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December 12, 2010

Mr. Justin Wright ConocoPhillips HC60 Box 66 Lovington, NM 88260

RE: MCA 2A Header Request for Closure Report Lea County, New Mexico Unit G, Sec. 29, T17S, R32E 1RP 2300

### Dear Mr. Wright:

Tetra Tech suggests that ConocoPhillips submit this document as a request for closure report to the New Mexico Oil Conservation Division (NMOCD) and to the US Bureau of Land Management (BLM) for the soil remediation performed during August through October 2010, at ConocoPhillips' MCA 2A Header produced water release site. This work was performed in support of ConocoPhillips efforts to remediate an 878.4 barrel produced water release of which 845 barrels were recovered. The release was reported to the NMOCD (C141 Attached). The Site is located below Mescalero Ridge, approximately 1.1 miles southwest of the ConocoPhillips MCA Unit office in Lea County, New Mexico (32.805893°N, 103.788380°W; Figure 1). The BLM is the land administrator.

The Site is located in the Querecho Plains of eastern New Mexico. This area generally consists of a thin cover of Quaternary sand dunes overlying the undivided Triassic Upper Chinle Group<sup>1</sup>. The Pyote-Kermit soil association at the Site is gently undulating deep sandy soil that is well drained, non-calcareous sands.<sup>2</sup>

The Site is heavily populated with oil field pipelines. Observations made by Tetra Tech during an initial site overview revealed that there are at least 5 pipelines running through the Site.

### **Exposure Pathway Analysis**

Depth to water in the vicinity of the Site is estimated to be approximately 76 feet below ground surface (fbgs). This interpretation is based on information gathered at monitoring well MW-20 that is described in ConocoPhillips' remediation project entitled "*Maljamar Gas Plant GW-020*"

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DEC 1 0 2010 HOBBSOCD 1910 N. Big Spring St. Midland, Texas 79705 432-686-8081

<sup>&</sup>lt;sup>1</sup> U.S. Department of Agriculture, Natural Resources Conservation Services. Web Soil Survey Database.

<sup>&</sup>lt;sup>2</sup> Turner, M.T., D.N. Cox, B.C Mickelson, A.J. Roath, and C.D Wilson, 1973. Soil Survey Lea County, New Mexico. U.S. Depart of Agr Soil Conser Ser, 89p.

MCA 2A Header Findings Report

(log attached). The monitoring well is located approximately 3,515 feet (ft) northeast of the Site. The nearest playa is approximately 0.6 miles east-southeast of the Site.

Following the ranking criteria presented in "*Guidelines for Remediation of Leaks, Spills, and Releases*" promulgated on August 13, 1993, by the NMOCD, this Site has the following score:

Criteria		Ranking <u>Score</u>
Depth to groundwater	50 - 99 feet	10
Distance from water source	>1,000 feet	0
Distance from domestic water source	>200 feet	0
Distance from surface water body	>1,000 feet	_0
Total Ranking Score		10

The recommended remediation action level for a ranking score of 10-19 is 10 parts per million (ppm) for benzene, 50 ppm for total benzene, toluene, ethylbenzene, and total xylenes (BTEX), and 1,000 ppm for total petroleum hydrocarbons (TPH).

In the event of oil/gas releases to the environment, the NMOCD uses the New Mexico Water Quality Control Commission's maximum contaminate level of 250 ppm for chloride (20.6.2.3103 NMAC, Subsection A) for delineation.

### Scope of Work

The lateral extent of the release area was defined by soil discoloration (Figure 2). To delineate the vertical extent of the produced water affected area, a hand auger was utilized in November 2009, a backhoe in May 2010, and an air rotary boring unit in August 2010 to collect soil samples.

November 4, 2009 – Six hand auger locations were bored to describe subsurface conditions at the Site. A findings report, a laboratory report, and recommendations were submitted on December 2, 2009 to the BLM and NMOCD for approval.

February 8, 2010 - ConocoPhillips and Tetra Tech representatives met with NMOCD to discuss safety concerns surrounding the planned excavation work at the MCA 2A Header. Seventeen flowlines enter the header with numerous other lines in the vicinity of the produced water release. In addition, if the excavation were to go beyond 4 fbgs, a 2:1 sloped excavation would be performed to prevent caving, which would substantially increase the size of the excavation (moving into the sand dunes). Owing to the number of lines and the potential for an expanded excavation, ConocoPhillips agreed to dig one exploratory trench (collect a sample for chloride analysis), limit the depth of the proposed excavation to 4- ft, lay down a 40-mil geomembrane, and backfill. The BLM expressed disappointment at not being involved in the meeting. Since the meeting, the BLM changed remediation strategies in sand dune lands under Federal control and now requires clay be used as a barrier to prevent water penetration into affected soils left in-place.



May 21, 2010 – Tetra Tech returned to the Site to collect 8 backhoe samples. A brief findings report and laboratory report were submitted to the NMOCD and BLM for review on August 3, 2010.

July 20, 2010 – BLM issued a warning to ConocoPhillips concerning Site remediation and indicated that re-sampling was required to determine the depth and width of chloride impact. The agency requested that a sampling and remediation plan be submitted within 30 days.

August 2, 2010 – ConocoPhillips, NMOCD and BLM met to discuss implementation of remediation at the Site. The agencies set the following schedule: a soil boring sampling plan delivered by August 4, 2010; execution of the plan to begin no later than August 10, 2010 and soil laboratory analyses submitted to the agencies by August 13, 2010. An excavation work plan will be submitted to the agencies by August 18, 2010.

The BLM and NMOCD placed a tight schedule on collecting additional data, so ConocoPhillips hired a water well drilling company to provide an air rotary boring unit. ConocoPhillips informed NMOCD that the unit was not capable of collecting discrete depth samples (split spoon) and volatile organic compounds and petroleum hydrocarbons could volatize during the sampling process. The air rotary unit was used in August 2010 in the affected area to describe vertical and horizontal environmental conditions.

August 19 & 20, 2010 – BLM indicated that the agency prefers at SB-1 and -2, contaminated soil should be excavated to 6-ft; at SB-3, contaminated soil should be excavated to 4-ft; and at SB-6 and -7, contaminates soil should be excavated to 9-ft. The area can be backfilled with sand without clay material. After backfill, the excavated area does not have to seeded.

September 10, 2010 – BLM indicated that on September 2, 2010, at SB-2 the chloride levels at 7-ft were at 1,020 milligrams per kilogram (mg/Kg) on the west side wall. BLM also directed at SB-2 the excavation be taken down to 9-ft and extend the east and west sidewalls 3-ft into the sand dunes. Take a soil sample at the bottom of the 9 ft excavation, put clay liner down, and backfill.

September 17, 2010 – Tetra Tech presented information concerning the excavation. A figure was presented that showed the excavation boundary, excavation depths, and the soil borings completed in August. Data from the new boring (SB-8), requested by OCD, that was completed near soil boring SB-4 indicated chloride concentration at 45 fbgs was 256 mg/Kg. Tetra Tech suggested that ConocoPhillips request that further excavation be stopped and the excavation be backfilled with caliche, capped with 1-ft of compacted clay, and the remainder of the head space be backfilled with sand. Tetra Tech also recommended areas to the north and northeast of the present excavation should be remediated in a separate project, subject to BLM and NMOCD approvals.

September 30, 2010 - Tetra Tech presented information concerning the excavation. A figure was presented that showed the new excavation boundary, new excavation depths, and the soil borings completed in August. Tetra Tech suggested that ConocoPhillips request that further excavation be stopped and the excavation be backfilled with caliche, capped with 1-ft of compacted clay, and the remainder of the head space be backfilled with sand. Tetra Tech also



MCA 2A Header Findings Report

recommended areas to the north and northeast of the present excavation should be remediated in a separate project, subject to BLM and NMOCD approvals.

October 8, 2010 – NMOCD agrees with all statements presented by the BLM regarding MCA 2A Header. At soil boring SB-8, the chloride levels were 256 mg/Kg at 45 fbgs. The agency directed ConocoPhillips to put a clay liner at/or where the clay boundary is and backfill.

October 18, 2010 – BLM stopped work at the Site and stated the haul-back sand was not the right color.

December 2, 2010 – Backfill of the excavation was completed.

The 12 soil samples collected from the six hand auger borings in November 2009, and 8 soil samples collected from a backhoe trench in May 2010 were submitted to a laboratory for analyses. The NMOCD requested that the 50 soil cutting samples collected from the 7 borings in August 2010 be analyzed and these samples were submitted to a laboratory for analyses. Excavation sidewall and floor samples were collected during the removal of affected soil and submitted to a laboratory for analyses. All samples were placed into glass sample jars, sealed with Teflon-lined lids, and placed on ice for transportation with a chain-of-custody to an analytical laboratory where they were analyzed for diesel and gasoline range TPH (TPH<sub>DRO</sub> and TPH<sub>GRO</sub>, Method 8015), BTEX (Method 8021), and chloride (Method 300). All laboratory analyses are presented in the Appendix.

### Findings

Soil encountered at the Site was moist yellowish brown sands from the surface to varying depths. Locally, the dune sands overlie a thick caliche lens.

TPH and BTEX laboratory analyses for the investigative events are presented in Tables 1, 2 and 3. TPH concentrations were detected in all November 2009 auger samples and ranged from 265 to 7,510 milligrams per kilogram (mg/Kg). Benzene (0.069 mg/Kg) was detected in only one sample (HA-3 at 6 fbgs). BTEX concentrations ranged from non-detection to 40.77 mg/Kg.

Chloride concentrations were present in all hand auger boring locations and ranged from 293 to 25,000 mg/Kg (Table 1).

TPH concentrations were detected only in the upper 2-ft of the May 2010 backhoe samples and ranged from 8.7 to 534 mg/Kg (Table 2). Since the volatile organic compounds were below recommended remedial action levels in the November 2009 sampling event, these hydrocarbon constituents were excluded from the analyses. Chloride concentrations attenuated with depth but showed a slight rise at the 12 to 14 fbgs sampling depths.

Tetra Tech returned to the Site on August 11, 2010 to clear each soil boring location for downhole hazards before drilling ensued. Boring began August 12 and was completed on August 13, 2010. Laboratory analyses of the 50 soil cutting samples are presented in Table 3 and in the Appendix.



Total petroleum hydrocarbons exceeded the NMOCD recommended remedial action level at only two boring locations (SB-10, 0.5-ft and SB-6, 0-0.05 ft) and concentrations ranged from non-detection to 3,023 mg/Kg. Neither benzene nor BTEX exceed the recommended remedial action level in any of the boring locations.

Chloride concentrations decreased below 250 mg/Kg with depth (maximum depth 20 fbgs) in all borings except for soil boring SB-4. At SB-4, 24 fbgs, chloride concentration was 548 mg/Kg. Figure 2 and 3 illustrate the configuration of the completed excavation at MCA 2A Header. Approximately 5,000 cubic yards of affected soil was excavated and hauled to CRI for disposal. Figure 2 shows the excavation boundary, excavation depths, and the soil borings completed in August (Table 1).

NMOCD requested one addition boring (SB-8) be completed near soil boring SB-4. The new boring (SB-8) was completed August 25, 2010. Laboratory data for this new boring are shown below.

Depth	Chloride
(ft)	(mg/Kg)
20	1300
25	298
30	156
35	317
40	93.1
45	256
ft = Feet	
mg/Kg = M	illigrams
per Kilogr	am

Figure 3 presents laboratory confirmation analyses (Appendix) of chloride concentrations in samples collected from various locations in the floor and sidewalls of the excavation as of September 27, 2010. Total petroleum hydrocarbons were present in only two samples (9/01/10 N-F 6' 147.4 mg/Kg TPH and 9/02/10 II-FB 4' 194.3 mg/Kg TPH) and the concentrations were below NMOCD's recommended remedial action level. Neither benzene nor BTEX concentrations were noted in any of the laboratory analyses (Appendix).

### Conclusions

A laboratory analysis of the over-excavation indicates clean boundaries in all areas, with the exception of the eastern side wall and floor adjacent to a large sand dune and the northeast side wall, were achieved (Photo Log). As directed by the agencies (10/8/2010), a clay barrier was placed in the area of soil boring SB-8 to prevent potential downward migration of residual chloride in soil due to precipitation.

As directed by the BLM (9/10/2010) in area SB-2, the area was excavated to 9-ft and the east and west sidewalls were extended 3-ft into the sand dunes. A soil sample was taken at the bottom of the excavation, a clay barrier was laid, and the area was backfilled.

Owing to the physical structures (flowlines and pipelines) present in the area, the affected soil in the northeast sidewall was not excavated.



MCA 2A Header Findings Report

### Recommendations

Based on the work performed at this produced water release site, Tetra Tech recommends no further action. Tetra Tech also recommended areas to the north and northeast of the present remediation should be remediated in a separate project, subject to the BLM and the NMOCD approvals.

Tetra Tech suggests that ConocoPhillips request closure from the NMOCD and the BLM for this mixed crude oil/produced water release location. Please contact me (432-686-8081), if you have any questions or require additional information.

Sincerely,

**Tetra Tech** 

Charles Durrett Senior Project Manager

Cc: Mr. John Gates, ConocoPhillips



### MCA 2A Header Findings Report

### Table 1ConocoPhillipsMCA 2A HeaderHand Auger Analytical Soil AnalysesNovember 4, 2009

		Sample	Chloride	Petroleur	n Hydrocarb	ons (mg/Kg)	Vo	latile Orga	nic Compo	unds (mg/k	(g)
	Location	Depth (ft)	(mg/Kg)	DRO	GRO	Total	Benzene	Ethyl- benzene	Toluene	Xylenes Total	Total BTEX
	HA-1	2.5	5,170	5,400	460	5,860	ND	11	3.1	18.6	32.70
		5.5	2,190	1,300	130	1,430	ND	0.4	0.021	2.9	3.321
S	HA-2	3.0	4,290	6,600	910	7,510	ND	12	0.77	28.0	40.77
(HA) ations		6	1,410	160	1	161	ND	ND	ND	ND	ND
L 0	HA-3	4.0	2,220	ND	ND	2,220	ND	ND	ND	ND	ND
l g		6.0	25,000	4,500	350	4,850	0.069	6.4	3.8	13.1	23.369
Paul Bu	HA-4	6	4,520	ND	ND	4,520	ND	ND	ND	0.002	0.002
plir		4	293	ND	ND	293	ND	ND	ND	ND	ND
Hand	HA-5	3	1,990	ND	ND	1,990	ND	ND	ND	ND	ND
- s		5.0	878	1,000	ND	1,000	ND	ND	ND	ND	ND
	HA-6	3	1,120	740.0	0.2	740	ND	ND	ND	ND	ND
		6.5	2,570	250	15.0	265	ND	0.0014	0.003	0.079	0.0838

TPH<sub>GRO</sub> =Gasoline range petroleum hydrocarbons

TPH<sub>DRO</sub> =Diesel range petroleum hydrocarbons

ft = Feet

mg/Kg = Milligrams per kilogram

ND = Analyte not detected at or above laboratory detection limits

### Table 2ConocoPhillipsMCA 2A HeaderBackhoe Analytical Soil AnalysesMay 21, 2010

	Sample		Petrole	eum Hydroc	arbons
Sample	Depth	Chloride	GRO	DRO	Total
Number	(ft)	(mg/Kg)	(mg/Kg)	mg/Kg	mg/Kg
1	0-0.5	2660	14	520	534
2	2	2460	ND	8.7	8.7
3	4	966	ND	ND	ND
4	6	241	ND	ND	ND
5	8	233	ND	ND	ND
6	10	58.2	ND	ND	ND
7	12	270	ND	ND	ND
8	14	321	ND	ND	ND

TPH<sub>GRO</sub> =Gasoline range petroleum hydrocarbons

TPH<sub>DRO</sub> =Diesel range petroleum hydrocarbons

ft = Feet

mg/Kg = Milligrams per kilogram

ND = Analyte not detected at or above laboratory detection limits



MCA 2A Header Findings Report

Mr. Justin Wright December 12, 2010 Page 8

### Table 3ConocoPhillipsMCA 2A HeaderAir Rotary Boring Analytical Soil AnalysesAugust 12-13, 2010

	Sample	Chloride	Petroleu	m Hydrocarb	oons (mg/Kg)	Vo		nic Compo	unds (mg/l	
ocation.	Depth (ft)	(mg/Kg)	DRO	GRO	Total	Benzene	Ethyl- benzene	Toluene	Xylenes Total	Total BTEX
SB-1	0-0.5	75	ND	105	105	ND	ND	ND	ND	ND
	4.0	1,060	893	2,130	3,023	ND	0.3497	ND	1.806	2.126
	8.0	46.6	74.2	330	404.2	ND	0.0606	0.0146	0.6858	0.7610
	12.0	5.57	ND	29.9	29.9	ND	0.0019	ND	0.0013	0.0032
	16.0	37.7	ND	39.2	39.2	0.0018	ND	ND	ND	0.0018
	20.0	23.1	ND	21.2	21.2	ND	ND	ND	ND	ND
	24.0	5.68	ND	33	- 33	ND	ND	ND	ND	ND
SB-2	0-0.5	6.24	ND	ND	ND	ND	ND	ND	ND	ND
	4.0	1,420	ND	ND	ND	ND	ND	ND	ND	ND
	8.0	361	ND	ND	ND	ND	ND	ND	ND	ND
	12.0	274	ND	ND	ND	ND	ND	ND	ND	ND
	16.0	304	15.5	ND	15.5	ND	ND	ND	ND	ND
	20.0	88.9	ND	21.4	21.4	ND	ND	ND	ND	ND
	24.0	112	26.7	27.1	53.8	ND	ND	ND	ND	ND
SB-3	0-0.5	21.6	ND	ND	ND	ND	ND	ND	ND	ND
	4.0	40.8	ND	ND	ND	ND	ND	ND	ND	ND
3	8.0	227	ND	30.3	30.3	ND	ND	ND	ND	ND
	12.0	22	ND	ND	ND	ND	ND	ND	ND	ND
SB-3	16.0	23	ND	ND	ND	ND	ND	ND	ND	ND
	20.0	19	ND	26.7	26.7	ND	ND	ND	ND	ND
	24.0	36	ND	48.4	48.4	ND	ND	ND	ND	ND
SB-4	0-0.5	152	ND	ND	ND	ND	ND	ND	ND	ND
2 I	4.0	77.9	ND	ND	ND	ND	ND	ND	ND	ND
-	8.0	245	ND	107	107	ND	ND	ND	ND	ND
Ĩ	12.0	334	ND	65.5	65.5	ND	ND	ND	ND	ND
	16.0	405	ND	23.7	23.7	ND	ND	ND	ND	ND
	20.0	318	ND	19.6	19.6	ND	ND	ND	ND	ND
8	24.0	548	ND	19.2	19.2	ND	ND	ND	ND	ND
SB-5	0-0.5	131	ND	ND	ND	ND	ND	ND	ND	ND
	4.0	386	46.2	80.3	126.5	ND	ND	ND	ND	ND
	8.0	363	75.4	599	674.4	0.8884	ND	1.296	0.5816	2.766
	12.0	53.5	ND	26	26	ND	ND	0.0	ND	0.0014
	16.0	98.5	ND	ND	ND	ND	ND	ND	0.0028	0.0028
	20.0	119	ND	ND	ND	ND	ND	ND	ND	ND
	24.0	192	ND	ND	ND	ND	ND	ND	ND	ND
SB-6		530	183	818	1,001	ND	ND	ND	0.0084	0.0084
	4.0	240	38.3	42.4	80.7	ND	ND	ND	ND	ND
	8.0	939	ND	112	112	ND	ND	ND	ND	ND
	12.0	138	ND	49.1	49.1	ND	ND	ND	ND	ND
	16.0	107	ND	ND	ND	ND	ND	ND	ND	ND
	20.0	136	ND	ND	ND	ND	ND	ND	ND	ND
	24.0	231	ND	95.3	95.3	ND	ND	ND	ND	ND
SB-7		20.5	ND	19.5	19.5	ND	ND	ND	ND	ND
	4.0	580	ND	ND	ND	ND	ND	ND	ND	ND
	8.0	588	20.6	ND	20.6	ND	ND	ND	ND	ND
	12.0	173	ND	27.2	27.2	ND	ND	ND	ND	ND
	16.0	234	ND	ND	ND	ND	ND	ND	ND	ND
	20.0	158	ND	ND	ND	ND	ND	ND	ND	ND
	24.0	186	ND	ND	ND	ND	ND	ND	ND	ND
	28.0	195	ND	ND	ND	ND	ND	ND	ND	ND

TPH<sub>GRO</sub> = Gasoline range petroleum hydrocarbons

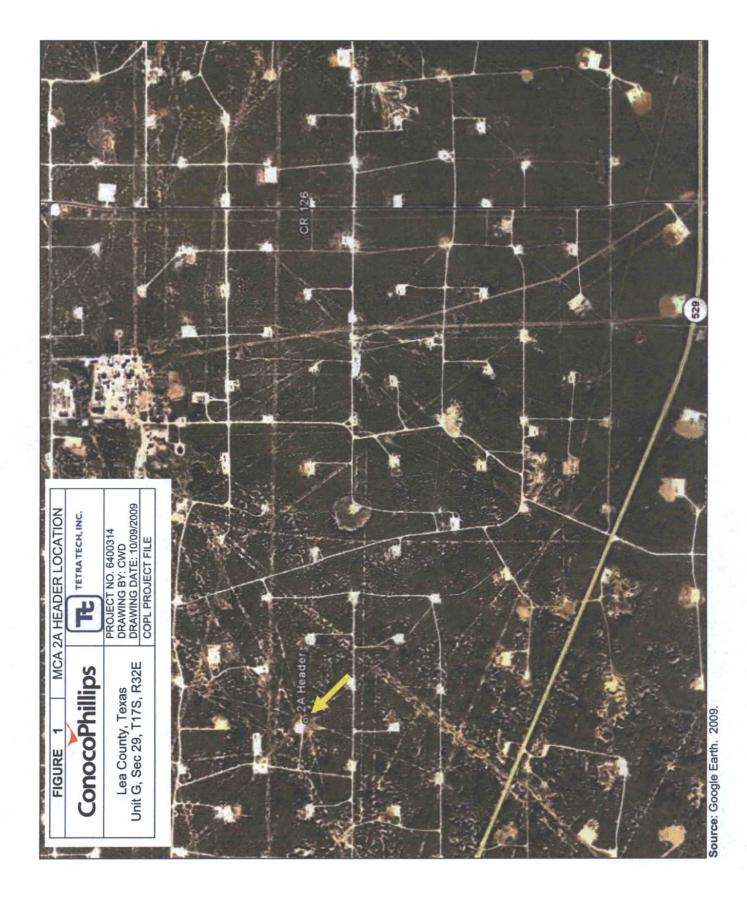
TPH<sub>DRO</sub> = Diesel range petroleum hydrocarbons

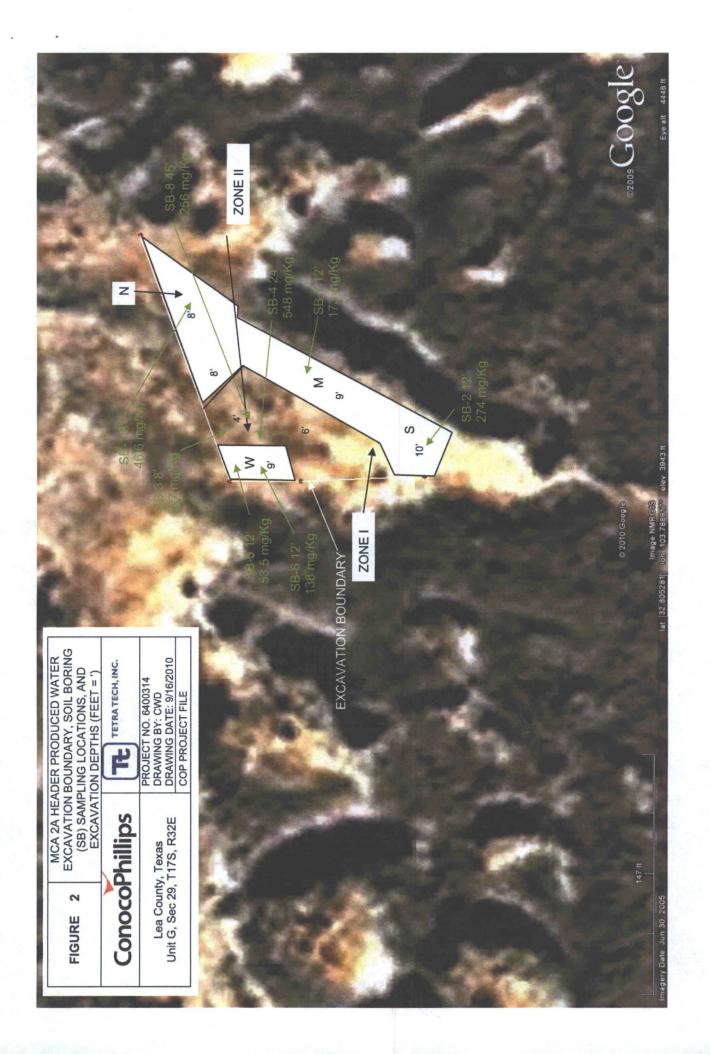
ft = Feet

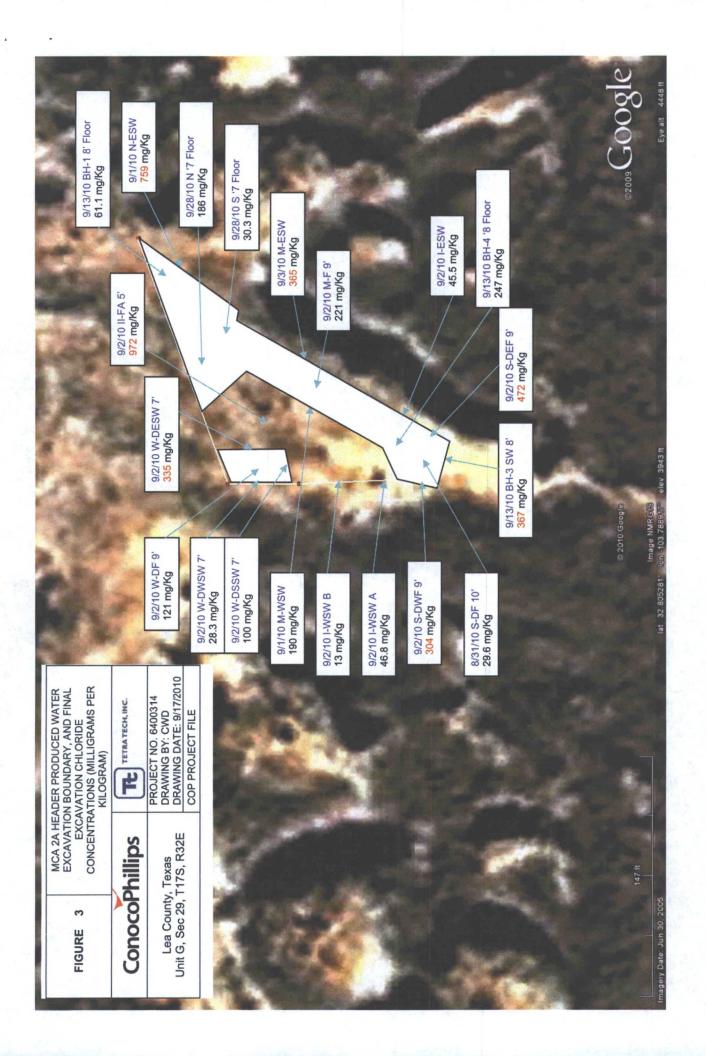
mg/Kg = Milligrams per kilogram

ND = Analyte not detected at or above laboratory detection limits









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Describe Cau													
Leak origin	ated from	1 a hole in a	2" fiber	glass trunkline	due (	to fatigue. T	runklin	e was is	olated an	d the 2	A header		
Describe Are	a Affected	and Cleanup	Action Tak	en.*									
300' X 60'	X 2" ar	ea of sandy	pasture	land with no li		ck present. S	spill site	e will be	delineat	ed & r	emediated	in acc	ordance
with an agr	eement w	vith NMOC	CD and B	LM guidelines.									
I hereby certi	fy that the i	nformation g	ven above	is true and comp	lete to	the best of my	knowled	dge and u	inderstand	that purs	suant to NM	OCD ru	les and
regulations a	l operators	are required t	o report an	d/or file certain r	elease	notifications an	nd perfor	rm correc	tive action	s for rele	eases which	may en	danger
public health	or the envir	ronment. The	acceptanc	investigate and r	emedia	he NMOCD m ate contaminati	arked as on that r	"Final R	eport" doe	s not reli	ieve the ope	rator of	liability nan health
or the environ	nment. In a	ddition, NMC	CD accep	tance of a C-141									
federal, state,	or local lay	ws and/or regu	lations.				OII	001	CEDILA	TION	DIVICIO		-
	(),1		1	MF			OIL	LCON	SERVA	TION	DIVISIO	DN	
Signature:	HU	m u	· /	Jaka			ENV EN	NGINEE	R				
Printed Name	John W.	Gates				Approved by	District	Supervis	OF:-	Rener	Spine		
Title: HSEI						Approval Dat	e: 091	24/09		00 1)	Date: 11 21	109	
		0.1.0					,	'					
E-mail Addre	ess: John.W	.Gates@con	ocophillip	s.com		Conditions of	Approv	NAL P	34 11/24	LEAN	Attached		
Date: 9/21	/09	P	none: 505	3.391.3158							IRP-0	9.10.	2300
		al Sheets If	Necessar	у									

..:

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FGRL0928731707

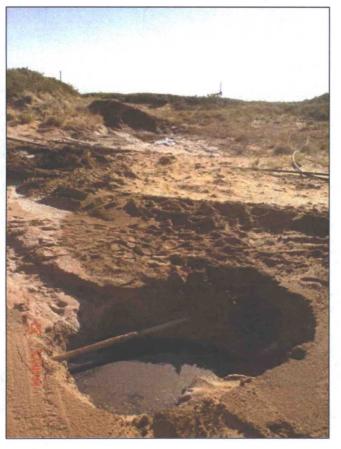
!

- 4

PHOTOGRAPHS





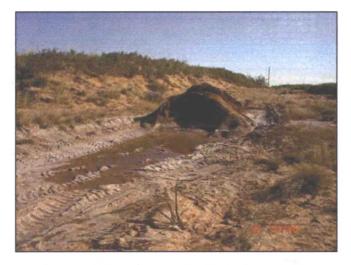


### LOCATION

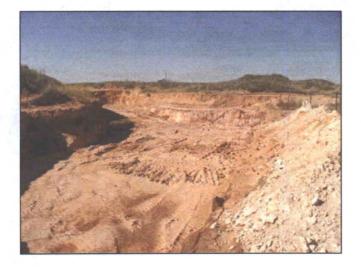
VIEW: South Produced water release site











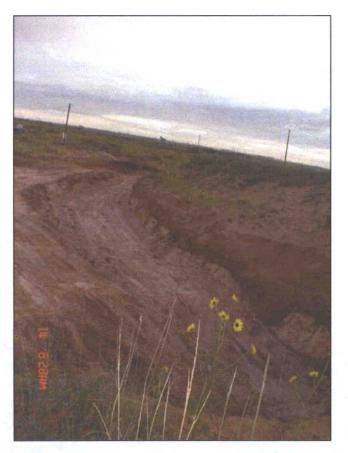
VIEW: South Produced water pooling area

VIEW: North Produced water release site at south end of affected area

VIEW: South Excavated area









VIEW: North Excavated area

VIEW: South Placing clay over backfill

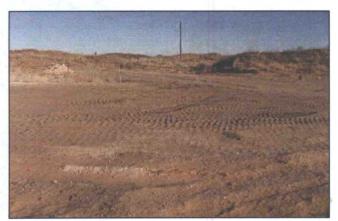












VIEW: East Placing clay over backfill

VIEW: South Remediated location

VIEW: North Remediated location

VIEW: Northeast Remediated location



### LABORATORY REPORTS

Xenco Laboratory Report Dated September 2, 2010 Xenco Laboratory Report Dated September 7, 2010 Xenco Laboratory Report Dated September 14, 2010 Xenco Laboratory Report Dated September 29, 2010

### Analytical Report 388015

for Tetra Tech- Midland

**Project Manager: Charles Durrett** 

MCA 2A Header

6400315CO

02-SEP-10



**Celebrating 20 Years of commitment to excellence in Environmental Testing Services** 



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

> Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330) Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX) Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX) Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370) Xenco-Boca Raton (EPA Lab Code: FL01273): Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917) North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757), California(06244CA), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)

Final 1.000



02-SEP-10



Project Manager: Charles Durrett Tetra Tech- Midland 1910 N. Big Spring Midland, TX 79705

Reference: XENCO Report No: 388015 MCA 2A Header Project Address: New Mexico

### **Charles Durrett**:

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 388015. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 388015 will be filed for 60 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,

AT AN

Brent Barron, II Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994. Certified and approved by numerous States and Agencies. A Small Business and Minority Status Company that delivers SERVICE and QUALITY Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



### Sample Cross Reference 388015



### Tetra Tech- Midland, Midland, TX

MCA 2A Header

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S DEEP- NSW	S	Aug-31-10 13:45		388015-001
S-WSW	S	Aug-31-10 14:00		388015-002
S-ESW	S	Aug-31-10 14:15		388015-003
S Deep-F 10'	S	Aug-31-10 14:30	10 ft	388015-004
S - F 6'	S	Aug-31-10 14:45	6 ft	388015-005



Client Name: Tetra Tech- Midland Project Name: MCA 2A Header



Project ID:6400315COWork Order Number:388015

Report Date: 02-SEP-10 Date Received: 09/01/2010

Sample receipt non conformances and Comments: None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-821272 TPH By SW8015 Mod None

Batch: LBA-821301 Anions by E300 None

Batch: LBA-821314 Percent Moisture None

Batch: LBA-821331 BTEX by EPA 8021B SW8021BM

Batch 821331, 4-Bromofluorobenzene recovered above QC limits QC Data Not confirmed by reanalysis. Samples affected are: 572250-1-BKS.

### SW8021BM

Batch 821331, Benzene recovered below QC limits in the Matrix Spike Duplicate. Samples affected are: 388015-003, -005, -004, -002. The Laboratory Control Sample for Benzene is within laboratory Control Limits

Batch: LBA-821392 BTEX by EPA 8021B SW8021BM

Batch 821392, 4-Bromofluorobenzene recovered above QC limits . Matrix interferences is suspected; data confirmed by re-analysis

Samples affected are: 388015-001. 4-Bromofluorobenzene recovered above QC limits . Matrix interferences is suspected; data not confirmed by re-analysis Samples affected are: 388015-001 SD.

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Project Id: 6400315CO

**Certificate of Analysis Summary 388015** Tetra Tech- Midland, Midland, TX Project Name: MCA 2A Header



Contact: Charles Durrett				Dat	Date Received in Lab:	Wed Sep-01-10 07:56 am	B
Deviant I acation: New Mexico					Report Date: (	02-SEP-10	
					Project Manager: 1	Brent Barron, II	
	Lab Id:	388015-001	388015-002	388015-003	388015-004	388015-005	
Audicie Dogustad	Field Id:	S DEEP-NSW	WSW-S	S-ESW	S Deep-F 10'	S - F 6'	
naicanhau ciclinuu	Depth:				10- ft	6- ft	
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	Aug-31-10 13:45	Aug-31-10 14:00	Aug-31-10 14:15	Aug-31-10 14:30	Aug-31-10 14:45	
Anions by E300	Extracted:						
	Analyzed:	Sep-01-10 12:37	Sep-01-10 12:37	Sep-01-10 12:37	Sep-01-10 12:37	Sep-01-10 12:37	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		270 9.25	1130 18.7	467 9.31	29.6 5.46	586 10.0	
BTEX by EPA 8021B	Extracted:	Sep-02-10 09:00	Sep-01-10 09:02	Sep-01-10 09:02	Sep-01-10 09:02	Sep-01-10 09:02	
	Analyzed:	Sep-02-10 11:04	Sep-01-10 15:41	Sep-01-10 16:04	Sep-01-10 16:27	Sep-01-10 14:07	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0013	ND 0.0012	
Toluene		ND 0.0022	ND 0.0022	ND 0.0022	ND 0.0026	ND 0.0024	
Ethylbenzene		ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0013	ND 0.0012	
m,p-Xylenes		ND 0.0022	ND 0.0022	ND 0.0022	ND 0.0026	ND 0.0024	
o-Xylene		ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0013	ND 0.0012	
Total Xylenes		ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0013	ND 0.0012	
Total BTEX		ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0013	ND 0.0012	
Percent Moisture	Extracted:						
	Analyzed:	Sep-02-10 09:51	Sep-02-10 09:51	Sep-02-10 09:51	Sep-02-10 09:51	Sep-02-10 09:51	
	Units/RL:	% RL	% RL	% RL	% RL	% RL	
Percent Moisture	-	9.19 1.00	10.0 1.00	9.75 1.00	23.1 1.00	16.1 1.00	

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 jugment 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

Odessa Laboratory Manager Brent Barron, II

17.8 RL

> g QN

mg/kg

RL 19.6 19.6

mg/kg ND QN

> 16.6 16.6

16.6 RL

> Q Q

16.5

mg/kg ND Q

> Gasoline Range Hydrocarbons Diesel Range Hydrocarbons

16.5

mg/kg

RL

16.6

RL

mg/kg

Sep-01-10 13:14 Sep-01-10 09:15

Sep-01-10 09:15 Sep-01-10 12:54

Sep-01-10 09:15 Sep-01-10 12:33

Sep-01-10 09:15 Sep-01-10 12:13

Sep-01-10 09:15 Sep-01-10 11:53

> Extracted: Analyzed: Units/RL:

TPH By SW8015 Mod

17.8

Final 1.000



### **Flagging Criteria**

- 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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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Final 1.000

(361) 884-9116

(361) 884-0371



### Project Name: MCA 2A Header

ork Orders : 38801: Lab Batch #: 821331	Sample: 572250-1-BKS / B	KS Batch	-	<b>D:</b> 6400315C x: Solid		
Units: mg/kg	Date Analyzed: 09/01/10 11:48	SUI	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
	Analytes					
1,4-Difluorobenzene 4-Bromofluorobenzene		0.0349	0.0300	116	80-120	*
4-Bromonuorobenzene		0.0365	0.0300	122	80-120	•
Lab Batch #: 821331	Sample: 572250-1-BSD / B			:Solid		
Units: mg/kg	Date Analyzed: 09/01/10 12:11	SUI	RROGATE R	ECOVERY	STUDY	
BTE	X 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	80-120	
4-Bromofluorobenzene		0.0351	0.0300	117	80-120	
Lab Batch #: 821331	Sample: 572250-1-BLK / B	LK Batch	a: 1 Matrix	:Solid		
Units: mg/kg	Date Analyzed: 09/01/10 13:44	SUI	RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0292	0.0300	97	80-120	
4-Bromofluorobenzene		0.0347	0.0300	116	80-120	
Lab Batch #: 821331	Sample: 388015-005 / SMP	Batch	a: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/01/10 14:07	SUI	RROGATE R	ECOVERY S	STUDY	2
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1 4 Diffuenchemana	Analytes	0.0202	0.0200		80.120	
1,4-Difluorobenzene 4-Bromofluorobenzene		0.0292	0.0300	97	80-120 80-120	
					00-120	
Lab Batch #: 821331	Sample: 388015-005 S / MS		n: 1 Matrix		TUDV	
Units: mg/kg	Date Analyzed: 09/01/10 14:30	501	KUGATE K	ECUVERY		
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Anglytes	11		[D]		
1,4-Difluorobenzene	Analytes	0.0337	0.0300	[ <b>D</b> ]	80-120	

\* 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.



### Project Name: MCA 2A Header

ork Orders : 388015 Lab Batch #: 821331	Sample: 388015-005 SD / N		a: 1 Matrix			
Units: mg/kg	Date Analyzed: 09/01/10 14:53	SUI	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1,4-Difluorobenzene	Analytes	0.0336	0.0300	112	80-120	
4-Bromofluorobenzene		0.0359	0.0300	112	80-120	
Lab Batch #: 821331	Sample: 388015-002 / SMP	Batch				
Units: mg/kg	Date Analyzed: 09/01/10 15:41		RROGATE R		STUDY	
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	1 mary cos	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene		0.0360	0.0300	120	80-120	
Lab Batch #: 821331	Sample: 388015-003 / SMP	Batch	1 Matrix	r: Soil		
Units: mg/kg	Date Analyzed: 09/01/10 16:04		RROGATE R		STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	1 mary cos	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene		0.0357	0.0300	119	80-120	
Lab Batch #: 821331	Sample: 388015-004 / SMP	Batch	: 1 Matrix	: Soil		
Units: mg/kg	Date Analyzed: 09/01/10 16:27	SUI	RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	Analytes	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene		0.0349	0.0300	116	80-120	
Lab Batch #: 821392	Sample: 572290-1-BKS / BI	KS Batch	: 1 Matrix	Solid		100.00
Units: mg/kg	Date Analyzed: 09/02/10 09:31		RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		0.00.10	0.0200	114	80-120	
1,4-Difluorobenzene		0.0342	0.0300	114	80-120	

\* 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 / BAll results are based on MDL and validated for QC purposes.



### Project Name: MCA 2A Header

ork Orders : 388015		K D (	-	<b>D:</b> 6400315C	0	
Lab Batch #: 821392 Units: mg/kg	Sample: 572290-1-BLK / BI Date Analyzed: 09/02/10 10:41		h: 1 Matrix RROGATE R		STUDY	
	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	1111119 005	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene		0.0351	0.0300	117	80-120	
Lab Batch #: 821392	Sample: 388015-001 / SMP	Batc	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/02/10 11:04	SU	RROGATE R	ECOVERY S	STUDY	
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0295	0.0300	98	80-120	
4-Bromofluorobenzene		0.0363	0.0300	121	80-120	**
ab Batch #: 821392	Sample: 388015-001 S / MS	Batc	h: 1 Matrix	Soil		
Units: mg/kg	Date Analyzed: 09/02/10 11:28	SU	RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	7 x 11 x 1 y co 5	0.0342	0.0300	114	80-120	
4-Bromofluorobenzene		0.0359	0.0300	120	80-120	
Lab Batch #: 821392	Sample: 388015-001 SD / M	SD Bate	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/02/10 11:51		RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0336	0.0300	112	80-120	
1.2. 0. 1		0.0362	0.0300	121	80-120	*
4-Bromofluorobenzene						
	Sample: 572238-1-BKS / BK	S Bate	h: 1 Matrix	:Solid		
	Sample: 572238-1-BKS / BK Date Analyzed: 09/01/10 10:54		h: <sup>1</sup> Matrix RROGATE R		STUDY	
Lab Batch #: 821272 Units: mg/kg	Date Analyzed: 09/01/10 10:54 By SW8015 Mod			Recovery %R	Control Limits %R	Flags
	Date Analyzed: 09/01/10 10:54	SU Amount Found	RROGATE R	Recovery	Control Limits	Flags

\* 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.



### Project Name: MCA 2A Header

ork Orders : 388015 Lab Batch #: 821272	Sample: 572238-1-BSD / B	SD Bate		D: 6400315C c: Solid	0	
Units: mg/kg	Date Analyzed: 09/01/10 11:14		RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		87.8	100	88	70-135	
o-Terphenyl		53.3	50.2	106	70-135	
Lab Batch #: 821272	Sample: 572238-1-BLK / B			: Solid		
Units: mg/kg	Date Analyzed: 09/01/10 11:34	SU	<b>RROGATE R</b>	ECOVERY S	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane	Analytes	87.9	99,5	88	70-135	
o-Terphenyl		45.2	49.8	91	70-135	
	200015-001/510				10-155	
Lab Batch #: 821272	Sample: 388015-001 / SMP	Bate	ch: 1 Matrix		TUDY	
Units: mg/kg	Date Analyzed: 09/01/10 11:53	St	RRUGATE R	ECOVERIS	STUDI	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane		87.7	100	88	70-135	
o-Terphenyl		45.6	50.0	91	70-135	
Lab Batch #: 821272	Sample: 388015-002 / SMP	Bate	ch: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/01/10 12:13	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		87.4	99.8	88	70-135	
o-Terphenyl		45.2	49.9	91	70-135	
Lab Batch #: 821272	Sample: 388015-003 / SMP	Bate	ch: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/01/10 12:33	st	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		90.0	100	90	70-135	
o-Terphenyl		46.4	50.0	93	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.



### Project Name: MCA 2A Header

<b>Vork Orders :</b> 388015 Lab Batch #: 821272	Sample: 388015-004 / SMP	Batch		D: 6400315C Soil	0	
Units: mg/kg	Date Analyzed: 09/01/10 12:54	SU	RROGATE RI	ECOVERY	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	Analytes	115	100	115	70-135	
o-Terphenyl		60.7	50.2	113	70-135	
Lab Batch #: 821272	Sample: 388015-005 / SMP	Batch	: 1 Matrix:	Soil		
Units: mg/kg	Date Analyzed: 09/01/10 13:14		RROGATE RI		STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		89.3	99.5	90	70-135	
o-Terphenyl		46.2	49.8	93	70-135	
Lab Batch #: 821272	Sample: 388015-005 S / MS	Batch	n: 1 Matrix:	Soil		
Units: mg/kg	Date Analyzed: 09/01/10 13:34	SUI	RROGATE RI	ECOVERY	STUDY	
ТРН	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	Analytes	88.4	101	88	70-135	
o-Terphenyl		50.7	50.3	101	70-135	
Lab Batch #: 821272	Sample: 388015-005 SD / M	ISD Batch	n: 1 Matrix:	Soil		
Units: mg/kg	Date Analyzed: 09/01/10 13:54		RROGATE RI	COVERY	STUDY	-
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes		1-7	[D]		
1-Chlorooctane		84.7	100	85	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

o-Terphenyl

Surrogate Recovery [D] = 100 \* A / B All results are based on MDL and validated for QC purposes.

51.2

50.0

70-135

102





### Project Name: MCA 2A Header

Work Order #: 388015		Pr	oject ID:		640	0315CO
Lab Batch #: 821392	Sample: 572290		Matrix:			
Date Analyzed: 09/02/2010 Reporting Units: mg/kg	Date Prepared: 09/02/2 Batch #: 1	-	Analyst: BLANK SPI		COVERY S	TUDY
BTEX by EPA 8021B	Blank Result [A]	Spike Added [B]	Blank Spike Result	Blank Spike %R	Control Limits %R	Flags
Analytes			[C]	[D]		
Benzene	ND	0.0996	0.0875	88	70-130	
Toluene	ND	0.0996	0.0860	86	70-130	
Ethylbenzene	ND	0.0996	0.0907	91	71-129	
m,p-Xylenes	ND	0.1992	0.1762	88	70-135	
o-Xylene	ND	0.0996	0.0891	89	71-133	

Blank Spike Recovery [D] = 100\*[C]/[B] All results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit



## **BS / BSD Recoveries**



## Project Name: MCA 2A Header

Work Order #: 388015 Analyst: SEE Lab Batch ID: 821331

Date Prepared: 09/01/2010

Batch #: 1

Sample: 572250-1-BKS

Project ID: 6400315CO Date Analyzed: 09/01/2010 Matrix: Solid

Units: mg/kg		BLAN	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	PIKE / B	ILANK S	PIKE DUPI	ICATE ]	RECOVE	CRY STUD	X	
BTEX by EPA 8021B	Blank Sample Result	Spike Added	Blank Spike	Blank Spike	Spike Added	Blank Spike	Blk. Spk Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	(v)	[8]		[D]	E	Dupncate Result [F]	[G]	9/	No/	/0KLD	
Benzene	ND	0.0992	0.0961	67	0.0996	0.0950	95	1	70-130	35	
Toluene	QN	0.0992	0.0949	96	0.0996	0.0939	94	1	70-130	35	
Ethylbenzene	ND	0.0992	0.0988	100	0.0996	0.0977	98	1	71-129	35	
m,p-Xylenes	QN	0.1984	0.1916	67	0.1992	0.1897	95	1	70-135	35	
o-Xylene	ND	0.0992	0.0978	66	0.0996	0.0973	98	1	71-133	35	
Analyst: LATCOR	Da	te Prepar	Date Prepared: 09/01/2010	0			Date A	nalyzed: 09/01	Date Analyzed: 09/01/2010		

Lab Batch ID: 821301 Sample: 821301-1-BKS	301-1-BKS	Batc	Batch #: 1					Matrix: S	Solid		[
Units: mg/kg		BLAN	<b>BLANK / BLANK SPIKE / BLANK SPIKE DUPLICATE</b>	SPIKE / E	ILANK S	PIKE DUPL	ICATE	RECOVE	RECOVERY STUD	Y	
Anions by E300	Blank	Spike	Blank	Blank	Spike	Blank	Blk. Spk		Control	Control	
•	Sample Result	-	Spike	Spike	Added	Spike	Dup.	RPD	Limits	Limits	Flag
	[ <b>y</b> ]		Result	%R		Duplicate	%R		%R	%RPD	
Analytes		[B]	[C]	[D]	[E]	Result [F]	[C]				
Chloride	QN	10.0	9.11	91	10	9.16	92	1	75-125	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 Page 13 of 22

Final 1.000



### **BS / BSD Recoveries**



## Project Name: MCA 2A Header

Work Ordon #. 200015								£		0021000	
VIU VIUCE #: 388013								Proj	ect ID: 6	Project ID: 6400315CU	-
Analyst: BEV		Da	ate Prepar	Date Prepared: 09/01/2010	0			Date Al	Date Analyzed: 09/01/2010	9/01/2010	
Lab Batch ID: 821272	Sample: 572238-1-BKS	BKS	Batch #:	h#: 1					Matrix: Solid	bild	
Units: mg/kg			BLAN	K /BLANK S	SPIKE / B	ILANK S	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	ICATE 1	RECOVE	RY STUD	
TPH Bv SW8015 Mod	015 Mod	Blank	Spike	Blank	Blank	Spike	Blank	Blk. Spk		Control	
		Sample Result		Spike	Spike	Added	Spike	Dup.	RPD	Limits	
		[A]		Result	%°K		Duplicate	%°R	%	%R	_
Analytes			[B]	[c]	[ <u>[</u> ]	[3]	Result [F]	[ <u></u> ]			_

Flag

Control Limits %RPD

35 35

70-135 70-135

0 12

118 108

1180 1080

118

1180 955

1000 1000

QN Q

Gasoline Range Hydrocarbons Diesel Range Hydrocarbons

Analytes

1000 1000

96

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

Final 1.000

Page 14 of 22



Chloride

### Form 3 - MS Recoveries

Parent

Sample

Result

[A]

270

Spike

Added

[B]

220



Flag

### Project Name: MCA 2A Header

### Work Order #: 388015 Lab Batch #: 821301 Date Analyzed: 09/01/2010 QC- Sample ID: 388015-001 S Reporting Units: mg/kg

**Inorganic Anions by EPA 300** 

Analytes

### Project ID: 6400315CO

%R

[D]

78

Control

Limits

%R

75-125

Date Prepared:	09/01/20	10 A	nalyst: LATCOR
Batch #:	1	N	Aatrix: Soil
M	ATRIX	/ MATRIX SPIKE	RECOVERY STUDY

**Spiked Sample** 

Result

[C]

442

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

BRL - Below Reporting Limit

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: MCA 2A Header



Project ID: 6400315CO

Matrix: Soil

-

Batch #:

QC- Sample ID: 388015-005 S Date Prepared: 09/01/2010

Date Analyzed: 09/01/2010

Reporting Units: mg/kg

Lab Batch ID: 821331

Work Order #: 388015

Analyst: SEE

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	DN	0.1185	0.1096	92	0.1190	0.0804	68	31	70-130	35	х
Toluene	DN	0.1185	0.1083	91	0.1190	0.0842	71	25	70-130	35	
Ethylbenzene	DN	0.1185	0.1140	96	0.1190	0.0932	78	20	71-129	35	
m,p-Xylenes	ND	0.2370	0.2214	93	0.2379	0.1835	77	19	70-135	35	
o-Xylene	ND	0.1185	0.1126	95	0.1190	0.0929	78	19	71-133	35	
Lab Batch ID: 821392	QC- Sample ID: 388015-001 S	388015-	001 S	Bat	Batch #:	1 Matrix: Soil	: Soil				

Date Analyzed: 09/02/2010	Date Prepared: 09/02/2010	09/02/20	10	Ans	Analyst: ASA	ISA					
Reporting Units: mg/kg		M	ATRIX SPIKI	TAM / 3	RIX SPII	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	TE RECO	<b>DVERY S</b>	TUDY		
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	QN	0.1099	0.0897	82	0.1095	0.0894	82	0	70-130	35	
Toluene	ŊŊ	0.1099	0.0888	81	0.1095	0.0890	81	0	70-130	35	
Ethylbenzene	ND	0.1099	0.0936	85	0.1095	0.0942	86	1	71-129	35	
m,p-Xylenes	ŊŊ	0.2198	0.1834	83	0.2189	0.1835	84	0	70-135	35	
o-Xylene	ŊŊ	0.1099	0.0916	83	0.1095	0.0914	83	0	71-133	35	

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 ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Final 1.000

Page 16 of 22



# Form 3 - MS / MSD Recoveries



Project Name: MCA 2A Header

Work Order #: 388015

Lab Batch ID: 821272 Date Analyzed: 09/01/2010 Renorting Units: mo/kg

Batch#: 1 Matrix: Soil Analyst: BEV

QC-Sample ID: 388015-005 S

Date Prepared: 09/01/2010

Project ID: 6400315CO

Reporting Units: mg/kg		M	ATRIX SPIKI	TAM / 3	AIX SPII	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	TE RECO	<b>VERY S</b>	TUDY		
TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Spiked Result Sampl [C] %R	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	ND	1200	1400	117	1190	1350	113	4	70-135	35	
Diesel Range Hydrocarbons	ND	1200	1240	103	1190	1160	97	7	70-135	35	

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 ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Page 17 of 22

Final 1.000



Sample Duplicate Recovery



## Project Name: MCA 2A Header

Work Order #	4: 388015	
--------------	-----------	--

Lab Batch #: 821301			Project I	<b>D:</b> 6400315	CO
Date Analyzed: 09/01/2010 Date P	repared: 09/01/201	0 Anal	lyst: LATC	COR	
QC- Sample ID: 388015-001 D	Batch #: 1	Mat	rix: Soil		
Reporting Units: mg/kg	SAMPLE	/ SAMPLE	DUPLIC	ATE REC	OVERY
Anions by E300	Parent Sample Result [A]	Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Chloride	270	276	2	20	
Lab Batch #: 821314					
Lab Batch #: 821314 Date Analyzed: 09/02/2010 Date P	repared: 09/02/201	0 Anal	lyst: JLG		
	repared: 09/02/201 Batch #: 1		l <b>yst:</b> JLG rix: Soil		
Date Analyzed: 09/02/2010 Date P	Batch #: 1		rix: Soil	ATE REC	OVERY
Date Analyzed:         09/02/2010         Date P           QC- Sample ID:         388015-001 D	Batch #: 1	Mat	rix: Soil	ATE RECO Control Limits %RPD	OVERY Flag

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

SAMPLE CONDITION WHEN RECEIVED: REMARKS:	ADDRESS:	Ime:	RELINQUISHED BY: (Signature) Date:	RELINQUISHED BY: (Signature) Time:	Time: L	1				-005 6121/10 2:48 5× 5 -	-00 4 \$1310 2:30 5 x Steel	-003 GANIO ZING SX S-E	2:00 5 X S-	-ool 6/8/10): 45 5x 5 Deep	NUMBER DATE TIME TIME COMP.	PROJECT NAME:		5		Analysis Request of
Sols DRO	DATE 9/1/10	RECEIVED Fille Sonatural	RECEIVED BY: (Signature)	HECEIVED BT: (Signature)	1	RECEIVED BY: (Signature)	1110			F CI	17/0	ESW	WSW	SI NSW	SAMPLE IDENTIFICATION	2 A Hulo	SITE MANAGER:	<b>I E I KA I ECH</b> 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		Chain of
- GRO Now	TIME 7:56 am	illine.	Date:	Time:	Data:	Dete:				N E	21	N Z	<u>ک</u>	2	NUMBER C FILTERED HCL HNO3 ICE NONE		NERS PRESERVATIVE			Custody Record
here is			TETRA TECH CONTACT PERSON:	BUS		SAMPLED BY: (Print & Initial)				××	X	×××	XX	XX	PAH 8270 RCRA Me	tals Ag // tals Ag //	As Ba ( As Ba ( Bs 3260/624 8270/62	Cd Cr Pb Hg Se Cd Vr Pd Hg Se	ANALYSIS REQUEST (Circle or Specify Method No.)	PAGE:
CODY	RUSH Charges Authorized: Yes No		Results by:	OTHER:	THE PARTY OF THE P	Dete:									PLM (Asb Major Ani	estos)	ons, pH,	, TDS		OF:

Page 19 of 22



2.4

**XENCO** Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas

Houston, Miami, Odessa, Philadelphia

Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist Document No.: SYS-SRC Revision/Date: No. 01, 5/27/2010 Effective Date: 6/1/2010 Page 1 of 1

## Prelogin / Nonconformance Report - Sample Log-In

Client:	etra lech	
Date/Time: 9	1110	
Lab ID # :	388015	
Initials: B		

## Sample Receipt Checklist

		and the second se	and the second se	the second se
1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	Yes	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Res	No	N/A	
4. Chain of Custody present?	Hes	No		
5. Sample instructions complete on chain of custody?	Tes	No		
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	(Ves)	No		
8. Chain of custody agrees with sample label(s)?	Ves	No		
9. Container labels legible and intact?	es	No		
10. Sample matrix / properties agree with chain of custody?	Kes	No		
11. Samples in proper container / bottle?	Yes	No		
12. Samples properly preserved?	(es)	No	N/A	
13. Sample container intact?	Yes	No		
14. Sufficient sample amount for indicated test(s)?	(es	No		
15. All samples received within sufficient hold time?	es	No		
16. Subcontract of sample(s)?	Yes	(No)	N/A	
17. VOC sample have zero head space?	Yes	No	N/A	
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 No	).	Cooler 5 No.	
Ibs 5,5 °C Ibs °C Ibs °C	ibs	°C	lbs	°C

Nonconformance Documentation

Contact:	Contacted by:	Date/Time:
Corrective Action Tal	en:	
Check all that apply:	□ Cooling process has begun shortly afte	
	condition acceptable by NELAC 5.	.5.8.3.1.a.1.

Client understands and would like to proceed with analysis

International control of chain of Custody Record           International control of	SAMPLE CONDITION WHEN RECEIVED:	ADDRESS: STATE:		RELINOUISHED BY: (Signature)	RELINQUISHED BY: (Signature)	RELINCTIONED BY (Signature)	> 7		-005 6/31/10 2:45 S	-00 4 \$13/10 2:30 S	-003 8ki/10 2:15 5	-002 ski/10 2:00 5	-001 8/2/10):45 S	NUMBER DATE TIME	00	CONDUCT NAME: CONDUCT AND BY	210885		Analysis Re
INPE     N     N     N     N     N     N     NUMBER OF CONTAINERS       Image:	REMARKS FOR FOR DR					L'and alm	alilla		י	beip - F 1	1	1	Deep -	GRAB	A	SITE MANAGER:	<b>TETRATECH</b> 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		of Chain of C
Image: Second	N.	2:50	Time:	Date:	Date:	Dete:								FILTERED HCL HNO3 ICE	-	PRESERVAT			
	- 11									-				TPH 80			<del>95 (Ext_to_C3</del> 5)	12	



## XENCO Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas

Houston, Miami, Odessa, Philadelphia

Document Title: Sample Receipt Checklist Document No.: SYS-SRC Revision/Date: No. 01, 5/27/2010 Effective Date: 6/1/2010 Page 1 of 1

## Phoenix, San Antonio, Tampa

Prelogin / Nonconformance Report - Sample Log-In

Date/Time: 9/1/10	
Lab ID #: 388015	
Initials: 5	

## Sample Receipt Checklist

1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	Yes	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Ces	No	N/A	
4. Chain of Custody present?	Nes	No		
5. Sample instructions complete on chain of custody?	Tes	No		
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	Yes	No		
8. Chain of custody agrees with sample label(s)?	tes	No		
9. Container labels legible and intact?	es	No		
10. Sample matrix / properties agree with chain of custody?	Fes	No		
11. Samples in proper container / bottle?	Yes	No		
12. Samples properly preserved?	Yes	No	N/A	
13. Sample container intact?	es	No		*
14. Sufficient sample amount for indicated test(s)?	65	No		
15. All samples received within sufficient hold time?	es	No		
16. Subcontract of sample(s)?	Yes	(No)	N/A	
17. VOC sample have zero head space?	Tes	No	N/A	
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 N	lo.	Cooler 5 No.	
lbs 5,5 °C lbs °C lbs	°C Ib	°C	lbs	°C

Nonconformance Documentation

Contact:	Contacted by:	Date/Time:
	en:	
Check all that apply:	□Cooling process has begun shortly after condition acceptable by NELAC 5. □Initial and Backup Temperature confirm	5.8.3.1.a.1.

Client understands and would like to proceed with analysis

## Analytical Report 388394

for Tetra Tech- Midland

**Project Manager: Charles Durrett** 

**Conoco Phillips MCA Header 2 A** 

114-6400315CO

07-SEP-10



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

> Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330) Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX) Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX) Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370) Xenco-Boca Raton (EPA Lab Code: FL01273): Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917) North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757), California(06244CA), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



07-SEP-10



Project Manager: **Charles Durrett Tetra Tech- Midland** 1910 N. Big Spring Midland, TX 79705

## Reference: XENCO Report No: 388394 Conoco Phillips MCA Header 2 A Project Address:

## **Charles Durrett:**

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 388394. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 388394 will be filed for 60 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,

TAN TO

Brent Barron, II Odessa Laboratory Manager

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## Sample Id S Deep - WF-9' I - WSWA

I - WSWB S Deep - EF 9' S Deep - SSW 8' I - ESW I - F 6' W Deep - F 9' W Deep - WSW 7' W Deep - SSW 7' W Deep - ESW 7' II - F A 5' II - F B 4'

## Sample Cross Reference 388394



## Tetra Tech- Midland, Midland, TX

Conoco Phillips MCA Header 2 A

Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
S	Sep-02-10 09:00		388394-001
S	Sep-02-10 09:10		388394-002
S	Sep-02-10 09:15		388394-003
S	Sep-02-10 09:40		388394-004
S	Sep-02-10 09:50		388394-005
S	Sep-02-10 10:00		388394-006
S	Sep-02-10 10:05		388394-007
S	Sep-02-10 10:20		388394-008
S	Sep-02-10 10:22		388394-009
S	Sep-02-10 10:24		388394-010
S	Sep-02-10 10:26		388394-011
S	Sep-02-10 10:30		388394-012
S	Sep-02-10 10:40		388394-013



## CASE NARRATIVE

Client Name: Tetra Tech- Midland Project Name: Conoco Phillips MCA Header 2 A



 Project ID:
 114-6400315CO

 Work Order Number:
 388394

Report Date: 07-SEP-10 Date Received: 09/02/2010

Sample receipt non conformances and Comments: None

Sample receipt Non Conformances and Comments per Sample:

None

## Analytical Non Conformances and Comments:

Batch: LBA-821582 Total Chloride (Titrametric) None

Batch: LBA-821608 Percent Moisture None

Batch: LBA-821732 Chlorides by E300 None

Batch: LBA-821739 BTEX by EPA 8021B None

Batch: LBA-821742 TPH By SW8015 Mod None



Project Id: 114-6400315CO Contact: Charles Durrett

Certificate of Analysis Summary 388394 Tetra Tech-Midland, Midland, TX Project Name: Conoco Phillips MCA Header 2 A



Date Received in Lab: Thu Sep-02-10 03:05 pm Report Date: 07-SEP-10

					Project Manager: H	Brent Barron, II	
	Lab Id:	388394-001	388394-002	388394-003	388394-004	388394-005	388394-006
Auchine Downstad	Field Id:	S Deep - WF-9'	I - WSWA	I - WSWB	S Deep - EF 9'	S Deep - SSW 8'	I - ESW
naicanhay ciclinity	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Sep-02-10 09:00	Sep-02-10 09:10	Sep-02-10 09:15	Sep-02-10 09:40	Sep-02-10 09:50	Sep-02-10 10:00
BTEX by EPA 8021B	Extracted:	Sep-03-10 08:00	Sep-03-10 08:00	Sep-03-10 08:00	Sep-03-10 08:00	Sep-03-10 08:00	Sep-03-10 08:00
	Analyzed:	Sep-03-10 12:31	Sep-03-10 12:54	Sep-03-10 13:18	Sep-03-10 13:41	Sep-03-10 14:05	Sep-03-10 14:28
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		ND 0.0011	ND 0.0011	ND 0.0010	ND 0.0011	ND 0.0012	ND 0.0012
Toluene		ND 0.0022	ND 0.0022	ND 0.0020	ND 0.0023	ND 0.0023	ND 0.0024
Ethylbenzene		ND 0.0011	ND 0.0011	ND 0.0010	ND 0.0011	ND 0.0012	ND 0.0012
m,p-Xylenes		ND 0.0022	ND 0.0022	ND 0.0020	ND 0.0023	ND 0.0023	ND 0.0024
o-Xylene		ND 0.0011	ND 0.0011	ND 0.0010	ND 0.0011	ND 0.0012	ND 0.0012
Total Xylenes		ND 0.0011	ND 0.0011	ND 0.0010	ND 0.0011	ND 0.0012	ND 0.0012
Total BTEX		ND 0.0011	ND 0.0011	ND 0.0010	ND 0.0011	ND 0.0012	ND 0.0012
Chlorides by E300	Extracted:						
	Analyzed:	Sep-03-10 11:33	Sep-03-10 11:33	Sep-03-10 11:33	Sep-03-10 11:33	Sep-03-10 11:33	Sep-03-10 11:33
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		304 9.33	46.8 4.55	13.0 4.23	472 9.67	741 9.79	45.5 5.00
Percent Moisture	Extracted:						
	Analyzed:	Sep-03-10 13:00	Sep-03-10 13:00	Sep-03-10 13:00	Sep-03-10 13:00	Sep-03-10 13:00	Sep-03-10 13:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		9.96 1.00	7.74 1.00	ND 1.00	13.1 1.00	14.2 1.00	16.0 1.00
TPH By SW8015 Mod	Extracted:	Sep-03-10 09:45	Sep-03-10 09:45	Sep-03-10 09:45	Sep-03-10 09:45	Sep-03-10 09:45	Sep-03-10 09:45
	Analyzed:	Sep-03-10 13:13	Sep-03-10 13:32	Sep-03-10 13:51	Sep-03-10 14:11	Sep-03-10 14:31	Sep-03-10 14:51
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		ND 16.6	ND 16.3	ND 15.1	ND 17.2	ND 17.5	ND 17.8
Diesel Range Hydrocarbons		ND 16.6	ND 16.3	ND 15.1	ND 17.2	ND 17.5	ND 17.8

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Odessa Laboratory Manager Brent Barron, II

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Project Id: 114-6400315CO Contact: Charles Durrett

Certificate of Analysis Summary 388394 Tetra Tech-Midland, Midland, TX Project Name: Conoco Phillips MCA Header 2 A



Date Received in Lab: Thu Sep-02-10 03:05 pm Report Date: 07-SEP-10

r rujeci nucanun.					Project Manager: Brent Barro	Brent Barron, II	
	Lab Id:	388394-007	388394-008	388394-009	388394-010	388394-011	388394-012
Print District	Field Id:	I - F 6'	W Deep - F 9'	W Deep - WSW 7'	W Deep - SSW 7'	W Deep - ESW 7'	II - F A 5'
Anarysis kequestea	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Sep-02-10 10:05	Sep-02-10 10:20	Sep-02-10 10:22	Sep-02-10 10:24	Sep-02-10 10:26	Sep-02-10 10:30
BTEX by EPA 8021B	Extracted:	Sep-03-10 08:00	Sep-03-10 08:00	Sep-03-10 08:00	Sep-03-10 08:00	Sep-03-10 08:00	Sep-03-10 08:00
	Analyzed:	Sep-03-10 14:51	Sep-03-10 15:15	Sep-03-10 15:45	Sep-03-10 16:08	Sep-03-10 18:04	Sep-03-10 18:27
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0012
Toluene		ND 0.0023	ND 0.0022	ND 0.0023	ND 0.0023	ND 0.0024	ND 0.0025
Ethylbenzene		ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0012
m,p-Xylenes		ND 0.0023	ND 0.0022	ND 0.0023	ND 0.0023	ND 0.0024	ND 0.0025
o-Xylene		ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0012
Total Xylenes		ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0012
Total BTEX		ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0012	ND 0.0012
Chlorides by E300	Extracted:			T			
	Analyzed:	Sep-03-10 11:33	Sep-03-10 11:33	Sep-03-10 11:33	Sep-03-10 11:33	Sep-03-10 11:33	Sep-03-10 11:33
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1030 19.6	121 9.27	28.3 9.67	100 9.68	335 9.94	972 20.7
Percent Moisture	Extracted:						
	Analyzed:	Sep-03-10 13:00	Sep-03-10 13:00	Sep-03-10 13:00	Sep-03-10 13:00	Sep-03-10 13:00	Sep-03-10 13:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		14.2 1.00	9.36 1.00	13.1 1.00	13.2 1.00	15.5 1.00	18.9 1.00
TPH By SW8015 Mod	Extracted:	Sep-03-10 09:45	Sep-03-10 09:45	Sep-03-10 09:45	Sep-03-10 09:45	Sep-03-10 09:45	Sep-03-10 09:45
	Analyzed:	Sep-03-10 15:10	Sep-03-10 15:29	Sep-03-10 15:50	Sep-03-10 16:09	Sep-03-10 16:49	Sep-03-10 17:09
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		ND 17.5	ND 16.5	ND 17.2	ND 17.3	ND 17.7	ND 18.6
Diesel Range Hydrocarhons		ND 17.5	ND 16.5	ND 17.2	ND 17.3	ND 17.7	ND 18.6

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Odessa Laboratory Manager Brent Barron, II

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Project Id: 114-6400315CO

Certificate of Analysis Summary 388394 Project Name: Conoco Phillips MCA Header 2 A Tetra Tech- Midland, Midland, TX



Date Received in Lab: Thu Sep-02-10 03:05 pm

Contact: Charles Durrett			LAID INCLUMENT AND A DAMA	
Project Location:			Report Date:	
			Project Manager:	Brent Barron, II
	Lab Id:	388394-013		
Auchicic Damacted	Field Id:	II - F B 4'		
naisanhay sistinuy	Depth:			
	Matrix:	SOIL		
	Sampled:	Sep-02-10 10:40		
BTEX by EPA 8021B	Extracted:	Sep-03-10 08:00		
	Analyzed:	Sep-03-10 18:50		
	Units/RL:	mg/kg RL		
Benzene		ND 0.0012		
Toluene		ND 0.0023		
Ethylbenzene		ND 0.0012		
m,p-Xylenes		ND 0.0023		
o-Xylene		ND 0.0012		
Total Xylenes		ND 0.0012		
Total BTEX		ND 0.0012		
Chlorides by E300	Extracted:			
	Analyzed:	Sep-03-10 11:33		
	Units/RL:	mg/kg RL		
Chloride		1150 24.2		
Percent Moisture	Extracted:			
	Analyzed:	Sep-03-10 13:00		
	Units/RL:	% RL		
Percent Moisture		13.3 1.00		
TPH By SW8015 Mod	Extracted:	Sep-03-10 09:45		
	Analyzed:	Sep-03-10 17:28		
	Units/RL:	mg/kg RL		
Gasoline Range Hydrocarbons		18.3 17.3		
Diesel Range Hydrocarbons		176 17.3		

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Odessa Laboratory Manager Brent Barron, II



## **Flagging Criteria**

- 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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

- PQL Practical Quantitation Limit
- \* Outside XENCO's scope of NELAC Accreditation.

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9701 Harry Hines Blvd, Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116



Project Name: Conoco Phillips MCA Header 2 A

ork Orders : 388394	, Sample: 572521-1-BKS / B	KS Batcl		<b>D:</b> 114-64003	315CO	
Units: mg/kg	Date Analyzed: 09/03/10 10:58		RROGATE R		STUDY	
BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
14.5.0	Analytes					
1,4-Difluorobenzene 4-Bromofluorobenzene		0.0351	0.0300	117	80-120	
		0.0355	0.0300	118	80-120	
Lab Batch #: 821739	Sample: 572521-1-BLK / B					
Units: mg/kg	Date Analyzed: 09/03/10 12:08	SU	RROGATE R	ECOVERY	STUDY	
BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0291	0.0300	97	80-120	
4-Bromofluorobenzene		0.0338	0.0300	113	80-120	
Lab Batch #: 821739	Sample: 388394-001 / SMP	Batcl	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 12:31		RROGATE R	ECOVERY	STUDY	
BTEX by EPA 8021B Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0294	0.0300	98	80-120	
4-Bromofluorobenzene		0.0352	0.0300	117	80-120	
Lab Batch #: 821739	Sample: 388394-002 / SMP	Batcl	h: 1 Matrix	Soil		
Units: mg/kg	Date Analyzed: 09/03/10 12:54	SU	RROGATE R	ECOVERY	STUDY	
BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	Analytes	0.0200	0.0200		80.120	
4-Bromofluorobenzene		0.0290	0.0300	97	80-120 80-120	
	0 1 200204 002 / 01/0	0.00011			00-120	
Lab Batch #: 821739	Sample: 388394-003 / SMP		h: 1 Matrix		STUDY	
Units: mg/kg	Date Analyzed: 09/03/10 13:18	30	KNOGATE K	LUVERI	51001	
BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0292	0.0300	97	80-120	
4-Bromofluorobenzene		0.0274	0.0300		00 120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution



Project Name: Conoco Phillips MCA Header 2 A

<b>ork Orders :</b> 388394 Lab Batch #: 821739	Sample: 388394-004 / SMP	Batch		<b>D:</b> 114-64003		
Units: mg/kg	Date Analyzed: 09/03/10 13:41	SU	RROGATE R	ECOVERY	STUDY	
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0292	0.0300	97	80-120	
4-Bromofluorobenzene		0.0359	0.0300	120	80-120	
Lab Batch #: 821739	Sample: 388394-005 / SMP	Batcl	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 14:05	SU	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	Analytes	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene		0.0251	0.0300	118	80-120	
Lab Batch #: 821739	Sample: 388394-006 / SMP	Batcl	h: 1 Matrix	r Soil		
Units: mg/kg	Date Analyzed: 09/03/10 14:28		RROGATE R		STUDY	
BTEX by EPA 8021B Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1,4-Difluorobenzene		0.0289	0.0300	96	80-120	
4-Bromofluorobenzene		0.0336	0.0300	112	80-120	
Lab Batch #: 821739	Sample: 388394-007 / SMP	Batcl	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 14:51	SU	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0289	0.0300	96	80-120	
4-Bromofluorobenzene		0.0355	0.0300	118	80-120	
Lab Batch #: 821739	Sample: 388394-008 / SMP	Batel	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 15:15	SU	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	-	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene		0.0352	0.0300	117	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution



Project Name: Conoco Phillips MCA Header 2 A

ork Orders : 388394 Lab Batch #: 821739	s, Sample: 388394-009 / SMP	Bate		D: 114-64003	1500	
Units: mg/kg	Date Analyzed: 09/03/10 15:45		RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1,4-Difluorobenzene		0.0304	0.0300	101	80-120	
4-Bromofluorobenzene		0.0340	0.0300	113	80-120	
Lab Batch #: 821739	Sample: 388394-010 / SMP	Batc				
Units: mg/kg	Date Analyzed: 09/03/10 16:08	SU	RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluorobenzene		0.0307	0.0300	102	80-120	
4-Bromofluorobenzene		0.0340	0.0300	113	80-120	
Lab Batch #: 821739	Sample: 388394-001 S / MS	Batc	h: 1 Matrix	c: Soil		
Units: mg/kg	Date Analyzed: 09/03/10 16:32		RROGATE R		STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluorobenzene		0.0361	0.0300	120	80-120	
4-Bromofluorobenzene		0.0353	0.0300	118	80-120	
Lab Batch #: 821739	Sample: 388394-001 SD / MS	D Bate	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 16:55	SU	RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluorobenzene		0.0357	0.0300	119	80-120	
4-Bromofluorobenzene		0.0350	0.0300	117	80-120	
Lab Batch #: 821739	Sample: 388394-011 / SMP	Batc	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 18:04	SU	RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0306	0.0300	102	80-120	
4-Bromofluorobenzene		0.0336	0.0300	112	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution



Project Name: Conoco Phillips MCA Header 2 A

<b>Ork Orders :</b> 388394 Lab Batch #: 821739	, Sample: 388394-012 / SMP	Batch		<b>D:</b> 114-64003 c: Soil	1500	
Units: mg/kg	Date Analyzed: 09/03/10 18:27		ROGATE R		STUDY	
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0302	0.0300	101	80-120	
4-Bromofluorobenzene		0.0321	0.0300	107	80-120	
Lab Batch #: 821739	Sample: 388394-013 / SMP	Batch	: 1 Matrix	s:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 18:50	SUR	ROGATE R	ECOVERY S	STUDY	
ВТЕХ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0312	0.0300	104	80-120	
4-Bromofluorobenzene		0.0354	0.0300	118	80-120	
Lab Batch #: 821742	Sample: 572530-1-BKS / BKS	S Batch	: 1 Matrix	: Solid		
Units: mg/kg	Date Analyzed: 09/03/10 12:14		ROGATE R	ECOVERY	STUDY	
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane		93.2	100	93	70-135	
o-Terphenyl		50.0	50.2	100	70-135	
Lab Batch #: 821742	Sample: 572530-1-BSD / BSE	) Batch:	1 Matrix	:Solid		
Units: mg/kg	Date Analyzed: 09/03/10 12:33	SUR	ROGATE R	ECOVERY S	STUDY	
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		93.2	99.8	93	70-135	
o-Terphenyl		57.2	49.9	115	70-135	
Lab Batch #: 821742	Sample: 572530-1-BLK / BLK		-			
Units: mg/kg	Date Analyzed: 09/03/10 12:53	SUR	ROGATE R	ECOVERY S	STUDY	
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		93.9	100	94	70-135	
o-Terphenyl		47.9	50.2	95	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution



Project Name: Conoco Phillips MCA Header 2 A

ork Orders : 388394 Lab Batch #: 821742	Sample: 388394-001 / SMP	Batc		D: 114-64003	1500	
	Date Analyzed: 09/03/10 13:13		RROGATE R		STUDY	
Units: mg/kg	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		84.0	99.7	84	70-135	
o-Terphenyl		42.8	49.9	86	70-135	
Lab Batch #: 821742	Sample: 388394-002 / SMP	Batc	h: 1 Matrix	: Soil		
Units: mg/kg	Date Analyzed: 09/03/10 13:32	SU	RROGATE R	ECOVERY S	STUDY	
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		94.7	100	95	70-135	
o-Terphenyl		48.6	50.0	97	70-135	
Lab Batch #: 821742	Sample: 388394-003 / SMP	Batc	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 13:51	SU	RROGATE R	ECOVERY S	STUDY	
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		87.0	99.9	87	70-135	
o-Terphenyl		41.7	50.0	83	70-135	
Lab Batch #: 821742	Sample: 388394-004 / SMP	Batc	h: 1 Matrix	Soil		
Units: mg/kg	Date Analyzed: 09/03/10 14:11	SU	RROGATE R	ECOVERY S	STUDY	
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		93.5	99.9	94	70-135	
o-Terphenyl		48.5	50.0	97	70-135	-
Lab Batch #: 821742	Sample: 388394-005 / SMP		h: <sup>1</sup> Matrix			
Units: mg/kg	Date Analyzed: 09/03/10 14:31	SU	RROGATE R	ECOVERY S	STUDY	
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		92.9	99.9	93	70-135	
o-Terphenyl		47.9	50.0	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.



Project Name: Conoco Phillips MCA Header 2 A

<b>Ork Orders :</b> 388394 Lab Batch #: 821742	Sample: 388394-006 / SMP	Batc		D: 114-64003	1500	
Units: mg/kg	Date Analyzed: 09/03/10 14:51	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		91.6	99.6	92	70-135	
o-Terphenyl		47.4	49.8	95	70-135	
Lab Batch #: 821742	Sample: 388394-007 / SMP	Batc				
Units: mg/kg	Date Analyzed: 09/03/10 15:10	SU	RROGATE R	ECOVERY S	STUDY	
ТРН	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		92.6	99.9	93	70-135	
o-Terphenyl		47.5	50.0	95	70-135	
Lab Batch #: 821742	Sample: 388394-008 / SMP	Batc	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 15:29	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane	Analytes	92.7	99.9	93	70-135	
o-Terphenyl		47.5	50.0	95	70-135	
Lab Batch #: 821742	Sample: 388394-009 / SMP	Batc	h: 1 Matrix	r: Soil		
Units: mg/kg	Date Analyzed: 09/03/10 15:50		RROGATE R		STUDY	
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		91.1	99.8	91	70-135	
o-Terphenyl		47.2	49.9	95	70-135	
Lab Batch #: 821742	Sample: 388394-010 / SMP	Bate	h: 1 Matrix	: Soil		
Units: mg/kg	Date Analyzed: 09/03/10 16:09	SU	RROGATE R	ECOVERY S	STUDY	
ТРН	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		93.3	100	93	70-135	
o-Terphenyl		48.3	50.2	96	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution



## Form 2 - Surrogate Recoveries

Project Name: Conoco Phillips MCA Header 2 A

ork Orders : 388394	4.		Project I	<b>D:</b> 114-64003	15CO	
Lab Batch #: 821742	Sample: 388394-011 / SMP	Batc	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 16:49	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
	Analytes			[D]		
1-Chlorooctane		92.8	99.9	93	70-135	
o-Terphenyl		48.0	50.0	96	70-135	
Lab Batch #: 821742	Sample: 388394-012 / SMP	Batc			1	
Units: mg/kg	Date Analyzed: 09/03/10 17:09	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		92.4	100	92	70-135	
o-Terphenyl		47.8	50.2	95	70-135	
Lab Batch #: 821742	Sample: 388394-013 / SMP	Batc	h: 1 Matrix	: Soil		
Units: mg/kg	Date Analyzed: 09/03/10 17:28		RROGATE R		STUDY	
ТРН	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		94.1	100	94	70-135	
o-Terphenyl		50.2	50.0	100	70-135	
Lab Batch #: 821742	Sample: 388394-001 S / MS	Batc	h: 1 Matrix	c: Soil		
Units: mg/kg	Date Analyzed: 09/03/10 18:49		RROGATE R	ECOVERY S	STUDY	
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		91.7	99.6	92	70-135	
o-Terphenyl		47.9	49.8	96	70-135	
Lab Batch #: 821742	Sample: 388394-001 SD / M	SD Bate	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 19:09		RROGATE R		STUDY	
	By SW8015 Mod	Amount Found	True Amount	Recovery %R	Control Limits %R	Flag
	Analytas	[A]	[B]			
1-Chlorooctane	Analytes	[A] 94.5	99.6	[D] 95	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.





## Project Name: Conoco Phillips MCA Header 2 A

Work Order #: 388394		Pr	oject ID:		114-640	0315CO
Lab Batch #: 821739 Date Analyzed: 09/03/2010	Sample: 572521 Date Prepared: 09/03/2		Matrix: Analyst:			
Reporting Units: mg/kg	Batch #: 1	BLANK /	BLANK SPI	KE REC	COVERY S	STUDY
BTEX by EPA 8021B	Blank Result [A]	Spike Added [B]	Blank Spike Result	Blank Spike %R	Control Limits %R	Flags
Analytes	1-1		[C]	[D]		
Benzene	ND	0.1000	0.0966	97	70-130	
Toluene	ND	0.1000	0.0964	96	70-130	
Ethylbenzene	ND	0.1000	0.1005	101	71-129	
m,p-Xylenes	ND	0.2000	0.1967	98	70-135	
o-Xylene	ND	0.1000	0.1001	100	71-133	

Blank Spike Recovery [D] = 100\*[C]/[B] All results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit



## **BS / BSD Recoveries**



# Project Name: Conoco Phillips MCA Header 2 A

Work Order #: 388394 Analyst: BRB Lab Batch ID: 821732 Sample: 821732-1-BKS

Date Prepared: 09/03/2010

Batch #: 1

Project ID: 114-6400315CO Date Analyzed: 09/03/2010 Matrix: Solid

Units: mg/kg			BLANI	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	PIKE / B	LANK S	PIKE DUPL	ICATE 1	RECOVE	RY STUD	Х	
Chlorides by E300		Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		2	[B]	[C]	[D]	[E]	Result [F]	[G]				
Fluoride		ND	5.00	ND	0	5	ND	0	NC	75-125	20	Г
Chloride		ND	10.0	8.26	83	10	10.0	100	19	75-125	20	
Nitrite as N		ND	1.52	ND	0	1.52	ND	0	NC	75-125	20	Г
Bromide		ND	5.00	ND	0	5	ND	0	NC	75-125	20	L
Nitrate as N		ND	1.13	ND	0	1.13	ND	0	NC	75-125	20	L
Ortho-Phosphate		ND	5.00	ND	0	5	ND	0	NC	75-125	20	L
Sulfate		ND	5.00	ND	0	5	ND	0	NC	75-125	20	L
Analyst: BEV		Da	te Prepare	Date Prepared: 09/03/2010	0			Date A	Date Analyzed: 09/03/2010	9/03/2010		
Lab Batch ID: 821742	Sample: 572530-1-BKS		Batch #:	.#: 1					Matrix: Solid	olid		

Units: mg/kg		BLAN	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE	PIKE / B	LANK S	PIKE DUPL		RECOVE	RECOVERY STUDY	Y	
TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Gasoline Range Hydrocarbons	QN	1000	1030	103	866	1050	105	2	70-135	35	
Diesel Range Hydrocarbons	ND	1000	989	66	966	1050	105	6	70-135	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



## Form 3 - MS Recoveries



## Project Name: Conoco Phillips MCA Header 2 A

Work Order #: 388394 Lab Batch #: 821732 Data Analamada 00/02/2010

Project ID: 114-6400315CO

Date Prepared: 09	0/03/2010	А	nalyst: B	RB	
Batch #:	1	I	Matrix: S	oil	
MA	TRIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Sample Result		Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
[A]	[B]				
ND	205	ND	0	75-125	X
52.6	410	489	106	75-125	
ND	62.5	ND	0	75-125	Х
ND	205	ND	0	75-125	Х
ND	46.4	ND	0	75-125	X
ND	205	ND	0	75-125	Х
ND	205	ND	0	75-125	Х
	Batch #: MA Parent Sample Result [A] ND 52.6 ND ND ND ND ND	MATRIX / MAParent Sample Result [A]Spike Added [B]ND20552.6410ND62.5ND205ND205ND205ND205	Batch #:     1       MATRIX / MATRIX SPIKE       Parent Sample Result [A]     Spike Added [B]     Spike Sample Result [C]       ND     205     ND       52.6     410     489       ND     62.5     ND       ND     205     ND       ND     205     ND       ND     46.4     ND       ND     205     ND	Batch #:     1     Matrix: S       MATRIX / MATRIX SPIKE     RECO       Parent Sample Result [A]     Spike Added [B]     Spike Sample Result [C]     %R [D]       ND     205     ND     0       52.6     410     489     106       ND     62.5     ND     0       ND     205     ND     0	Batch #: 1Matrix: SoilMATRIX / MATRIX SPIKE RECOVERY STUParent Sample Result [A]Spike Added [B]Spike Result [C]%R %RControl Limits %RND205ND075-12552.641048910675-125ND62.5ND075-125ND205ND075-125ND205ND075-125ND205ND075-125ND205ND075-125ND205ND075-125ND205ND075-125

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

BRL - Below Reporting Limit



## Form 3 - MS / MSD Recoveries



Work Order #: 388394

Date Analyzed: 09/03/2010 Lab Batch ID: 821739 Reporting Units: mg/kg

Project Name: Conoco Phillips MCA Header 2 A

Project ID: 114-6400315CO

Matrix: Soil

1

Batch #:

QC- Sample ID: 388394-001 S Date Prepared: 09/03/2010

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY Analyst: ASA

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	QN	0.1104	0.1010	91	0.1100	0.0990	90	2	70-130	35	
Toluene	QN	0.1104	0.0997	60	0.1100	0.0975	89	2	70-130	35	
Ethylbenzene	ND	0.1104	0.1038	94	0.1100	0.1009	92	3	71-129	35	
m,p-Xylenes	ND	0.2208	0.2019	91	0.2199	0.1962	89	3	70-135	35	
o-Xylene	ND	0.1104	0.1019	92	0.1100	0.0986	90	3	71-133	35	
Lab Batch ID: 821742 Q	QC- Sample ID: 388394-001 S	388394-	001 S	Bat	Batch #:	1 Matrix: Soil	: Soil				

Date Analyzed: 09/03/2010	Date Prepared: 09/03/2010	09/03/20	010	Ans	Analyst: ]	BEV					
Reporting Units: mg/kg		M	ATRIX SPIKI	TAM / 3	RIX SPII	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	TE RECO	<b>VERY S</b>	TUDY		
TPH By SW8015 Mod	Parent Sample	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	Kesult [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
Gasoline Range Hydrocarbons	ND	1110	1140	103	1110	1150	104	1	70-135	35	
Diesel Range Hydrocarbons	DN	1110	1100	66	1110	1140	103	4	70-135	35	

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 ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Page 19 of 23



## **Sample Duplicate Recovery**



## Project Name: Conoco Phillips MCA Header 2 A

Work Order #: 388394

Lab Batch #: 8	21608				Project I	<b>D:</b> 114-6400	0315CO
Date Analyzed: 0	9/03/2010	Date Prepar	ed: 09/03/2010	Anal	yst:JLG		
QC-Sample ID: 3	88394-001 D	Batch	1#: 1	Mat	rix: Soil		
Reporting Units: %	6		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Р	ercent Moisture		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
	Analyte			[B]			
Percent Moisture	1		9.96	8.96	11	20	

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

CLIENT NAME: SAMPLE CONDITION CONTACT: SHA LAB I.D. PROJECT NO .: ADDRESS: **RELINQUISHED BY: (Signature)** RELIVOUK **RELINQUISHED BY: (Signature** 20 14-6401315CO 0 B 2 8 8 3 8 8 N SUDO Analysis 0 E co • DATE 0 01210 C1 7 2 Please fill out all copies 1200 12/10 12 00 3 WHEN õ व đ Ţ RECEIVED 1022 040 otb 0:0 ° 1024 2 2 COGI 070 3 VIIPS TIME 30 STATE ž n Request 5 PROJECT NAME: S 5 2 S S S MATRIX S S 5 X 1 × × X × COMP. × PHONE: 1 Laboratory retains Yellow copy GRAB É ٤ Ine Dete: S Time: Date Date ٤ Dare ١ ) ZIP 1 Dere ١ REMARKS Deep-1910 N. Big Spring St. Dece Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946 of Chain lead 2 wsw SITE MANAGER: ETRA TE WSW T 47 e a LB7 1 T SAMPLE IDENTIFICATION d ١ 1 ١ 6 Xá S Π E P ~ ٤ DATE: 2 といて 0 RECEIVED BY: (Signature) RECEIVED BY: (Signature) 11 +1 2103 **RECEIVED BY: (Signature)** SE +1 N 0 ç - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy P R ۵ Þ with 00 Custody 9 Ro Ellow 1 GRO . -NUMBER OF CONTAINERS -~ ~ --Record --(New -TIME T て س 2 2 FILTERED (Y/N) 2 3 Z ~ 2 HCL 294 PRESERVATIVE Time Date Time. Time: Date: Date HNO3 Mufico ¥ 1  $\succ$ × × × × X × ICE Ļ 202 NONE 1.1 ſ × 굿 8 **BTEX 8021B** 4 X  $\checkmark$ 4 2  $\overline{\mathbf{x}}$ X X × × X TPH 8015 MOD. 1X1005 (Ext to C35) PAH 8270 SMIPLED BY: (Print & Imitian) SMIPLE SHIPPED BY: (Circle **TETRA TECH CONTACT PERSON** FEDEX HAND DELIVERED ٤ RCRA Metals Ag As Ba Cd Cr Pb Hg Se Sca TCLP Metals Ag As Ba Cd Vr Pd Hg Se **TCLP Volatiles** TCLP Semi Volatiles (Circle or Specify Method No., Accounting receives Gold copy RCI an (molen ANALYSIS REQUEST (Circle) BUS GC.MS Vol. 8240/8260/624 GC.MS Semi. Vol. 8270/625 PAGE: PCB's 8080/608 Pest. 808/608 0 X Chloride 6 X 8 X XX X 5 έ Gamma Spec. OTHER: AIRBILL #: labe Alpha Beta (Air) Time: Date PLM (Asbestos) P. Major Anions/Cations, pH, TDS assea 200 00 2 5 ₹ t

	IVING LABORATORY:	RELINQUISHED BY: (Signature)	RELINQUISHED BY: (Signature)	MAN AND				n l	13 912 10 1040 5 4	12 9/2/20 1030 31	(1 9)2/10/02/0 SX	NUMBER DATE TIME TIME MATRIX COMP.	1) 4- 64 00315 (2) PRO	21/1			Analysis Rec
PHONE DATE: REMARKS:	RECEIVED BY: (Signature)	Time: RECEIVED BY: (Signature)		59:61	nan: 4)-2/10 BECENTER RY ISLOO				M T - F 8 4)	X T - F A S	NDeep - ESW	GRAB SAMPLE IDENTIFICATION	MCA 2. A Healer	SITE MANAGER:	<b>TETRATECH</b> 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		Request of Chain of C
TIME GROUNE New New T.c. 2)	uro)	ature) Date:		Eloros Time: 1					2		X NIC 12	NUMBER C FILTERED HCL HNO3 ICE NONE		Ą	338374		Custody Record
w lances as seals and on cooler	2	CT PERSON:	FEDEX FLORENED UPS OTHER:	SAMPLE SHIPPED RY (Crocked	CO SMPL BD BY Toker & Initial				×	X		PAH 8270 RCRA Met	tals Ag // tals Ag // tals Ag // tiles ni Volatile M. 8240/8 mi. Vol. 1 10/608 608 pec. a (Air)	As Ba C As Ba C As Ba C As Ba C 88 8260/624	Cd Cr Pb Hg Se Cd Vr Pd Hg Se	ANALYSIS REQUEST (Circle or Specify Method No.)	
No.	ISH Charges	soulta by:	7	Co.11								Major Anio		ons, pH,	TDS		of: 2



XENCO Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia

Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist Document No.: SYS-SRC Revision/Date: No. 01, 5/27/2010 Effective Date: 6/1/2010 Page 1 of 1

## Prelogin / Nonconformance Report - Sample Log-In

Client:	Tetra Tech
Date/Time:	9.2.10 15:05
Lab ID # :	388394
Initials:	AE

## Sample Receipt Checklist

1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	Yes	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Tes	No	N/A	
4. Chain of Custody present?	Yes	No		
5. Sample instructions complete on chain of custody?	Tes	No		
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	Tes	No		
8. Chain of custody agrees with sample label(s)?	Yes	No		
9. Container labels legible and intact?	Yes	No		
10. Sample matrix / properties agree with chain of custody?	Yes	No		
11. Samples in proper container / bottle?	(Yes)	No		
12. Samples properly preserved?	Yes	No	N/A	
13. Sample container intact?	Yes	No	1	
14. Sufficient sample amount for indicated test(s)?	Yes	No		
15. All samples received within sufficient hold time?	Yes	No		
16. Subcontract of sample(s)?	(Yes)	No	N/A	
17. VOC sample have zero head space?	Nes	No	N/A	
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 N	lo.	Cooler 5 No.	
libs Z, °C libs °C libs	°C Ibs	°(	lbs	°C

## Nonconformance Documentation

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/Time: \_\_\_\_\_\_ Regarding: \_\_\_\_\_\_ Corrective Action Taken: \_\_\_\_\_\_ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1. □ Initial and Backup Temperature confirm out of temperature conditions

Client understands and would like to proceed with analysis

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## **Analytical Report 388548**

for Tetra Tech- Midland

**Project Manager: Charles Durrett** 

MCA 2A Header

114-6400314CO

07-SEP-10



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

> Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330) Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX) Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX) Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370) Xenco-Boca Raton (EPA Lab Code: FL01273): Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917) North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757), California(06244CA), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



07-SEP-10



Project Manager: Charles Durrett Tetra Tech- Midland 1910 N. Big Spring Midland, TX 79705

Reference: XENCO Report No: 388548 MCA 2A Header Project Address:

## **Charles Durrett:**

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 388548. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 388548 will be filed for 60 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,

En to

Brent Barron, II Odessa Laboratory Manager

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## Sample Cross Reference 388548



## Tetra Tech- Midland, Midland, TX

MCA 2A Header

Sample Id	Matrix	Date Collected Sample Depth	Lab Sample Id
M-ESW	S	Sep-03-10 08:30	388548-001
M-SSW	S	Sep-03-10 08:40	388548-002
M-NSW	S	Sep-03-10 08:35	388548-003



Client Name: Tetra Tech- Midland Project Name: MCA 2A Header



 Project ID:
 114-6400314CO

 Work Order Number:
 388548

Report Date: 07-SEP-10 Date Received: 09/03/2010

Sample receipt non conformances and Comments: None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-821695 Percent Moisture None

Batch: LBA-821696 Percent Moisture None

Batch: LBA-821732 Anions by E300 None

Batch: LBA-821739 BTEX by EPA 8021B None

Batch: LBA-821742 TPH By SW8015 Mod None



## **Certificate of Analysis Summary 388548** Tetra Tech- Midland, Midland, TX Project Name: MCA 2A Header



Project Id: 114-6400314CO Contact: Charles Durrett Project Location:

Date Received in Lab: Fri Sep-03-10 02:52 pm Report Date: 07-SEP-10

	Lab Id:	388548-001	388548-002	388548-003	
	Field Id.	MERCIN	M_SSW	M_NCW	
Analysis Requested	Depth:	M CO-W	AA 00-141	ALCOLTAI	
	Matrix:	SOIL	SOIL	SOIL	
	Sampled:	Sep-03-10 08:30	Sep-03-10 08:40	Sep-03-10 08:35	
Anions by E300	Extracted:				
	Analyzed:	Sep-03-10 15:33	Sep-03-10 15:33	Sep-03-10 15:33	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		365 9.60	337 9.50	317 9.28	
BTEX by EPA 8021B	Extracted:	Sep-03-10 15:15	Sep-03-10 15:15	Sep-03-10 15:15	
	Analyzed:	Sep-03-10 19:13	Sep-03-10 19:36	Sep-03-10 19:59	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		ND 0.0011	ND 0.0011	ND 0.0011	
Toluene		ND 0.0023	ND 0.0022	ND 0.0022	
Ethylbenzene		ND 0.0011	ND 0.0011	ND 0.0011	
m,p-Xylenes		ND 0.0023	ND 0.0022	ND 0.0022	
o-Xylene		ND 0.0011	ND 0.0011	ND 0.0011	
Total Xylenes		ND 0.0011	ND 0.0011	ND 0.0011	
Total BTEX		ND 0.0011	ND 0.0011	ND 0.0011	
Percent Moisture	Extracted:				
	Analyzed:	Sep-04-10 09:04	Sep-04-10 09:04	Sep-04-10 09:04	
	Units/RL:	% RL	% RL	% RL	
Percent Moisture		12.5 1.00	11.6 1.00	9.53 1.00	
TPH By SW8015 Mod	Extracted:	Sep-03-10 15:10	Sep-03-10 15:10	Sep-03-10 15:10	
	Analyzed:	Sep-03-10 17:48	Sep-03-10 18:08	Sep-03-10 18:29	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons		ND 17.1	ND 17.0	ND 16.5	
Diesel Range Hydrocarbons		ND 17.1	ND 17.0	ND 16.5	

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 XXCO Laboratories. XERCO 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.

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Odessa Laboratory Manager Brent Barron, II



## **Flagging Criteria**

- 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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116



## Project Name: MCA 2A Header

/ork Orders : 388548 Lab Batch #: 821739	8, Sample: 572521-1-BKS / B	KS Batel		<b>D:</b> 114-64003	314CO			
Units: mg/kg	Date Analyzed: 09/03/10 10:58	BKS Batch: 1 Matrix: Solid SURROGATE RECOVERY STUDY						
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
	Analytes			[D]				
1,4-Difluorobenzene		0.0351	0.0300	117	80-120			
4-Bromofluorobenzene		0.0355	0.0300	118	80-120			
Lab Batch #: 821739	Sample: 572521-1-BLK / E			:Solid	21			
Units: mg/kg	Date Analyzed: 09/03/10 12:08	SURROGATE RECOVERY STUDY						
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenzene		0.0291	0.0300	97	80-120			
4-Bromofluorobenzene		0.0338	0.0300	113	80-120			
Lab Batch #: 821739	Sample: 388394-001 S / M	S Batcl	h: 1 Matrix	: Soil				
Units: mg/kg	Date Analyzed: 09/03/10 16:32	SURROGATE RECOVERY STUDY						
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenzene		0.0361	0.0300	120	80-120	agree		
4-Bromofluorobenzene		0.0353	0.0300	118	80-120	5.52		
Lab Batch #: 821739	Sample: 388394-001 SD / M	MSD Batch: 1 Matrix: Soil						
Units: mg/kg	Date Analyzed: 09/03/10 16:55	SURROGATE RECOVERY STUDY						
BTE	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenzene		0.0357	0.0300	119	80-120	10		
4-Bromofluorobenzene		0.0350	0.0300	117	80-120			
Lab Batch #: 821739	Sample: 388548-001 / SMP	Batch	n: 1 Matrix	· Soil				
Units: mg/kg	Date Analyzed: 09/03/10 19:13	Batch: 1 Matrix: Soil SURROGATE RECOVERY STUDY						
	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
1.1.2.2	Analytes			[D]		2		
1,4-Difluorobenzene		0.0310	0.0300	103	80-120	_		
4-Bromofluorobenzene		0.0358	0.0300	119	80-120			

\* Surrogate outside of Laboratory QC limits
 \*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution



## Project Name: MCA 2A Header

Vork Orders : 388548 Lab Batch #: 821739	, Sample: 388548-002 / SMP	Bate		<b>D:</b> 114-64003	314CO			
Units: mg/kg	Date Analyzed: 09/03/10 19:36	SURROGATE RECOVERY STUDY						
BTEX	A polytos	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenzene	Analytes	0.0207	0.0200		00.100			
4-Bromofluorobenzene		0.0306	0.0300	102	80-120			
			1		80-120			
Lab Batch #: 821739	Sample: 388548-003 / SMP	Batc						
Units: mg/kg	Date Analyzed: 09/03/10 19:59	SU	RROGATE R	ECOVERY	STUDY			
BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenzene		0.0307	0.0300	102	80-120			
4-Bromofluorobenzene		0.0354	0.0300	118	80-120			
Lab Batch #: 821742	Sample: 572530-1-BKS / BK	S Batc	h: 1 Matrix	r: Solid				
Units: mg/kg	Date Analyzed: 09/03/10 12:14	SURROGATE RECOVERY STUDY						
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane		93.2	100	93	70-135	2112		
o-Terphenyl		50.0	50.2	100	70-135			
Lab Batch #: 821742	Sample: 572530-1-BSD / BS	SD Batch: 1 Matrix:Solid						
Units: mg/kg	Date Analyzed: 09/03/10 12:33	SURROGATE RECOVERY STUDY						
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane		93.2	99.8	93	70-135	1		
o-Terphenyl		57.2	49.9	115	70-135			
Lab Batch #: 821742	Sample: 572530-1-BLK / BL	K Bate	h: 1 Matrix	:Solid		14		
Units: mg/kg	Date Analyzed: 09/03/10 12:53	SURROGATE RECOVERY STUDY						
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	*	93.9	100	94	70-135			

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution



## Project Name: MCA 2A Header

<b>ork Orders :</b> 388548 Lab Batch #: 821742	, Sample: 388548-001 / SMP	Batc		<b>D:</b> 114-64003 <b>c:</b> Soil	1400	
Units: mg/kg	Date Analyzed: 09/03/10 17:48	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
	Analytes			[D]		
1-Chlorooctane		97.1	99.7	97	70-135	_
o-Terphenyl		51.0	49.9	102	70-135	
Lab Batch #: 821742	Sample: 388548-002 / SMP	Batc	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/03/10 18:08	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		100	100	100	70-135	
o-Terphenyl		52.7	50.2	105	70-135	24
Lab Batch #: 821742	Sample: 388548-003 / SMP	Batc	h: 1 Matrix	r Soil		
Units: mg/kg	Date Analyzed: 09/03/10 18:29		RROGATE R		STUDY	1
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		96.1	99.8	96	70-135	1.1.1
o-Terphenyl		50.0	49.9	100	70-135	20
Lab Batch #: 821742	Sample: 388394-001 S / MS	Batc	h: 1 Matrix	· Soil		1
Units: mg/kg	Date Analyzed: 09/03/10 18:49		RROGATE R		STUDY	
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		91.7	99.6	92	70-135	1
o-Terphenyl		47.9	49.8	96	70-135	
Lab Batch #: 821742	Sample: 388394-001 SD / MS	D Bate	h: 1 Matrix	:Soil	4	1.2
Units: mg/kg	Date Analyzed: 09/03/10 19:09		RROGATE R		TUDY	1.1
ТРН І	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	-	94.5	99.6	95	70-135	1
o-Terphenyl		46.5	49.8	93	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.





## Project Name: MCA 2A Header

Work Order #: 388548		Pı	oject ID:		114-640	0314CO
Lab Batch #: 821739 Date Analyzed: 09/03/2010 Reporting Units: mg/kg	Sample: 572521 Date Prepared: 09/03/2 Batch #: 1	010	Matrix Analyst BLANK SPI	: ASA	COVERYS	STUDY
BTEX by EPA 8021B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	ND	0.1000	0.0966	97	70-130	
Toluene	ND	0.1000	0.0964	96	70-130	
Ethylbenzene	ND	0.1000	0.1005	101	71-129	
m,p-Xylenes	ND	0.2000	0.1967	98	70-135	
o-Xylene	ND	0.1000	0.1001	100	71-133	

Blank Spike Recovery [D] = 100\*[C]/[B] All results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit



## **BS / BSD Recoveries**



## Project Name: MCA 2A Header

-	Blank	Snike	Blank	F300	Anions hv F300
Id	<b>BLANK S</b>	BLANK /BLANK SPI			Units: mg/kg
	1	Batch #:	KS	Sample: 821732-1-BKS	Lab Batch ID: 821732
0	09/03/201	Date Prepared: 09/03/2010	D		Analyst: BRB
					Work Order #: 388548

Project ID: 114-6400314CO Date Analyzed: 09/03/2010 Matrix: Solid

Units: mg/kg			BLAN	K /BLANK S	PIKE / B	LANK S	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	ICATE 1	RECOVE	RY STUD	Y	
Anions by E300	E300	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		:	[B]	[C]	[D]	[E]	Result [F]	[G]		×.		
Chloride		ND	10.0	8.26	83	10	10.0	100	19	75-125	20	
Analyst: BEV		Da	te Prepar	Date Prepared: 09/03/2010	0			Date A	Date Analyzed: 09/03/2010	9/03/2010		
Lab Batch ID: 821742	Sample: 572530-1-BKS	KS	Batch #:	1 #: 1					Matrix: Solid	bilo		
Ilnite: mg/kg			BLANI	K /BLANK S	PIKE / E	LANK S	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	ICATE 1	RECOVE	CRY STUD	Y	

Units: mg/kg		DLAIN	N / DLAINN	LINE	TAINNO	DLAINN / DLAINN SFINE / DLAINN SFINE DUFLICATE NECUYENT STUDI	ICALE	TELUVE	IN STUD	1	
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	QN	1000	1030	103	866	1050	105	2	70-135	35	
Diesel Range Hydrocarbons	QN	1000	989	66	966	1050	105	9	70-135	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



## Form 3 - MS Recoveries



Flag

## Project Name: MCA 2A Header

Work Order #: 388548 Lab Batch #: 821732 Date Analyzed: 09/03/2010	Date Prepared: 09/0	3/2010		oject ID: nalyst: B	114-64003 RB	14CO
QC- Sample ID: 388490-001 S Reporting Units: mg/kg	Batch #: 1 MATI	RIX / MA	N TRIX SPIKE	Aatrix: S		DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]				
Chloride	52.6	410	489	106	75-125	

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

BRL - Below Reporting Limit

**XENCO** Laboratories

Form 3 - MS / MSD Recoveries

Project Name: MCA 2A Header



Project ID: 114-6400314CO

Matrix: Soil

I

 QC- Sample ID:
 388394-001 S
 Batch #:

 Date Prepared:
 09/03/2010
 Analyst:

Date Analyzed: 09/03/2010

Reporting Units: mg/kg

Work Order #: 388548 Lab Batch ID: 821739 Analyst: ASA

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	QN	0.1104	0.1010	91	0.1100	0.0990	90	2	70-130	35	
Toluene	QN	0.1104	0.0997	90	0.1100	0.0975	89	2	70-130	35	
Ethylbenzene	QN	0.1104	0.1038	94	0.1100	0.1009	92	3	71-129	35	
m,p-Xylenes	QN	0.2208	0.2019	91	0.2199	0.1962	89	3	70-135	35	
o-Xylene	ND	0.1104	0.1019	92	0.1100	0.0986	90	3	71-133	35	
Lab Batch ID: 821742 Date Analyzed: 09/03/2010	QC- Sample ID: Date Prepared:	388394-001 S 09/03/2010	001 S 010	Bat Ans	Batch #: Analyst: I	1 Matrix: Soil BEV	: Soil				

Reporting Units: mg/kg		M	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	C/MATI	UX SPII	KE DUPLICA	TE REC	<b>DVERY S</b>	TUDY		
TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Addec [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons	ND	1110	1140	103	1110	1150	104	1	70-135	35	
Diesel Range Hydrocarbons	QN	1110	1100	66	1110	1140	103	4	70-135	35	

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 ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Final 1.000

Page 13 of 16



Sample Duplicate Recovery

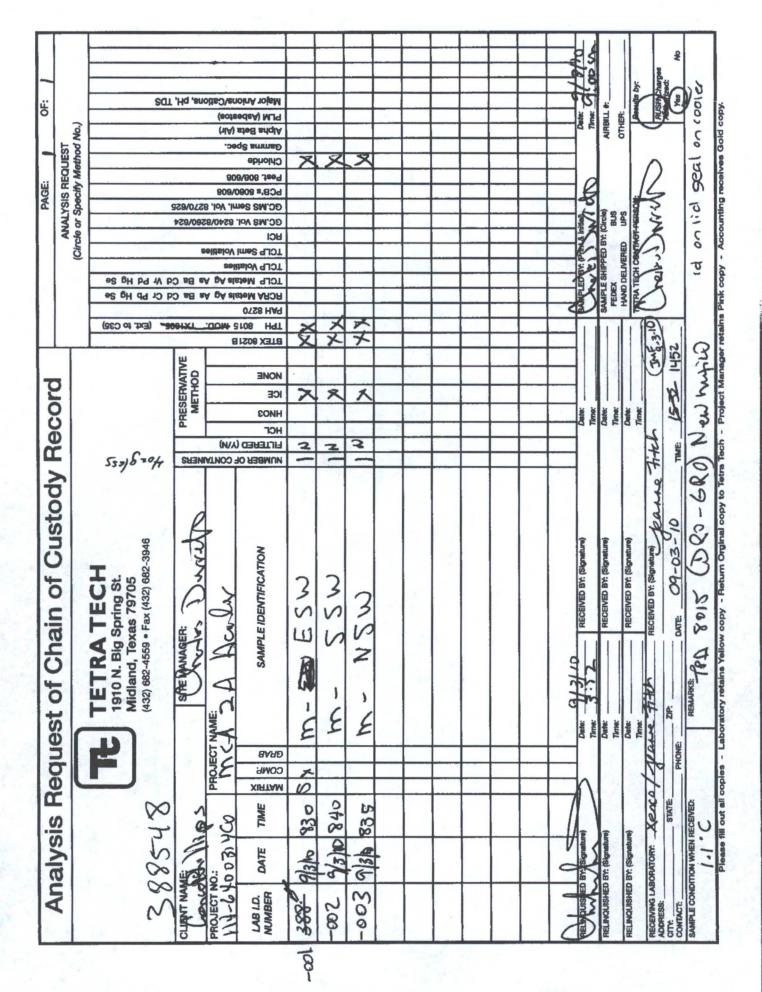


## Project Name: MCA 2A Header

Work	Order	#•	388548
<b>WUIK</b>	Uluci	tt.	300340

Lab Batch #: 821695				<b>Project</b> I	<b>D:</b> 114-6400	)314CO
Date Analyzed: 09/04/2010	Date Prepared	:09/04/2010	) Ana	lyst: JLG		
QC- Sample ID: 388374-021 D	Batch #	: 1	Mat	rix: Soil		
Reporting Units: %	Г	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture Analyte	P	rent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture		4.63	4.86	5	20	
Lab Batch #: 821696						
Date Analyzed: 09/04/2010	Date Prepared	:09/04/2010	) Ana	lyst:JLG		
QC- Sample ID: 388548-003 D	Batch #	: 1	Mat	rix: Soil		
Reporting Units: %		SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture Analyte	P	rent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture		9.53	8.97	6	20	

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





**XENCO** Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas

Houston, Miami, Odessa, Philadelphia

Phoenix, San Antonio, Tampa

Document Title:	Sample Rece	eipt Checklist
Document No.:	SYS-SRC	
Revision/Date:	No. 01, 5/27/2	:010
Effective Date:	6/1/2010	Page 1 of 1

## Prelogin / Nonconformance Report - Sample Log-In

Client:	Tet	ra T	Tech				
Date/Time	:09	-03	3-10	C	۲	153Z	
Lab ID # :							
	T						

Initials: UMF

12.2.2

### Sample Receipt Checklist

1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	Ves	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	(es)	No	N/A	
4. Chain of Custody present?	(es)	No		
5. Sample instructions complete on chain of custody?	(Yes)	No		
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	Yes	No	-	
8. Chain of custody agrees with sample label(s)?	Yes	No		
9. Container labels legible and intact?	Yes	No		
10. Sample matrix / properties agree with chain of custody?	(Yes)	No		
11. Samples in proper container / bottle?	(Yes)	No		
12. Samples properly preserved?	Yes	No	N/A	
13. Sample container intact?	Yes	No	1. 196. A	
14. Sufficient sample amount for indicated test(s)?	Yes	No		
15. All samples received within sufficient hold time?	Yes	No		-
16. Subcontract of sample(s)?	Yes	No	N/A	1.
17. VOC sample have zero head space?	Yes	No	N/A	a dan
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 No		Cooler 5 No.	
lbs (.) °C lbs °C lbs	°C Ibs	°C	lbs	°C

### Nonconformance Documentation

Contact:	Contacted by:	Date/Time:
Regarding:		
Corrective Action Taken:		

condition acceptable by NELAC 5.5.8.3.1.a.1. Initial and Backup Temperature confirm out of temperature conditions

Client understands and would like to proceed with analysis

## Analytical Report 388261

for Tetra Tech- Midland

**Project Manager: Charles Durrett** 

MCA 2A Header

114-6400315CO

14-SEP-10



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Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

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Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757), California(06244CA), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



14-SEP-10



Project Manager: **Charles Durrett Tetra Tech- Midland** 1910 N. Big Spring Midland, TX 79705

Reference: XENCO Report No: 388261 MCA 2A Header Project Address:

### **Charles Durrett**:

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 388261. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 388261 will be filed for 60 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,

AND

Brent Barron, II Odessa Laboratory Manager

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## Tetra Tech- Midland, Midland, TX

MCA 2A Header

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
M-ESW	S	Sep-01-10 09:00		388261-001
M-NSW	S	Sep-01-10 09:15		388261-002
M-F 9'	S	Sep-01-10 09:45	9 ft	388261-003
M-WSW	S	Sep-01-10 13:00		388261-004
M-SSW	S	Sep-01-10 13:17		388261-005
N-ESW	S	Sep-01-10 13:30		388261-006
N-F 6'	S	Sep-01-10 13:37	6 ft	388261-007



Client Name: Tetra Tech- Midland Project Name: MCA 2A Header



 Project ID:
 114-6400315CO

 Work Order Number:
 388261

Report Date: 14-SEP-10 Date Received: 09/02/2010

Sample receipt non conformances and Comments: None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-821349 Percent Moisture None

Batch: LBA-821365 Inorganic Anions by EPA 300/300.1 None

Batch: LBA-821392 BTEX by EPA 8021B SW8021BM

Batch 821392, 4-Bromofluorobenzene recovered above QC limits . Matrix interferences is suspected; data not confirmed by re-analysis Samples affected are: 388015-001 SD,388261-007.

Batch: LBA-821543 TPH By SW8015 Mod None



Certificate of Analysis Summary 388261 Tetra Tech- Midland, Midland, TX Project Name: MCA 2A Header



Project Id: 114-6400315CO Contact: Charles Durrett TI . Pr

Date Received in Lab: Thu Sep-02-10 07:53 am Report Date: 14-SEP-10

					Project Manager: E	Brent Barron, II	
	Lab Id:	388261-001	388261-002	388261-003	388261-004	388261-005	388261-006
	Field Id:	M-ESW	MSN-M	M-F 9'	MSW-M	M-SSW	N-ESW
Anaiysis Kequestea	Depth:			9- ft			
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Sep-01-10 09:00	Sep-01-10 09:15	Sep-01-10 09:45	Sep-01-10 13:00	Sep-01-10 13:17	Sep-01-10 13:30
BTEX by EPA 8021B	Extracted:	Sep-02-10 09:00	Sep-02-10 09:00	Sep-02-10 09:00	Sep-02-10 09:00	Sep-02-10 09:00	Sep-02-10 09:00
	Analyzed:	Sep-02-10 14:33	Sep-02-10 18:59	Sep-02-10 19:22	Sep-02-10 19:46	Sep-02-10 20:09	Sep-02-10 20:32
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0013	ND 0.0011	ND 0.0011
Toluene		ND 0.0022	ND 0.0024	ND 0.0022	ND 0.0026	ND 0.0023	ND 0.0021
Ethylbenzene		ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0013	ND 0.0011	ND 0.0011
m,p-Xylenes		ND 0.0022	ND 0.0024	ND 0.0022	ND 0.0026	ND 0.0023	ND 0.0021
o-Xylene		ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0013	ND 0.0011	ND 0.0011
Total Xylenes		ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0013	ND 0.0011	ND 0.0011
Total BTEX		ND 0.0011	ND 0.0012	ND 0.0011	ND 0.0013	ND 0.0011	ND 0.0011
Inorganic Anions by EPA 300/300.1	Extracted:						
	Analyzed:	Sep-02-10 09:18	Sep-02-10 09:18	Sep-02-10 09:18	Sep-02-10 09:18	Sep-02-10 09:18	Sep-02-10 09:18
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		421 11.2	482 11.7	221 11.2	190 13.0	341 5.64	759 21.1
Percent Moisture	Extracted:						
	Analyzed:	Sep-02-10 11:20	Sep-02-10 11:20	Sep-02-10 11:20	Sep-02-10 11:20	Sep-02-10 11:20	Sep-02-10 11:20
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		10.7 1.00	14.5 1.00	10.5 1.00	22.9 1.00	11.3 1.00	5.11 1.00
TPH By SW8015 Mod	Extracted:	Sep-02-10 09:00	Sep-02-10 09:00	Sep-02-10 09:00	Sep-02-10 09:00	Sep-02-10 09:00	Sep-02-10 09:00
	Analyzed:	Sep-02-10 11:45	Sep-02-10 12:05	Sep-02-10 12:26	Sep-02-10 12:46	Sep-02-10 13:10	Sep-02-10 13:31
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		ND 16.9	ND 17.6	ND 16.7	ND 19.4	ND 16.9	ND 15.8
Diesel Range Hydrocarbons		ND 160	ND 176	ND 167	ND 10.4	NIN 16.0	ND 150

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 an analytical report represent the best judgment of XENCO Laboratorica. XENCO Laboratorica 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.

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Odessa Laboratory Manager Brent Barron, II



Project Id: 114-6400315CO Contact: Charles Durrett

## **Certificate of Analysis Summary 388261** Tetra Tech- Midland, Midland, TX Project Name: MCA 2A Header



Date Received in Lab: Thu Sep-02-10 07:53 am 14-SFP-10 Renort Date.

			Project Manager:	Brent Barron, II	
	Lab Id:	388261-007			
Auducic Docusted	Field Id:	N-F 6'			
naisanhay sistinuy	Depth:	6- ft			
	Matrix:	SOIL			
	Sampled:	Sep-01-10 13:37			
BTEX by EPA 8021B	Extracted:	Sep-02-10 09:00			
	Analyzed:	Sep-02-10 20:55			
	Units/RL:	mg/kg RL			
Benzene		ND 0.0011			
Toluene		ND 0.0023			
Ethylbenzene		ND 0.0011			
m,p-Xylenes		ND 0.0023			
o-Xylene		ND 0.0011			
Total Xylenes		ND 0.0011			
Total BTEX		ND 0.0011			
Inorganic Anions by EPA 300/300.1	Extracted:				
	Analyzed:	Sep-02-10 09:18			
	Units/RL:	mg/kg RL			
Chloride		720 22.9			
Percent Moisture	Extracted:				
	Analyzed:	Sep-02-10 11:20			
	Units/RL:	% RL			
Percent Moisture		12.6 1.00			
TPH By SW8015 Mod	Extracted:	Sep-02-10 09:00			
	Analyzed:	Sep-02-10 13:52			
	Units/RL:	mg/kg RL			
Gasoline Range Hydrocarbons		17.4 17.1			
Diesel Range Hydrocarbons		130 171			

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Odessa Laboratory Manager Brent Barron, II



## **Flagging Criteria**

- 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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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## Project Name: MCA 2A Header

<b>Ork Orders :</b> 388261 Lab Batch #: 821392	sample: 572290-1-BKS / B	KS Batc		D: 114-64003	315CO	
Units: mg/kg	Date Analyzed: 09/02/10 09:31		RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0342	0.0300	114	80-120	
4-Bromofluorobenzene		0.0355	0.0300	118	80-120	
Lab Batch #: 821392	Sample: 572290-1-BLK / B	LK Batc	h: 1 Matrix	: Solid		
Units: mg/kg	Date Analyzed: 09/02/10 10:41		RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0292	0.0300	97	80-120	
4-Bromofluorobenzene		0.0351	0.0300	117	80-120	
Units: mg/kg BTE2	Date Analyzed: 09/02/10 11:28 X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	Analytes	0.0342	0.0300	114	80-120	
4-Bromofluorobenzene		0.0342	0.0300	114	80-120	
	2 222015 001 5D /1				80-120	
Lab Batch #: 821392 Units: mg/kg	Sample: 388015-001 SD / M Date Analyzed: 09/02/10 11:51		h: 1 Matrix RROGATE R		STUDY	
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0336	0.0300	112	80-120	
4-Bromofluorobenzene		0.0362	0.0300	121	80-120	*
Lab Batch #: 821392	Sample: 388261-001 / SMP	Batc	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/02/10 14:33	SU	RROGATE R	ECOVERY S	STUDY	
BTE	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0288	0.0300	96	80-120	

\* 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.



## Project Name: MCA 2A Header

/ork Orders : 388261 Lab Batch #: 821392	, Sample: 388261-002 / SMP	Batch		D: 114-64003	315CO	
Units: mg/kg	Date Analyzed: 09/02/10 18:59		RROGATE R		STUDY	
BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1,4-Difluorobenzene		0.0293	0.0300	98	80-120	
4-Bromofluorobenzene		0.0350	0.0300	117	80-120	
Lab Batch #: 821392	Sample: 388261-003 / SMP	Batch	a: 1 Matrix	x: Soil		
Units: mg/kg	Date Analyzed: 09/02/10 19:22	SUI	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0293	0.0300	98	80-120	
4-Bromofluorobenzene		0.0351	0.0300	117	80-120	
Lab Batch #: 821392	Sample: 388261-004 / SMP	Batch	: 1 Matrix	: Soil		
Units: mg/kg	Date Analyzed: 09/02/10 19:46	SUI	RROGATE R	ECOVERY S	STUDY	
BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0288	0.0300	96	80-120	-
4-Bromofluorobenzene		0.0338	0.0300	113	80-120	1
Lab Batch #: 821392	Sample: 388261-005 / SMP	Batch	: 1 Matrix	c: Soil		-
Units: mg/kg	Date Analyzed: 09/02/10 20:09	SUI	RROGATE R		STUDY	
BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0294	0.0300	98	80-120	
4-Bromofluorobenzene		0.0357	0.0300	119	80-120	
Lab Batch #: 821392	Sample: 388261-006 / SMP	Batch	: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/02/10 20:32	SUI	RROGATE R	ECOVERY S	STUDY	24
BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	-	0.0285	0.0300	95	80-120	3
4-Bromofluorobenzene		0.0343	0.0300	114	80-120	

\* 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 / BAll results are based on MDL and validated for QC purposes.



## Project Name: MCA 2A Header

<b>ork Orders :</b> 388261 Lab Batch #: 821392	Sample: 388261-007 / SMP	Batc		<b>D:</b> 114-64003	1000	
Units: mg/kg	Date Analyzed: 09/02/10 20:55	SU	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]	1.00	
1,4-Difluorobenzene		0.0295	0.0300	98	80-120	
4-Bromofluorobenzene		0.0367	0.0300	122	80-120	*
Lab Batch #: 821543	Sample: 572389-1-BKS / BK					
Units: mg/kg	Date Analyzed: 09/02/10 10:44	SU	RROGATE R	ECOVERY	STUDY	1
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		93.4	99.5	94	70-135	
o-Terphenyl		56.8	49.8	114	70-135	
6	Date Analyzed: 09/02/10 11:04 By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		91.6	100	92	70-135	
o-Terphenyl		49.9	50.2	99	70-135	1. 62
Lab Batch #: 821543	Sample: 572389-1-BLK / BL	K Bate	h: 1 Matrix	:Solid	1.5	
Units: mg/kg	Date Analyzed: 09/02/10 11:24	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		92.5	100	93	70-135	
o-Terphenyl		48.0	50.0	96	70-135	-
Lab Batch #: 821543	Sample: 388261-001 / SMP	Bate	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 09/02/10 11:45	SU	RROGATE R	ECOVERY S	STUDY	
TPH I	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		105	101	104	70-135	1111
1-Chlorooctane		105	101	104	10-155	

\* 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.



## Project Name: MCA 2A Header

Lab Batch #: 821543	Sample: 388261-002 / SMP	Batc		<b>D:</b> 114-64003 <b>c:</b> Soil		
Units: mg/kg	Date Analyzed: 09/02/10 12:05	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1.011	Analytes					
1-Chlorooctane o-Terphenyl		93.6	100	94	70-135	
	· · · · · · · · · · · · · · · · · · ·	49.3	50.2	98	70-135	
Lab Batch #: 821543	Sample: 388261-003 / SMP	Batc				-
Units: mg/kg	Date Analyzed: 09/02/10 12:26	SU	RROGATE R	ECOVERY	STUDY	5.
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		91.6	99.9	92	70-135	-
o-Terphenyl		47.4	50.0	95	70-135	
Lab Batch #: 821543	Sample: 388261-004 / SMP	Batc	h: 1 Matrix	: Soil	2	
Units: mg/kg	Date Analyzed: 09/02/10 12:46		RROGATE R		STUDY	9
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane	Analytes	91.1	99.5	92	70-135	-
o-Terphenyl		47.5	49.8	92	70-135	-
	2002(1.005/DMD				10-155	
Lab Batch #: 821543	Sample: 388261-005 / SMP	Bate	h: 1 Matrix RROGATE R		TUDY	14
Units: mg/kg	Date Analyzed: 09/02/10 13:10	50	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		83.2	100	83	70-135	4. 5
o-Terphenyl		43.1	50.1	86	70-135	
Lab Batch #: 821543	Sample: 388261-006 / SMP	Bate	h: 1 Matrix	:Soil		-
Units: mg/kg	Date Analyzed: 09/02/10 13:31	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		87.2	99.7	87	70-135	
and the second sec		44.3	49.9	89	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 / BAll results are based on MDL and validated for QC purposes.



## Project Name: MCA 2A Header

<b>Vork Orders :</b> 388261 Lab Batch #: 821543	, Sample: 388261-007 / SMP Date Analyzed: 09/02/10 13:52					
Units: mg/kg	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		93.6	99.9	94	70-135	
o-Terphenyl		49.8	50.0	100	70-135	
Lab Batch #: 821543	Sample: 388261-001 SD / N					
Units: mg/kg	Date Analyzed: 09/02/10 17:48	SU	RROGATE R	ECOVERYS	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		111	99.5	112	70-135	
o-Terphenyl		56.2	49.8	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.





## Project Name: MCA 2A Header

Work Order #: 388261		P	roject ID:		114-640	0315CO
Lab Batch #: 821392 Date Analyzed: 09/02/2010	Sample: 572290 Date Prepared: 09/02/2		Matrix Analyst			
Reporting Units: mg/kg	Batch #: 1	BLANK /	BLANK SPI	KE REC	COVERY S	STUDY
BTEX by EPA 8021B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	ND	0.0996	0.0875	88	70-130	
Toluene	ND	0.0996	0.0860	86	70-130	
Ethylbenzene	ND	0.0996	0.0907	91	71-129	
m,p-Xylenes	ND	0.1992	0.1762	88	70-135	
o-Xylene	ND	0.0996	0.0891	89	71-133	

Blank Spike Recovery [D] = 100\*[C]/[B] All results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit



## **BS / BSD Recoveries**



## Project Name: MCA 2A Header

Sample: 821365-1-BKS Work Order #: 388261 Analyst: LATCOR Lab Batch ID: 821365

Date Prepared: 09/02/2010 Batch #: 1

**Project ID:** 114-6400315CO Date Analyzed: 09/02/2010 Matrix: Solid

Units: mg/kg		BLAN	K /BLANK S	PIKE / B	LANK S	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	ICATE 1	RECOVE	CRY STUD	X	
Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result ICI	Blank Spike %R [D]	Spike Added IEl	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	ND	10.0	9.48	95	10	9.67	97	2	80-120	20	
Analyst: BEV Lab Batch ID: 821543 Sample: 572389-1-BKS		te Prepar Batch	Date Prepared: 09/02/2010 Batch #: 1	0			Date A	nalyzed: 09/02/ Matrix: Solid	Date Analyzed: 09/02/2010 Matrix: Solid		
Units: mg/kg		BLAN	K/BLANK S	SPIKE / B	LANK S	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	ICATE 1	RECOVE	CRY STUD	X	

011110											
TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Gasoline Range Hydrocarbons	ND	995	1210	122	1000	1200	120	1	70-135	35	
Diesel Range Hydrocarbons	ND	995	1020	103	1000	1090	109	7	70-135	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



## Form 3 - MS Recoveries

Date Prepared: 09/02/2010



## Project Name: MCA 2A Header

Work Order #: 388261 Lab Batch #: 821365 Date Analyzed: 09/02/2010 QC- Sample ID: 388261-001 S Reporting Units: mg/kg

## Project ID: 114-6400315CO

Analyst: LATCOR Matrix: Soil

QC- Sample ID: 388261-001 S	Batch #: 1		-	Matrix: S		
Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]				
Chloride	421	224	617	88	80-120	

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

BRL - Below Reporting Limit



# Form 3 - MS / MSD Recoveries

Project Name: MCA 2A Header



Work Order #: 388261

Date Analyzed: 09/02/2010 Lab Batch ID: 821392 Reporting Units: mg/kg

Project ID: 114-6400315CO

1 Batch #: QC- Sample ID: 388015-001 S

Date Prepared: 09/02/2010

Matrix: Soil Analyst: ASA

Reporting Units: mg/kg		M	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	E/MATI	RIX SPI	KE DUPLICAT	<b>FE RECO</b>	<b>DVERY S</b>	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	ND	0.1099	0.0897	82	0.1095	0.0894	82	0	70-130	35	
Toluene	Ŋ	0.1099	0.0888	81	0.1095	0.0890	81	0	70-130	35	
Ethylbenzene	ND	0.1099	0.0936	85	0.1095	0.0942	86	1	71-129	35	
m,p-Xylenes	ND	0.2198	0.1834	83	0.2189	0.1835	84	0	70-135	35	
o-Xylene	ND	0.1099	0.0916	83	0.1095	0.0914	83	0	71-133	35	

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 ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Page 16 of 19



Work Order #: 388261

Sample Duplicate Recovery



## Project Name: MCA 2A Header

Lab Batch #: 821365				Project I	<b>D:</b> 114-6400	)315CO
Date Analyzed: 09/02/2010 Date	Prepared: 09	9/02/2010	) Anal	lyst: LATC	OR	
QC- Sample ID: 388261-001 D	Batch #:	1	Mat	rix: Soil		
Reporting Units: mg/kg	SA	MPLE	/ SAMPLE	DUPLIC	ATE REC	OVERY
Inorganic Anions by EPA 300/300.1 Analyte	R	nt Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride		421	414	2	20	
Lab Batch #: 821349						
	Prepared: 09	9/02/2010	) Anal	lyst:JLG		
QC- Sample ID: 388261-001 D	Batch #:	1	Mat	rix: Soil		
Reporting Units: %	SA	MPLE	SAMPLE	DUPLIC	ATE RECO	OVERY
Percent Moisture Analyte	R	nt Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture		10.7	10.1	6	20	

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

of Custody Record ANALYSIS REQUEST (Circle or Specify Method No.)	Ar Pd Hg Se Cr Pb Hg Se	PRESERVATIVE METHOD As Ba Cd As Ba Cd	(I//Y) 81 81 94 eter 94 eter 90 eter 90 eter 104	ВАН 8270           RCRA Met           TCLP Vola           TCLP Vola           TCLP Vola	X X X	2 X X X		X X X	X X X X	X	X		CAMPLED BY 1946 &	Time:	5	Altrung strang	
Analysis Request of Chain of Custo	<b>TETRA TECH</b> 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		PROJECT NO.: PROJECT NAME: 114-6400315 CD MCA 2A HCQCr	DATE TIME RE SAMPLE IDENTIFICATION	9/1/10 9:00 X X X X X X X X X X X X X X X X X X	9/1/10/15 SX m- N 2 W	XS	9/1/10 1:20 5× m- WSW	9/1/10 1:17 8X m- 55W	9/10 1:30 SX N-ESW	9/10 1:37 5 X N - F L'	alalia	RELINGUISED BY (Signature) Date: 11 41 1'0 RECEIVED BY (Signature)	Date:	ture) Date:	ZIP:	CONTACT: DATE: 7/2/10 SAMPLE CONDITION WHEN RECEIVED: REMARKS.

Final 1.001



### **XENCO** Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa Document Title: Sample Receipt Checklist Document No.: SYS-SRC Revision/Date: No. 01, 5/27/2010 Effective Date: 6/1/2010 Page 1 of 1

## Prelogin / Nonconformance Report - Sample Log-In

Client:	1-e-	rat	icch		
Date/Time:	1/21	10	753		
Lab ID#: 3	88	261			
Initials:	4	-			
	91			-	

Sample Receipt Checklist

1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	Tes	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	N/A	and the second
4. Chain of Custody present?	Ves	No		19 A. 19
5. Sample instructions complete on chain of custody?	Yes	No		
6. Any missing / extra samples?	Yes	No		-
7. Chain of custody signed when relinquished / received?	YES	No		6
8. Chain of custody agrees with sample label(s)?	( See	No		-
9. Container labels legible and intact?	1057	No		
10. Sample matrix / properties agree with chain of custody?	Test	No		
11. Samples in proper container / bottle?	Wes	No		
12. Samples properly preserved?	res	No	N/A	
13. Sample container intact?	Fes	No		
14. Sufficient sample amount for indicated test(s)?	Kee	No		
15. All samples received within sufficient hold time?	G	No		
16. Subcontract of sample(s)?	Yes	No	N/A	
17. VOC sample have zero head space?	Res	No	N/A	-4
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 N	0.	Cooler 5 No.	
	°C Ibs	°C	lbs	°C

Nonconformance Documentation

Contact:	Contacted by:	Date/Time:
Regarding:	ан санана селото се Селото селото	
Corrective Action Tak	en:	
Check all that apply:	□ Cooling process has begun shortly after sa	mpling event and out of temperature
oneon an biar apply.	condition acceptable by NELAC 5.5.8.	3.1.a.1.

Client understands and would like to proceed with analysis

.

Sin a

## Analytical Report 391565

for Tetra Tech- Midland

**Project Manager: Charles Durrett** 

**Midland Odessa Standard List of prices** 

## 29-SEP-10



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

> Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330) Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX) Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX) Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370) Xenco-Boca Raton (EPA Lab Code: FL01273): Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917) North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757), California(06244CA), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



29-SEP-10



Project Manager: Charles Durrett Tetra Tech- Midland 1910 N. Big Spring Midland, TX 79705

## Reference: XENCO Report No: 391565 Midland Odessa Standard List of prices Project Address:

### **Charles Durrett**:

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 391565. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 391565 will be filed for 60 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,

BOTH

Brent Barron, II Odessa Laboratory Manager

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## Sample Cross Reference 391565

## **Tetra Tech- Midland, Midland, TX** Midland Odessa Standard List of prices

Sample Id	Matrix	Date Collected Sample Depth	Lab Sample Id
North 3'	S	Sep-28-10 11:30	391565-001
South 3'	S	Sep-28-10 11:30	391565-002

## CASE NARRATIVE



Client Name: Tetra Tech- Midland Project Name: Midland Odessa Standard List of prices



Project ID: Work Order Number: 391565 Report Date: 29-SEP-10 Date Received: 09/28/2010

Sample receipt non conformances and Comments: None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-825155 Percent Moisture None

Batch: LBA-825184 Anions by E300 None



Contact: Charles Durrett

Project Location:

Project Id:

## Certificate of Analysis Summary 391565 Tetra Tech-Midland, Midland, TX Project Name: Midland Odessa Standard List of prices



Date Received in Lab: Tue Sep-28-10 03:25 pm Report Date: 29-SEP-10 Proiect Manager: Brent Barron. II

Lab Analysis Requested De	Lab Id:	391565-001	2016/6 000		
			700-000160		
	Field Id:	North 3'	South 3'		
Mai	Depth:				
10 247	Matrix:	SOIL	SOIL		
Sampled:		Sep-28-10 11:30	Sep-28-10 11:30		
Anions by E300 Extracted:	cted:				
Analyzed:		Sep-28-10 18:26	Sep-28-10 18:45		
Units/RL:		mg/kg RL	mg/kg RL		
Chloride		186 9.43	30.3 9.42		
Percent Moisture Extracted:	cted:				
Analyzed:		Sep-28-10 17:00	Sep-28-10 17:00		
Units/RL:	/RL:	% RL	% RL		
Percent Moisture		10.9 1.00	10.8 1.00		

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 tules otherwise agreed to in writing.

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

Odessa Laboratory Manager Brent Barron, II

Final 1.000



## **Flagging Criteria**

- 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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116



## **BS / BSD Recoveries**



# Project Name: Midland Odessa Standard List of prices

Lab Batch ID: 825184 Sample: 825	
	ample: 825184-1-BKS

Date Prepared: 09/28/2010 Batch #: 1

Project ID: Date Analyzed: 09/28/2010 Matrix: Solid

Units: mg/kg		BLANF	K/BLANK S	PIKE / B	LANK S	<b>BLANK / BLANK SPIKE / BLANK SPIKE DUPLICATE</b>	ICATE I	RECOVERY	RY STUDY	Y	
Anions by E300	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[0]	[E]	Result [F]	[G]				
Chloride	DN	10.0	8.23	82	10	8.18	82	1	75-125	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: Midland Odessa Standard List of prices

Work Order #: 391565				
Lab Batch #: 825184		Project ID	:	
Date Analyzed: 09/28/2010	Date Prepared: 09/28/2010	Analyst: I	ATCOR	
QC- Sample ID: 391080-012 S	Batch #: 1	Matrix: S	Soil	
Reporting Units: mg/kg	MATRIX / MA	ATRIX SPIKE RECO	VERY STU	DY
<b>Inorganic Anions by EPA 300</b>	Parent Sample Spike Result Added	Spiked Sample Result %R [C] [D]	Control Limits %R	Flag
Analytes	[A] [B]			
Chloride	1170 541	1590 78	75-125	

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

BRL - Below Reporting Limit



## Sample Duplicate Recovery



## Project Name: Midland Odessa Standard List of prices

Work	Order	#:	3915	65
------	-------	----	------	----

Lab Batch #: 825184			Project I	D:	
	e Prepared: 09/28/2010	) Ana	lyst:LATC	OR	
QC- Sample ID: 391080-012 D	Batch #: 1	Mat	trix: Soil		
Reporting Units: mg/kg	SAMPLE	/ SAMPLE	DUPLIC	ATE RECO	OVERY
Anions by E300 Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	1170	1070	9	20	
Lab Batch #: 825155					
	e Prepared: 09/28/2010	) Ana	lyst: WRU		
QC- Sample ID: 391524-001 D	Batch #: 1	Mat	trix: Soil		
Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	9.20	9.40	2	20	

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

Analysis Regiser of Chain of Clistody Record	at of Chai	n of Custor	AV Ro	00	τ					PAGE:	úi	1	OF:	-	
				2	5			Q	ANALYSIS REQUEST (Circle or Specify Method No.)	ANALYSIS REQUEST	Y Met	ST Nod Ne	(;	-	
4	TETRA TECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946	<b>TECH</b> ring St. 5 79705 x (432) 682-3946				(Ext. to C36)	Ct bp H8 26	as BH bd av						S	
	SITE MANAGER:	++	SAEN	PRESE	PRESERVATIVE METHOD	900 FXT			100					JT ,Hq ,an	
PROJECT NO.: PROJECT NAME:	ME:					WOD'		80		8 . IoV . ii				ottsO/st	
LAB I.D. DATE TIME TIME COMIF.	SAMPLEI	SAMPLE IDENTIFICATION	NUMBER OF	HNO3 HCF	NONE	BTEX 80218		TCLP Volatil	GC.MS Vol. RCI	PCB's 8080	Pest. 808/60	Gamma Spe	sedaa) M.Jq PLM (Asbes	noinA rojeM	
78/11 130 W	Noeth		1		-				_	_	×	-		_	
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RELINOUISTEDEN (Suggeture) Date:	witte-	RECEIVED BY: (Signature)		Date: Time:			SAMPLE	DBY: (Pr	SAMPLED BY: (Print & Initial				Date: Time:		
RELINOWSHED BY: (Signature) Date:		RECEIVED BY: (Signature)		Date:			SAMPLE SHIPPED BY: (Circle)	BIPPE	BY: (Circ	10		2	AIRBILL #:		
Time: RELINQUISHED BY: (Signature) Date:		RECEIVED BY: (Signature)		Date:		I	HANDI	HAND DELIVERED	0	NPS		0	OTHER:		
LABORATORY:		RECEIVED BY: (Signature)	M	Time:	2	5,1°C	TETHA T	ECH COI	TETHA TECH CONTACT PERSON	NOS			RUS	RUSH Charge	
STATE PHONE:	ZIP: DAT	DATE 9/28/10	TIME:	13	M								hav	( Los	No
SAMPLE CONDITION WHEN RECEIVED:	REMARKS: / I	4	1		5									)	



XENCO Laboratories Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist Document No.: SYS-SRC Revision/Date: No. 01, 5/27/2010 Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client: Le	agan Eplen	
Date/Time:	9/28/2000	
Lab ID # :		
Initiale:	MAS .	

Sample Receipt Checklist

1. Samples on ice?		Blue	Water	No	
2. Shipping container in good condition?		Yes	No	None	
3. Custody seals intact on shipping container (coole	r) and bottles?	Yes	No	N/A	not on a
4. Chain of Custody present?		Yes	No		
5. Sample instructions complete on chain of custody	?	Yes	No		
6. Any missing / extra samples?		Yes	No		
7. Chain of custody signed when relinquished / rece	ived?	Yes	No		
8. Chain of custody agrees with sample label(s)?		Yes	No		
9. Container labels legible and intact?		Yes	No		
10. Sample matrix / properties agree with chain of custody?		Yes	No		
11. Samples in proper container / bottle?		Yes	No		
12. Samples properly preserved?		Yes	No	(N/A)	
13. Sample container intact?		(Yes	No		
14. Sufficient sample amount for indicated test(s)?		Yes	No		
15. All samples received within sufficient hold time?		Yes	No		
16. Subcontract of sample(s)?		Yes	No	(N/A)	
17. VOC sample have zero head space?		Yes	No	(N/A	ii
18. Cooler 1 No. Cooler 2 No. Co	oler 3 No.	Cooler 4 No.		Cooler 5 No.	
Ibs 5. / °C Ibs °C	lbs °c	lbs	°C	lbs	°C

Date/Time:

Nonconformance Documentation Contacted by:\_

Contact:

Regarding:

Corrective Action Taken:

Check all that apply: Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1. Initial and Backup Temperature confirm out of temperature conditions Client understands and would like to proceed with analysis

Page 11 of 11