: Lea Co,NM

Date Received in Lab: Tue Oct-16-18 02:23 pm

Report Date: 24-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	602472-034	602472-035	602472-036	602472-037		
	<i>Field Id:</i>	H-4(0-1')	H-5 (0-1')	H-6 (0-1')	H-7 (0-1')		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00	Oct-15-18 00:00		
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-17-18 14:00	Oct-17-18 14:00	Oct-17-18 14:00	Oct-17-18 14:00		
	<i>Analyzed:</i>	Oct-17-18 22:11	Oct-17-18 22:33	Oct-17-18 22:54	Oct-17-18 23:16		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Toluene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Ethylbenzene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
m,p-Xylenes		<0.00402 0.00402	<0.00398 0.00398	<0.00399 0.00399	<0.00401 0.00401		
o-Xylene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Total Xylenes		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Total BTEX		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	Oct-19-18 08:00	Oct-19-18 08:00	Oct-19-18 08:00	Oct-18-18 15:20		
	<i>Analyzed:</i>	Oct-20-18 01:17	Oct-20-18 01:22	Oct-20-18 01:27	Oct-19-18 09:36		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		<4.98 4.98	<4.97 4.97	188 5.00	<4.95 4.95		
TPH by SW8015 Mod	<i>Extracted:</i>	Oct-17-18 17:00	Oct-17-18 17:00	Oct-17-18 17:00	Oct-17-18 17:00		
	<i>Analyzed:</i>	Oct-18-18 03:05	Oct-18-18 03:24	Oct-18-18 03:42	Oct-18-18 04:01		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9		
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9		
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9		
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9		

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Jessica Kramer

Jessica Kramer
Project Assistant

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

MQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



Form 2 - Surrogate Recoveries

Project Name: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066785

Sample: 602472-001 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 16:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0379	0.0300	126	70-130	
4-Bromofluorobenzene	0.0331	0.0300	110	70-130	

Lab Batch #: 3066785

Sample: 602472-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 17:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0359	0.0300	120	70-130	
4-Bromofluorobenzene	0.0350	0.0300	117	70-130	

Lab Batch #: 3066785

Sample: 602472-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 17:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0382	0.0300	127	70-130	
4-Bromofluorobenzene	0.0353	0.0300	118	70-130	

Lab Batch #: 3066785

Sample: 602472-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 17:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0376	0.0300	125	70-130	
4-Bromofluorobenzene	0.0350	0.0300	117	70-130	

Lab Batch #: 3066785

Sample: 602472-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 18:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0387	0.0300	129	70-130	
4-Bromofluorobenzene	0.0347	0.0300	116	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066785

Sample: 602472-012 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 18:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0385	0.0300	128	70-130	
4-Bromofluorobenzene	0.0345	0.0300	115	70-130	

Lab Batch #: 3066785

Sample: 602472-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 18:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0372	0.0300	124	70-130	
4-Bromofluorobenzene	0.0321	0.0300	107	70-130	

Lab Batch #: 3066785

Sample: 602472-016 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 19:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0381	0.0300	127	70-130	
4-Bromofluorobenzene	0.0379	0.0300	126	70-130	

Lab Batch #: 3066785

Sample: 602472-026 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 19:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0386	0.0300	129	70-130	
4-Bromofluorobenzene	0.0334	0.0300	111	70-130	

Lab Batch #: 3066785

Sample: 602472-027 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 20:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0387	0.0300	129	70-130	
4-Bromofluorobenzene	0.0319	0.0300	106	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066785

Sample: 602472-031 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 21:08

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0377	0.0300	126	70-130	
4-Bromofluorobenzene	0.0347	0.0300	116	70-130	

Lab Batch #: 3066785

Sample: 602472-032 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 21:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0375	0.0300	125	70-130	
4-Bromofluorobenzene	0.0342	0.0300	114	70-130	

Lab Batch #: 3066785

Sample: 602472-033 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 21:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0369	0.0300	123	70-130	
4-Bromofluorobenzene	0.0325	0.0300	108	70-130	

Lab Batch #: 3066785

Sample: 602472-034 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 22:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0333	0.0300	111	70-130	
4-Bromofluorobenzene	0.0342	0.0300	114	70-130	

Lab Batch #: 3066785

Sample: 602472-035 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 22:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0348	0.0300	116	70-130	
4-Bromofluorobenzene	0.0334	0.0300	111	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066785

Sample: 602472-036 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 22:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0333	0.0300	111	70-130	

Lab Batch #: 3066785

Sample: 602472-037 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 23:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0372	0.0300	124	70-130	
4-Bromofluorobenzene	0.0333	0.0300	111	70-130	

Lab Batch #: 3066702

Sample: 602472-027 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 01:50

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.4	99.6	93	70-135	
o-Terphenyl	47.7	49.8	96	70-135	

Lab Batch #: 3066702

Sample: 602472-031 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 02:09

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.5	99.6	87	70-135	
o-Terphenyl	44.3	49.8	89	70-135	

Lab Batch #: 3066702

Sample: 602472-032 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 02:27

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.1	99.8	92	70-135	
o-Terphenyl	47.8	49.9	96	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066702

Sample: 602472-033 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 02:46

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.2	99.9	89	70-135	
o-Terphenyl	45.6	50.0	91	70-135	

Lab Batch #: 3066702

Sample: 602472-034 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 03:05

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.6	99.9	95	70-135	
o-Terphenyl	48.9	50.0	98	70-135	

Lab Batch #: 3066702

Sample: 602472-035 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 03:24

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.6	99.7	88	70-135	
o-Terphenyl	44.6	49.9	89	70-135	

Lab Batch #: 3066702

Sample: 602472-036 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 03:42

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.1	99.8	96	70-135	
o-Terphenyl	48.7	49.9	98	70-135	

Lab Batch #: 3066702

Sample: 602472-037 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 04:01

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.0	99.6	90	70-135	
o-Terphenyl	47.0	49.8	94	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066919

Sample: 602472-001 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 18:25

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.5	99.7	96	70-135	
o-Terphenyl	50.5	49.9	101	70-135	

Lab Batch #: 3066919

Sample: 602472-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 19:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.3	99.8	97	70-135	
o-Terphenyl	50.1	49.9	100	70-135	

Lab Batch #: 3066919

Sample: 602472-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 19:39

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.2	99.6	98	70-135	
o-Terphenyl	50.8	49.8	102	70-135	

Lab Batch #: 3066919

Sample: 602472-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 19:58

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.5	99.6	97	70-135	
o-Terphenyl	50.5	49.8	101	70-135	

Lab Batch #: 3066919

Sample: 602472-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 20:17

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.9	99.9	100	70-135	
o-Terphenyl	50.8	50.0	102	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066919

Sample: 602472-012 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 20:35

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.3	99.8	94	70-135	
o-Terphenyl	49.9	49.9	100	70-135	

Lab Batch #: 3066919

Sample: 602472-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 20:54

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.8	99.8	95	70-135	
o-Terphenyl	49.9	49.9	100	70-135	

Lab Batch #: 3066919

Sample: 602472-016 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 21:49

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.9	100	97	70-135	
o-Terphenyl	48.7	50.0	97	70-135	

Lab Batch #: 3066919

Sample: 602472-026 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 22:08

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.6	99.9	96	70-135	
o-Terphenyl	50.6	50.0	101	70-135	

Lab Batch #: 3067317

Sample: 602472-018 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/23/18 17:08

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.7	99.6	89	70-135	
o-Terphenyl	45.1	49.8	91	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3067317

Sample: 602472-019 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/23/18 17:27

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.1	99.8	88	70-135	
o-Terphenyl	44.3	49.9	89	70-135	

Lab Batch #: 3067379

Sample: 602472-018 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/23/18 19:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0383	0.0300	128	70-130	
4-Bromofluorobenzene	0.0353	0.0300	118	70-130	

Lab Batch #: 3067379

Sample: 602472-019 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/23/18 19:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	70-130	
4-Bromofluorobenzene	0.0304	0.0300	101	70-130	

Lab Batch #: 3066785

Sample: 7664390-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 16:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0377	0.0300	126	70-130	
4-Bromofluorobenzene	0.0303	0.0300	101	70-130	

Lab Batch #: 3066702

Sample: 7664345-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 19:55

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.1	100	82	70-135	
o-Terphenyl	43.2	50.0	86	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066919

Sample: 7664441-1-BLK / BLK

Project ID: 212C-MD-01451

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/18/18 17:29

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.5	100	95	70-135	
o-Terphenyl	50.3	50.0	101	70-135	

Lab Batch #: 3067317

Sample: 7664709-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/23/18 11:01

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.0	100	92	70-135	
o-Terphenyl	47.8	50.0	96	70-135	

Lab Batch #: 3067379

Sample: 7664750-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/23/18 15:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0339	0.0300	113	70-130	
4-Bromofluorobenzene	0.0325	0.0300	108	70-130	

Lab Batch #: 3066785

Sample: 7664390-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 14:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

Lab Batch #: 3066702

Sample: 7664345-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 20:13

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	130	100	130	70-135	
o-Terphenyl	58.4	50.0	117	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066919

Sample: 7664441-1-BKS / BKS

Project ID: 212C-MD-01451

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/18/18 17:48

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	119	100	119	70-135	
o-Terphenyl	51.8	50.0	104	70-135	

Lab Batch #: 3067317

Sample: 7664709-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/23/18 11:20

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	100	127	70-135	
o-Terphenyl	51.7	50.0	103	70-135	

Lab Batch #: 3067379

Sample: 7664750-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/23/18 13:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

Lab Batch #: 3066785

Sample: 7664390-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 14:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0245	0.0300	82	70-130	
4-Bromofluorobenzene	0.0240	0.0300	80	70-130	

Lab Batch #: 3066702

Sample: 7664345-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 20:32

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	52.3	50.0	105	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066919

Sample: 7664441-1-BSD / BSD

Project ID: 212C-MD-01451

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/18/18 18:06

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	130	100	130	70-135	
o-Terphenyl	53.0	50.0	106	70-135	

Lab Batch #: 3067317

Sample: 7664709-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/23/18 11:39

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	123	100	123	70-135	
o-Terphenyl	48.7	50.0	97	70-135	

Lab Batch #: 3067379

Sample: 7664750-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/23/18 14:05

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0340	0.0300	113	70-130	

Lab Batch #: 3066785

Sample: 602472-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 15:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0345	0.0300	115	70-130	
4-Bromofluorobenzene	0.0305	0.0300	102	70-130	

Lab Batch #: 3066702

Sample: 602207-011 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 21:09

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.7	122	70-135	
o-Terphenyl	55.5	49.9	111	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3066919

Sample: 602472-001 S / MS

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 18:43

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	99.8	117	70-135	
o-Terphenyl	50.9	49.9	102	70-135	

Lab Batch #: 3067317

Sample: 603112-003 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/23/18 12:55

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	123	99.8	123	70-135	
o-Terphenyl	59.7	49.9	120	70-135	

Lab Batch #: 3067379

Sample: 602878-011 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/23/18 14:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0320	0.0300	107	70-130	
4-Bromofluorobenzene	0.0360	0.0300	120	70-130	

Lab Batch #: 3066702

Sample: 602207-011 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 21:28

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	119	99.9	119	70-135	
o-Terphenyl	53.2	50.0	106	70-135	

Lab Batch #: 3066919

Sample: 602472-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/18/18 19:02

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	99.7	128	70-135	
o-Terphenyl	56.4	49.9	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: King Tut #1H

Work Orders : 602472,

Lab Batch #: 3067317

Sample: 603112-003 SD / MSD

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/23/18 13:14

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.8	122	70-135	
o-Terphenyl	59.7	49.9	120	70-135	

Lab Batch #: 3067379

Sample: 602878-011 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/23/18 14:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	70-130	
4-Bromofluorobenzene	0.0313	0.0300	104	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.



BS / BSD Recoveries



Project Name: King Tut #1H

Work Order #: 602472

Project ID: 212C-MD-01451

Analyst: ALJ

Date Prepared: 10/17/2018

Date Analyzed: 10/17/2018

Lab Batch ID: 3066785

Sample: 7664390-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	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	<0.00200	0.0998	0.116	116	0.100	0.0976	98	17	70-130	35	
Toluene	<0.00200	0.0998	0.0997	100	0.100	0.0891	89	11	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.118	118	0.100	0.0923	92	24	70-130	35	
m,p-Xylenes	<0.00399	0.200	0.236	118	0.200	0.202	101	16	70-130	35	
o-Xylene	<0.00200	0.0998	0.110	110	0.100	0.0904	90	20	70-130	35	

Analyst: ALJ

Date Prepared: 10/23/2018

Date Analyzed: 10/23/2018

Lab Batch ID: 3067379

Sample: 7664750-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	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	<0.00199	0.0996	0.114	114	0.0998	0.123	123	8	70-130	35	
Toluene	<0.00199	0.0996	0.0969	97	0.0998	0.107	107	10	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.116	116	0.0998	0.128	128	10	70-130	35	
m,p-Xylenes	<0.00101	0.199	0.232	117	0.200	0.254	127	9	70-130	35	
o-Xylene	<0.00199	0.0996	0.109	109	0.0998	0.119	119	9	70-130	35	

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: King Tut #1H

Work Order #: 602472

Project ID: 212C-MD-01451

Analyst: CHE

Date Prepared: 10/18/2018

Date Analyzed: 10/19/2018

Lab Batch ID: 3066907

Sample: 7664400-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	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	<5.00	250	274	110	250	274	110	0	90-110	20	

Analyst: CHE

Date Prepared: 10/18/2018

Date Analyzed: 10/19/2018

Lab Batch ID: 3066897

Sample: 7664412-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	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	<5.00	250	274	110	250	275	110	0	90-110	20	

Analyst: CHE

Date Prepared: 10/19/2018

Date Analyzed: 10/19/2018

Lab Batch ID: 3067022

Sample: 7664532-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	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	<5.00	250	272	109	250	268	107	1	90-110	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: King Tut #1H

Work Order #: 602472

Project ID: 212C-MD-01451

Analyst: ARM

Date Prepared: 10/17/2018

Date Analyzed: 10/17/2018

Lab Batch ID: 3066702

Sample: 7664345-1-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	1130	113	1000	1090	109	4	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1140	114	1000	1110	111	3	70-135	20	

Analyst: ARM

Date Prepared: 10/18/2018

Date Analyzed: 10/18/2018

Lab Batch ID: 3066919

Sample: 7664441-1-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	985	99	1000	957	96	3	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	984	98	1000	954	95	3	70-135	20	

Analyst: ARM

Date Prepared: 10/23/2018

Date Analyzed: 10/23/2018

Lab Batch ID: 3067317

Sample: 7664709-1-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	1030	103	1000	938	94	9	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1080	108	1000	1040	104	4	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 Recoveries

Project Name: King Tut #1H



Work Order #: 602472

Lab Batch #: 3066785

Date Analyzed: 10/17/2018

QC- Sample ID: 602472-001 S

Reporting Units: mg/kg

Date Prepared: 10/17/2018

Batch #: 1

Project ID: 212C-MD-01451

Analyst: ALJ

Matrix: Soil

MATRIX / MATRIX SPIKE RECOVERY STUDY						
BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Benzene	<0.00202	0.101	0.0838	83	70-130	
Toluene	<0.00202	0.101	0.0721	71	70-130	
Ethylbenzene	<0.00202	0.101	0.0748	74	70-130	
m,p-Xylenes	<0.00403	0.202	0.153	76	70-130	
o-Xylene	<0.00202	0.101	0.0714	71	70-130	

Matrix Spike Percent Recovery [D] = $100 \times (C-A)/B$
Relative Percent Difference [E] = $200 \times (C-A)/(C+B)$
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit



Form 3 - MS / MSD Recoveries



Project Name: King Tut #1H

Work Order #: 602472

Project ID: 212C-MD-01451

Lab Batch ID: 3067379

QC- Sample ID: 602878-011 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/23/2018

Date Prepared: 10/23/2018

Analyst: ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	<0.00199	0.0994	0.0945	95	0.100	0.0881	88	7	70-130	35	
Toluene	<0.00199	0.0994	0.0769	77	0.100	0.0739	74	4	70-130	35	
Ethylbenzene	<0.00199	0.0994	0.0904	91	0.100	0.0822	82	10	70-130	35	
m,p-Xylenes	<0.00398	0.199	0.187	94	0.200	0.170	85	10	70-130	35	
o-Xylene	<0.00199	0.0994	0.0925	93	0.100	0.0841	84	10	70-130	35	

Lab Batch ID: 3066897

QC- Sample ID: 602694-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/19/2018

Date Prepared: 10/18/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<0.858	250	259	104	250	262	105	1	90-110	20	

Lab Batch ID: 3066897

QC- Sample ID: 602694-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/19/2018

Date Prepared: 10/18/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<0.862	251	260	104	251	273	109	5	90-110	20	

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

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

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: King Tut #1H

Work Order #: 602472

Project ID: 212C-MD-01451

Lab Batch ID: 3066907

QC- Sample ID: 602472-015 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/19/2018

Date Prepared: 10/18/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<0.857	250	273	109	250	274	110	0	90-110	20	

Lab Batch ID: 3066907

QC- Sample ID: 602472-016 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/20/2018

Date Prepared: 10/18/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<0.858	250	313	125	250	312	125	0	90-110	20	X

Lab Batch ID: 3067022

QC- Sample ID: 602472-017 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/19/2018

Date Prepared: 10/19/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<0.858	250	266	106	250	270	108	1	90-110	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: King Tut #1H

Work Order # : 602472

Project ID: 212C-MD-01451

Lab Batch ID: 3067022

QC- Sample ID: 602472-028 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/20/2018

Date Prepared: 10/19/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	9.92	250	324	126	250	330	128	2	90-110	20	X

Lab Batch ID: 3066702

QC- Sample ID: 602207-011 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/17/2018

Date Prepared: 10/17/2018

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)	<7.98	997	1020	102	999	1010	101	1	70-135	20	
Diesel Range Organics (DRO)	27.9	997	1060	104	999	1040	101	2	70-135	20	

Lab Batch ID: 3066919

QC- Sample ID: 602472-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/18/2018

Date Prepared: 10/18/2018

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)	14.0	998	939	93	997	958	95	2	70-135	20	
Diesel Range Organics (DRO)	<8.11	998	953	95	997	959	96	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.



Form 3 - MS / MSD Recoveries



Project Name: King Tut #1H

Work Order # : 602472

Project ID: 212C-MD-01451

Lab Batch ID: 3067317

QC- Sample ID: 603112-003 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/23/2018

Date Prepared: 10/23/2018

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)	<7.99	998	996	100	998	958	96	4	70-135	20	
Diesel Range Organics (DRO)	12.0	998	1040	103	998	1040	103	0	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.

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

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Client Name:		COG		Site Manager:		Clair Gonzales	
Project Name:		King Tut #1H		Project #:		212C-MD-01451	
Project Location: (county, state)		Lea Co, NM		Invoice to:		COG - Ike Taveraz	
Receiving Laboratory:		Xenco		Sampler Signature:		Conner Moehring	
Comments:		Run deeper samples if GRO+DRO exceeds 1,000 mg/kg. Run deeper samples if benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg.					
LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)
		YEAR: 2018	DATE				
	AH #1 (0-1')		10/15/2018		X	X	1 N
	AH #1 (1-1.5')		10/15/2018		X	X	1 N
	AH #1 (2-2.5')		10/15/2018		X	X	1 N
	AH #1 (3-3.5')		10/15/2018		X	X	1 N
	AH #1 (4-4.5')		10/15/2018		X	X	1 N
	AH #2 (0-1')		10/15/2018		X	X	1 N
	AH #2 (1-1.5')		10/15/2018		X	X	1 N
	AH #2 (2-2.5')		10/15/2018		X	X	1 N
	AH #2 (3-3.5')		10/15/2018		X	X	1 N
	AH #2 (4-4.5')		10/15/2018		X	X	1 N
Relinquished by:		Date:	Time:	Received by:		Date:	Time:
Ref: 10/16/18		1423		1423			
Relinquished by:		Date:	Time:	Received by:		Date:	Time:
Ref: 10/16/18		1423		1423			
Relinquished by:		Date:	Time:	Received by:		Date:	Time:

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LAB USE ONLY		REMARKS:	
Sample Temperature		STANDARD	
3.6		RUSH: Same Day 24 hr 48 hr 72 hr	
		Rush Charges Authorized	
		Special Report Limits or TRRP Report	
		FEDEX UPS Tracking #:	

ANALYSIS REQUEST (Circle or Specify Method No.)	
BTEX 8021B	BTEX 8260B
TPH TX1005 (Ext to C35)	
TPH 8015M (GRO - DRO - ORO - MRO)	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
RCI	
GC/MS Vol. 8260B / 624	
GC/MS Semi. Vol. 8270C/625	
PCB's 8082 / 608	
NORM	
PLM (Asbestos)	
Chloride	
Chloride Sulfate TDS	
General Water Chemistry (see attached list)	
Anion/Cation Balance	
Hold	

Analysis Request of Custody Record



Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
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Client Name:		COG		Site Manager:		Clair Gonzales					
Project Name:		King Tut #1H		Project #:		212C-MD-01451					
Project Location: (county, state)		Lea Co, NM		Project #:		212C-MD-01451					
Invoice to:		COG - Ike Tavez		Sampler Signature:		Conner Moehring					
Receiving Laboratory:		Xenco		Sampler Signature:		Conner Moehring					
Comments:											
LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD					
		YEAR: 2018	DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE	None	
	AH #3 (0-1)		10/15/2018		X		X			1N	
	AH #3 (1-1.5)		10/15/2018		X		X			1N	
	AH #3 (2-2.5)		10/15/2018		X		X			1N	
	AH #3 (2.5-3)		10/15/2018		X		X			1N	
	AH #4 (0-1)		10/15/2018		X		X			1N	
	AH #4 (1-1.5)		10/15/2018		X		X			1N	
	AH #4 (2-2.5)		10/15/2018		X		X			1N	
	AH #5 (0-1)		10/15/2018		X		X			1N	
	AH #5 (1-1.5)		10/15/2018		X		X			1N	
	AH #5 (2-2.5)		10/15/2018		X		X			1N	
Relinquished by:		Date:	Time:	Received by:		Date:	Time:				
Relinquished by:		Date:	Time:	Received by:		Date:	Time:				
Relinquished by:		Date:	Time:	Received by:		Date:	Time:				
Relinquished by:		Date:	Time:	Received by:		Date:	Time:				

LAB USE ONLY	REMARKS:	STANDARD		FUSH: Same Day 24 hr 48 hr 72 hr		Special Report Limits or TRRP Report
		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sample Temperature		3.6				

ANALYSIS REQUEST (Circle or Specify Method No.)	
BTEX 8021B	BTEX 8260B
TPH TX1005 (Ext to C35)	
TPH 8015M (GRO - DRO - ORO - MRO)	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
RCI	
GC/MS Vol. 8260B / 624	
GC/MS Semi. Vol. 8270C/625	
PCB's 8082 / 608	
NORM	
PLM (Asbestos)	
Chloride	
Chloride Sulfate TDS	
General Water Chemistry (see attached list)	
Anion/Cation Balance	
Hold	

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Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

 4000 N. Big Spring Street, Ste
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 Tel (432) 682-4559
 Fax (432) 682-3946

602472

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Client Name:		COG		Site Manager:		Clair Gonzales	
Project Name:		King Tut #1H		Project #:		212C-MD-01451	
Project Location: (county, state)		Lea Co, NM		Project #:		212C-MD-01451	
Invoice to:		COG - Ike Tavarez		Sampler Signature:		Conner Moehring	
Receiving Laboratory:		Xenco		Sampler Signature:		Conner Moehring	
Comments:							

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	
		YEAR 2018	DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE			None
AH #5 (3-3.5)			10/15/2018		X			X			1 N	
AH #5 (4-4.5)			10/15/2018		X			X			1 N	
AH #5 (5-5.5)			10/15/2018		X			X			1 N	
AH #5 (6-6.5)			10/15/2018		X			X			1 N	
AH #5 (7-7.5)			10/15/2018		X			X			1 N	
AH #6 (0-1)			10/15/2018		X			X			1 N	
AH #6 (1-1.5)			10/15/2018		X			X			1 N	
AH #6 (2-2.5)			10/15/2018		X			X			1 N	
AH #6 (3-3.5)			10/15/2018		X			X			1 N	
AH #6 (4-4.5)			10/15/2018		X			X			1 N	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>[Signature]</i>	10/16/18	1423	<i>[Signature]</i>	10/16/18	1423
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST
(Circle or Specify Method No.)

BTEX 8021B BTEX 8260B
 TPH TX1005 (Ext to C35)
 TPH 8015M (GRO - DRO - ORO - MRO)
 PAH 8270C
 Total Metals Ag As Ba Cd Cr Pb Se Hg
 TCLP Metals Ag As Ba Cd Cr Pb Se Hg
 TCLP Volatiles
 TCLP Semi Volatiles
 RCI
 GC/MS Vol. 8260B / 624
 GC/MS Semi. Vol. 8270C/625
 PCB's 8082 / 608
 NORM
 PLM (Asbestos)
 Chloride
 Chloride Sulfate TDS
 General Water Chemistry (see attached list)
 Anion/Cation Balance

Hold

LAB USE ONLY	REMARKS:	<input type="checkbox"/> STANDARD
		<input checked="" type="checkbox"/> RUSH: Same Day 24 hr 48 hr 72 hr
Sample Temperature	<input type="checkbox"/> Rush Charges Authorized	
36	<input type="checkbox"/> Special Report Limits or TRRP Report	

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

Tel (432) 682-4559
Fax (432) 682-3946

[illegible]

Final 1.000



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 10/16/2018 02:23:00 PM

Work Order #: 602472

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)?	3.6
#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

Brianna Teel

Date: 10/16/2018

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 10/17/2018

Analytical Report 602474

for Tetra Tech- Midland

Project Manager: Clair Gonzales

King Tut #1H

212C-MD-01451

19-OCT-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-27), 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 (T104704221-18-13)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)

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)



19-OCT-18

Project Manager: **Clair Gonzales**

Tetra Tech- Midland

901 West Wall ST

Midland, TX 79701

Reference: XENCO Report No(s): **602474**

King Tut #1H

Project Address: Lea Co,NM

Clair Gonzales:

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) 602474. 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. 602474 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 602474



Tetra Tech- Midland, Midland, TX

King Tut #1H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
H-8 (0-1')	S	10-15-18 00:00		602474-001



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: King Tut #1H

Project ID: 212C-MD-01451
Work Order Number(s): 602474

Report Date: 19-OCT-18
Date Received: 10/16/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3066785 BTEX by EPA 8021B

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



Certificate of Analysis Summary 602474

Tetra Tech- Midland, Midland, TX

Project Name: King Tut #1H



Project Id: 212C-MD-01451

Contact: Clair Gonzales

Project Location: Lea Co,NM

Date Received in Lab: Tue Oct-16-18 02:23 pm

Report Date: 19-OCT-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	602474-001					
	Field Id:	H-8 (0-1')					
	Depth:						
	Matrix:	SOIL					
	Sampled:	Oct-15-18 00:00					
BTEX by EPA 8021B	Extracted:	Oct-17-18 14:00					
	Analyzed:	Oct-17-18 23:37					
	Units/RL:	mg/kg RL					
Benzene		<0.00199 0.00199					
Toluene		<0.00199 0.00199					
Ethylbenzene		<0.00199 0.00199					
m,p-Xylenes		<0.00398 0.00398					
o-Xylene		<0.00199 0.00199					
Total Xylenes		<0.00199 0.00199					
Total BTEX		<0.00199 0.00199					
Chloride by EPA 300	Extracted:	Oct-18-18 15:20					
	Analyzed:	Oct-19-18 09:41					
	Units/RL:	mg/kg RL					
Chloride		<4.98 4.98					
TPH by SW8015 Mod	Extracted:	Oct-17-18 10:00					
	Analyzed:	Oct-17-18 18:42					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9					
Diesel Range Organics (DRO)		<14.9 14.9					
Motor Oil Range Hydrocarbons (MRO)		<14.9 14.9					
Total TPH		<14.9 14.9					

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Jessica Kramer

Jessica Kramer
Project Assistant

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

SQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



Form 2 - Surrogate Recoveries

Project Name: King Tut #1H

Work Orders : 602474,

Lab Batch #: 3066700

Sample: 602474-001 / SMP

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 18:42

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.3	99.6	99	70-135	
o-Terphenyl	51.8	49.8	104	70-135	

Lab Batch #: 3066785

Sample: 602474-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 23:37

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0359	0.0300	120	70-130	
4-Bromofluorobenzene	0.0345	0.0300	115	70-130	

Lab Batch #: 3066700

Sample: 7664344-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 11:02

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	55.4	50.0	111	70-135	

Lab Batch #: 3066785

Sample: 7664390-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 16:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0377	0.0300	126	70-130	
4-Bromofluorobenzene	0.0303	0.0300	101	70-130	

Lab Batch #: 3066700

Sample: 7664344-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 11:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	129	100	129	70-135	
o-Terphenyl	52.8	50.0	106	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: King Tut #1H

Work Orders : 602474,

Lab Batch #: 3066785

Sample: 7664390-1-BKS / BKS

Project ID: 212C-MD-01451

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 14:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

Lab Batch #: 3066700

Sample: 7664344-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 11:40

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	100	128	70-135	
o-Terphenyl	51.6	50.0	103	70-135	

Lab Batch #: 3066785

Sample: 7664390-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/17/18 14:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0245	0.0300	82	70-130	
4-Bromofluorobenzene	0.0240	0.0300	80	70-130	

Lab Batch #: 3066700

Sample: 602230-005 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 12:18

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	120	99.9	120	70-135	
o-Terphenyl	48.9	50.0	98	70-135	

Lab Batch #: 3066785

Sample: 602472-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 15:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0345	0.0300	115	70-130	
4-Bromofluorobenzene	0.0305	0.0300	102	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: King Tut #1H

Work Orders : 602474,

Lab Batch #: 3066700

Sample: 602230-005 SD / MSD

Project ID: 212C-MD-01451

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/17/18 12:37

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	99.9	128	70-135	
o-Terphenyl	49.9	50.0	100	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: King Tut #1H

Work Order #: 602474

Project ID: 212C-MD-01451

Analyst: ALJ

Date Prepared: 10/17/2018

Date Analyzed: 10/17/2018

Lab Batch ID: 3066785

Sample: 7664390-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	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	<0.00200	0.0998	0.116	116	0.100	0.0976	98	17	70-130	35	
Toluene	<0.00200	0.0998	0.0997	100	0.100	0.0891	89	11	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.118	118	0.100	0.0923	92	24	70-130	35	
m,p-Xylenes	<0.00399	0.200	0.236	118	0.200	0.202	101	16	70-130	35	
o-Xylene	<0.00200	0.0998	0.110	110	0.100	0.0904	90	20	70-130	35	

Analyst: CHE

Date Prepared: 10/18/2018

Date Analyzed: 10/19/2018

Lab Batch ID: 3066897

Sample: 7664412-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	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	<5.00	250	274	110	250	275	110	0	90-110	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: King Tut #1H

Work Order #: 602474

Project ID: 212C-MD-01451

Analyst: ARM

Date Prepared: 10/17/2018

Date Analyzed: 10/17/2018

Lab Batch ID: 3066700

Sample: 7664344-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	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
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	982	98	1000	986	99	0	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	998	100	1000	1000	100	0	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 Recoveries

Project Name: King Tut #1H



Work Order #: 602474

Lab Batch #: 3066785

Date Analyzed: 10/17/2018

QC- Sample ID: 602472-001 S

Reporting Units: mg/kg

Date Prepared: 10/17/2018

Batch #: 1

Project ID: 212C-MD-01451

Analyst: ALJ

Matrix: Soil

MATRIX / MATRIX SPIKE RECOVERY STUDY						
BTEX by EPA 8021B	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Benzene	<0.00202	0.101	0.0838	83	70-130	
Toluene	<0.00202	0.101	0.0721	71	70-130	
Ethylbenzene	<0.00202	0.101	0.0748	74	70-130	
m,p-Xylenes	<0.00403	0.202	0.153	76	70-130	
o-Xylene	<0.00202	0.101	0.0714	71	70-130	

Matrix Spike Percent Recovery [D] = $100 \times (C-A)/B$
Relative Percent Difference [E] = $200 \times (C-A)/(C+B)$
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit



Form 3 - MS / MSD Recoveries



Project Name: King Tut #1H

Work Order # : 602474

Project ID: 212C-MD-01451

Lab Batch ID: 3066897

QC- Sample ID: 602694-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 10/19/2018

Date Prepared: 10/18/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<0.858	250	259	104	250	262	105	1	90-110	20	

Lab Batch ID: 3066897

QC- Sample ID: 602694-002 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 10/19/2018

Date Prepared: 10/18/2018

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<0.862	251	260	104	251	273	109	5	90-110	20	

Lab Batch ID: 3066700

QC- Sample ID: 602230-005 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 10/17/2018

Date Prepared: 10/17/2018

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)	<7.99	999	939	94	999	957	96	2	70-135	20	
Diesel Range Organics (DRO)	<8.12	999	964	96	999	980	98	2	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.

0025173



Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

[illegible][illegible]

ORIGINAL COPY



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 10/16/2018 02:23:00 PM

Work Order #: 602474

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)?	3.6
#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

Brianna Teel

Date: 10/16/2018

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 10/17/2018

Appendix D

Eddy Area, New Mexico

PA—Pajarito loamy fine sand, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w54

Elevation: 2,700 to 5,500 feet

Mean annual precipitation: 5 to 15 inches

Mean annual air temperature: 57 to 70 degrees F

Frost-free period: 180 to 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Pajarito and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pajarito

Setting

Landform: Interdunes, dunes, plains

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 13 inches: loamy fine sand

H2 - 13 to 36 inches: fine sandy loam

H3 - 36 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High
(2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 15 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0
to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 1.0

Available water storage in profile: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

Minor Components

Wink

Percent of map unit:

Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

Berino

Percent of map unit:

Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico

Survey Area Data: Version 14, Sep 12, 2018

Soil Survey Area: Lea County, New Mexico

Survey Area Data: Version 15, Sep 12, 2018

BLM SERIAL #:

COMPANY REFERENCE:

3.1 Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass (<i>Eragrostis intermedia</i>)	0.5
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sideoats grama (<i>Bouteloua curtipendula</i>)	5.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed