

Bonham, Sherry, EMNRD

From: Bonham, Sherry, EMNRD
Sent: Monday, May 19, 2008 4:08 PM
To: charles.durrett@tetrattech.com; thomas.lacki@conocophillips.com
Subject: Loco Hills Truck Loading Station 2RP-154 confirmation of conversation

Thomas and Charlie,

Thank you for visiting with me this afternoon to clarify points under the "Recommendations" section of the proposed work plan. Per our conversation:

1. The area proposed to place the excavated soils on a 20-mil liner is of sufficient size and utility to accommodate proposed actions.
2. Layout of excavated materials should allow a 'flash' of BTEX thus providing for CRI acceptance of excavated materials for disposal.
3. Typo of EPA method should have read (EPA method 1311/8260).
4. Soils above RRALs will be hauled to CRI.

Thanks again. Should you have any questions or concerns, please don't hesitate to contact me and should I not hear from you, I will assume you are in agreement with the above clarifications.

Sherry Bonham
NMOCD District II
1301 West Grand Avenue
Artesia, NM 88210
575.748.1283. ext 109



1703 W. Industrial Ave.
Midland, Texas 79701
(432) 686-8081

TETRA TECH, INC.

May 14, 2008

Ms. Sherry Bonham
NM Oil Conservation Commission
1301 W. Grand Ave.
Artesia, NM 882310

Mr. Paul Evans
US Bureau of Land Management
620 E. Greene St.
Carlsbad, NM 88220

RE: Loco Hills Truck Loading Station Findings Report
Eddy County, New Mexico
Sec. 29, T17S, R30E
2RP-154

Dear Ms. Bonham and Mr. Evans:

On behalf of ConocoPhillips Pipe Line Company (CPPL), Tetra Tech, Inc. (Tetra Tech) submits this finding report for a subsurface investigation and work plan to remediate affected soils at CPPL's Loco Hills Truck Loading Station (Site; Figure 1). This report is in support of CPPL's efforts to remediate a recent 95 barrel crude oil release at the Site (C141, Appendix A). The Site is located approximately 1 mile southwest of Loco Hills in Eddy County, New Mexico (32° 48.49098N, 103° 59.598W). The Bureau of Land Management is the land administrator.

The Site is located immediately north of the western portion of the Delaware Basin. The area is underlain by Guadalupian age formations, which contains a thick sequence of sandstones, shales, siltstone, and evaporites¹. In the immediate vicinity of the Site, topography is nearly level to moderately undulating. The Kermit-Berino soil complex at the Site is loamy fine sand overlying fractured indurated caliche.²

Depth to water in the vicinity of the Site is estimated at over 100 feet below ground surface (fbgs). This interpretation is based potentiometric surface contours (330 fbgs) described by Hiss¹ for aquifer systems in northern Eddy County. The New Mexico Office of State Engineer's database and the United States Geological Survey's database^{3,4} did not yield any depth to groundwater information in this area. The U.S. Geological Survey, 1955 topographic map,

¹ Hiss, W.L. 1980. Movement of Ground Water in Permian Guadalupian Aquifer Systems, Southeastern New Mexico and Western Texas. In New Mexico Geological Society 31st Field Conference publication entitled "Trans-Pecos Region Southeastern New Mexico and West Texas." Pp 289 – 294.

² U.S. Department of Agriculture, Natural Resources Conservation Services. Webb Soil Survey Database.

³ New Mexico Office of State Engineer. W.A.T.E.R.S. Database.

⁴ United States Geological Survey. Groundwater Levels for the Nation Database.

1:24,000 scale, entitled "Red Lake SE New Mexico" identifies a windmill approximately 4.6 miles northwest of the Site. No information is available on the depth of water at this location. The nearest surface water body is a playa, located approximately 800 feet west of the Site.

As per the subsurface site assessment characterization protocol outlined in New Mexico Oil Conservation Division's (NMOCD) "Guidelines for Remediation of Leaks, Spills and Releases," dated August 13, 1993 and information provided in this report, the site is assigned the following score:

<u>Criteria</u>		<u>Ranking Score</u>
Depth to groundwater	>100 feet	0
Distance from water source	>1,000 feet	0
Distance from domestic water source	>200 feet	0
Distance from surface water body	>1,000 feet	<u>0</u>
<i>Total Ranking Score</i>		0

The remediation action level for a ranking score of 0 is 10 parts per million (ppm) for benzene, 50 ppm for total benzene, toluene, ethylbenzene and total xylenes (BTEX), and 5,000 ppm for total petroleum hydrocarbons (TPH).

Scope of Work

1. The lateral extent of the release area was defined by soil discoloration. To delineate the vertical extent of the crude oil affected area, A backhoe was used to dig two exploratory trenches in the affected area. Soil samples were collected every two feet in each trench and field tested using a photo-ionization detector (PID) to screen for volatile organic compounds (VOC). Diesel range petroleum hydrocarbons (TPH_{DRO}) were field screened using a PetroFLAG System.⁵ VOC and TPH_{DRO} field analysis were used determine the clean boundary of < 50 ppm VOC and < 5,000 ppm TPH.
2. Two soil samples from each soil trench (highest TPH_{DRO} reading and basal sample, 4 possible) were submitted to a laboratory for confirmation analyses (Figure 2). The samples were placed into glass sample jars, sealed with Teflon-lined lids, and placed on ice for transportation to an analytical laboratory where they were analyzed for total petroleum hydrocarbons (TPH_{DRO} and TPH_{GRO}, Method 8015) and BTEX (Method 8260). These analyses were used to confirm clean vertical boundaries have been identified.

⁵ U.S. Environmental Protection Agency, 2001. Innovative Technology Verification Report, Dexsil Corporation PetroFLAG™ System. Prepared by Tetra Tech EM Inc. for USEPA National Exposure Research Laboratory Office of Research and Development. EPA/R-01/092.

Findings

Excavations advanced during the investigation at the site encountered reddish sandy dunes soil. Summaries of subsurface soil conditions are presented in Table 1. A complete analytical report is presented in Appendix B.

TPH and BTEX laboratory analyses are present in Table 1. Gasoline and diesel range hydrocarbons (TPH_{GRO} and TPH_{DRO}), benzene, and BTEX concentrations in both trenches were detected above NMOCD remediation guidelines. TPH concentrations ranged from 10,500 milligrams per kilogram (mg/Kg) in trench T-1 (2 fbgs) to 125.7 mg/Kg in trench T-2 (15 fbgs). BTEX concentrations ranged from 661 mg/Kg (2 fbgs) to 0.25 mg/Kg (15 fbgs) in trench T-1. Benzene concentrations ranged from 19 mg/Kg in trench T-1 (2 bgs) to 0.03 mg/Kg in trench T-2 (15 fbgs).

Chloride concentrations in all samples collected were below New Mexico Water Quality Control Commission's human health standard of 250 ppm (NMWQCC; 20.6.2 NMAC § 3103.A).

Conclusions

According to laboratory analysis of soils collected during this investigation, TPH, benzene, and BTEX concentrations were above NMOCD action levels. TPH, benzene, and BTEX concentrations attenuated with depth in both trenches and they decreased from above guideline levels to below guideline levels. Exposure pathway analysis indicated a ranking score of "0." Therefore, the site-specific remediation levels are 5,000 mg/Kg for TPH, 50 mg/Kg for BTEX and 10 mg/Kg for benzene.

Based on field screening results and supported by laboratory analyses presented in Table 1, the chloride impacts to soil were below NMWQCC standard and no further action is required.

Recommendations

Tetra Tech recommends the following actions be taken at Loco Hills Truck Loading Station:

- Soil in the affected area will be excavated to a depth of approximately 8-10 feet and placed on 20-mil plastic.
- Five aliquot soil samples will be collected from every 50 cubic yards of excavated soil, composited into one sample, and submitted to a laboratory for toxic leaching procedure analysis (EPA method 1311/6260) to confirm that the benzene concentrations are below remediation guidelines. TPH_{DRO} and TPH_{GRO} analysis (Method 8015) will also be performed.
- Affected soil meeting regulatory guidelines will be hauled to a State approved disposal location.

- Adjacent soil will be pushed back into the excavation and the area contoured to reflect the surrounding sand dune environment.
- Tetra Tech will supervise and direct all subcontractor activities, and following the construction activities, prepare a report describing and documenting what was done for closure activities at the Site, including a site map. This report on activities and results will be submitted for NMOCD's review and ultimate closure of this voluntary remediation.

If you agree with these recommendations, Tetra Tech, on-behalf of CPPL, requests NMOCD's approval on the recommended remediation action. If you have any questions concerning this request please call Mr. Thomas Lacki (432-368-1254) or me.

Sincerely,

Tetra Tech, Inc.

Digitally signed by Charles Durrett
DN: CN = Charles Durrett, C = US, O = Tetra Tech
Reason: I am the author of this document
Date: 2008.05.14.17.23.04 -05'00'

Charles Durrett
Project Manager

Sincerely,

Tetra Tech, Inc.

Cc. Thomas Lacki, ConocoPhillips Pipe Line Company
Kirby Shipp, ConocoPhillips Pipe Line Company



Table 1
ConocoPhillips Pipe Line Company
 Loco Hills Truck Loading Station
 Subsurface Investigation
 4/7/2008

Location	Sample Depth (ft)	Chloride (mg/Kg)	TPH			Benzene (mg/Kg)	Ethyl-benzene (mg/Kg)	Toluene (mg/Kg)	Xylenes Total (mg/Kg)	Total BTEX (mg/Kg)
			GRO (mg/Kg)	DRO (mg/Kg)	Total (mg/Kg)					
T-1	2.0	6.99	5,700	4,800	10,500	19	200	190	252	661
	15.0	ND	8.3	180	188.3	0.05	0.05	0.06	0.08	0.25
T-2	2.5	ND	4,000	3,300	7,300	15	150	180	223	568
	15.0	109	5.7	120	125.7	0.03	0.14	0.11	0.25	0.54

ft = Feet

mg/Kg = Milligrams per kilogram

ND = Not detected at or above laboratory detection level

TPH = Total petroleum hydrocarbons

GRO = Gasoline range petroleum hydrocarbons

DRO = Diesel range petroleum hydrocarbons

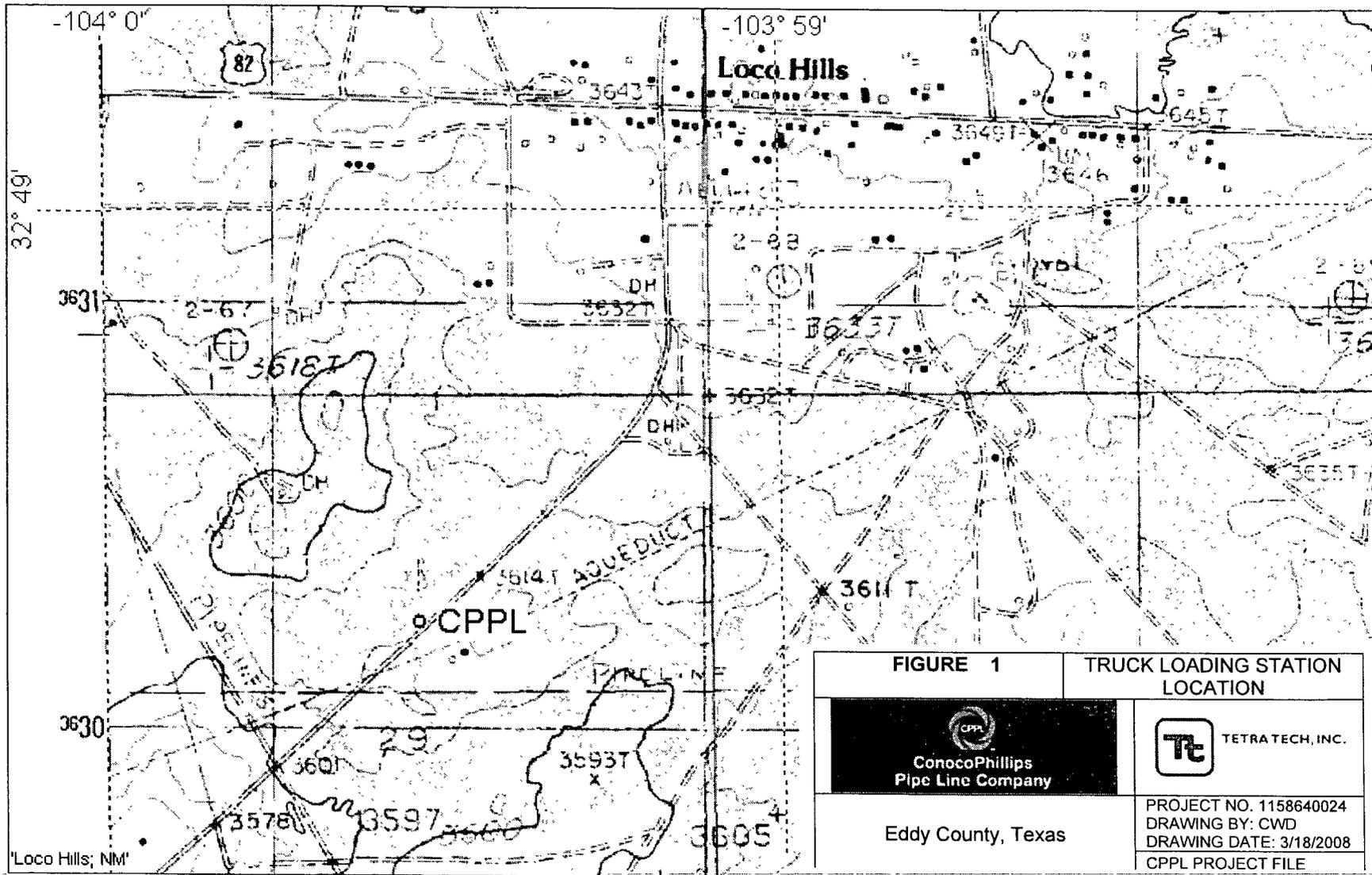
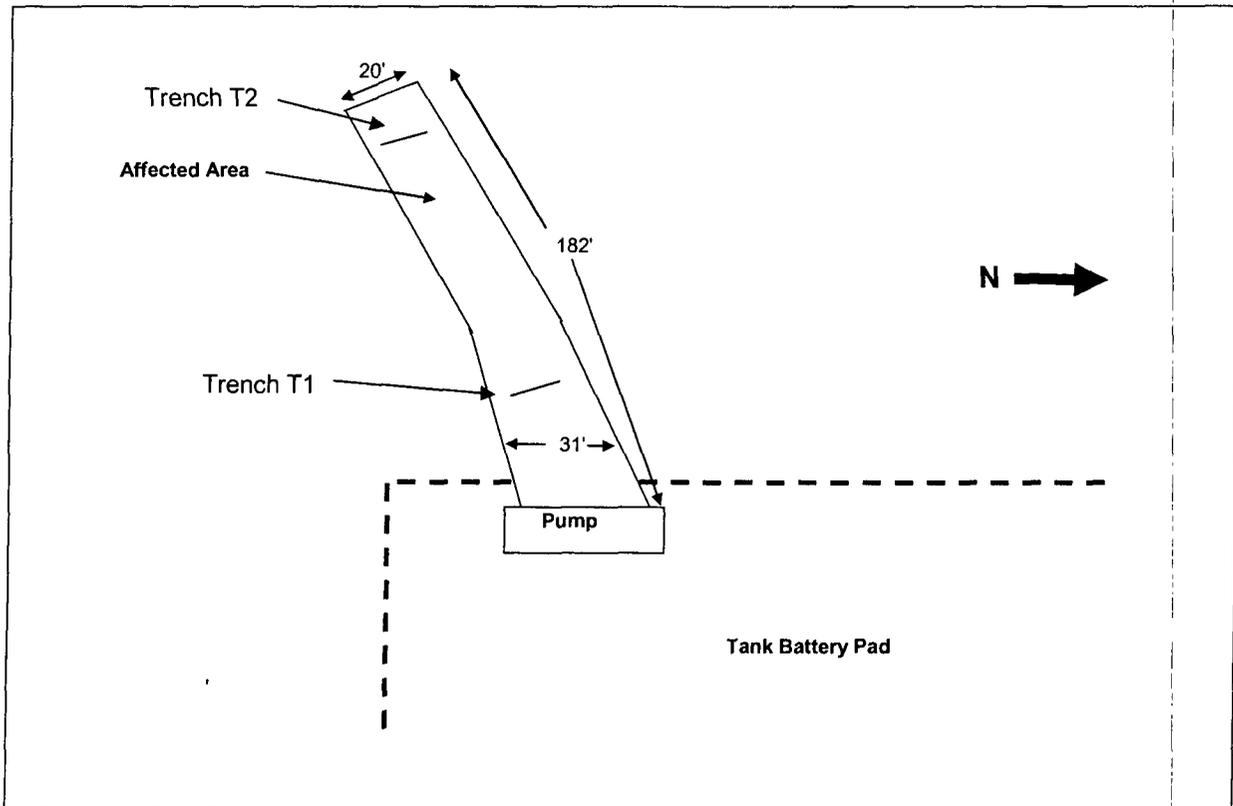


FIGURE 1		TRUCK LOADING STATION LOCATION	
 ConocoPhillips Pipe Line Company		 TETRA TECH, INC.	
Eddy County, Texas		PROJECT NO. 1158640024 DRAWING BY: CWD DRAWING DATE: 3/18/2008 CPPL PROJECT FILE	

Loco Hills, NM
 SOURCE: USGS, 1985. Loco Hills, New Mexico. Topographic Map. 1:24000 scale.



Not to Scale

FIGURE 2	CRUDE OIL RELEASE LOCATION
 ConocoPhillips Pipe Line Company	 TETRA TECH, INC.
Loco Hills Truck Loading Battery Eddy County, New Mexico	PROJECT NO: 1158640024 DRAWING BY: CWD DRAWING DATE: 5/01/2008 CPPL PROJECT FILE

APPENDIX A
C141

District I
1625 N French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S St. Francis Dr., Santa Fe, NM 87505

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

Form C-141
Revised October 10, 2003

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

MAR 17 2008
OCD-ARTESIA

3EB 0809433180
1 SEB 0809433030
ASEB 0809354487
258995 OPERATOR Initial Report Final Report

Name of Company - ConocoPhillips pipe Line Company	Contact - Kirby Shipp
Address - 4001 East 42 nd Street - Odessa, Tx. 79762	Telephone No. - 575/391-8262
Facility Name - Loco Hills Truck Unload Facility	Facility Type - Sour Crude Oil injection site

Surface Owner - U.S. Department of the Interior, Bureau of Land Management	Mineral Owner	Lease No. NM 101867
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	29	17S	30E	130 feet	Northwest	160 feet	West	Eddy

Latitude N32 48.491 Longitude W103 59.598

NATURE OF RELEASE

Type of Release - Crude oil	Volume of Release - 97 bbls.	Volume Recovered - 0
Source of Release - Pump site - suction pulsation dampner	Date and Hour of Occurrence - 02/27/08 - 04:50 to 05:17 PM	Date and Hour of Discovery - 02/27/08 - 05:17 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Ponca City control center, NMOCD Santa Fe Office; NMOCD District 2,	
By Whom? Kirby Shipp contacted the control center and Thomas Lacki contacted the NMOCD.	Date and Hour: NMOCD was contacted on 2/27/08 at approximately 8:35 p.m. and 8:40 p.m. respectively. (I was out of cell phone reach until 8.10 p.m.)	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse NA	

If a Watercourse was Impacted, Describe Fully.*
NA

Describe Cause of Problem and Remedial Action Taken.*
A bolt sheared off of a clamp holding an end cap on a suction pulsation dampner for a PD pump resulting in a fantail spray of crude oil. The pump is used to pull crude from the storage tank and LACT unit out to the line which feeds Buckeye Station. The release lasted approximately 1.25 hours.

Describe Area Affected and Cleanup Action Taken * The impact area is approximately 20 feet wide by 125 feet long and extends from the pipe line right of way out on to land owned by the Bureau of Land Management. Vacuum trucks were dispatched to the location; however, due to the dry sandy soil little to no oil was reclaimed. ConocoPhillips is currently working with TetraTech to develop a sampling plan to delineate the extent of the release. Once the extent of the contamination is known, a remediation plan will be developed to address the issues. Both the sampling and remediation plans will be submitted to your office for approval prior to implementation.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Thomas Lacki	Approved by District Supervisor	
Title: Environmental Coordinator	Approval Date: 4-2-08	Expiration Date:
E-mail Address: thomas.lacki@conocophillips.com	Conditions of Approval: REMEDIATION	
Date: 3/12/08 Phone: (432) 368-1315	Attached <input checked="" type="checkbox"/> WORK PLAN DUE 5-2-08	

* Attach Additional Sheets If Necessary
pSEB 0809433924

2RP-154

APPENDIX B
Laboratory Analyses



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips

Certificate of Analysis Number:

08040537

<u>Report To:</u> Tetra Tech Charlie Durrett 1703 W Industrial Avenue Midland TX 79701- ph: (432) 686-8081 fax:	<u>Project Name:</u> COP Loco Hills <u>Site:</u> Loco Hills, NM <u>Site Address:</u> <u>PO Number:</u> WO#4509610900 <u>State:</u> New Mexico <u>State Cert. No.:</u> <u>Date Reported:</u> 4/17/2008
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This Report Contains A Total Of 19 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

4/18/2008

Date



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TX 77054
 (713) 660-0901

Case Narrative for:
Conoco Phillips

Certificate of Analysis Number:
08040537

<p>Report To:</p> <p>Tetra Tech Charlie Durrett 1703 W Industrial Avenue</p> <p>Midland TX 79701- ph: (432) 686-8081 fax:</p>	<p>Project Name: COP Loco Hills</p> <p>Site: Loco Hills, NM</p> <p>Site Address:</p> <p>PO Number: WO#4509610900</p> <p>State: New Mexico</p> <p>State Cert. No.:</p> <p>Date Reported: 4/17/2008</p>
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Per our phone conversation on April 17, 2008, the SPLP analyses were cancelled due to limited sample volume received at the laboratory.

Per the Conoco Phillips TSM Revision 0, a copy of the internal chain of custody is to be included in final data package. However, due to LIMS limitations, this cannot be provided at this time.

Results for soils are reported on a dry-weight basis.

The samples submitted for Purgeable Aromatics by SW846 Method 8021B analyses were received in a vessel that is not stipulated in Method 5035A; the samples were preserved and/or analyzed within 48 hours of sample collection.

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Bethany A. Agarwal
 Senior Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.

08040537 Page 1

4/18/2008

Date



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TX 77054
 (713) 660-0901

Conoco Phillips

Certificate of Analysis Number:

08040537

Report To: Tetra Tech
 Charlie Durrett
 1703 W Industrial Avenue

Midland
 TX
 79701-
 ph: (432) 686-8081

fax: (432) 686-8085

Project Name: COP Loco Hills

Site: Loco Hills, NM

Site Address:

PQ Number: WO#4509610900

State: New Mexico

State Cert. No.:

Date Reported: 4/17/2008

Fax To:

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
T1.2.0'	08040537-01	Soil	4/8/2008 10:44:00 AM	4/9/2008 10:00:00 AM	293556	<input type="checkbox"/>
T2.15.0'	08040537-02	Soil	4/8/2008 10:57:00 AM	4/9/2008 10:00:00 AM	293556	<input type="checkbox"/>
T2.2.5'	08040537-03	Soil	4/8/2008 10:51:00 AM	4/9/2008 10:00:00 AM	293556	<input type="checkbox"/>
T1.15.0'	08040537-04	Soil	4/8/2008 10:47:00 AM	4/9/2008 10:00:00 AM	293556	<input type="checkbox"/>

Bethany A. Agarwal
 Senior Project Manager

4/18/2008

Date

Richard R. Reed
 Laboratory Director

Ted Yen
 Quality Assurance Officer



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TX 77054
 (713) 660-0901

Client Sample ID: T1.2.0' Collected: 04/08/2008 10:44 SPL Sample ID: 08040537-01

Site: Loco Hills, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B	Units: mg/kg-dry	
Diesel Range Organics (C10-C28)	4800		420	50	04/11/08 22:53	NW	4376871
Surr n-Pentacosane	D	*	% 20-154	50	04/11/08 22:53	NW	4376871

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550B	04/10/2008 16:48	QMT	1.60

GASOLINE RANGE ORGANICS				MCL	SW8015B	Units: mg/kg-dry	
Gasoline Range Organics	5700		100	1000	04/10/08 5:39	SFE	4372176
Surr: 1,4-Difluorobenzene	127		% 63-142	1000	04/10/08 5:39	SFE	4372176
Surr: 4-Bromofluorobenzene	321 MI	*	% 50-159	1000	04/10/08 5:39	SFE	4372176

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5035A	04/09/2008 18:32	SFE	1.00

ION CHROMATOGRAPHY				MCL	E300.0 MOD	Units: mg/kg-dry	
Chloride	6.99		5.2	1	04/16/08 12:27	A_E	4382187

PERCENT MOISTURE				MCL	D2216	Units: wt%	
Percent Moisture	3.84		0	1	04/10/08 16:58	GF	4373592

SPECIFIC CONDUCTANCE				MCL	SW9050	Units: umhos/cm-d	
Specific Conductance	376		104	1	04/16/08 11:15	PAC	4381325

VOLATILE ORGANICS BY METHOD 8260B				MCL	SW8260B	Units: ug/kg-dry	
Benzene	19000		13000	2500	04/10/08 13:16	LU_L	4373370
Ethylbenzene	200000		13000	2500	04/10/08 13:16	LU_L	4373370
Toluene	190000		13000	2500	04/10/08 13:16	LU_L	4373370
m,p-Xylene	180000		13000	2500	04/10/08 13:16	LU_L	4373370
o-Xylene	72000		13000	2500	04/10/08 13:16	LU_L	4373370
Xylenes, Total	252000		13100	2500	04/10/08 13:16	LU_L	4373370
Surr: 1,2-Dichloroethane-d4	79.7		% 64-130	2500	04/10/08 13:16	LU_L	4373370
Surr: 4-Bromofluorobenzene	104		% 62-130	2500	04/10/08 13:16	LU_L	4373370
Surr: Toluene-d8	95.6		% 70-140	2500	04/10/08 13:16	LU_L	4373370

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5035A	04/09/2008 12:00	LU_L	1.00

Qualifiers: ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)
 B/V - Analyte detected in the associated Method Blank D - Surrogate Recovery Unreportable due to Dilution
 * - Surrogate Recovery Outside Advisable QC Limits MI - Matrix Interference
 J - Estimated Value between MDL and PQL
 E - Estimated Value exceeds calibration curve
 TNTC - Too numerous to count



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TX 77054
 (713) 660-0901

Client Sample ID: T2.15.0' Collected: 04/08/2008 10:57 SPL Sample ID: 08040537-02

Site: Loco Hills, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B	Units: mg/kg-dry	
Diesel Range Organics (C10-C28)	120		58	10	04/11/08 17:51	NW	4376864
Surr n-Pentacosane	138		% 20-154	10	04/11/08 17:51	NW	4376864

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550B	04/10/2008 16:48	QMT	1.00

GASOLINE RANGE ORGANICS				MCL	SW8015B	Units: mg/kg-dry	
Gasoline Range Organics	5.7		2.9	25	04/10/08 3:43	SFE	4372172
Surr: 1,4-Difluorobenzene	96.3		% 63-142	25	04/10/08 3:43	SFE	4372172
Surr. 4-Bromofluorobenzene	116		% 50-159	25	04/10/08 3:43	SFE	4372172

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5035A	04/09/2008 18:37	SFE	1.00

ION CHROMATOGRAPHY				MCL	E300.0 MOD	Units: mg/kg-dry	
Chloride	109		11.6	2	04/16/08 13:16	A_E	4382190

PERCENT MOISTURE				MCL	D2216	Units: wt%	
Percent Moisture	13.7		0	1	04/10/08 16:58	GF	4373591

SPECIFIC CONDUCTANCE				MCL	SW9050	Units: umhos/cm-d	
Specific Conductance	2970		116	1	04/16/08 11:15	PAC	4381327

VOLATILE ORGANICS BY METHOD 8260B				MCL	SW8260B	Units: ug/kg-dry	
Benzene	34		5.8	1	04/10/08 20:16	TLE	4374034
Ethylbenzene	140		5.8	1	04/10/08 20:16	TLE	4374034
Toluene	110		5.8	1	04/10/08 20:16	TLE	4374034
m,p-Xylene	160		5.8	1	04/10/08 20:16	TLE	4374034
o-Xylene	94		5.8	1	04/10/08 20:16	TLE	4374034
Xylenes, Total	254		5.82	1	04/10/08 20:16	TLE	4374034
Surr: 1,2-Dichloroethane-d4	106		% 64-130	1	04/10/08 20:16	TLE	4374034
Surr 4-Bromofluorobenzene	87.6		% 62-130	1	04/10/08 20:16	TLE	4374034
Surr: Toluene-d8	99.6		% 70-140	1	04/10/08 20:16	TLE	4374034

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5035A	04/09/2008 17:44	TLE	1.00

Qualifiers: ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)
 B/V - Analyte detected in the associated Method Blank D - Surrogate Recovery Unreportable due to Dilution
 * - Surrogate Recovery Outside Advisable QC Limits MI - Matrix Interference
 J - Estimated Value between MDL and PQL
 E - Estimated Value exceeds calibration curve
 TNTC - Too numerous to count



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TX 77054
 (713) 660-0901

Client Sample ID:T2.2.5' Collected: 04/08/2008 10:51 SPL Sample ID: 08040537-03

Site: Loco Hills, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B	Units: mg/kg-dry	
Diesel Range Organics (C10-C28)	3300		260	50	04/11/08 23:19	NW	4376872
Surr: n-Pentacosane	D	*	% 20-154	50	04/11/08 23:19	NW	4376872

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550B	04/10/2008 16:48	QMT	1.00

GASOLINE RANGE ORGANICS				MCL	SW8015B	Units: mg/kg-dry	
Gasoline Range Organics	4000		1000	10000	04/10/08 6:08	SFE	4372177
Surr: 1,4-Difluorobenzene	103		% 63-142	10000	04/10/08 6:08	SFE	4372177
Surr: 4-Bromofluorobenzene	124		% 50-159	10000	04/10/08 6:08	SFE	4372177

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5035A	04/09/2008 18:42	SFE	1.00

ION CHROMATOGRAPHY				MCL	E300.0 MOD	Units: mg/kg-dry	
Chloride	ND		5.23	1	04/16/08 13:33	A_E	4382191

PERCENT MOISTURE				MCL	D2216	Units: wt%	
Percent Moisture	4.37		0	1	04/10/08 16:58	GF	4373590

SPECIFIC CONDUCTANCE				MCL	SW9050	Units: umhos/cm-d	
Specific Conductance	666		105	1	04/16/08 11:15	PAC	4381330

VOLATILE ORGANICS BY METHOD 8260B				MCL	SW8260B	Units: ug/kg-dry	
Benzene	15000		13000	2500	04/10/08 13:43	LU_L	4373371
Ethylbenzene	150000		13000	2500	04/10/08 13:43	LU_L	4373371
Toluene	180000		13000	2500	04/10/08 13:43	LU_L	4373371
m,p-Xylene	160000		13000	2500	04/10/08 13:43	LU_L	4373371
o-Xylene	63000		13000	2500	04/10/08 13:43	LU_L	4373371
Xylenes, Total	223000		13000	2500	04/10/08 13:43	LU_L	4373371
Surr: 1,2-Dichloroethane-d4	79.5		% 64-130	2500	04/10/08 13:43	LU_L	4373371
Surr: 4-Bromofluorobenzene	103		% 62-130	2500	04/10/08 13:43	LU_L	4373371
Surr: Toluene-d8	95.4		% 70-140	2500	04/10/08 13:43	LU_L	4373371

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5035A	04/09/2008 12:00	LU_L	1.01

Qualifiers: ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)
 B/V - Analyte detected in the associated Method Blank D - Surrogate Recovery Unreportable due to Dilution
 * - Surrogate Recovery Outside Advisable QC Limits MI - Matrix Interference
 J - Estimated Value between MDL and PQL
 E - Estimated Value exceeds calibration curve
 TNTC - Too numerous to count



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TX 77054
 (713) 660-0901

Client Sample ID: T1.15.0' Collected: 04/08/2008 10:47 SPL Sample ID: 08040537-04

Site: Loco Hills, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B	Units: mg/kg-dry	
Diesel Range Organics (C10-C28)	180		83	10	04/11/08 18:16	NW	4376865
Surr: n-Pentacosane	195 MI	*	% 20-154	10	04/11/08 18:16	NW	4376865

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550B	04/10/2008 16:48	QMT	1.40

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
GASOLINE RANGE ORGANICS				MCL	SW8015B	Units: mg/kg-dry	
Gasoline Range Organics	8.3		3	25	04/10/08 4:12	SFE	4372173
Surr: 1,4-Difluorobenzene	108		% 63-142	25	04/10/08 4:12	SFE	4372173
Surr: 4-Bromofluorobenzene	129		% 50-159	25	04/10/08 4:12	SFE	4372173

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5035A	04/09/2008 18:38	SFE	1.00

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
ION CHROMATOGRAPHY				MCL	E300.0 MOD	Units: mg/kg-dry	
Chloride	ND		5.95	1	04/16/08 13:49	A_E	4382192

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
PERCENT MOISTURE				MCL	D2216	Units: wt%	
Percent Moisture	15.9		0	1	04/10/08 16:58	GF	4373589

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
SPECIFIC CONDUCTANCE				MCL	SW9050	Units: umhos/cm-d	
Specific Conductance	716		119	1	04/16/08 11:15	PAC	4381332

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B				MCL	SW8260B	Units: ug/kg-dry	
Benzene	51		5.9	1	04/10/08 19:22	TLE	4374033
Ethylbenzene	52		5.9	1	04/10/08 19:22	TLE	4374033
Toluene	62		5.9	1	04/10/08 19:22	TLE	4374033
m,p-Xylene	50		5.9	1	04/10/08 19:22	TLE	4374033
o-Xylene	34		5.9	1	04/10/08 19:22	TLE	4374033
Xylenes, Total	84		5.9	1	04/10/08 19:22	TLE	4374033
Surr: 1,2-Dichloroethane-d4	102		% 64-130	1	04/10/08 19:22	TLE	4374033
Surr: 4-Bromofluorobenzene	90.4		% 62-130	1	04/10/08 19:22	TLE	4374033
Surr: Toluene-d8	100		% 70-140	1	04/10/08 19:22	TLE	4374033

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5035A	04/09/2008 17:44	TLE	1.00

Qualifiers: ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)
 B/V - Analyte detected in the associated Method Blank D - Surrogate Recovery Unreportable due to Dilution
 * - Surrogate Recovery Outside Advisable QC Limits MI - Matrix Interference
 J - Estimated Value between MDL and PQL
 E - Estimated Value exceeds calibration curve
 TNTC - Too numerous to count

Quality Control Documentation



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Diesel Range Organics
Method: SW8015B

WorkOrder: 08040537
Lab Batch ID: 77509

Method Blank

Samples in Analytical Batch:

RunID HP_V_080411C-4376853 Units mg/kg
Analysis Date: 04/11/2008 12:23 Analyst: NW
Preparation Date: 04/10/2008 16:48 Prep By: QMT Method SW3550B

Lab Sample ID Client Sample ID
08040537-01A T1.2.0'
08040537-02A T2.15.0'
08040537-03A T2.2.5'
08040537-04A T1.15.0'

Table with 3 columns: Analyte, Result, Rep Limit. Rows include Diesel Range Organics (C10-C28) and Surr. n-Pentacosane.

Laboratory Control Sample (LCS)

RunID: HP_V_080411C-4376854 Units: mg/kg
Analysis Date: 04/11/2008 12:48 Analyst: NW
Preparation Date: 04/10/2008 16:48 Prep By: QMT Method SW3550B

Table with 6 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Rows include Diesel Range Organics (C10-C28) and Surr. n-Pentacosane.

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040600-01
RunID: HP_V_080411C-4376875 Units: mg/kg
Analysis Date: 04/13/2008 12:30 Analyst: NW
Preparation Date: 04/10/2008 16:48 Prep By: QMT Method SW3550B

Table with 12 columns: Analyte, Sample Result, MS Spike Added, MS Result, MS % Recovery, MSD Spike Added, MSD Result, MSD % Recovery, RPD, RPD Limit, Low Limit, High Limit. Rows include Diesel Range Organics (C10-C28) and Surr. n-Pentacosane.

Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference
B/V - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
J - Estimated value between MDL and PQL * - Recovery Outside Advisable QC Limits
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Gasoline Range Organics
Method: SW8015B

WorkOrder: 08040537
Lab Batch ID: R233594

Method Blank

RunID: HP_S_080409A-4372156 Units: mg/kg
Analysis Date: 04/09/2008 18:34 Analyst: SFE
Preparation Date: 04/09/2008 18:34 Prep By: Method

Samples in Analytical Batch:

Lab Sample ID Client Sample ID
08040537-01A T1 2 0'
08040537-02A T2.15 0'
08040537-03A T2.2.5'
08040537-04A T1.15 0'

Table with 3 columns: Analyte, Result, Rep Limit. Rows include Gasoline Range Organics, Surr: 1,4-Difluorobenzene, and Surr: 4-Bromofluorobenzene.

Methanolic Preparation Blank

RunID: HP_S_080409A-4372157 Units: mg/kg
Analysis Date: 04/09/2008 19:03 Analyst: SFE
Preparation Date: 04/09/2008 19:03 Prep By: Method SW5030B

Table with 3 columns: Analyte, Result, Rep Limit. Rows include Gasoline Range Organics, Surr: 1,4-Difluorobenzene, and Surr: 4-Bromofluorobenzene.

Laboratory Control Sample (LCS)

RunID: HP_S_080409A-4372155 Units: mg/kg
Analysis Date: 04/09/2008 18:05 Analyst: SFE
Preparation Date: 04/09/2008 18 05 Prep By: Method SW5030B

Table with 6 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Rows include Gasoline Range Organics, Surr: 1,4-Difluorobenzene, and Surr: 4-Bromofluorobenzene.

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040533-04
RunID: HP_S_080409A-4372166 Units: mg/kg-dry
Analysis Date: 04/09/2008 23:52 Analyst: SFE
Preparation Date: 04/09/2008 17:42 Prep By: SFE Method SW5030B

Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference
B/V - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
J - Estimated value between MDL and PQL * - Recovery Outside Advisable QC Limits
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Gasoline Range Organics
Method: SW8015B

WorkOrder: 08040537
Lab Batch ID: R233594

Table with 12 columns: Analyte, Sample Result, MS Spike Added, MS Result, MS % Recovery, MSD Spike Added, MSD Result, MSD % Recovery, RPD, RPD Limit, Low Limit, High Limit. Rows include Gasoline Range Organics, Surr: 1,4-Difluorobenzene, and Surr: 4-Bromofluorobenzene.

Qualifiers: ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 08040537
Lab Batch ID: 77504

Method Blank

Samples in Analytical Batch:

RunID: K_080410A-4373369 Units: ug/kg
Analysis Date: 04/10/2008 12:46 Analyst: LU_L

Lab Sample ID Client Sample ID
08040537-01A T1.2 0'
08040537-03A T2 2.5'

Table with 3 columns: Analyte, Result, Rep Limit. Rows include Benzene, Ethylbenzene, Toluene, m,p-Xylene, o-Xylene, Xylenes, Total, and various Surrogate compounds.

Laboratory Control Sample (LCS)

RunID: K_080410A-4373368 Units: ug/kg
Analysis Date: 04/10/2008 12:06 Analyst: LU_L

Table with 6 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Rows include Benzene, Ethylbenzene, Toluene, m,p-Xylene, o-Xylene, Xylenes, Total, and various Surrogate compounds.

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040537-03
RunID: K_080410A-4373372 Units: ug/kg-dry
Analysis Date: 04/10/2008 14:11 Analyst: LU_L
Preparation Date: 04/09/2008 12:00 Prep By: LU_ Method SW5035A

Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference
B/V - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
J - Estimated value between MDL and PQL * - Recovery Outside Advisable QC Limits
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 08040537
Lab Batch ID: 77504

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	14600	21	66900	N/C	21	65900	N/C	N/C	21	66	142
Ethylbenzene	146000	21	209000	N/C	21	209000	N/C	N/C	30	35	175
Toluene	178000	21	220000	N/C	21	230000	N/C	N/C	21	59	139
m,p-Xylene	157000	42.1	272000	N/C	42.1	272000	N/C	N/C	30	35	175
o-Xylene	62700	21	115000	N/C	21	125000	N/C	N/C	30	35	175
Xylenes, Total	220000	63	390000	N/C	63	400000	N/C	N/C	30	35	175
Surr: 1,2-Dichloroethane-d4	ND	52.6	100000	76.3	52.6	105000	79.5	4.08	30	64	130
Surr: 4-Bromofluorobenzene	ND	52.6	136000	103	52.6	136000	103	0	30	62	130
Surr. Toluene-d8	ND	52.6	125000	95.4	52.6	125000	95.4	0	30	70	140

Qualifiers: ND/U - Not Detected at the Reporting Limit
 B/V - Analyte detected in the associated Method Blank
 J - Estimated value between MDL and PQL
 E - Estimated Value exceeds calibration curve
 N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
 TNTC - Too numerous to count

MI - Matrix Interference
 D - Recovery Unreportable due to Dilution
 * - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 08040537
Lab Batch ID: 77519

Method Blank

Samples in Analytical Batch:

RunID: M_080410C-4374025 Units: ug/kg
Analysis Date: 04/10/2008 12.05 Analyst: TLE

Lab Sample ID Client Sample ID
08040537-02A T2.15.0'
08040537-04A T1.15.0'

Table with 3 columns: Analyte, Result, Rep Limit. Rows include Benzene, Ethylbenzene, Toluene, m,p-Xylene, o-Xylene, Xylenes, Total, and various Surrogate standards.

Laboratory Control Sample (LCS)

RunID: M_080410C-4373999 Units: ug/kg
Analysis Date: 04/10/2008 11:11 Analyst: TLE

Table with 6 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Rows include Benzene, Ethylbenzene, Toluene, m,p-Xylene, o-Xylene, Xylenes, Total, and various Surrogate standards.

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040530-03
RunID: M_080410C-4374027 Units: ug/kg-dry
Analysis Date: 04/10/2008 13:00 Analyst: TLE
Preparation Date: 04/09/2008 17:44 Prep By: TLE Method SW5035A

Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference
B/V - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
J - Estimated value between MDL and PQL * - Recovery Outside Advisable QC Limits
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 08040537
Lab Batch ID: 77519

Table with 12 columns: Analyte, Sample Result, MS Spike Added, MS Result, MS % Recovery, MSD Spike Added, MSD Result, MSD % Recovery, RPD, RPD Limit, Low Limit, High Limit. Rows include Benzene, Ethylbenzene, Toluene, m,p-Xylene, o-Xylene, Xylenes, Total, and various Surrogate standards.

Qualifiers: ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added
TNTC - Too numerous to count
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
Control limits do not apply.

QC results presented on the QC Summary Report have been rounded RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: PERCENT MOISTURE
Method: D2216

WorkOrder: 08040537
Lab Batch ID: R233674C

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
08040537-01A	T1.2.0'
08040537-02A	T2.15.0'
08040537-03A	T2.2.5'
08040537-04A	T1.15.0'

Sample Duplicate

Original Sample: 08040537-04
RunID: WET_080410K-4373589 Units: wt%
Analysis Date: 04/10/2008 16 58 Analyst: GF

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Percent Moisture	15.9	15.86	0	20

Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference
 B/V - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
 J - Estimated value between MDL and PQL * - Recovery Outside Advisable QC Limits
 E - Estimated Value exceeds calibration curve
 N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
 TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Specific Conductance
Method: SW9050

WorkOrder: 08040537
Lab Batch ID: R234183

Method Blank

Samples in Analytical Batch:

RunID: WET_080416B-4381320 Units: umhos/cm
Analysis Date: 04/16/2008 11:15 Analyst: PAC

Lab Sample ID Client Sample ID
08040537-01A T1 2.0'
08040537-02A T2 15.0'
08040537-03A T2.2.5'
08040537-04A T1 15.0'

Analyte	Result	Rep Limit
Specific Conductance	ND	100

Laboratory Control Sample (LCS)

RunID: WET_080416B-4381322 Units: umhos/cm
Analysis Date: 04/16/2008 11:15 Analyst: PAC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Specific Conductance	1413	1381	97.74	90	110

Sample Duplicate

Original Sample: 08040537-04
RunID: WET_080416B-4381332 Units: umhos/cm-dry
Analysis Date: 04/16/2008 11:15 Analyst: PAC

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Specific Conductance	716	721.8	0.827	10

Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference
B/V - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
J - Estimated value between MDL and PQL * - Recovery Outside Advisable QC Limits
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules



Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips
COP Loco Hills

Analysis: Ion Chromatography
Method: E300.0 MOD

WorkOrder: 08040537
Lab Batch ID: R234234

Method Blank

RunID: IC1_080416A-4382183 Units: mg/kg
Analysis Date 04/16/2008 11:21 Analyst: A_E

Samples in Analytical Batch:

Lab Sample ID Client Sample ID
08040537-01A T1.2.0'
08040537-02A T2.15.0'
08040537-03A T2.2.5'
08040537-04A T1.15.0'

Table with 3 columns: Analyte, Result, Rep Limit. Row: Chloride, ND, 5.0

Laboratory Control Sample (LCS)

RunID: IC1_080416A-4382184 Units: mg/kg
Analysis Date 04/16/2008 11:38 Analyst: A_E

Table with 6 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Row: Chloride, 100.0, 96.98, 96.98, 80, 120

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 08040537-01
RunID: IC1_080416A-4382188 Units: mg/kg-dry
Analysis Date: 04/16/2008 12:43 Analyst: A_E

Table with 12 columns: Analyte, Sample Result, MS Spike Added, MS Result, MS % Recovery, MSD Spike Added, MSD Result, MSD % Recovery, RPD, RPD Limit, Low Limit, High Limit. Row: Chloride, 6.988, 104, 102.2, 91.58, 104, 102.3, 91.65, 0.07119, 20, 75, 125

Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference
B/V - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
J - Estimated value between MDL and PQL * - Recovery Outside Advisable QC Limits
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

*Sample Receipt Checklist
And
Chain of Custody*



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TX 77054
 (713) 660-0901

Sample Receipt Checklist

Workorder:	08040537	Received By:	AE
Date and Time Received:	4/9/2008 10:00:00 AM	Carrier name:	Fedex-Standard Overnight
Temperature	3.0°C	Chilled by:	Water Ice

- 1. Shipping container/cooler in good condition? Yes No Not Present
- 2. Custody seals intact on shipping container/cooler? Yes No Not Present
- 3. Custody seals intact on sample bottles? Yes No Not Present
- 4. Chain of custody present? Yes No
- 5. Chain of custody signed when relinquished and received? Yes No
- 6. Chain of custody agrees with sample labels? Yes No
- 7. Samples in proper container/bottle? Yes No
- 8. Sample containers intact? Yes No
- 9. Sufficient sample volume for indicated test? Yes No
- 10. All samples received within holding time? Yes No
- 11. Container/Temp Blank temperature in compliance? Yes No
- 12. Water - VOA vials have zero headspace? Yes No VOA Vials Not Present
- 13. Water - Preservation checked upon receipt (except VOA*)? Yes No Not Applicable

*VOA Preservation Checked After Sample Analysis

SPL Representative:

Contact Date & Time:

Client Name Contacted:

Non Conformance Issues:

Client Instructions:



SPL, Inc.

SPL Workorder No.

293556

Analysis Request & Chain of Custody Record

08040537

page of

Client Name: Tetra Tech, Inc.
 Address: 1703 West Industrial Drive
 Phone/Fax: 432 676 9081 / 432 676 9085
 Client Contact: Charles Durrett Email: charles.durrett@tetra.tech
 Project Name/No.: CPL Loco Hills tetra.tech.com
 Site Name: " "
 Site Location: Loco Hills, NM
 Invoice To: _____ Ph: _____

matrix	bottle	size	pres.	Number of Containers	Requested Analysis									
					TPH GRO	TPH DRO	BTEX	SPUP/BTEX	chloride	SPUP/chloride	Specific Conductivity			
W=water S=soil O=oil SL=sludge X=other	P=plastic A=amber glass G=glass V=vial X=other	1=1 liter 4=4oz 40=vial 8=8oz 16=16oz X=other	1=HCl 2=HNO3 3=H2SO4 X=other											
					X	X	X		X		X			
					X	X	X	X	X	X	X			
					X	X	X		X		X			
					X	X	X	X	X	X	X			

Client/Consultant Remarks:

Laboratory remarks:

Intact? Y N
 Ice? Y N
 Temp: 3.0

Requested TAT
 Contract 72hr
 24hr Standard
 48hr
 Other

Special Reporting Requirements Results: Fax Email PDF
 Standard QC Level 3 QC Level 4 QC TX TRRP LA RECAP

Special Detection Limits (specify): _____

PM-review (initial): BA

1. Relinquished by Sampler: [Signature] date: 4/8/08 time: 17:00

2. Received by: _____

3. Relinquished by: _____ date: _____ time: _____

4. Received by: _____

5. Relinquished by: _____ date: 4/9/08 time: 1000

6. Received by Laboratory: [Signature]

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500 Ambassador Caffery Parkway Scott, LA 70583 (337) 237-4775

459 Hughes Drive Traverse City, MI 49686 (231) 947-5777