

#### **BTA OIL PRODUCERS**

104 SOUTH PECOS STREET
MIDLAND, TEXAS 79701
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aug 15 2008 OCD-ARTESIA

August 14, 2008

NEW MEXICO OIL CONSERVATION DIVISION DISTRICT II Artesia Field Office 1301 W. Grand Avenue Artesia, New Mexico 88210

Re: Pardue, 8808 JV-P SWD Injection Facility NE/4, NE/4, Section 11, T23S, R28E, Eddy County, New Mexico

Dear Ms. Bonham,

This is a copy of the site remediation plan, for the 8709 JV-P Pardue SWD Injection Facility site. We will not begin work on the project until BTA Oil Producers, LLC have received approval of the plan. Thank you for your time in this matter. Should you have any questions, feel free to contact me at 432.553.5352.

Regards,

Joseph A. (Skip) Baca, P.G. Environmental Coordinator

BTA Oil Producers

104 South Pecos

Midland, Texas 79701



# PARDUE SWD SITE REMEDIATION PLAN

8808 JV-P Pardue SWD Injection Facility 20 Miles southeast of Carlsbad, New Mexico Carlsbad, New Mexico BTA Project Number Env. 2008-025

Prepared for:

New Mexico Oil Conservation Division
1301 W. Grand Avenue
Artesia, New Mexico 88210

Prepared By: BTA Oil Producers 104 S. Pecos St. Midland, Texas 79701

Joseph A. Baca, P.G. Environmental Coordinator BTA Oil Producers, LLC

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#### 1.0 INTRODUCTION

BTA Oil Producers (BTA) is pleased to submit this Pardue SWD Site Remediation Plan for the 8808 JV-P Pardue SWD Injection Facility (Pardue). The Pardue site is located approximately 20 miles southeast of the town of Carlsbad, in the NE/4, NE/4, of Section 11, Township 23 South, Range 28 East, and Eddy County, New Mexico. Ground Positioning Satellite (GPS) coordinates are N32°18.771' and W104°03.633'. A site map is provided with this report as Figure 1.

BTA's Pardue SWD Injection Facility (Pardue) is located on top of an east trending topographic nose, approximately 40-feet above the west bank of the Pecos River. The area of interest is located on the southern end of the topographic nose. The overall nose area measures approximately 541-feet long by 485-feet wide. The impacted site measures approximately 177-feet on the west side, 77-feet on the east side and is approximately 163-feet long. The area is parallelogram shaped with the wider end to the west. Soil in the site area is composed of fine sandy loam with large limestone cobbles on the surface and solid rock at approximately 2 to 3 feet below ground surface (bgs). During the sample event of February 15, 2008 and the sampling event of April 16, 2008, while excavating to collecting bottom hole soil samples, it was found that solid rock existed below 1-foot in some places and 3-foot in other places within the impacted area and was difficult to excavate.

On February 15, 2008 soil samples were collected from the floor of the impacted site and submitted for laboratory analysis. Three soil samples, identified as 1-1'-Spl, 2-2'-Spl and 2-3'-Spl were collected from two (2) separate sample excavations within the impacted area. Sample 1-1'-Spl was collected from an excavation labeled Sample Excavation No. 1 on the floor of the impacted area at a depth of approximately 1-foot below ground surface (bgs). Samples 2-2'-Spl and 2-3'-Spl were collected from an excavation labeled Sample Excavation No. 2 also on the floor of the impacted area at a depth of 2-feet and 3-feet bgs (Figure 2). The samples were submitted for laboratory analysis and the analytical results indicated that the samples exhibited GRO and DRO (8015) concentrations of <50.0 mg/Kg to 680 mg/Kg. The sample exhibiting the highest GRO and DRO was subsequently run for BTEX (8021B) and exhibited <0.100 mg/Kg for Benzene, 0.712 mg/Kg Toluene, .0322 for Ethylbenzene and 2.01 mg/Kg for Xylene. Chloride analytical results ranged from 2,430 mg/Kg to 15,900 mg/Kg (Table 1).

On March 19, 2008 soil samples were collected from the floor of the impacted site and submitted for laboratory analysis. Four (4) soil samples, identified as North-1@1', South-2-1', East-3@1' and West-4@1' were collected from four (4) separate sample excavations within the impacted area (Figure 2). All samples were collected from the bottom of excavations 1-foot deep. The samples were submitted for laboratory analysis and the analytical results indicated that the samples exhibited Chloride concentrations ranging from 898 mg/Kg to 3,110 mg/Kg (Table 1).

On April 16, 2008 soil samples were collected from the floor of the impacted site and submitted for laboratory analysis. Three (3) grab samples from five sample points were used and totaled fifteen (15) samples. The samples were collected in one (1') foot intervals down to a depth of 3-feet. The samples are identified as NS-1@1', NS-1@2' and NS-1@3' (N32° 18.788; W104° 03.650), SS-1@1', SS-1@2' and SS-1@3' (N32° 18.777; W104° 03.661), ES-1@1', ES-1@2' and ES-1@3' (N32° 18.781, W104°03.644) and WS-1@1', WS-1@2', WS-1@3' (N32° 18.785, W104° 03.664) and Central @ 1', Central @ 2' and Central @ 3' (N32° 18.782, W104° 03.652) (Appendix B). The samples were submitted for DRO, GRO, BTEX and Chloride analysis. The analytical

results indicated DRO concentrations ranging from <50.0 mg/Kg to 396.0 mg/Kg, DRO concentrations of <1.00 mg/Kg to 30.5 mg/Kg, Benzene concentrations of <0.0100 mg/Kg, Toluene concentrations of <0.0100 mg/Kg, Ethylene concentration of <0.0100 mg/Kg and Xylene concentration of <0.0100. Chloride analytical results ranged from 294 mg/Kg to 4,950 mg/Kg (Table 1). The sample from each sampling point exhibiting the highest GRO and DRO was subsequently run for BTEX (8021B). Only one sample out of the sampling event identified as Central @1' exhibited GRO and DRO greater than regulatory limits and was subsequently analyzed for BTEX (Table 1).

On July 24, 2008 six mechanical auger borings were advanced to a depth of 8-feet. Soil samples were collected and soil descriptions were prepared from each boring at 3-feet, 6-feet and 8-feet below ground surface (bgs) (Appendix C). The borings were advanced at select locations around the remediation site (Figure 2). The boring locations were selected in areas that would define the limits of impact to soils and receptors. All soil boring samples were submitted for laboratory analysis. Six mechanical auger borings were advanced to 8-feet and three (3) soil samples were collected from each boring. The samples were collected at 3-feet, 6-feet and 8-feet intervals. The samples are identified as N@3', N@6' and N@8' (N32° 18.804; W104° 03.669), S@3', S@6' and S@8' (N32° 18.774; W104° 03.664), E@3', E@6' and E@8' (N32° 18.790, W104° 03.647) and W@3', W@6', W@8' (N32° 18.784, W104° 03.684) and Central@3', Central@6' and Central@8' (N32° 18.789, W104° 03.665) and Back@3', Back@6' and Back@8' (N32° 18.869, W104° 03.706) (Figure 2). The samples were submitted for DRO, GRO, BTEX and Chloride analysis. The analytical results indicated DRO concentrations ranging from <50.0 mg/Kg to 947.0 mg/Kg, DRO concentrations of <1.00 mg/Kg to 2.47 mg/Kg, Benzene concentrations of <0.0100 mg/Kg, Toluene concentrations of <0.0100 mg/Kg, Ethylene concentration of <0.0100 mg/Kg and Xylene concentration of <0.0100. Chloride analytical results ranged from 429 mg/Kg to 3,240 mg/Kg (Table 1). The sample from each sampling point exhibiting the highest GRO was subsequently run for BTEX (8021B). Only one soil from the sampling event identified as Central@8' exhibited a DRO of 947.0 mg/Kg, which is greater than regulatory limits (Table 1).

Laboratory submitted samples were placed in a new sterile glass container, equipped with a Teflon-lined lid furnished by the laboratory. The samples were labeled, placed on ice, chilled to a temperature of approximately 4°C and transported to Trace Analysis, Inc in Midland, Texas for analysis of Chlorides by titration. Appropriate chain-of-custody documentation and shipping protocols were followed. The laboratory analytical reports are provided in Appendix A. Figure 2 displays the excavation limits and the location of each confirmation soil sample. Table 1 displays the analytical results of field tested and laboratory analyzed confirmation soil samples.

#### 2.0 PURPOSE OF PLAN

The purpose of this report is to document field activities that will take place at the Pardue in order to remediate the site and present supporting data to meet that end. Using data from four (4) sampling events, BTA has evaluated the vertical and horizontal impact of contaminants on the remediation site. BTA's will remove up to three-feet (3) of impacted soil from the existing project surface. We will backfill the excavation with clean caliche to prevent further issues, and crown the caliche surface. A 20 mil poly-liner will be installed and trenches measuring approximately 1-foot wide by 3-feet deep will be excavated around the perimeter of the remediation site. The edge of the liner will be "Z" folded placed into the trench and backfilled. The poly-liner surface will be backfilled with approximately 4-feet of clean soil and brought up

to the existing facility grade (Figure 4). The area will be leveled to meet the overall existing surface grade.

The Pardue SWD is an active facility and BTA Oil Producers, LLC respectfully requests that the OCD accept this plan as an assessment of risk in lieu of total remediation. The remediation plan and removal of the pipeline to the pit as a best management practice (BMP) demonstrates that the remaining contaminants will not pose a threat to present or foreseeable beneficial use of fresh waters, public health and the environment. Three chloride concentration contour maps, drawn from data collected at 3-feet, 6-feet and 8-feet are included with this plan (Figure 5). Drawing number 1 demonstrates the chloride in the soil at 3-feet (Map 1). This map uses all data collected in subsequent sampling events and demonstrates that the majority of chloride concentration is located within the project site. Data from the 6-foot and 8-foot sampling event of July 24, 2008 are used to draw maps 2 and 3. These contour maps demonstrate that the majority of the chloride concentration is contained within the project site boundary. The use of a poly-liner is a excellent barrier and will prevent movement of chlorides away from the project site. The background sample point identified as Back@3, 6, 8 samples is approximately 300 feet from the center of the Pardue remediation site (Figure 5). The chemical analysis of these samples indicates that chloride concentration is above state limits for chloride (Table 1). The six (6) bore holes are the only data stations deep enough to collect sample from 6-feet and 8-feet.

#### 3.0 SUMMARY OF FIELD ACTIVITIES

BTA will move in a track-hoe and a front-end loader onto the Pardue site. The track-hoe will excavate the approximate top 3-feet, remove the material, and level the excavation floor. A 20-mil poly liner would be installed and new fresh soil place over the new liner and backfilled to existing grade.

#### 4.0 WATER WELLS AND SURFACE WATER

There are no water wells in the immediate area. There is surface water in close proximity and there are two water wells approximately 3,600-feet (0.68 miles) north of the impacted site in SE/4, NW/4, NW/4, Section 11, Township 23 South, Range 28 East, Eddy County, New Mexico. Well C00512 has a depth to water at 15-feet and is used for irrigation. Well C 00608 has no depth to water recorded according to the New Mexico Office of the State Engineer and it is used as a domestic well (Figure 3). Fifty (50) feet below the project site and directly east, approximately 249-feet is the Pecos River. The river flows approximately north to south and the area is characterized by salt cedar brush on the both banks and a crust of alkali that is easily visible on both banks of the Pecos River.

#### 5.0 LIMITATIONS

BTA has prepared this Site Remediation Plan to the best of its ability. No other warranty, expressed or implied, is made or intended. BTA has examined and relied upon documents referenced in the plan and on oral statements made by certain individuals. BTA has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements are true and accurate. BTA has prepared this plan in a professional manner, using a degree of skill and care. BTA also notes that the facts and

conditions referenced in this report may change over time, and the conclusions set forth herein are applicable only to the facts and conditions as described at the time of this plan.

# 6.0 DISTRIBUTION LIST Pardue SWD Injection Facility Remediation Plan BTA Oil Producers 8808 JV-P Pardue SWD Injection Facility BTA Project No. Env. 2008-025

Copy 1

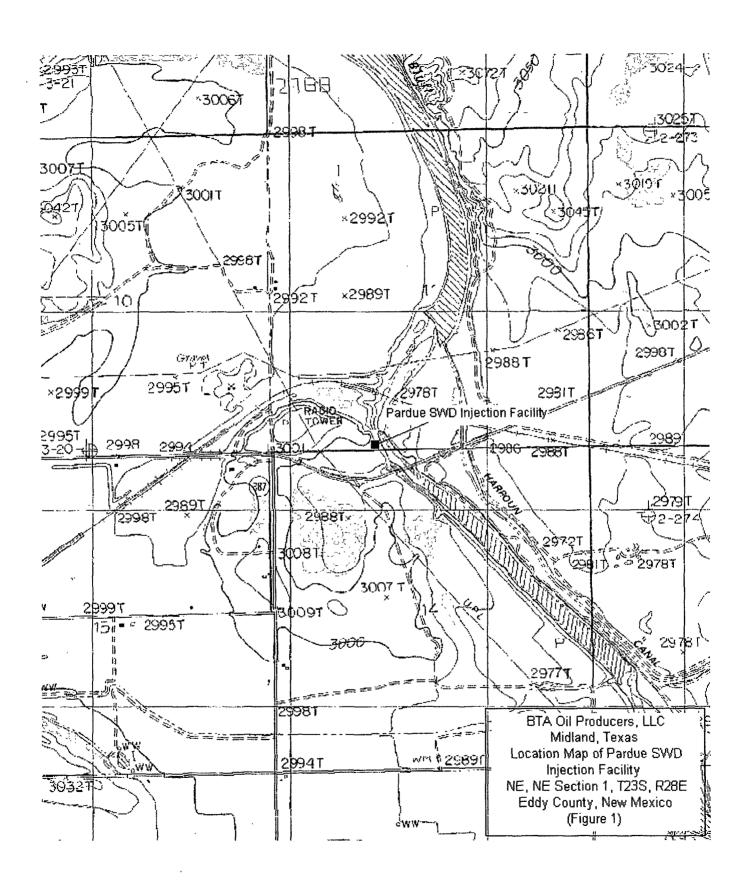
Oil Conservation Division (OCD) 1301 W. Grand Avenue Artesia, New Mexico 88210

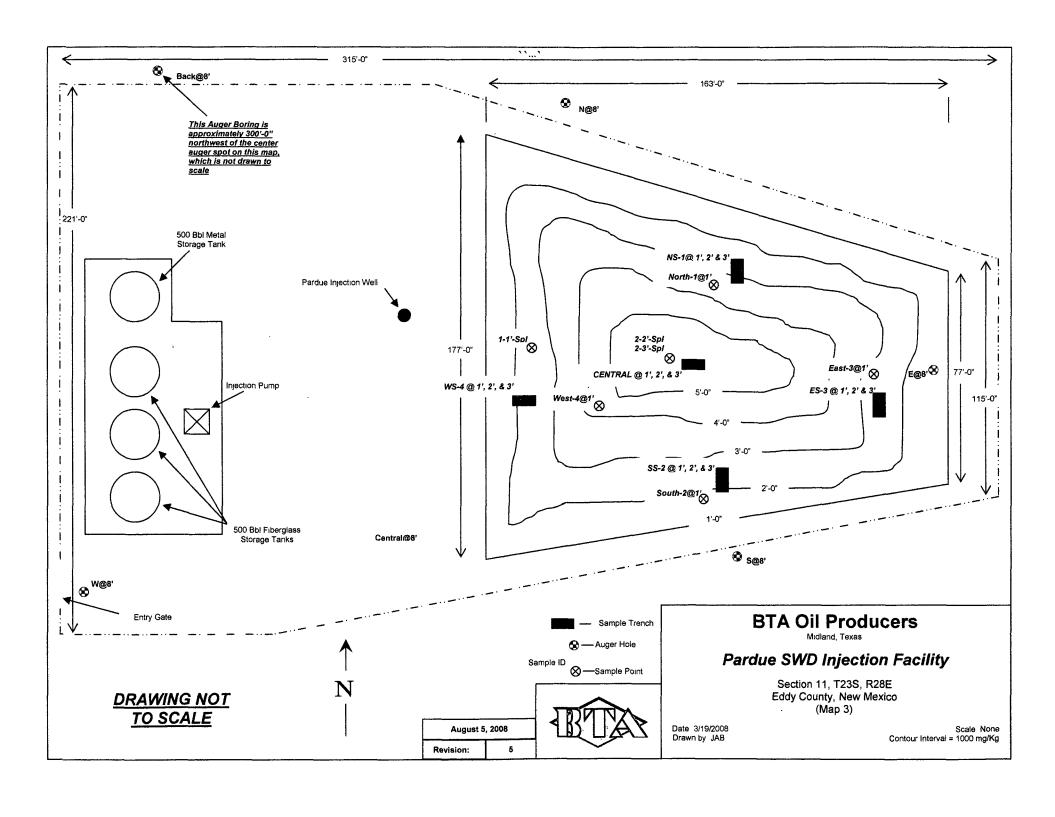
Copy 2

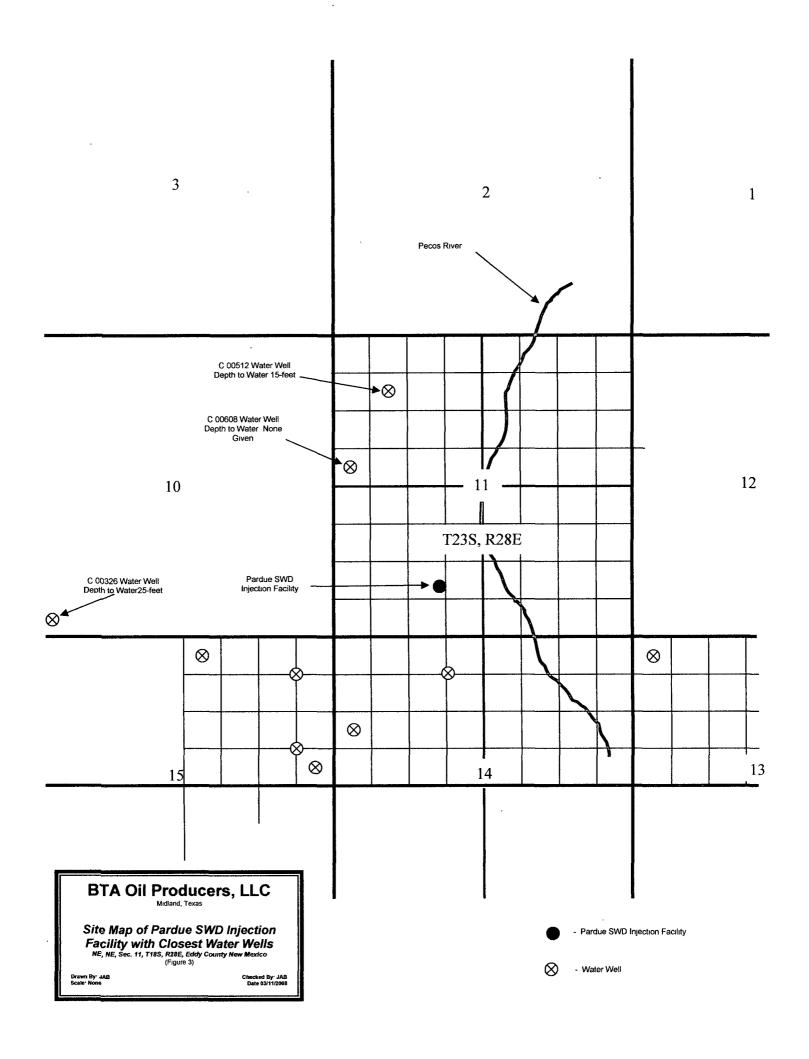
**BTA Central File** 

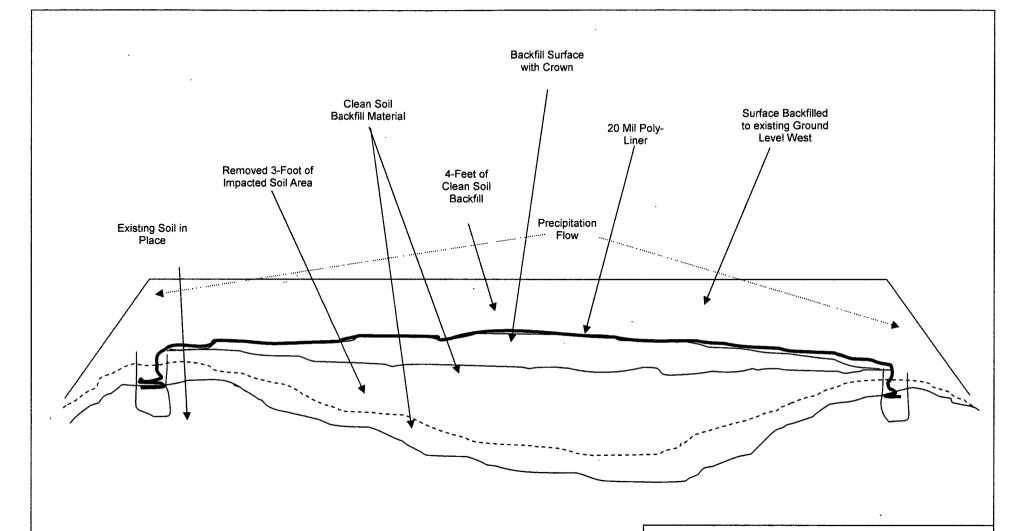
# **ATTACHMENTS**

# **FIGURES**









DRAWING NOT TO SCALE



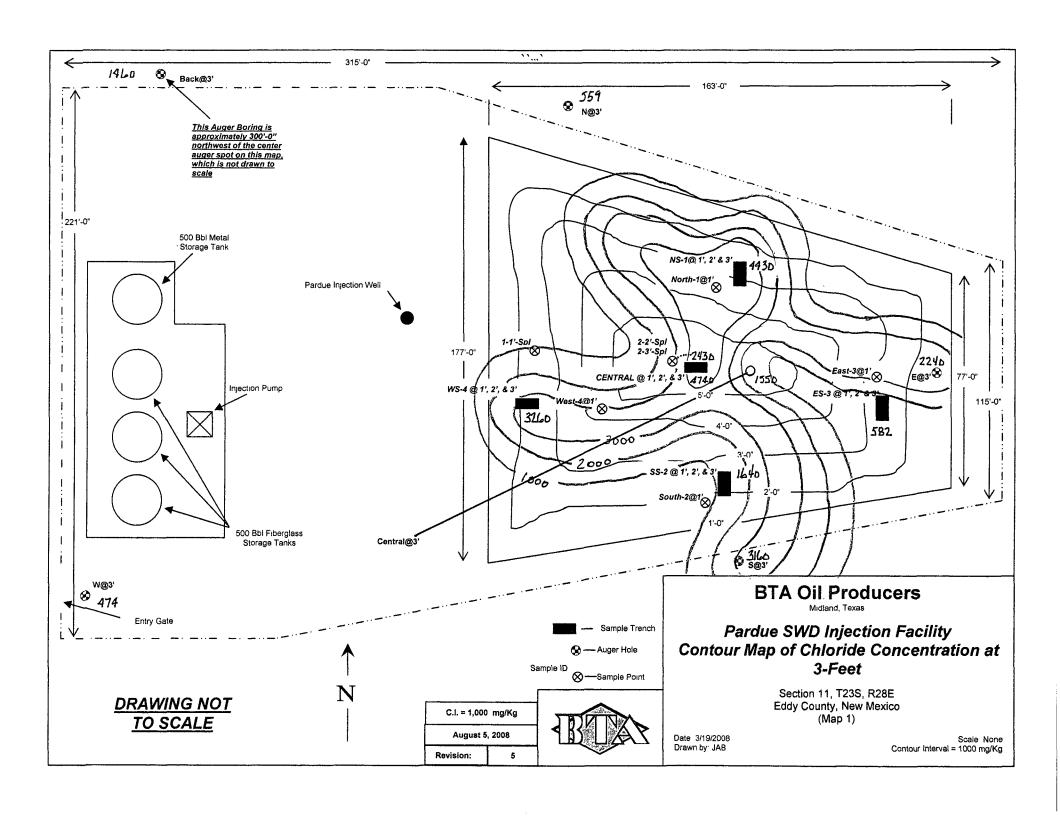
### BTA Oil Producers Midland, Texas

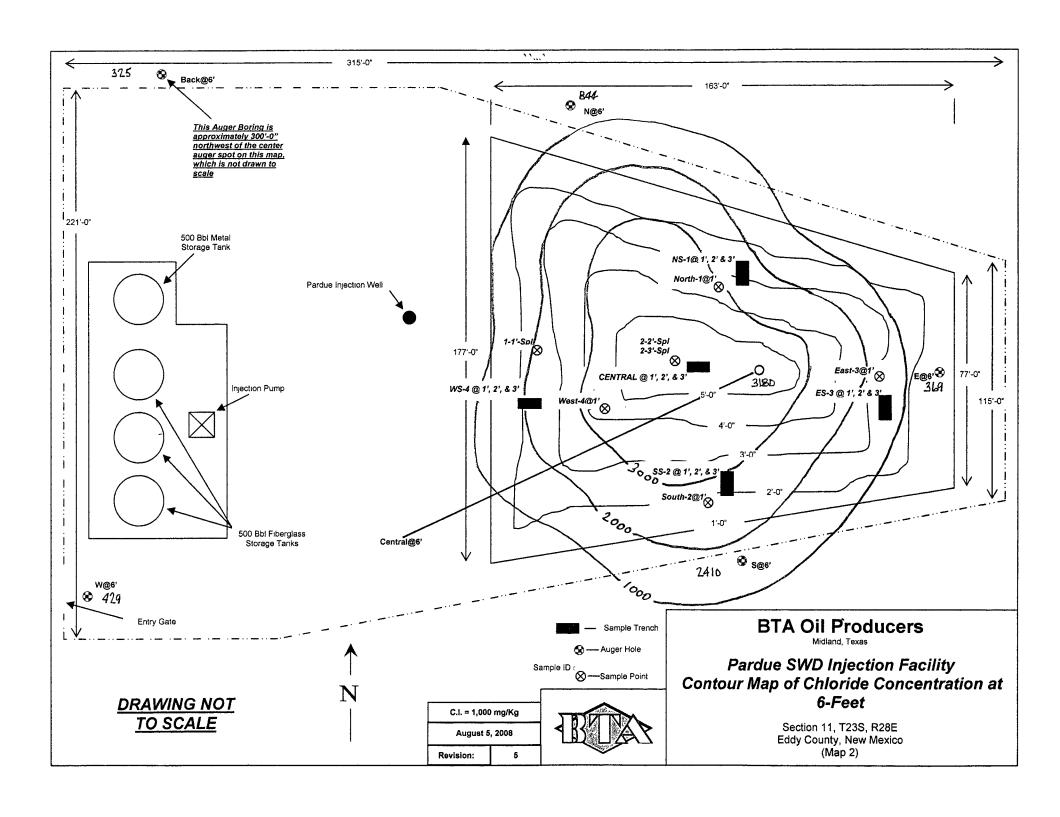
**Exaggerated Diagrammatical** Representation Showing Excavation, Liner and Backfill Materials

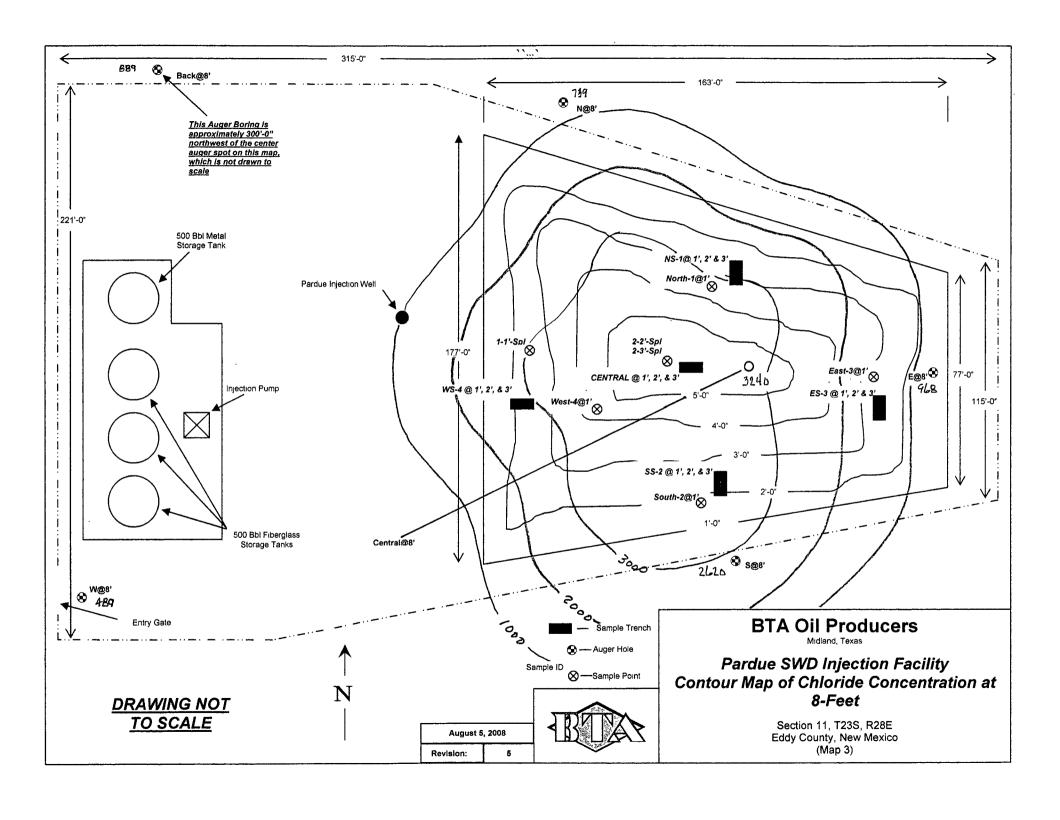
> Section 11, T23S, R28E Eddy County, New Mexico (Figure 4)

Date 3/19/2008 Drawn by JAB

Scale None Checked by JAB







# TABLES

#### Table I

## Excavation Soil TPH GRO and DRO Analytical Results Excavation Soil BTEX Analysis

#### **Excavation Soil Chloride Analysis**

#### BTA - Pardue SWD Injection Facility - Lea County, New Mexico New Mexico NMOCD Inspection # iREI0724042324

BTA Project Number Env. 2008-025

GLE 2,990'

Analytical Methods

	ANALYTICAL METHOD Mod. 8015B S 8015B S 8021B SM						CM 4500 CT D		
	ANALYTICAL METHOD		Mod. 8015B	S 8015B	<del></del>		0U21D		SM 4500-CL B
SAMPLE DATE	SAMPLE IDENTIFICATION	TOTAL TPH	TPH DRO mg/Kg	TPH GRO mg/Kg	BENZENE mg/Kg	TOLUENE mg/Kg	ETHYLBENZE NE mg/Kg	XYLENE mg/Kg	CHLORIDES (mg/Kg)
	Excavation	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	i mile . cie	المرابع المرابع	5. 30	19 15 1 10 15 15 15 15 15 15 15 15 15 15 15 15 15	State of the state of the state of	N. "21	" 1 The LONG "
2/15/2008	1-1'-Spl		455 00	230 00		0.71	0.32	2 01	15,900
2/15/2008	2-2'-Spl	216 80	139 00	77 80	NA	NA	NA	NA	3,510
2/15/2008	2-3'-Spl	51.80	<50 0	1.08	NA	NA	NA	NA	2,430
3/19/2008	North-1@1'	NA	NA	NA	NA	NA	NA	NA	3,110
3/19/2008	South-2@1'	NA	NA	NA	NA	NA	NA	NA	1,190
3/19/2008	East-3@1'	NA	NA	NA	NA	NA.	NA	NA	898
3/19/2008	West-4@1'	NA	NA	NA	NA	NA	NA	NA	2,540
4/16/2008	NS-1@1'	<51.00	<50.0	<1 00	NA	NA	NA	NA	NA
4/16/2008	NS-1@2'	<51 00	<50.0	<1.00	NA	NA	NA	NA	3,980
4/16/2008	NS-1@3'	<51 00	<50 0	<1.00	NA	NA	NA	NA	4,430
4/16/2008	SS-2@1'	<51 00	<50 0	<1.00	NA	NA	NA	NA	NA
4/16/2008	SS-2@2'	<51.00	<50 0	<1.00	NA	NA	NA	NA	2,590
4/16/2008	SS-2@3'	<51.00	<50 0	<1.00	NA	NA	NA	NA	1,640
4/16/2008	ES-3@1'	<51.00	<50 0	<1.00	NA	NA	NA.	NA	NA
4/16/2008	ES-3@2'	<51.00	<50 0	<1 00	NA	NA	NA	NA.	294
4/16/2008	ES-3@3'	<51.00	<50 0	<1 00	NA	NA	NA	NA	582
4/16/2008	WS-4@1'	<51.00	<50 0	<1 00	NA	NA	NA	NA	NA
4/16/2008	WS-4@2'	<51.00	<50.0	<1 00	NA	NA	NA	NA NA	4,320
4/16/2008	WS-4@3'	<51.00	<50.0	<1.00	NA	NA	NA	NA	3,260
4/16/2008	Central @1'	426.50	396.0	30,50	<0 0100	<0 0100	<0 0100	< 0.0100	NA
4/16/2008	Central @2'	<51 01	<50 0	1 01	NA	NA	NA NA	NA	4,950
4/16/2008	Central @3'	58 43	56.0	2.43	, NA	NA	NA	NA	4,740
7/24/2008	N @ 3"	<51.25	<50 0	1.25	NA	NA	NA	NA	559
7/24/2008	N @ 6"	<51.28	<50 0	1,28	<0 0100	< 0 0100	<0.0100	< 0.0100	739
7/24/2008	N @ 8"	<51.22	<50 0	1.22	NA	NA	NA	NA	844
7/24/2008	S @ 3"	<51.07	<50 0	1.07	<0 0100	<0 0100	<0.0100	<0.0100	3,160
7/24/2008	S @ 6"	<51.00	<50 0	<1 00	NA	NA	NA	NA	2,620
7/24/2008	S @ 8"	<51.00	<50 0	<1 00	NA	NA	NA NA	NA	2,410
7/24/2008	E @ 3"	<51.00	<50 0	<1 00	NA	NA	NA	NA	2,240
7/24/2008	E@6"	<51.00	<50.0	<1.00	NA NA	NA NA	NA NA	NA NA	968
7/24/2008	E @ 8"	<52.00	<50 0	<2.00	NA NA	NA NA	NA NA	NA NA	369 474
7/24/2008 7/24/2008	W @ 3"	<51 09	<50 0	1.09	NA <0 0100	NA <0 0100	NA <0.0100	NA <0.0100	474
7/24/2008	W @ 6"	<51.13	<50 0 <50,0			<0 0100 NA	<0,0100 NA		489
7/24/2008	W @ 8"	<51 01	<50.0 <50.0	1 01	NA NA	NA NA	NA NA	NA NA	1,550
7/24/2008	Central @ 3'	<51 65 <51,78	<50.0 <50.0	1 78	<0 0100	<0.0100		<0,0100	3,240
7/24/2008	Central @ 6' Central @ 8'		947.0	1,32	<0.0100 NA	<0.0100 NA		<0.0100 NA	3,240
7/24/2008	Back @ 3'		<50 0	2.47	<0 0100	<0 0100		<0 0100	1,460
7/24/2008	Back @ 6'	<51 09	<50 0	1.09	\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	NA	\0 0100 NA	NA	889
7/24/2008	Back @ 8'	<51.10	<50 0	1.10	NA NA	NA NA	NA NA	NA NA	325
114412000	Daux (a) 6	~31,10	>300	1,10	INA	INA	NA	INA	343

Note Values in bold are outside regulatory limits

# **APPENDICES**

Appendix A

Page Number: 1 of 3 20 miles SE Carlsbad, NM

### **Summary Report**

Skip Baca BTA Oil Producers 104 S. Pecos

Midland, TX, 79701

Report Date: July 31, 2008

Work Order: 8072448

Project Location: 20 miles SE Carlsbad, NM Project Name: Pardue SWD Facility

Project Number: ENV 2008-025

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
168281	N @ 3'	soil	2008-07-24	09:19	2008-07-24
168282	N @ 6'	soil	2008-07-24	09:28	2008-07-24
168283	N @ 8'	soil	2008-07-24	09:41	2008-07-24
168284	S @ 3'	soil	2008-07-24	08:35	2008-07-24
168285	S @ 6'	soil	2008-07-24	08:48	2008-07-24
168286	S @ 8'	soil	2008-07-24	08:55	2008-07-24
168287	E @ 3'	soil	2008-07-24	11:21	2008-07-24
168288	E @ 6'	soil	2008-07-24	11:29	2008-07-24
168289	E @ 8'	soil	2008-07-24	11:37	2008-07-24
168290	W @ 3'	soil	2008-07-24	13:17	2008-07-24
168291	W @ 6'	soil	2008-07-24	13:25	2008-07-24
168292	W @ 8'	soil	2008-07-24	13:34	2008-07-24

		1	TPH DRO	TPH GRO		
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
168281 - N @ 3'					< 50.0	1.25
168282 - N @ 6'	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 50.0	1.28
168283 - N @ 8'					< 50.0	1.22
168284 - S @ 3'	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 50.0	1.07
168285 - S @ 6'					< 50.0	<1.00
168286 - S @ 8'				İ	< 50.0	<1.00
168287 - E @ 3'					< 50.0	<1.00
168288 - E @ 6'					< 50.0	< 1.00
168289 - E @ 8'				ŀ	< 50.0	< 2.00
168290 - W @ 3'					< 50.0	1.09
168291 - W @ 6'	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 50.0	1.13
168292 - W @ 8'					< 50.0	1.01

Report Date: July 31, 2008 Work Order: 8072448 Page Number: 2 of 3 20 miles SE Carlsbad, NM ENV 2008-025 Pardue SWD Facility Sample: 168281 - N @ 3' Param Flag Result Units RLChloride 559 mg/Kg 2.00 Sample: 168282 - N @ 6' Param Result Units RLFlag 2.00 Chloride 739 mg/Kg Sample: 168283 - N @ 8' Units RLResult Param Flag Chloride 844 mg/Kg 2.00 Sample: 168284 - S @ 3' Flag Units RLParam Result 2.00Chloride 3160 mg/Kg Sample: 168285 - S @ 6' Units RLParam Flag Result 2620 2.00 Chloride mg/Kg Sample: 168286 - S @ 8' Flag Result Units RLParam 2410 2.00 Chloride mg/Kg Sample: 168287 - E @ 3' Param Flag Result Units RL2240  $\overline{\mathrm{mg/Kg}}$ 2.00 Chloride Sample: 168288 - E @ 6' Flag Units RLParam Result 2.00 Chloride 968 mg/Kg

Work Order: 8072448 Page Number: 3 of 3 Report Date: July 31, 2008 ENV 2008-025 Pardue SWD Facility 20 miles SE Carlsbad, NM Sample: 168289 - E @ 8' Param Result Units RLFlag 369 mg/Kg 2.00 Chloride Sample: 168290 - W @ 3' RLParam Result Units Flag 474 2.00 Chloride mg/Kg Sample: 168291 - W @ 6' Units RLParam Flag Result Chloride 489 mg/Kg 2.00 Sample: 168292 - W @ 8' Flag Units RLParam Result Chloride 429 mg/Kg 2.00



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E

5002 Basin Street, Suite A1 -

6015 Harris Parkway, Surte 110 Ft. Worth, Texas 76132

Lubbock, Texas 79424 El Paso, Texas 79922

Midland, Texas 79703

888 • 588 • 3443 432 • 689 • 6301

806 • 794 • 1296 915 • 585 • 3443

FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

817 • 201 • 5260

E-Mail, lab@traceanalysis.com

#### **NELAP** Certifications

Lubbock: T104704219-08-TX

LELAP-02003

Kansas E-10317

T104704221-08-TX El Paso:

LELAP-02002

Midland: T104704392-08-TX

### **Analytical and Quality Control Report**

Skip Baca **BTA Oil Producers** 104 S. Pecos

Midland, TX, 79701

Report Date: August 8, 2008

Work Order:

Project Location: 20 miles SE Carlsbad, NM Project Name: Pardue SWD Facility

Project Number: ENV 2008-025

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	${f Time}$	$\mathbf{Date}$
Sample	Description	Matrix	${f Taken}$	$\operatorname{Taken}$	Received
168281	N @ 3'	soil	2008-07-24	09:19	2008-07-24
168282	N @ 6'	soil	2008-07-24	09:28	2008-07-24
168283	N @ 8'	soil	2008-07-24	09:41	2008-07-24
168284	S @ 3'	soil	2008-07-24	08:35	2008-07-24
168285	S @ 6'	soil	2008-07-24	08:48	2008-07-24
168286	S @ 8'	soil	2008-07-24	08:55	2008-07-24
168287	E @ 3'	soil	2008-07-24	11:21	2008-07-24
168288	E @ 6'	soil	2008-07-24	11:29	2008-07-24
168289	E @ 8'	soil	2008-07-24	11:37	2008-07-24
168290	W @ 3'	soil	2008-07-24	13:17	2008-07-24

			Date	${f Time}$	$\operatorname{Date}$
Sample	Description	Matrix	Taken	Taken	Received
168291	W @ 6'	soil	2008-07-24	13:25	2008-07-24
168292	W @ 8'	soil	2008-07-24	13:34	2008-07-24

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 29 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

#### Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

#### Case Narrative

Samples for project Pardue SWD Facility were received by TraceAnalysis, Inc. on 2008-07-24 and assigned to work order 8072448. Samples for work order 8072448 were received intact at a temperature of 3.9 deg. C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
BTEX	S 8021B
Chloride (Titration)	SM 4500-Cl B
TPH DRO	Mod. 8015B
TPH GRO	S 8015B

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 8072448 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: August 8, 2008

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Work Order: 8072448 Pardue SWD Facility

Page Number: 4 of 29 20 miles SE Carlsbad, NM

Prep Method: N/A

### **Analytical Report**

Sample: 168281 - N @ 3'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 50956 Prep Batch: 43719

Analytical Method: SM 4500-Cl B 2008-07-31

Date Analyzed: Sample Preparation: 2008-07-29

Analyzed By: AR Prepared By: AR

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		559	mg/Kg	50	2.00

Sample: 168281 - N @ 3'

Laboratory: Midland

Analysis: TPH DRO QC Batch: 50791 Prep Batch: 43548

Analytical Method: Mod. 8015B Date Analyzed: 2008-07-25 Sample Preparation: 2008-07-25

Prep Method: N/A Analyzed By: LD Prepared By: LD

RLParameter Flag Result

Units Dilution RLDRO < 50.0 mg/Kg 50.0

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	Result	$\mathbf{Units}$	Dilution	Amount	Recovery	Limits
n-Triacontane		43.1	mg/Kg	1	100	43	10 - 250.4

Sample: 168281 - N @ 3'

Laboratory: Midland

TPH GRO Analysis: QC Batch: 50869 Prep Batch: 43655

Analytical Method: S 8015B Date Analyzed: 2008-07-29 Sample Preparation: 2008-07-29

Prep Method: S 5035 Analyzed By: DCPrepared By: DC

RLFlag Parameter Result Units Dilution RL $\overline{GRO}$ 1.25 mg/Kg  $\overline{1}$ 1.00

Surrogate	Flag	Result	Units	Dilution	$egin{array}{c} \mathbf{Spike} \ \mathbf{Amount} \end{array}$	Percent Recovery	$egin{array}{c}  ext{Recovery} \  ext{Limits} \end{array}$
Trifluorotoluene (TFT)		1.07	mg/Kg	1	1.00	107	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.11	m mg/Kg	1	1.00	111	63.8 - 141
4-Bromofluorobenzene (4-BFB)		1.11	mg/Kg	1	1.00	111	_

Report Date: August 8, 2008 Work Order: 8072448 Page Number: 5 of 29 ENV 2008-025 Pardue SWD Facility 20 miles SE Carlsbad, NM

#### Sample: 168282 - N @ 6'

Laboratory:	Midland
A 1 ·	D/DDD3Z

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 50899 Date Analyzed: 2008-07-29 Analyzed By: DC Prep Batch: 43655 Sample Preparation: 2008-07-29 Prepared By: DC

		RL			
Parameter	Flag	Result	$\mathbf{Units}$	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	m mg/Kg	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	$\mathrm{mg/Kg}$	1	0.0100

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.845	mg/Kg	1	1.00	84	68 - 136.9
4-Bromofluorobenzene (4-BFB)		0.879	$_{ m mg/Kg}$	1	1.00	. 88	48.2 - 155

#### Sample: 168282 - N @ 6'

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 50956 Date Analyzed: Analyzed By: AR2008-07-31 Prep Batch: 43719 Sample Preparation: 2008-07-29 Prepared By: AR

		$\mathrm{RL}$			
Parameter	Flag	Result	Units	Dilution	$\mathrm{RL}$
Chloride		739	mg/Kg	50	2.00

#### Sample: 168282 - N @ 6'

Laboratory: Midland

Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A QC Batch: 50791 Date Analyzed: 2008-07-25 Analyzed By: LD Prep Batch: 43548 Sample Preparation: 2008-07-25 Prepared By: LD

		RL			
Parameter	Flag	Result	Units	Dilution	RL
DRO		< 50.0	mg/Kg	1	50.0

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		104	m mg/Kg	1	100	104	10 - 250.4

Report Date: August 8, 2008 Work Order: 8072448 Page Number: 6 of 29 ENV 2008-025 Pardue SWD Facility 20 miles SE Carlsbad, NM

#### Sample: 168282 - N @ 6'

TPH GRO Prep Method: S 5035 Analysis: Analytical Method: S 8015B Analyzed By: DCQC Batch: 50869 Date Analyzed: 2008-07-29 Prepared By: DC Prep Batch: 43655 Sample Preparation: 2008-07-29

RL

Parameter	$\operatorname{Flag}$	Result	Units		Dilution	t		RL
GRO	В	1.28	mg/Kg		1			1.00
				G 21	Т.		ъ	

					Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.06	mg/Kg	1	1.00	106	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.09	mg/Kg	1	1.00	109	63.8 - 141

#### Sample: 168283 - N @ 8'

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 50956 Date Analyzed: 2008-07-31 Analyzed By: AR Prep Batch: 43719 Sample Preparation: 2008-07-29 Prepared By: AR

		$\mathbf{RL}$			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		844	mg/Kg	50	2.00

#### Sample: 168283 - N @ 8'

Laboratory: Midland

TPH DRO Analysis: Analytical Method: Mod. 8015B Prep Method: N/A QC Batch: 50791 Date Analyzed: 2008-07-25 Analyzed By: LDPrep Batch: 43548 Sample Preparation: 2008-07-25 Prepared By: LD

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane	1	298	${ m mg/Kg}$	1	100	298	10 - 250.4

<sup>&</sup>lt;sup>1</sup>High surrogate recovery. Sample non-detect, result bias high.

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Work Order: 8072448 Pardue SWD Facility

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Sample: 168283 - N @ 8'

Laboratory: Midland

Analysis: TPH GRO QC Batch: 50869 Prep Batch: 43655

Analytical Method: S 8015B Date Analyzed: 2008-07-29 Sample Preparation: 2008-07-29 Prep Method: S 5035 Analyzed By: DCPrepared By: DC

RL

Parameter	Flag	Result	Units	Dilution	RL
GRO	В	1.22	mg/Kg	1	1.00

					$\mathbf{Spike}$	Percent	$\operatorname{Recovery}$
Surrogate	Flag	Result	$\mathbf{Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.03	mg/Kg	1	1.00	103	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.07	mg/Kg	1	1.00	107	63.8 - 141

Sample: 168284 - S @ 3'

Laboratory: Midland

Analysis: BTEX QC Batch: 50899 Prep Batch: 43655

S 8021B Analytical Method: Date Analyzed: 2008-07-29 Sample Preparation: 2008-07-29 Prep Method: S 5035 Analyzed By: DCPrepared By: DC

		RL			
Parameter	$\mathbf{Flag}$	$\mathbf{Result}$	Units	Dilution	m RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	mg/Kg	. 1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.790	mg/Kg	1	1.00	79	68 - 136.9
4-Bromofluorobenzene (4-BFB)		0.829	$_{ m mg/Kg}$	1	1.00	83	48.2 - 155

Sample: 168284 - S @ 3'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 50956 Prep Batch: 43719

Analytical Method: SM 4500-Cl B Date Analyzed: 2008-07-31 Sample Preparation: 2008-07-29

Prep Method: N/A Analyzed By: ARPrepared By: AR

	a a	RL			
Parameter	$\operatorname{Flag}$	Result	Units	Dilution	RL
Chloride		3160	mg/Kg	50	2.00

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Sample: 168284 - S @ 3'

Midland Laboratory:

Prep Method: N/A Analysis: TPH DRO Analytical Method: Mod. 8015B Analyzed By: QC Batch: 50791 Date Analyzed: 2008-07-25 LD 2008-07-25 Prep Batch: 43548 Sample Preparation: Prepared By: LD

RLResult Units Dilution RLParameter Flag 50.0  $\overline{\text{DRO}}$ < 50.0 mg/Kg

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		119	mg/Kg	1	100	119	10 - 250.4

Sample: 168284 - S @ 3'

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035 QC Batch: 50869 Date Analyzed: 2008-07-29 Analyzed By: DC Prep Batch: 43655 Sample Preparation: 2008-07-29 Prepared By: DC

RLParameter Flag Result Units Dilution RLGRO 1.07 1.00 mg/Kg 1

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.993	mg/Kg	1	1.00	99	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.03	mg/Kg	1	1.00	103	63.8 - 141

Sample: 168285 - S @ 6'

Laboratory: Midland

Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A Analysis: QC Batch: Date Analyzed: 2008-07-31 Analyzed By: AR50957 Prep Batch: Sample Preparation: 2008-07-29 Prepared By: AR 43720

RLResult Units Dilution RLParameter Flag 2620 2.00 Chloride mg/Kg 50

Report Date: August 8, 2008 Work Order: 8072448 Page Number: 9 of 29 ENV 2008-025 Pardue SWD Facility 20 miles SE Carlsbad, NM

Sample: 168285 - S @ 6'

Laboratory: Midland

Prep Method: N/A Analysis: TPH DRO Analytical Method: Mod. 8015B Analyzed By: LD QC Batch: 50791 Date Analyzed: 2008-07-25 Prepared By: LD Prep Batch: 43548 Sample Preparation: 2008-07-25

Percent Spike Recovery Result Units Dilution Amount Recovery Limits Surrogate Flag 100 167 10 - 250.4 167 n-Triacontane mg/Kg 1

Sample: 168285 - S @ 6'

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035 QC Batch: 50869 Date Analyzed: 2008-07-29 Analyzed By: DC2008-07-29 Prepared By: DCPrep Batch: 43655 Sample Preparation:

Spike Percent Recovery Limits Surrogate Flag Result Units Dilution Amount Recovery Trifluorotoluene (TFT) 1.00 10367.5 - 135.2 1.03 mg/Kg 1 108 63.8 - 141 1.08 1.00 4-Bromofluorobenzene (4-BFB) mg/Kg 1

Sample: 168286 - S @ 8'

Laboratory: Midland

SM 4500-Cl B Prep Method: N/A Chloride (Titration) Analytical Method: Analysis: 2008-07-31 Analyzed By: AR QC Batch: 50957 Date Analyzed: Sample Preparation: 2008-07-29 Prepared By: AR Prep Batch: 43720

Report Date: August 8, 2008 Work Order: 8072448 Page Number: 10 of 29 ENV 2008-025 Pardue SWD Facility 20 miles SE Carlsbad, NM

Sample: 168286 - S @ 8'

Laboratory: Midland

TPH DRO Analysis: Analytical Method: Mod. 8015B Prep Method: N/A QC Batch: 50791 Date Analyzed: 2008-07-25 Analyzed By: LD Prep Batch: 43548 Sample Preparation: 2008-07-25 Prepared By: LD

Spike Percent Recovery Recovery Units Dilution Amount Limits Surrogate Flag Result 10 - 250.4 n-Triacontane 123 mg/Kg 100 123

Sample: 168286 - S @ 8'

Laboratory: Midland

Analysis: TPH GRO S 8015B Prep Method: S 5035 Analytical Method: QC Batch: 50869 2008-07-29 Analyzed By: Date Analyzed: DC Prep Batch: 43655 Sample Preparation: 2008-07-29 Prepared By: DC

Spike Percent Recovery Flag Surrogate Result Units Dilution Amount Recovery Limits Trifluorotoluene (TFT) mg/Kg 1.00 105 67.5 - 135.2 1.051 4-Bromofluorobenzene (4-BFB) 63.8 - 141 1.08 mg/Kg 1 1.00 108

Sample: 168287 - E @ 3'

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 50957 2008-07-31 Date Analyzed: Analyzed By: AR Prep Batch: 43720 Sample Preparation: 2008-07-29 Prepared By: AR

 Report Date: August 8, 2008 Work Order: 8072448 Page Number: 11 of 29 ENV 2008-025 Pardue SWD Facility 20 miles SE Carlsbad, NM

#### Sample: 168287 - E @ 3'

Laboratory: Midland

Analysis: TPH DRO QC Batch: 50791 Prep Batch: 43548

Analytical Method: Mod. 8015B Date Analyzed: 2008-07-25 Sample Preparation: 2008-07-25 Prep Method: N/A
Analyzed By: LD
Prepared By: LD

 $\frac{\mathrm{RL}}{50.0}$ 

		${f RL}$			
Parameter	Flag	Result	Units	Dilution	
DRO		< 50.0	mg/Kg	1	

					$\operatorname{Spike}$	$\operatorname{Percent}$	$\operatorname{Recovery}$
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		200	mg/Kg	1	100	200	10 - 250.4

#### Sample: 168287 - E @ 3'

Laboratory: Midland

Analysis: TPH GRO QC Batch: 50869 Prep Batch: 43655 Analytical Method: S 8015B
Date Analyzed: 2008-07-29
Sample Preparation: 2008-07-29

Prep Method: S 5035 Analyzed By: DC Prepared By: DC

		RL			
Parameter	Flag	Result	Units	Dilution	RL
GRO		<1.00	${ m mg/Kg}$	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1108	1.03	mg/Kg	1	1.00	103	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.07	mg/Kg	1	1.00	107	63.8 - 141

# Sample: 168288 - E @ 6'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 50957 Prep Batch: 43720 Analytical Method: SM 4500-Cl B
Date Analyzed: 2008-07-31
Sample Preparation: 2008-07-29

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

		m RL			
Parameter	Flag	Result	Units	Dilution	${ m RL}$
Chloride		968	m mg/Kg	50	2.00

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Sample: 168288 - E @ 6'

Laboratory: Midland

Prep Method: N/A Analysis: TPH DRO Analytical Method: Mod. 8015B LD Analyzed By: QC Batch: 50791 Date Analyzed: 2008-07-25 LD Prep Batch: 43548 Sample Preparation: 2008-07-25 Prepared By:

Spike Percent Recovery Dilution Surrogate Flag Result Units Amount Recovery Limits 113 mg/Kg 100 113 10 - 250.4 n-Triacontane 1

Sample: 168288 - E @ 6'

Laboratory: Midland

TPH GRO Analysis: Analytical Method: S 8015B Prep Method: S 5035 QC Batch: 50869 2008-07-29 Analyzed By: DCDate Analyzed: Prep Batch: 43655 Sample Preparation: 2008-07-29 Prepared By: DC

Recovery Spike Percent Flag Dilution Limits Surrogate Result Units Amount Recovery Trifluorotoluene (TFT) 1.02mg/Kg 1 1.00 10267.5 - 135.24-Bromofluorobenzene (4-BFB) 1.06 mg/Kg 1 1.00 106 63.8 - 141

Sample: 168289 - E @ 8'

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A 50957 QC Batch: Date Analyzed: 2008-07-31 Analyzed By: ARPrep Batch: Prepared By: 43720 Sample Preparation: 2008-07-29 AR

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Sample: 168289 - E @ 8'

Laboratory:

Midland

Analysis: TPH DRO QC Batch: 50791 Prep Batch: 43548

Analytical Method: Date Analyzed:

Mod. 8015B

2008-07-25 Sample Preparation: 2008-07-25 Prep Method: N/A Analyzed By: LD

Prepared By: LD

RL

Parameter	$\operatorname{Flag}$	$\mathbf{Result}$	Units	Dilution	RL
DRO		< 50.0	mg/Kg	1	50.0

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		67.1	mg/Kg	1	100	67	10 - 250.4

### Sample: 168289 - E @ 8'

Laboratory:

Midland

TPH GRO Analysis: QC Batch: 50869 Prep Batch: 43655

Analytical Method:

S 8015BDate Analyzed: 2008-07-29 Sample Preparation: 2008-07-29

Prep Method: S 5035

Analyzed By: DC Prepared By: DC

RL

		- V.		•	
Parameter	Flag	Result	Units	Dilution	RL
GRO		< 2.00	mg/Kg	2	1.00

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		2.00	mg/Kg	2	2.00	100	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		2.07	mg/Kg	2	2.00	104	63.8 - 141

#### Sample: 168290 - W @ 3'

Laboratory:

Midland

Analysis: Chloride (Titration) QC Batch: 50957 Prep Batch: 43720

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2008-07-31 2008-07-29

Prep Method: N/A Analyzed By: ARPrepared By: AR

RL

Parameter	$\mathbf{Flag}$	Result	Units	Dilution	RL
Chloride		474	mg/Kg	50	2.00

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LD

LD

Sample: 168290 - W @ 3'

Laboratory: Analysis:

QC Batch:

Midland TPH DRO

50791 Prep Batch: 43548

Analytical Method: Date Analyzed:

Sample Preparation:

Mod. 8015B 2008-07-25

Prep Method: N/A Analyzed By: Prepared By: 2008-07-25

RL

Parameter Flag Result Units Dilution RLDRO < 50.0 50.0 mg/Kg

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	$\mathbf{Units}$	Dilution	Amount	Recovery	Limits
n-Triacontane		160	mg/Kg	1	100	160	10 - 250.4

### Sample: 168290 - W @ 3'

Laboratory:

Midland

Analysis: TPH GRO QC Batch: 50944 Prep Batch: 43698

Analytical Method: S 8015B Date Analyzed: Sample Preparation:

2008-07-30 2008-07-30 Prep Method: S 5035

Analyzed By: DCPrepared By: DC

RL

Flag Parameter Result Units Dilution RLGRO 1.09 mg/Kg 1.00 1

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.05	mg/Kg	1	1.00	105	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.07	mg/Kg	1	1.00	107	63.8 - 141
						· · · · · · · · · · · · · · · · · · ·	<del></del>

#### Sample: 168291 - W @ 6'

Laboratory: Midland

Analysis: BTEX QC Batch: 50943 43698 Prep Batch:

Analytical Method: S 8021B Date Analyzed: 2008-07-30 Sample Preparation: 2008-07-30

Prep Method: S 5035 Analyzed By: DCPrepared By: DC

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.0100	m mg/Kg	1	0.0100
Toluene		< 0.0100	$\mathrm{mg}/\mathrm{Kg}$	1	0.0100
Ethylbenzene		< 0.0100	$\mathrm{mg}/\mathrm{Kg}$	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

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Surrogate	Flag	Result	Units	Dilution	$egin{aligned} \mathbf{Spike} \\ \mathbf{Amount} \end{aligned}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	,	0.870	mg/Kg	1	1.00	87	68 - 136.9
4-Bromofluorobenzene (4-BFB)		0.899	${ m mg/Kg}$	1	1.00	90	48.2 - 155

Sample: 168291 - W @ 6'

Laboratory:

Prep Batch:

Midland

43720

Analysis: QC Batch: 50957

Chloride (Titration) Analytical Method:

SM 4500-Cl B 2008-07-31 Date Analyzed: Sample Preparation:

Prep Method: N/A Analyzed By: AR 2008-07-29 Prepared By: AR

RLParameter Result Units Dilution RLFlag Chloride 489 mg/Kg 50 2.00

Sample: 168291 - W @ 6'

Laboratory:

Midland

Analysis: TPH DRO QC Batch: 50791 . Prep Batch: 43548

Analytical Method: Mod. 8015B 2008-07-25 Date Analyzed: Sample Preparation: 2008-07-25

Prep Method: N/A Analyzed By: LD Prepared By: LD

RL

50.0

RLParameter Flag Result Units Dilution DRO < 50.0 mg/Kg

RL

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		155	${ m mg/Kg}$	1	100	155	10 - 250.4

Sample: 168291 - W @ 6'

Laboratory:

Midland

Analysis: TPH GRO QC Batch: 50944 Prep Batch: 43698

Analytical Method: S 8015B 2008-07-30 Date Analyzed: Sample Preparation: 2008-07-30

Prep Method: S 5035 Analyzed By: DCPrepared By: DC

Parameter Result Flag Units Dilution RLGRO 1.13 mg/Kg 1.00

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Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	$\begin{array}{c} {\bf Recovery} \\ {\bf Limits} \end{array}$
Trifluorotoluene (TFT)		1.02	mg/Kg	1	1.00	102	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.00	mg/Kg	1	1.00	100	63.8 - 141

Sample: 168292 - W @ 8'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 50957 Prep Batch: 43720 Analytical Method: SM Date Analyzed: 200

Sample Preparation:

SM 4500-Cl B 2008-07-31 2008-07-29 Prep Method: N/A
Analyzed By: AR
Prepared By: AR

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		429	mg/Kg	50	2.00

Sample: 168292 - W @ 8'

Laboratory: Midland

Analysis: TPH DRO QC Batch: 50791 Prep Batch: 43548 Analytical Method: Mod. 8015B Date Analyzed: 2008-07-25 Sample Preparation: 2008-07-25 Prep Method: N/A
Analyzed By: LD
Prepared By: LD

RL

Parameter	Flag	Result	Units	Dilution	RL
DRO		< 50.0	m mg/Kg	1	50.0

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane	,	155	${ m mg/Kg}$	1	100	155	10 - 250.4

Sample: 168292 - W @ 8'

Laboratory: Midland

Analysis: TPH GRO QC Batch: 50944 Prep Batch: 43698 Analytical Method: S 8015B
Date Analyzed: 2008-07-30
Sample Preparation: 2008-07-30

Prep Method: S 5035 Analyzed By: DC Prepared By: DC

RL

Parameter	Flag	Result	Units	Dilution	RL
GRO	В	1.01	mg/Kg	1	1.00

Flag

Result

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Surrogate

Work Order: 8072448 Pardue SWD Facility

Units

Dilution

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Recovery

Limits

Percent

Recovery

Spike

Amount

Trifluorotoluene (TFT)	0.991	mg/Kg	1	1.00	99	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)	0.950	mg/Kg	1	1.00	95	63.8 - 141
15 11 1 12 1 (1) 0C D 1	F0801					
Method Blank (1) QC Batch:	20791					
QC Batch: 50791	Date An	alyzed: 2	2008-07-25		Analy	yzed By: LD
Prep Batch: 43548	QC Prep	paration: 2	2008-07-25		Prepa	ared By: LD
		MDI				
Parameter Flag		Result		Uni	ts	RL
DRO		<15.8	3	mg/	Kg	50
				C - 11	Danasat	D
Surrogate Flag Resu	ult Units	Dila	ıtion	Spike Amount	Percent Recovery	$egin{array}{c}  ext{Recovery} \  ext{Limits} \end{array}$
<u> </u>	$\frac{1}{8.4}$ $\frac{\text{mg/Kg}}{\text{mg/Kg}}$		1	100	68	30.9 - 146.4
		<u>,</u>				
·						
Method Blank (1) QC Batch:	50869					
0.00	<b></b>				A 1	1.D. D.C.
QC Batch: 50869	Date An	v	2008-07-29			yzed By: DC
Prep Batch: 43655	QC Prep	paration: 2	2008-07-29		Frepa	ared By: DC
		MDI	ı			
Parameter Flag		Resul	t	Uni		RL
GRO		0.91	5	mg/	Kg	1
				0.1	D	
Surrogate F						Recovery
	'lag Result	Units	Dilution	$\begin{array}{c} \text{Spike} \\ \text{Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Flag Result 1.07	Units mg/Kg	Dilution 1		Recovery 107	Recovery Limits 39.2 - 135.2
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)		Units mg/Kg mg/Kg		Amount	Recovery	Limits
	1.07	mg/Kg	1	Amount 1.00	Recovery 107	Limits 39.2 - 135.2
	1.07	mg/Kg	1	Amount 1.00	Recovery 107	Limits 39.2 - 135.2
	1.07 1.05	mg/Kg	1	Amount 1.00	Recovery 107	Limits 39.2 - 135.2
4-Bromofluorobenzene (4-BFB)  Method Blank (1) QC Batch:	1.07 1.05 50899	mg/Kg mg/Kg	1 1	Amount 1.00	107 105	Limits 39.2 - 135.2 16.8 - 138.1
4-Bromofluorobenzene (4-BFB)	1.07 1.05 50899 Date An	mg/Kg mg/Kg nalyzed: 2	1	Amount 1.00	Recovery 107 105 Analy	Limits 39.2 - 135.2
4-Bromofluorobenzene (4-BFB)  Method Blank (1) QC Batch:  QC Batch: 50899	1.07 1.05 50899 Date An	mg/Kg mg/Kg nalyzed: 2 paration: 2	1 1 2008-07-29 2008-07-29	Amount 1.00	Recovery 107 105 Analy	Limits 39.2 - 135.2 16.8 - 138.1 yzed By: DC
4-Bromofluorobenzene (4-BFB)  Method Blank (1) QC Batch:  QC Batch: 50899  Prep Batch: 43655	1.07 1.05 50899 Date An QC Prep	mg/Kg mg/Kg nalyzed: 2 paration: 2	1 1 2008-07-29 2008-07-29 DL	Amount 1.00 1.00	Recovery 107 105  Analy Prepa	Limits 39.2 - 135.2 16.8 - 138.1  yzed By: DC ared By: DC
4-Bromofluorobenzene (4-BFB)  Method Blank (1) QC Batch: QC Batch: 50899 Prep Batch: 43655  Parameter Fla	1.07 1.05 50899 Date An QC Prep	mg/Kg mg/Kg  nalyzed: 2 paration: 2	1 1 2008-07-29 2008-07-29 DL sult	Amount 1.00 1.00	Recovery 107 105  Analy Preparatis	Limits 39.2 - 135.2 16.8 - 138.1  yzed By: DC ared By: DC
4-Bromofluorobenzene (4-BFB)  Method Blank (1) QC Batch: QC Batch: 50899 Prep Batch: 43655  Parameter Flat Benzene	1.07 1.05 50899 Date An QC Prep	mg/Kg mg/Kg nalyzed: 2 paration: 2 M Res <0.00	1 1 2008-07-29 2008-07-29 DL sult 580	Amount 1.00 1.00  Ur	Recovery 107 105  Analy Preparits /Kg	Limits 39.2 - 135.2 16.8 - 138.1  yzed By: DC ared By: DC  RL  0.01
4-Bromofluorobenzene (4-BFB)  Method Blank (1) QC Batch: QC Batch: 50899 Prep Batch: 43655  Parameter Fla	1.07 1.05 50899 Date An QC Prep	mg/Kg mg/Kg  nalyzed: 2 paration: 2	1 1 2008-07-29 2008-07-29 DL sult 580 470	Amount 1.00 1.00  Ur mg mg	Recovery 107 105  Analy Preparatis	Limits 39.2 - 135.2 16.8 - 138.1 yzed By: DC ared By: DC

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Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.876	mg/Kg	1	1.00	88	48.3 - 132.5
4-Bromofluorobenzene (4-BFB)		0.883	mg/Kg	1	1.00	88	37.7 - 128.9

Method Blank (1)

QC Batch: 50943

QC Batch: 50943 Prep Batch: 43698 Date Analyzed: 2008-07-30 QC Preparation: 2008-07-30

Analyzed By: DC Prepared By: DC

		$\mathrm{MDL}$		
Parameter	$\operatorname{Flag}$	Result	${f Units}$	RL
Benzene		< 0.00580	mg/Kg	0.01
Toluene		< 0.00470	${ m mg/Kg}$	0.01
Ethylbenzene		< 0.00530	${ m mg/Kg}$	0.01
Xylene		< 0.0136	mg/Kg	0.01

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.845	mg/Kg	1	1.00	84	48.3 - 132.5
4-Bromofluorobenzene (4-BFB)		0.854	mg/Kg	1	1.00	85 .	37.7 - 128.9

Method Blank (1)

QC Batch: 50944

QC Batch: 50944 Prep Batch: 43698 Date Analyzed: 2008-07-30 QC Preparation: 2008-07-30

Analyzed By: DC Prepared By: DC

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.967	mg/Kg	1	1.00	97	39.2 - 135.2
4-Bromofluorobenzene (4-BFB)		0.894	${ m mg/Kg}$	1	1.00	89	16.8 - 138.1

Method Blank (1)

QC Batch: 50956

QC Batch: 50956 Prep Batch: 43719 Date Analyzed: 2008-07-31 QC Preparation: 2008-07-29 Analyzed By: AR Prepared By: AR

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Work Order: 8072448 Pardue SWD Facility

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		MDL		
Parameter	Flag	Result	${f Units}$	RL
Chloride		< 0.500	mg/Kg	2

Method Blank (1)

QC Batch: 50957

QC Batch:

50957

Date Analyzed:

2008-07-31

Analyzed By: AR

Prep Batch: 43720 QC Preparation: 2008-07-29

Prepared By: AR

Parameter Flag Chloride

MDL Units Result RL< 0.500 mg/Kg 2

#### Laboratory Control Spike (LCS-1)

QC Batch:

50791

Date Analyzed:

2008-07-25

Analyzed By: LD

Prep Batch: 43548 QC Preparation: 2008-07-25 Prepared By: LD

	LCS			$\mathbf{Spike}$	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	145	mg/Kg	1	250	<15.8	58	27.8 - 152.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\operatorname{Rec}$ .		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	147	mg/Kg	1	250	<15.8	59	27.8 - 152.1	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			$\mathbf{Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	$\operatorname{Rec}$ .	Limit
n-Triacontane	125	123	mg/Kg	1	100	125	123	38 - 130.4

#### Laboratory Control Spike (LCS-1)

QC Batch:

50869

Date Analyzed:

2008-07-29

Analyzed By: DC

Prep Batch: 43655

QC Preparation:

2008-07-29

Prepared By: DC

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	9.57	mg/Kg	1	10.0	0.915	86	57.5 - 106.4

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	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	9.02	mg/Kg	1	10.0	0.915	81	57.5 - 106.4	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			$\mathbf{Spike}$	LCS	LCSD	${ m Rec.}$
Surrogate	Result	Result	$\mathbf{Units}$	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.16	1.11	mg/Kg	1	1.00	116	111	63.8 - 134.3
4-Bromofluorobenzene (4-BFB)	1.16	1.13	mg/Kg	1	1.00	116	113	53.3 - 123.6

#### Laboratory Control Spike (LCS-1)

QC Batch:

50899

Date Analyzed:

2008-07-29

Analyzed By: DC

Prep Batch: 43655

QC Preparation: 2008-07-29

Prepared By: DC

	LCS			Spike	Matrix		Rec.
Param	Result	$\mathbf{Units}$	Dil.	Amount	Result	Rec.	Limit
Benzene	0.955	mg/Kg	1	1.00	< 0.00580	96	73.3 - 116.6
Toluene	0.981	mg/Kg	1	1.00	< 0.00470	98	78.6 - 115.1
Ethylbenzene	0.980	mg/Kg	1	1.00	< 0.00530	98	77.4 - 114.9
Xylene	2.93	mg/Kg	1	3.00	< 0.0136	98	78.2 - 114.7

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1.00	mg/Kg	1	1.00	< 0.00580	100	73.3 - 116.6	5	20
Toluene	1.03	mg/Kg	1	1.00	< 0.00470	103	78.6 - 115.1	5	20
Ethylbenzene	1.03	mg/Kg	1	1.00	< 0.00530	103	77.4 - 114.9	5	20
Xylene	3.08	mg/Kg	1	3.00	< 0.0136	103	78.2 - 114.7	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	$\mathbf{Result}$	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.847	0.886	mg/Kg	1	1.00	85	89	45 - 124.2
4-Bromofluorobenzene (4-BFB)	0.869	0.902	mg/Kg	1	1.00	87	90	47.2 - 130.4

#### Laboratory Control Spike (LCS-1)

QC Batch:

50943

Date Analyzed:

2008-07-30

Analyzed By: DC

Prep Batch: 43698

QC Preparation: 2008-07-30

Prepared By: DC

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.970	mg/Kg	1	1.00	< 0.00580	97	73.3 - 116.6

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	$\operatorname{Rec}$ .	Limit
Toluene	0.985	mg/Kg	1	1.00	< 0.00470	98	78.6 - 115.1
Ethylbenzene	0.979	mg/Kg	1	1.00	< 0.00530	98	77.4 - 114.9
Xylene	2.94	mg/Kg	1	3.00	< 0.0136	98	78.2 - 114.7

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1.04	mg/Kg	1	1.00	< 0.00580	104	73.3 - 116.6	7	20
Toluene	1.05	mg/Kg	1	1.00	< 0.00470	105	78.6 - 115.1	6	20
Ethylbenzene	1.05	mg/Kg	1	1.00	< 0.00530	105	77.4 - 114.9	7	20
Xylene	3.15	mg/Kg	1	3.00	< 0.0136	105	78.2 - 114.7	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			$\mathbf{Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.843	0.886	mg/Kg	1	1.00	84	89	45 - 124.2
4-Bromofluorobenzene (4-BFB)	0.881	0.914	mg/Kg	1	1.00	88	91	47.2 - 130.4

#### Laboratory Control Spike (LCS-1)

QC Batch: 50944

Date Analyzed:

Analyzed By: DC Prepared By: DC

Prep Batch: 43698

QC Preparation: 2008-07-30

2008-07-30

LCS Spike Matrix Rec. Result Units Dil. Amount Result Rec. Limit Param GRO 10.8 mg/Kg 1 10.00.97198 57.5 - 106.4

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	10.9	· mg/Kg	1	10.0	0.971	99	57.5 - 106.4	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	$\operatorname{Rec}$ .	Limit
Trifluorotoluene (TFT)	1.07	1.08	mg/Kg	1	1.00	107	108	63.8 - 134.3
4-Bromofluorobenzene (4-BFB)	1.06	1.04	mg/Kg	1	1.00	106	104	53.3 - 123.6

## Laboratory Control Spike (LCS-1)

QC Batch: 50956 Prep Batch: 43719 Date Analyzed: 2008-07-31 QC Preparation: 2008-07-29

Analyzed By: AR
Prepared By: AR

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	LCS			Spike	Matrix		Rec.
Param	Result	${ m Units}$	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Chloride	98.6	mg/Kg	1	100	< 0.500	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	${ m Units}$	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	101	mg/Kg	1	100	< 0.500	101	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch:

50957

Date Analyzed:

2008-07-31

Analyzed By: AR

Prep Batch: 43720

QC Preparation: 2008-07-29

Prepared By: AR

	LCS			$\mathbf{Spike}$	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Chloride	99.0	mg/Kg	1	100	< 0.500	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	$\mathbf{Units}$	Dil.	Amount	Result	Rec.	$\operatorname{Limit}$	RPD	$\operatorname{Limit}$
Chloride	102	mg/Kg	1	100	< 0.500	102	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 168275

QC Batch: 50791 Prep Batch: 43548 Date Analyzed: 2008-07-25 QC Preparation: 2008-07-25

Analyzed By: LD Prepared By: LD

	MS			Spike	Matrix		Rec.
Param	Result	${ m Units}$	Dil.	Amount	Result	Rec.	Limit
DRO	187	mg/Kg	1	250	<15.8	75	18 - 179.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$\operatorname{Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	$\operatorname{Limit}$	RPD	Limit
DRO	193	mg/Kg	1	250	<15.8	77	18 - 179.5	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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matrix	spikes	continued		

_		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		Result	$\mathbf{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	2 3	174	174	mg/Kg	1	100	174	174	34.1 - 158

#### Matrix Spike (MS-1) Spiked Sample: 168289

QC Batch: 50869 Prep Batch: 43655 Date Analyzed: 2008-07-29 QC Preparation: 2008-07-29 Analyzed By: DC Prepared By: DC

	MS			$\mathbf{Spike}$	Matrix		Rec.
Param	Result	${ m Units}$	Dil.	Amount	Result	Rec.	Limit
GRO	19.6	mg/Kg	2	20.0	<1.48	98	10 - 139.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		$\operatorname{RPD}$
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	$\operatorname{Limit}$
GRO	16.8	mg/Kg	2	20.0	<1.48	84	10 - 139.3	15	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	$rac{ ext{MS}}{ ext{Result}}$	MSD Result	Units	Dil.	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.10	2.08	mg/Kg	2	2	105	104	21.3 - 119
4-Bromofluorobenzene (4-BFB)	2.15	2.17	mg/Kg	2	$^2$	108	108	52.5 - 154

# Matrix Spike (MS-1) Spiked Sample: 168158

QC Batch: 50899 Prep Batch: 43655 Date Analyzed: 2008-07-29 QC Preparation: 2008-07-29 Analyzed By: DC Prepared By: DC

	MS			$\mathbf{Spike}$	Matrix		${ m Rec.}$
Param	Result	${ m Units}$	Dil.	Amount	Result	Rec.	${f Limit}$
Benzene	4.53	mg/Kg	5	5.00	< 0.0290	91	62.2 - 134.3
Toluene	4.70	${ m mg/Kg}$	5	5.00	0.0451	93	62.6 - 145.4
Ethylbenzene	4.78	mg/Kg	5	5.00	0.0593	94	64.6 - 146.4
Xylene	14.4	${ m mg/Kg}$	5	15.0	0.2089	95	64.3 - 148.8

<sup>&</sup>lt;sup>2</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>3</sup>High surrogate recovery due to peak interference.

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Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	4.31	mg/Kg	5	5.00	< 0.0290	86	62.2 - 134.3	5	20
Toluene	4.49	mg/Kg	5	5.00	0.0451	89	62.6 - 145.4	5	20
Ethylbenzene	4.58	mg/Kg	5	5.00	0.0593	90	64.6 - 146.4	4	20
Xylene	13.9	mg/Kg	5	15.0	0.2089	91	64.3 - 148.8	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			$_{ m Spike}$	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	4.46	4.48	mg/Kg	5	5	89	90	38.8 - 127.5
4-Bromofluorobenzene (4-BFB)	4.57	4.59	mg/Kg	5	5	91	92	49.3 - 142.4

Matrix Spike (MS-1) Spiked Sample: 168755

QC Batch: 50943 Prep Batch: 43698 Date Analyzed: 2008-07-30 QC Preparation: 2008-07-30

Analyzed By: DC Prepared By: DC

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		MS			Spike	Matrix		${ m Rec.}$
Param		Result	${f Units}$	Dil.	Amount	Result	Rec.	Limit
Benzene		190	mg/Kg	50	50.0	152.383	75	62.2 - 134.3
Toluene	4	540	${ m mg/Kg}$	50	50.0	509.439	61	62.6 - 145.4
Ethylbenzene	5	273	mg/Kg	50	50.0	245.408	55	64.6 - 146.4
Xylene		584	${ m mg/Kg}$	50	150	464.953	79	64.3 - 148.8

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	196	mg/Kg	50	50.0	152.383	87	62.2 - 134.3	3	20
Toluene	542	mg/Kg	50	50.0	509.439	65	62.6 - 145.4	0	20
Ethylbenzene	283	mg/Kg	50	50.0	245.408	75	64.6 - 146.4	4	20
Xylene	583	mg/Kg	50	150	464.953	79	64.3 - 148.8	0	20

		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Units}$	Dil.	Amount	$\operatorname{Rec}$ .	$\operatorname{Rec}$ .	$\operatorname{Limit}$
Trifluorotoluene (TFT)		42.0	43.8	mg/Kg	50	50	84	88	38.8 - 127.5
4-Bromofluorobenzene (4-BFB)	6 7	80.7	83.8	mg/Kg	50	50	161	168	49.3 - 142.4

<sup>&</sup>lt;sup>4</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>&</sup>lt;sup>5</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>&</sup>lt;sup>6</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>7</sup>High surrogate recovery due to peak interference.

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Matrix Spike (MS-1)

Spiked Sample: 168290

QC Batch: Prep Batch:

50944 43698

Date Analyzed:

2008-07-30

QC Preparation: 2008-07-30 Analyzed By: DC

Prepared By: DC

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit  $\overline{\text{GRO}}$ 10.2 mg/Kg 10.0 1.09 91 10 - 139.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$\operatorname{Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	11.8	mg/Kg	1	10.0	1.09	107	10 - 139.3	14	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			$_{ m Spike}$	MS	MSD	${ m Rec.}$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.980	0.944	mg/Kg	1	1	98	94	21.3 - 119
4-Bromofluorobenzene (4-BFB)	1.00	0.901	${ m mg/Kg}$	1	1	100	90	52.5 - 154

Matrix Spike (MS-1)

Spiked Sample: 168284

QC Batch: Prep Batch: 43719

50956

Date Analyzed:

2008-07-31

QC Preparation: 2008-07-29

Analyzed By: AR

Prepared By: AR

	MS			$_{ m Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Chloride	8120	mg/Kg	50	5000	3160	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$\mathbf{Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Chloride	8180	mg/Kg	50	5000	3160	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 168292

QC Batch:

50957

Date Analyzed:

2008-07-31

Analyzed By: AR

Prep Batch: 43720

QC Preparation:

2008-07-29

Prepared By: AR

MS Spike Matrix Rec. Param Result Units Dil. Result Amount Rec. Limit 5380 5000 99 Chloride mg/Kg 50 429 85 - 115

ENV 2008-025

Work Order: 8072448 Pardue SWD Facility Page Number: 26 of 29 20 miles SE Carlsbad, NM

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	5450	mg/Kg	50	5000	429	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (CCV-1)

QC Batch: 50791

Date Analyzed: 2008-07-25

Analyzed By: LD

			CCVs	CCVs	$\operatorname{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	231	92	85 - 115	2008-07-25

Standard (CCV-2)

QC Batch: 50791

Date Analyzed: 2008-07-25

Analyzed By: LD

			CCVs True	CCVs Found	$\begin{array}{c} \text{CCVs} \\ \text{Percent} \end{array}$	Percent Recovery	Date
Param	Flag	${f Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		m mg/Kg	250	227	91	85 - 115	2008-07-25

Standard (CCV-3)

QC Batch: 50791

Date Analyzed: 2008-07-25

Analyzed By: LD

			CCVs	$\mathbf{CCVs}$	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	230	92	85 - 115	2008-07-25

Standard (ICV-1)

QC Batch: 50869

Date Analyzed: 2008-07-29

Analyzed By: DC

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.03	103	85 - 115	2008-07-29

Standard (CCV-1)

QC Batch: 50869

Date Analyzed: 2008-07-29

Analyzed By: DC

ENV 2008-025

Work Order: 8072448 Pardue SWD Facility

Page Number: 27 of 29 20 miles SE Carlsbad, NM

			$rac{ ext{CCVs}}{ ext{True}}$	$\begin{array}{c} { m CCVs} \\ { m Found} \end{array}$	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
$\overline{\text{GRO}}$		mg/Kg	1.00	1.13	113	85 - 115	2008-07-29

#### Standard (ICV-1)

QC Batch: 50899

Date Analyzed: 2008-07-29

Analyzed By: DC

			ICVs True	$egin{array}{c}  ext{ICVs} \  ext{Found} \end{array}$	ICVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0995	100	85 - 115	2008-07-29
Toluene		mg/Kg	0.100	0.102	102	85 - 115	2008-07-29
Ethylbenzene		mg/Kg	0.100	0.102	102	85 - 115	2008-07-29
Xylene		mg/Kg	0.300	0.303	101	85 - 115	2008-07-29

#### Standard (CCV-1)

QC Batch: 50899

Date Analyzed: 2008-07-29

Analyzed By: DC

			$\stackrel{ ext{CCVs}}{=}$	CCVs	CCVs	Percent	
			${f True}$	$\mathbf{Found}$	$\operatorname{Percent}$	$\operatorname{Recovery}$	$\operatorname{Date}$
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	8	mg/Kg	0.100	0.0832	83	85 - 115	2008-07-29
Toluene		${ m mg/Kg}$	0.100	0.0899	90	85 - 115	2008-07-29
Ethylbenzene		${ m mg/Kg}$	0.100	0.0914	91	85 - 115	2008-07-29
Xylene		mg/Kg	0.300	0.277	92	85 - 115	2008-07-29

#### Standard (ICV-1)

QC Batch: 50943

Date Analyzed: 2008-07-30

Analyzed By: DC

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0956	96	85 - 115	2008-07-30
Toluene		${ m mg/Kg}$	0.100	0.0977	98	85 - 115	2008-07-30
Ethylbenzene		${ m mg/Kg}$	0.100	0.0983	98	85 - 115	2008-07-30
Xylene		mg/Kg	0.300	0.296	99	85 - 115	2008-07-30

<sup>&</sup>lt;sup>8</sup>Benzene outside of control limits on CCV. CCV component average is .09025 which is within acceptable range. This is acceptable by Method 8000.

Report Date: August 8, 2008 Work Order: 8072448 ENV 2008-025

Page Number: 28 of 29 Pardue SWD Facility 20 miles SE Carlsbad, NM

Standard (CCV-1)

QC Batch: 50943 Date Analyzed: 2008-07-30 Analyzed By: DC

Param	$\operatorname{Flag}$	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$\begin{array}{c} \text{Date} \\ \text{Analyzed} \end{array}$
Benzene	0	mg/Kg	0.100	0.0946	95	85 - 115	2008-07-30
Toluene		mg/Kg	0.100	0.100	100	85 - 115	2008-07-30
Ethylbenzene		mg/Kg	0.100	0.0969	97	85 - 115	2008-07-30
Xylene		mg/Kg	0.300	0.291	97	85 - 115	2008-07-30

#### Standard (ICV-1)

QC Batch: 50944 Date Analyzed: 2008-07-30 Analyzed By: DC

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
$\overline{\text{GRO}}$		mg/Kg	1.00	1.12	112	85 - 115	2008-07-30

## Standard (CCV-1)

QC Batch: 50944 Date Analyzed: 2008-07-30 Analyzed By: DC

			$\mathbf{CCVs}$	CCVs	$\mathbf{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	$\mathbf{Analyzed}$
GRO		m mg/Kg	1.00	1.11	111	85 - 115	2008-07-30

#### Standard (ICV-1)

QC Batch: 50956 Date Analyzed: 2008-07-31 Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2008-07-31

## Standard (CCV-1)

QC Batch: 50956 Date Analyzed: 2008-07-31 Analyzed By: AR

ENV 2008-025

Work Order: 8072448

Pardue SWD Facility

Page Number: 29 of 29

20 miles SE Carlsbad, NM

			$rac{ ext{CCVs}}{ ext{True}}$	$\begin{array}{c} { m CCVs} \\ { m Found} \end{array}$	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	99.8	100	85 - 115	2008-07-31

Standard (ICV-1)

QC Batch: 50957

Date Analyzed: 2008-07-31

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	99.8	100	85 - 115	2008-07-31

Standard (CCV-1)

QC Batch: 50957

Date Analyzed: 2008-07-31

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2008-07-31

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# TraceAnalysis, Inc.

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Report Date: July 31, 2008

ENV 2008-025

Work Order: 8072447 Pardue SWD Facility

Page Number: 1 of 1 20 miles SE Carlsbad, NM

# **Summary Report**

Skip Baca BTA Oil Producers 104 S. Pecos Midland, TX, 79701

Report Date: July 31, 2008

Work Order: 8072447 

Project Name:

Project Location: 20 miles SE Carlsbad, NM

Pardue SWD Facility

Project Number: ENV 2008-025

			Date	$\operatorname{Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
168278	Center @ 3'	soil	2008-07-24	12:40	2008-07-24
168279	Center @ 6'	soil	2008-07-24	12:48	2008-07-24
168280	Center @ 8'	soil	2008-07-24	12:57	2008-07-24

	BTEX				TPH DRO	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	$_{ m GRO}$
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
168278 - Center @ 3'					< 50.0	1.65
168279 - Center @ 6'	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 50.0	1.78
168280 - Center @ 8'					947	1.32

Sample: 168278 - Center @ 3'

Param	Flag	Result	Units	RL
Chloride		1550	mg/Kg	2.00

Sample: 168279 - Center @ 6'

Param	Flag	Result	Units	RL
Chloride		3240	mg/Kg	2.00

Sample: 168280 - Center @ 8'

Param	Flag	Result	Units	$\mathbf{R}\mathbf{L}$
Chloride		3180	${ m mg/Kg}$	2.00



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# **NELAP** Certifications

Lubbock T104704219-08-TX

El Paso T104704221-08-TX

Midland T104704392-08-TX

# Analytical and Quality Control Report

Skip Baca **BTA Oil Producers** 104 S. Pecos Midland, TX, 79701

Report Date: August 1, 2008

Work Order: 8072447

Project Location: 20 miles SE Carlsbad, NM

Project Name:

Pardue SWD Facility

Project Number:

ENV 2008-025

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
168278	Center @ 3'	soil	2008-07-24	12:40	2008-07-24
168279	Center @ 6'	soil	2008-07-24	12:48	2008-07-24
168280	Center @ 8'	soil	2008-07-24	12:57	2008-07-24

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 14 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Alfred

Dr. Blair Leftwich, Director

#### Standard Flags

 $\, B \,$  -  $\,$  The sample contains less than ten times the concentration found in the method blank.

# Case Narrative

Samples for project Pardue SWD Facility were received by TraceAnalysis, Inc. on 2008-07-24 and assigned to work order 8072447. Samples for work order 8072447 were received intact at a temperature of 3.9 deg. C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
BTEX	S 8021B
Chloride (Titration)	SM 4500-Cl B
TPH DRO	Mod. 8015B
TPH GRO	S 8015B

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 8072447 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

ENV 2008-025

Work Order: 8072447 Pardue SWD Facility

Page Number: 4 of 14 20 miles SE Carlsbad, NM

# **Analytical Report**

Sample: 168278 - Center @ 3'

Laboratory:

Midland

Analysis:

Chloride (Titration)

50956 QC Batch: 43719 Prep Batch:

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2008-07-31

2008-07-29

Prep Method: N/A Analyzed By:

ARPrepared By: AR

RL

Parameter Chloride

Result Flag 1550

Units mg/Kg Dilution

RL50 2.00

Sample: 168278 - Center @ 3'

Laboratory:

Midland

Analysis: QC Batch:

TPH DRO 50791 Prep Batch: 43548

Flag

Analytical Method: Date Analyzed:

Sample Preparation:

Mod. 8015B 2008-07-25 2008-07-25

Prep Method: N/A Analyzed By: LD

Prepared By: LD

RL

Parameter DRO

Result < 50.0

Units mg/Kg

Dilution

1

RL50.0

Percent Spike Recovery Surrogate Flag Result Units Dilution Amount Recovery Limits 102 102 10 - 250.4 n-Triacontane mg/Kg 1 100

Sample: 168278 - Center @ 3'

Laboratory:

Midland

Analysis: QC Batch: Prep Batch:

TPH GRO 50869 43655

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015B 2008-07-29 2008-07-29 Prep Method: S 5035

Analyzed By: DCPrepared By: DC

RL

Result Parameter Flag Units Dilution RL $\overline{GRO}$ 1.65 mg/Kg 1.00

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.09	mg/Kg	1	1.00	109	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.11	${ m mg/Kg}$	1	1.00	111	63.8 - 141

Work Order: 8072447 Report Date: August 1, 2008

Page Number: 5 of 14 20 miles SE Carlsbad, NM ENV 2008-025 Pardue SWD Facility

#### Sample: 168279 - Center @ 6'

Laboratory:	Midland			,	
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
OC Batch:	50899	Date Analyzed:	2008-07-29	Analyzed By:	DC

DC Prep Batch: 43655 Sample Preparation: 2008-07-29 Prepared By:

	•	m RL			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	$\mathrm{mg}/\mathrm{Kg}$	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	$\mathbf{Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	······································	0.840	mg/Kg	1	1.00	84	68 - 136.9
4-Bromofluorobenzene (4-BFB)		0.865	mg/Kg	1	1.00	86	48.2 - 155

#### Sample: 168279 - Center @ 6'

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: Analyzed By:  $\mathbf{AR}$ 50956 Date Analyzed: 2008-07-31 Prep Batch: 43719 Sample Preparation: 2008-07-29 Prepared By: AR

RLDilution Parameter Flag Result Units RL3240 Chloride 50 2.00 mg/Kg

#### Sample: 168279 - Center @ 6'

Laboratory: Midland

Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A QC Batch: Analyzed By: LD 50791 Date Analyzed: 2008-07-25 Prep Batch: 43548 Sample Preparation: 2008-07-25 Prepared By: LD

RLParameter Flag Result Units Dilution RLDRO < 50.0 mg/Kg 50.0

Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
n-Triacontane		130	m mg/Kg	1	100	130	10 - 250.4

Report Date: August 1, 2008 Work Order: 8072447 Page Number: 6 of 14
ENV 2008-025 Pardue SWD Facility 20 miles SE Carlsbad, NM

#### Sample: 168279 - Center @ 6'

Laboratory:	Midland
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Analysis: TPH GRO QC Batch: 50869 Prep Batch: 43655 Analytical Method: S 8015B
Date Analyzed: 2008-07-29
Sample Preparation: 2008-07-29

Prep Method: S 5035 Analyzed By: DC Prepared By: DC

#### RL

 $\begin{array}{c} RL \\ Result \end{array}$ 

3180

RL

Parameter	Flag	Result	Units	Dilution	RL
GRO	В	1.78	mg/Kg	1	1.00

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.05	mg/Kg	1	1.00	105	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.07	mg/Kg	1	1.00	107	63.8 - 141

#### Sample: 168280 - Center @ 8'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 50956 Analytical Method: SM 4500-Cl B
Date Analyzed: 2008-07-31

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Prep Batch: 43719

Parameter

Chloride

Sample Preparation: 2008-07-29

Units

mg/Kg

Dilution RL

2.00

50

# Sample: 168280 - Center @ 8'

Laboratory: Midland

Analysis: TPH DRO QC Batch: 50791 Prep Batch: 43548 Analytical Method: Mod. 8015B
Date Analyzed: 2008-07-25
Sample Preparation: 2008-07-25

Prep Method: N/A
Analyzed By: LD
Prepared By: LD

Flag

Parameter	Flag	Result	Units	Dilution	RL
DRO		947	${ m mg/Kg}$	1	50.0

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		239	mg/Kg	1	100	239	10 - 250.4

ENV 2008-025

Work Order: 8072447 Pardue SWD Facility

Page Number: 7 of 14 20 miles SE Carlsbad, NM

Sample:	168280	- Center	<b>@</b>	8'
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43655

Laboratory:

Midland

Analysis: QC Batch: Prep Batch: TPH GRO 50869

Analytical Method: Date Analyzed:

S 8015B 2008-07-29 Sample Preparation: 2008-07-29

Prep Method: S 5035 Analyzed By: DCPrepared By: DC

RL

Flag Result Dilution Parameter Units RLGRO 1.32 mg/Kg 1.00

				•	$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.09	mg/Kg	1	1.00	109	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.12	mg/Kg	1	1.00	112	63.8 - 141

Method Blank (1)

QC Batch: 50791

QC Batch: 50791 Prep Batch: 43548

Parameter

DRO

Date Analyzed: 2008-07-25 QC Preparation: 2008-07-25

Analyzed By: LD Prepared By: LD

RL

50

MDL

Flag Result Units <15.8 mg/Kg

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		68.4	mg/Kg	1	100	68	30.9 - 146.4

Method Blank (1)

QC Batch: 50869

QC Batch: 50869 Prep Batch: 43655 Date Analyzed: 2008-07-29 QC Preparation: 2008-07-29 Analyzed By: DCPrepared By: DC

MDL

Parameter Flag Result Units RL $\overline{GRO}$ 0.915 mg/Kg 1

					Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.07	mg/Kg	1	1.00	107	39.2 - 135.2
4-Bromofluorobenzene (4-BFB)		1.05	mg/Kg	1	1.00	105	16.8 - 138.1

Report Date: August 1, 2008 Work Order: 8072447 Page Number: 8 of 14 ENV 2008-025 Pardue SWD Facility 20 miles SE Carlsbad, NM

Method Blank (1) QC Batch: 50899

QC Batch: 50899 Date Analyzed: 2008-07-29 Analyzed By: DC Prep Batch: 43655 QC Preparation: 2008-07-29 Prepared By: DC

**MDL** Flag Units RLParameter Result 0.01 mg/Kg Benzene < 0.00580 mg/Kg 0.01 Toluene < 0.00470 Ethylbenzene < 0.00530 mg/Kg 0.01 < 0.0136 mg/Kg 0.01 Xylene

					$\mathbf{Spike}$	Percent	$\operatorname{Recovery}$
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.876	mg/Kg	1	1.00	88	48.3 - 132.5
4-Bromofluorobenzene (4-BFB)		0.883	mg/Kg	1	1.00	88	37.7 - 128.9

Method Blank (1) QC Batch: 50956

QC Batch: 50956 Date Analyzed: 2008-07-31 Analyzed By: AR
Prep Batch: 43719 QC Preparation: 2008-07-29 Prepared By: AR

#### Laboratory Control Spike (LCS-1)

QC Batch: 50791 Date Analyzed: 2008-07-25 Analyzed By: LD Prep Batch: 43548 QC Preparation: 2008-07-25 Prepared By: LD

LCS Spike Matrix Rec. Result Units Dil. Amount Result Rec. Limit Param DRO 145mg/Kg 250 < 15.858 27.8 - 152.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	 147	mg/Kg	1	250	<15.8	59	27.8 - 152.1	1	20

	LCS	LCSD			Spike	LCS	LCSD	$\operatorname{Rec}$ .
Surrogate	Result	Result	$\mathbf{Units}$	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	125	123	mg/Kg	1	100	125	123	38 - 130.4

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Work Order: 8072447 Pardue SWD Facility

Page Number: 9 of 14 20 miles SE Carlsbad, NM

## Laboratory Control Spike (LCS-1)

QC Batch:

50869

Date Analyzed:

2008-07-29

Analyzed By: DC

Prep Batch: 43655

QC Preparation: 2008-07-29 Prepared By: DC

	LCS			$\mathbf{Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	9.57	mg/Kg	1	10.0	0.915	86	57.5 - 106.4

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.	•	RPD
Param	Result	$\mathbf{Units}$	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	9.02	mg/Kg	1	10.0	0.915	81	57.5 - 106.4	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			$\mathbf{Spike}$	LCS	LCSD	${ m Rec.}$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.16	1.11	mg/Kg	1	1.00	116	111	63.8 - 134.3
4-Bromofluorobenzene (4-BFB)	1.16	1.13	${ m mg/Kg}$	1	1.00	116	113	53.3 - 123.6

#### Laboratory Control Spike (LCS-1)

QC Batch:

50899

Date Analyzed:

2008-07-29

Analyzed By: DC Prepared By: DC

Prep Batch: 43655

QC Preparation: 2008-07-29

LCS Matrix Rec. Spike Param Result Units Dil. Amount Result Rec. Limit Benzene 1.00 < 0.00580 96 73.3 - 116.6 0.955 mg/Kg 1 Toluene 0.981 mg/Kg 1 1.00 < 0.00470 98 78.6 - 115.1 Ethylbenzene 0.980mg/Kg 1 1.00 < 0.00530 98 77.4 - 114.9 2.93 3.00 < 0.0136 98 78.2 - 114.7 Xylene mg/Kg 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			$\mathbf{Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1.00	mg/Kg	1	1.00	< 0.00580	100	73.3 - 116.6	5	20
Toluene	1.03	mg/Kg	1	1.00	< 0.00470	103	78.6 - 115.1	<b>5</b>	20
Ethylbenzene	1.03	mg/Kg	1	1.00	< 0.00530	103	77.4 - 114.9	5	20
Xylene	3.08	mg/Kg	1	3.00	< 0.0136	103	78.2 - 114.7	5	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	${ m Rec.}$	Rec.	Limit
Trifluorotoluene (TFT)	0.847	0.886	mg/Kg	1	1.00	85	89	45 - 124.2
4-Bromofluorobenzene (4-BFB)	0.869	0.902	mg/Kg	1	1.00	87	90	47.2 - 130.4

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Work Order: 8072447 Pardue SWD Facility

Page Number: 10 of 14 20 miles SE Carlsbad, NM

Laboratory Control Spike (LCS-1)

QC Batch:

50956

Date Analyzed:

2008-07-31

Analyzed By: AR

Prep Batch: 43719

QC Preparation: 2008-07-29

Prepared By: AR

	LCS			$\mathbf{Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	98.6	mg/Kg	1	100	< 0.500	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$\mathbf{Spike}$	Matrix		$\mathrm{Rec.}$		$\operatorname{RPD}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	101	mg/Kg	1	100	< 0.500	101	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 168275

QC Batch:

50791

Date Analyzed:

2008-07-25

Analyzed By: LD

Prep Batch:

43548

QC Preparation: 2008-07-25

Prepared By: LD

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	187	mg/Kg	1	250	<15.8	75	18 - 179.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	193	mg/Kg	1	250	<15.8	77	18 - 179.5	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MS	MSD			$\mathbf{Spike}$	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	1 2	174	174	mg/Kg	1	100	174	174	34.1 - 158

Spiked Sample: 168289 Matrix Spike (MS-1)

OC Batch:

50869

Date Analyzed:

2008-07-29

Analyzed By: DC

Prep Batch: 43655

QC Preparation: 2008-07-29

Prepared By: DC

continued ...

<sup>&</sup>lt;sup>1</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>2</sup>High surrogate recovery due to peak interference.

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	• •			
matrix	snikes	continued		_

	MS			$\mathbf{Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	19.6	mg/Kg	2	20.0	<1.48	98	10 - 139.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	16.8	mg/Kg	2	20.0	<1.48	84	10 - 139.3	15	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			$\mathbf{Spike}$	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	$\operatorname{Rec}$ .	Rec.	Limit
Trifluorotoluene (TFT)	2.10	2.08	mg/Kg	2	2	105	104	21.3 - 119
4-Bromofluorobenzene (4-BFB)	2.15	2.17	mg/Kg	2	2	108	108	52.5 - 154

Matrix Spike (MS-1) Spiked Sample: 168158

QC Batch: 50899 Prep Batch: 43655 Date Analyzed: 2008-07-29 QC Preparation: 2008-07-29 Analyzed By: DC Prepared By: DC

D	MS	<b>T</b> 7 • .	75.11	Spike	Matrix		Rec.
Param	${f Result}$	${f Units}$	Dil.	Amount	$\mathbf{Result}$	${ m Rec.}$	${f Limit}$
Benzene	4.53	mg/Kg	5	5.00	< 0.0290	91	62.2 - 134.3
Toluene	4.70	mg/Kg	5	5.00	0.0451	93	62.6 - 145.4
Ethylbenzene	4.78	mg/Kg	5	5.00	0.0593	94	64.6 - 146.4
Xylene	. 14.4	mg/Kg	5	15.0	0.2089	95	64.3 - 148.8

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	4.31	mg/Kg	5	5.00	< 0.0290	86	62.2 - 134.3	5	20
Toluene	4.49	mg/Kg	5	5.00	0.0451	89	62.6 - 145.4	5	20
Ethylbenzene	4.58	mg/Kg	5	5.00	0.0593	90	64.6 - 146.4	4	20
Xylene	13.9	mg/Kg	5	15.0	0.2089	91	64.3 - 148.8	4	20

	MS	MSD	** **	70.11	Spike	MS	MSD	Rec.
Surrogate	$\mathbf{Result}$	$\mathbf{Result}$	${f Units}$	Dil.	Amount	$\operatorname{Rec}$ .	$\operatorname{Rec}$ .	Limit
Trifluorotoluene (TFT)	4.46	4.48	mg/Kg	5	5	89	90	38.8 - 127.5
4-Bromofluorobenzene (4-BFB)	4.57	4.59	mg/Kg	5	5	91	92	49.3 - 142.4

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Matrix Spike (MS-1)

Spiked Sample: 168284

QC Batch: Prep Batch: 43719

50956

Date Analyzed:

2008-07-31

QC Preparation: 2008-07-29

Analyzed By: AR Prepared By: AR

	MS			$\mathbf{Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	8120	mg/Kg	50	5000	3160	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$\mathbf{Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	8180	mg/Kg	50	5000	3160	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 50791

Date Analyzed: 2008-07-25

Analyzed By: LD

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	Units	$\operatorname{Conc.}$	Conc.	Recovery	Limits	Analyzed
$\overline{\mathrm{DRO}}$	· · · · · · · · · · · · · · · · · · ·	mg/Kg	250	228	91	85 - 115	2008-07-25

Standard (CCV-1)

QC Batch: 50791

Date Analyzed: 2008-07-25

Analyzed By: LD

			$\operatorname{CCVs}$	$\operatorname{CCVs}$	CCVs	Percent	
			${f True}$	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		m mg/Kg	250	231	92	85 - 115	2008-07-25

Standard (CCV-2)

QC Batch: 50791

Date Analyzed: 2008-07-25

Analyzed By: LD

Analyzed By: DC

			$\mathrm{CCVs}$	CCVs	CCVs	Percent	
			$\operatorname{True}$	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	227	91	85 - 115	2008-07-25

Standard (ICV-1)

QC Batch: 50869

Date Analyzed: 2008-07-29

ENV 2008-025

Work Order: 8072447 Pardue SWD Facility

Page Number: 13 of 14 20 miles SE Carlsbad, NM

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
$\overline{\text{GRO}}$		mg/Kg	1.00	1.03	103	85 - 115	2008-07-29

#### Standard (CCV-1)

QC Batch: 50869

Date Analyzed: 2008-07-29

Analyzed By: DC

			CCVs	CCVs	$\operatorname{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.13	113	85 - 115	2008-07-29

#### Standard (ICV-1)

QC Batch: 50899

Date Analyzed: 2008-07-29

Analyzed By: DC

_		w	ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	$\mathbf{Units}$	Conc.	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0995	100	85 - 115	2008-07-29
Toluene		$\mathrm{mg}/\mathrm{Kg}$	0.100	0.102	102	85 - 115	2008-07-29
Ethylbenzene		mg/Kg	0.100	0.102	102	85 - 115	2008-07-29
Xylene		mg/Kg	0.300	0.303	101	85 - 115	2008-07-29

#### Standard (CCV-1)

QC Batch: 50899

Date Analyzed: 2008-07-29

Analyzed By: DC

_		**	$\begin{array}{c} { m CCVs} \\ { m True} \end{array}$	$\begin{array}{c} { m CCVs} \\ { m Found} \end{array}$	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	$\mathbf{Analyzed}$
Benzene	3	mg/Kg	0.100	0.0832	83	85 - 115	2008-07-29
Toluene		mg/Kg	0.100	0.0899	90	85 - 115	2008-07-29
Ethylbenzene		mg/Kg	0.100	0.0914	91	85 - 115	2008-07-29
Xylene		mg/Kg	0.300	0.277	92	85 - 115	2008-07-29

#### Standard (ICV-1)

QC Batch: 50956

Date Analyzed: 2008-07-31

Analyzed By: AR

<sup>&</sup>lt;sup>3</sup>Benzene outside of control limits on CCV. CCV component average is .09025 which is within acceptable range. This is acceptable by Method

ENV 2008-025

Work Order: 8072447 Pardue SWD Facility Page Number: 14 of 14 20 miles SE Carlsbad, NM

ICVsICVsICVsPercent Date True Found Percent Recovery Param Flag Units Conc. Conc. Recovery Limits Analyzed Chloride 100 85 - 115 2008-07-31 mg/Kg 100 100

Standard (CCV-1)

QC Batch: 50956

Date Analyzed: 2008-07-31

Analyzed By: AR

			$\mathbf{CCVs}$	$\operatorname{CCVs}$	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride	·····	mg/Kg	100	99.8	100	85 - 115	2008-07-31

LAB Order ID# 8072447

Page / of \_\_/\_

## TraceAnalysis, Inc.

email: lab@traceanalysis.com

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8808 Camp Bowle Blvd. West, Suite 180 Ft. Worth, Texas 76116 Tel (817) 201-5260 Fax (817) 560-4336

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				T	11						$\Box$	1							$\top$		$\top$	1		$\neg$			$\top$	$\top$	$\Box$		+	$\Box$
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Submittal c	of samples constitutes agree	ement to Terr	ms and Co	nditio	ons list	ed on	rever	se si	de of C	c. o.	C.				Ca	arrier#				-	<u>~</u>	,										

Report Date: July 31, 2008 ENV 2008-025 Work Order: 8072446 Pardue SWD Facility Page Number: 1 of 1 20 miles SE Carlsbad, NM

### **Summary Report**

Skip Baca BTA Oil Producers 104 S. Pecos

Midland, TX, 79701

Report Date: July 31, 2008

Work Order: 8072446

Project Location: 20 miles SE Carlsbad, NM Project Name: Pardue SWD Facility

Project Number: ENV 2008-025

			Date	${f Time}$	$\operatorname{Date}$
Sample	Description	$\mathbf{Matrix}$	Taken	Taken	Received
168275	Back @ 3'	soil	2008-07-24	10:33	2008-07-24
168276	Back @ 6'	soil	2008-07-24	10:50	2008-07-24
168277	Back @ 8'	soil	2008-07-24	11:05	2008-07-24

	TPH DRO	TPH GRO
	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)
168275 - Back @ 3'	<50.0	2.47
168276 - Back @ 6'	< 50.0	1.09
168277 - Back @ 8'	< 50.0	1.10

Sample: 168275 - Back @ 3'

Param	Flag	Result	Units	RL
Chloride		1460	mg/Kg	2.00

Sample: 168276 - Back @ 6'

Param	Flag	Result	Units	RL
Chloride		889	mg/Kg	2.00

Sample: 168277 - Back @ 8'

Param	Flag	Result	Units	RL
Chloride		325	mg/Kg	2.00



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6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132

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FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

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### **NELAP Certifications**

Lubbock T104704219-08-TX

El Paso T104704221-08-TX

Midland T104704392-08-TX

## Analytical and Quality Control Report

Skip Baca **BTA** Oil Producers 104 S. Pecos Midland, TX, 79701

Report Date: August 1, 2008

Work Order: 8072446

Project Location: 20 miles SE Carlsbad, NM

Project Name:

Pardue SWD Facility

Project Number:

ENV 2008-025

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

	,		Date	111116	Date
Sample	Description	Matrix	Taken	Taken	Received
168275	Back @ 3'	soil	2008-07-24	10:33	2008-07-24
168276	Back @ 6'	soil	2008-07-24	10:50	2008-07-24
168277	Back @ 8'	soil	2008-07-24	11:05	2008-07-24

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 14 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

#### Standard Flags

 ${\bf B}\,$  - The sample contains less than ten times the concentration found in the method blank.

### Case Narrative

Samples for project Pardue SWD Facility were received by TraceAnalysis, Inc. on 2008-07-24 and assigned to work order 8072446. Samples for work order 8072446 were received intact at a temperature of 3.9 deg. C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
BTEX	S 8021B
Chloride (Titration)	SM 4500-Cl B
TPH DRO	Mod. 8015B
TPH GRO	S 8015B

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 8072446 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

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Work Order: 8072446 Pardue SWD Facility

Page Number: 4 of 14 20 miles SE Carlsbad, NM

### **Analytical Report**

Sample: 168275 - Back @ 3'

Laboratory:

Midland

Analysis: QC Batch:

BTEX 50899 Prep Batch: 43655

Analytical Method: Date Analyzed:

S 8021B 2008-07-29 Sample Preparation: 2008-07-29 Prep Method: S 5035 Analyzed By: DC

Prepared By: DC

Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	mg/Kg	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

					$\mathbf{Spike}$	$\mathbf{Percent}$	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.863	mg/Kg	1	1.00	86	68 - 136.9
4-Bromofluorobenzene (4-BFB)		0.900	mg/Kg	1	1.00	90	48.2 - 155

Sample: 168275 - Back @ 3'

Laboratory:

Midland

Analysis: Chloride (Titration) QC Batch: 50956 Prep Batch: 43719

Analytical Method: Date Analyzed:

SM 4500-Cl B 2008-07-31

2008-07-29

Prep Method: N/A Analyzed By: ARPrepared By:

RL

Parameter	Flag	Result	Units	Dilution	RL
Cllii	1 1005	1.400	/*/	Diamon 50	0.00
Chloride		1460	m mg/Kg	50	2.00

Sample Preparation:

Sample: 168275 - Back @ 3'

Laboratory:

Midland

Analysis: TPH DRO QC Batch: 50791 Prep Batch: 43548

Analytical Method: Date Analyzed:

Mod. 8015B 2008-07-25 Sample Preparation: 2008-07-25

Prep Method: N/A Analyzed By: LD Prepared By: LD

RL

Parameter	Flag	Result	Units	Dilution	RL
DRO		< 50.0	mg/Kg	1	50.0

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Work Order: 8072446 Pardue SWD Facility Page Number: 5 of 14 20 miles SE Carlsbad, NM

Surrogate	Flag	Result	Units D	ilution	$egin{array}{c} \mathbf{Spike} \ \mathbf{Amount} \end{array}$	Percent Recovery	$egin{array}{c}  ext{Recovery} \  ext{Limits} \end{array}$
n-Triacontan	e	156	mg/Kg	1	100	156	10 - 250.4
Sample: 16	8275 - Back @ 3	3'					
Laboratory: Analysis:	Midland TPH GRO		Analytical Method:	S 8015B		Prop Metho	od: S 5035
QC Batch:	50869		Date Analyzed:	2008-07-		Analyzed B	
Prep Batch:	43655		Sample Preparation			Prepared B	•
			m RL				
Parameter	Flag	r S	Result	Units	3	Dilution	RL

GRO B		2.47		${ m mg/Kg}$	1	1.00	
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.08	mg/Kg	1	1.00	108	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.11	mg/Kg	1	1.00	111	63.8 - 141

#### Sample: 168276 - Back @ 6'

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 50956 Date Analyzed: 2008-07-31 Analyzed By: AR Prep Batch: 43719 Sample Preparation: 2008-07-29 Prepared By: AR

		m RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		889	mg/Kg	50	2.00

#### Sample: 168276 - Back @ 6'

Laboratory: Midland

Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A QC Batch: 50791 Date Analyzed: 2008-07-25 Analyzed By: LD Prep Batch: 43548 Sample Preparation: 2008-07-25 Prepared By:

		RL			
Parameter	Flag	Result	Units	Dilution	RL
DRO		< 50.0	m mg/Kg	1	50.0

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Work Order: 8072446 Pardue SWD Facility

Page Number: 6 of 14  $20~\mathrm{miles}$  SE Carlsbad, NM

					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		141	mg/Kg	1	100	141	10 - 250.4

Sample: 168276 - Back @ 6'

Laboratory: Analysis:

QC Batch:

Midland TPH GRO 50869 Prep Batch:

43655

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015B 2008-07-29 2008-07-29 Prep Method: S 5035

Analyzed By: DCPrepared By: DC

RL

Parameter	Flag	Result	Units	Dilution	RL
GRO	В	1.09	mg/Kg	1	1.00

					Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.07	mg/Kg	1	1.00	107	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)		1.11	mg/Kg	1	1.00	111	63.8 - 141

Sample: 168277 - Back @ 8'

Laboratory:

Midland

Analysis: Chloride (Titration) QC Batch: 50956 Prep Batch: 43719

Analytical Method: Date Analyzed:

SM 4500-Cl B 2008-07-31 Sample Preparation: 2008-07-29

Prep Method: N/A Analyzed By: AR

AR

Prepared By:

RL

Parameter	$\operatorname{Flag}$	Result	Units	Dilution	RL
Chloride		325	$\mathrm{mg}/\mathrm{Kg}$	50	2.00

Sample: 168277 - Back @ 8'

Laboratory:

Midland

Analysis: TPH DRO QC Batch: 50791 Prep Batch: 43548

Analytical Method: Date Analyzed:

Sample Preparation:

Mod. 8015B 2008-07-25 2008-07-25

Prep Method: N/A Analyzed By: LDPrepared By: LD

RLParameter Result Units Flag Dilution RLDRO < 50.0 mg/Kg 50.0

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GRO

Work Order: 8072446

Pardue SWD Facility

Page Number: 7 of 14 20 miles SE Carlsbad, NM

Surrogate	Flag	Result	Units	D;	lution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	1 108	176	mg/Kg		1	100	176	10 - 250.4
II- IIIacontaine	1.11	170	mg/ Kg		<u> </u>	100		10 - 200.1
Sample: 168277	7 - Back @ 8	,						
			Analytical Date Anal Sample Pr	yzed:	S 8015B 2008-07-2 : 2008-07-2		Prep Mo Analyze Prepare	d By: DC
The state of the s	T31		RL		**		7011	D.F.
Parameter	$\frac{\text{Flag}}{B}$		Result		Units		Dilution	RL
GRO			1.10		mg/Kg		1	1.00
<b>a</b>				<b></b> .	75.41	Spike	Percent	Recovery
Surrogate	(TO TO SEE)	Flag	Result	Units	Dilution		Recovery	Limits
Trifluorotoluene (			1.10	mg/Kg	1	1.00	110	67.5 - 135.2
4-Bromofluorober	izene (4-BFB)		1.13	mg/Kg	1	1.00	113	63.8 - 141
Method Blank QC Batch: 507 Prep Batch: 435	791	Batch: 50791	Date Ana QC Prepa		2008-07-25 2008-07-25		•	yzed By: LD ared By: LD
				MD:				
Parameter		Flag		Resul			nits	RL
DRO				<15.	8	mg	/Kg	50
Surrogate	Flag	Result	$\operatorname{Units}$	Dil	ution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		68.4	mg/Kg		1	100	68	30.9 - 146.4
Method Blank QC Batch: 508 Prep Batch: 436	369	Batch: 50869	Date Ana QC Prepa		2008-07-29 2008-07-29			yzed By: DC ared By: DC
				MD:	L			
Parameter		Flag		Resul		$\mathbf{U}_{2}$	nits	$\operatorname{RL}$
GRO				0.01			/IV m	1

0.915

mig/Kg

1

ENV 2008-025

Work Order: 8072446 Pardue SWD Facility Page Number: 8 of 14 20 miles SE Carlsbad, NM

Surrogate	Flag	Result	$\mathbf{Units}$	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.07	mg/Kg	1	1.00	107	39.2 - 135.2
4-Bromofluorobenzene	(4-BFB)	1.05	mg/Kg	1	1.00	105	16.8 - 138.1
Method Blank (1)	QC Batch: 50899						
QC Batch: 50899 Prep Batch: 43655		Date Analyzed: 2008-07-29 QC Preparation: 2008-07-29				•	zed By: DC
Trop Bavaii. 10000		QC 110p	MI			, тюра	ica by.
Parameter	Flag		Res		Un	its	RL
Benzene			< 0.005	580	mg/	′Kg	0.01
Toluene			< 0.004	170	mg/	-	0.01
Ethylbenzene			< 0.005	<b>3</b> 0	mg/	-	0.01
Xylene			< 0.0136		mg/Kg		0.01
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits

Method Blank	(1)	QC Batch:	50956
--------------	-----	-----------	-------

4-Bromofluorobenzene (4-BFB)

QC Batch: 50956 Prep Batch: 43719

Trifluorotoluene (TFT)

Date Analyzed: 2008-07-31 QC Preparation: 2008-07-29

 $\overline{\mathrm{mg/Kg}}$ 

mg/Kg

1

1

1.00

1.00

0.876

0.883

Analyzed By: AR Prepared By: AR

48.3 - 132.5

37.7 - 128.9

88

88

#### Laboratory Control Spike (LCS-1)

QC Batch: 50791 Prep Batch: 43548 Date Analyzed: 2008-07-25 QC Preparation: 2008-07-25 Analyzed By: LD Prepared By: LD

	LCS			Spike	Matrix		Rec.
Param	Result	$\mathbf{Units}$	Dil.	Amount	Result	Rec.	Limit
DRO	145	mg/Kg	1	250	<15.8	58	27.8 - 152.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Work Order: 8072446

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	LCSD			$\mathbf{Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	147	mg/Kg	1	250	<15.8	59	27.8 - 152.1	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	$\operatorname{Rec}$ .
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	125	123	mg/Kg	1	100	125	123	38 - 130.4

#### Laboratory Control Spike (LCS-1)

QC Batch: 50869 Date Analyzed: 2008-07-29

Analyzed By: DC Prepared By: DC

Prep Batch: 43655

QC Preparation: 2008-07-29

	LCS			$\mathbf{Spike}$	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	9.57	mg/Kg	1	10.0	0.915	86	57.5 - 106.4

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	9.02	mg/Kg	1	10.0	0.915	81	57.5 - 106.4	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	$_{ m LCSD}$			Spike	LCS	$_{ m LCSD}$	${f Rec}.$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.16	1.11	mg/Kg	1	1.00	116	111	63.8 - 134.3
4-Bromofluorobenzene (4-BFB)	1.16	1.13	mg/Kg	1	1.00	116	113	53.3 - 123.6

#### Laboratory Control Spike (LCS-1)

QC Batch: 50899 Prep Batch: 43655 Date Analyzed: 2008-07-29 QC Preparation: 2008-07-29

Analyzed By: DC Prepared By: DC

Param	$rac{ ext{LCS}}{ ext{Result}}$	Units	Dil.	$\begin{array}{c} \mathbf{Spike} \\ \mathbf{Amount} \end{array}$	Matrix Result	Rec.	Rec. Limit
Benzene	0.955	mg/Kg	1	1.00	< 0.00580	96	73.3 - 116.6
Toluene	0.981	mg/Kg	1	1.00	< 0.00470	98	78.6 - 115.1
Ethylbenzene	0.980	mg/Kg	1	1.00	< 0.00530	98	77.4 - 114.9
Xylene	2.93	mg/Kg	1	3.00	< 0.0136	98	78.2 - 114.7

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

 $continued \dots$ 

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Work Order: 8072446 Pardue SWD Facility

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control spikes continued ...

<u>-</u>	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1.00	mg/Kg	1	1.00	< 0.00580	100	73.3 - 116.6	5	20
Toluene	1.03	mg/Kg	1	1.00	< 0.00470	103	78.6 - 115.1	5	20
Ethylbenzene	1.03	mg/Kg	1	1.00	< 0.00530	103	77.4 - 114.9	5	20
Xylene	3.08	mg/Kg	1	3.00	< 0.0136	103	78.2 - 114.7	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.847	0.886	mg/Kg	1	1.00	85	89	45 - 124.2
4-Bromofluorobenzene (4-BFB)	0.869	0.902	mg/Kg	1	1.00	87	90	47.2 - 130.4

#### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 43719

50956

Date Analyzed:

2008-07-31 QC Preparation: 2008-07-29

Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	98.6	mg/Kg	1	100	< 0.500	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	101	mg/Kg	1	100	< 0.500	101	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 168275

QC Batch: 50791 Prep Batch: 43548 Date Analyzed: QC Preparation:

2008-07-25 2008-07-25 Analyzed By: LD Prepared By: LD

MS Spike Matrix Rec. Rec. Param Result Units Dil. Amount Result Limit DRO 187 250 <15.8 75 18 - 179.5 mg/Kg

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.  $continued \dots$ 

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Work Order: 8072446 Pardue SWD Facility Page Number: 11 of 14 20 miles SE Carlsbad, NM

matrix spikes continued . . .

Param	$rac{ ext{MSD}}{ ext{Result}}$	Units	Dil.	$egin{array}{c} \mathbf{Spike} \ \mathbf{Amount} \end{array}$	Matrix Result	Rec.	${f Rec.} \ {f Limit}$	RPD'	$egin{array}{c}  ext{RPD} \  ext{Limit} \end{array}$
Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	193	mg/Kg	1	250	<15.8	77	18 - 179.5	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MS	MSD			Spike	MS	MSD	$\mathrm{Rec.}$
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	1 2	174	174	mg/Kg	1	100	174	174	34.1 - 158

Matrix Spike (MS-1) Spiked Sample: 168289

QC Batch: 50869 Prep Batch: 43655 Date Analyzed: 2008-07-29 QC Preparation: 2008-07-29 Analyzed By: DC Prepared By: DC

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	19.6	mg/Kg	2	20.0	<1.48	98	10 - 139.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$\mathbf{Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	16.8	mg/Kg	2	20.0	<1.48	84	10 - 139.3	15	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	$\mathbf{Dil}.$	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.10	2.08	mg/Kg	2	2	105	104	21.3 - 119
4-Bromofluorobenzene (4-BFB)	2.15	2.17	mg/Kg	2	2	108	108	52.5 - 154

Matrix Spike (MS-1) Spiked Sample: 168158

QC Batch: 50899 Prep Batch: 43655 Date Analyzed: 2008-07-29 QC Preparation: 2008-07-29 Analyzed By: DC Prepared By: DC

	MS			$\mathbf{Spike}$	Matrix		Rec.
Param	Result	$\mathbf{Units}$	Dil.	Amount	Result	${ m Rec.}$	Limit
Benzene	4.53	mg/Kg	5	5.00	< 0.0290	91	62.2 - 134.3
Toluene	4.70	mg/Kg	5	5.00	0.0451	93	62.6 - 145.4
continued				•			

<sup>&</sup>lt;sup>1</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>2</sup>High surrogate recovery due to peak interference.

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Work Order: 8072446 Pardue SWD Facility Page Number: 12 of 14 20 miles SE Carlsbad, NM

matrix	spikes	continued		

	MS			$\mathbf{Spike}$	Matrix		$\mathrm{Rec.}$
Param	Result	$\mathbf{Units}$	Dil.	Amount	Result	${ m Rec.}$	Limit
Ethylbenzene	4.78	mg/Kg	5	5.00	0.0593	94	64.6 - 146.4
Xylene	14.4	mg/Kg	5	15.0	0.2089	95	64.3 - 148.8

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	$rac{ ext{MSD}}{ ext{Result}}$	Units	Dil.	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Matrix Result	Rec.	$egin{array}{c} { m Rec.} \ { m Limit} \end{array}$	RPD	$\begin{array}{c} \text{RPD} \\ \text{Limit} \end{array}$
Benzene	4.31	mg/Kg	5	5.00	< 0.0290	86	62.2 - 134.3	5	20
Toluene	4.49	mg/Kg	5	5.00	0.0451	89	62.6 - 145.4	5	20
Ethylbenzene	4.58	mg/Kg	5	5.00	0.0593	90	64.6 - 146.4	4	20
Xylene	13.9	mg/Kg	5	15.0	0.2089	91	64.3 - 148.8	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			$\mathbf{Spike}$	MS	MSD	${ m Rec.}$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	4.46	4.48	mg/Kg	5	5	89	90	38.8 - 127.5
4-Bromofluorobenzene (4-BFB)	4.57	4.59	mg/Kg	5	5	91	92	49.3 - 142.4

Matrix Spike (MS-1) Spiked Sample: 168284

QC Batch: 50956 Prep Batch: 43719 Date Analyzed: 2008-07-31 QC Preparation: 2008-07-29

Analyzed By: AR Prepared By: AR

	MS			$\mathbf{Spike}$	Matrix		Rec.
Param	Result	$\mathbf{Units}$	Dil.	Amount	Result	Rec.	Limit
Chloride	8120	mg/Kg	50	5000	3160	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	8180	mg/Kg	50	5000	3160	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Standard (ICV-1)

QC Batch: 50791

Date Analyzed: 2008-07-25

Analyzed By: LD

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	228	91	85 - 115	2008-07-25

ENV 2008-025

Work Order: 8072446 Pardue SWD Facility Page Number: 13 of 14 20 miles SE Carlsbad, NM

Standard (CCV-1)

QC Batch: 50791

Date Analyzed: 2008-07-25

Analyzed By: LD

			$rac{ ext{CCVs}}{ ext{True}}$	${ m CCVs} \ { m Found}$	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	231	92	85 - 115	2008-07-25

Standard (ICV-1)

QC Batch: 50869

Date Analyzed: 2008-07-29

Analyzed By: DC

			ICVs True	ICVs Found	$\begin{array}{c} \text{ICVs} \\ \text{Percent} \end{array}$	Percent Recovery	Date
Param	$\operatorname{Flag}$	${ m Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
$\overline{\text{GRO}}$		mg/Kg	1.00	1.03	103	85 - 115	2008-07-29

Standard (CCV-1)

QC Batch: 50869

Date Analyzed: 2008-07-29

Analyzed By: DC

			$\operatorname{CCVs}$	CCVs	$_{ m CCVs}$	Percent	<b>.</b>
Param	Flag	Units	True Conc.	Found Conc.	Percent Recovery	Recovery Limits	$egin{array}{c} { m Date} \\ { m Analyzed} \end{array}$
GRO	1 145	mg/Kg	1.00	1.13	113	85 - 115	2008-07-29

Standard (ICV-1)

QC Batch: 50899

Date Analyzed: 2008-07-29

Analyzed By: DC

	•		ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0995	100	85 - 115	2008-07-29
Toluene		${ m mg/Kg}$	0.100	0.102	102	85 - 115	2008-07-29
Ethylbenzene		mg/Kg	0.100	0.102	102	85 - 115	2008-07-29
Xylene		mg/Kg	0.300	0.303	101	85 - 115	2008-07-29

Standard (CCV-1)

QC Batch: 50899

Date Analyzed: 2008-07-29

Analyzed By: DC

ENV 2008-025

Work Order: 8072446 Pardue SWD Facility Page Number: 14 of 14 20 miles SE Carlsbad, NM

Param	$\operatorname{Flag}$	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	3	mg/Kg	0.100	0.0832	83	85 - 115	2008-07-29
Toluene		mg/Kg	0.100	0.0899	<b>9</b> Ó	85 - 115	2008-07-29
Ethylbenzene		mg/Kg	0.100	0.0914	91	85 - 115	2008-07-29
Xylene		mg/Kg	0.300	0.277	92	85 - 115	2008-07-29

#### Standard (ICV-1)

QC Batch: 50956

Date Analyzed: 2008-07-31

Analyzed By: AR

			$rac{ ext{ICVs}}{ ext{True}}$	${f ICVs} \ {f Found}$	ICVs <sub>.</sub> Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2008-07-31

#### Standard (CCV-1)

QC Batch: 50956

Date Analyzed: 2008-07-31

Analyzed By: AR

		`	$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	$egin{array}{c}  ext{CCVs} \  ext{Percent} \end{array}$	Percent Recovery	Date
Param	$\mathbf{Flag}$	${f Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	99.8	100	85 - 115	2008-07-31

<sup>&</sup>lt;sup>3</sup>Benzene outside of control limits on CCV. CCV component average is .09025 which is within acceptable range. This is acceptable by Method 8000.

LAB Order ID#	07	2 L	14	6
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## TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9 **Lubbock, Texas 79424** Tel (806) 794-1298 Fax (806) 794-1298 1 (800) 378-1296

5002 Basin Street, Suite A1 Midland, Texas 79703 Tel (432) 689-6301 Fax (432) 689-6313

200 East Sunset Rd., Suite E EI Paso, Texas 79922
Tel (915) 585-34943
Fax (915) 585-4944
1 (888) 588-3443

EXEMPLE 180 Early Bowle Bivd. West, Suite 180
Ft. Worth, Texas 76116
Tel (817) 201-5260
Fax (817) 560-4336

	Company Name: BTA Oil Producers, LLC Phone #: (432) 553-5352											52	ANALYSIS REQUEST (Circle or Specify Method No.)																						
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**ORIGINAL COPY** 

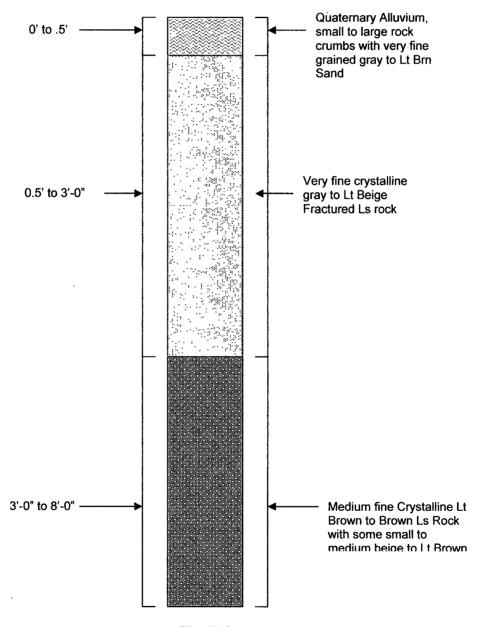


## BTA Oil Producer, LLC Midland, Texas

### East side of Pardue SWD Injection Facility site Auger Boring Log (Plate 1)

Drawing by jab Date 7/24/2008

Soil Description by jab Scale None



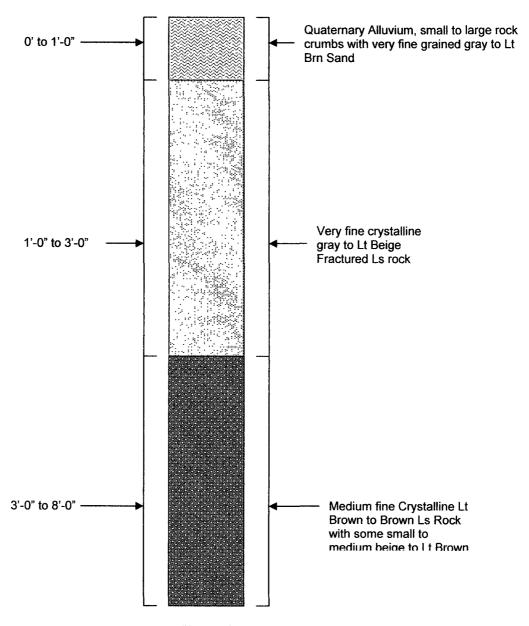
TD: 8'-0"

#### **NOT DRAWN TO SCALE**

### South side of Pardue SWD Injection Facility site Auger Boring Log

Drawing by jab Date 7/24/2008

Soil Description by jab Scale None

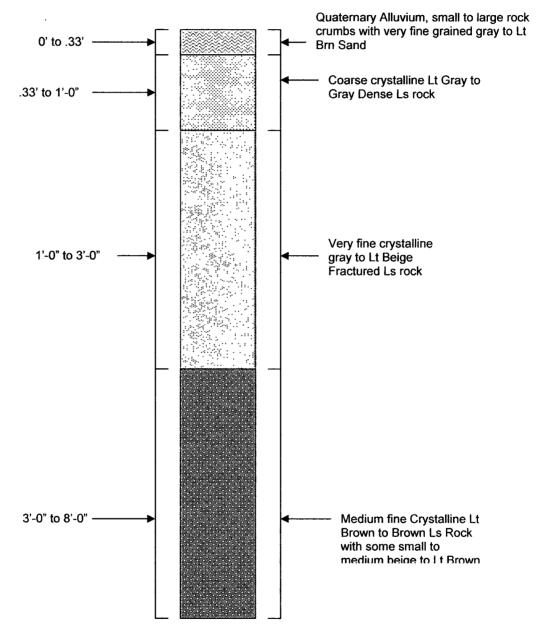


TD: 8'-0"

### North side of Pardue SWD Injection Facility site Auger Boring Log

Drawing by jab Date 7/24/2008

Soil Description by jab Scale None

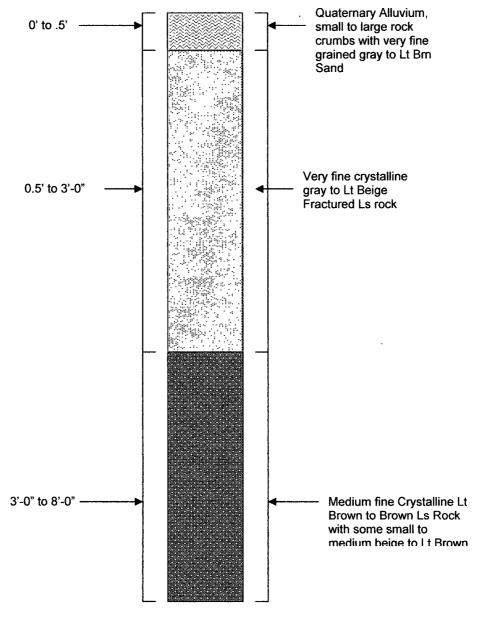


TD: 8'-0"

### West side of Pardue SWD Injection Facility site Auger Boring Log

Drawing by jab Date 7/24/2008

Soil Description by jab Scale None



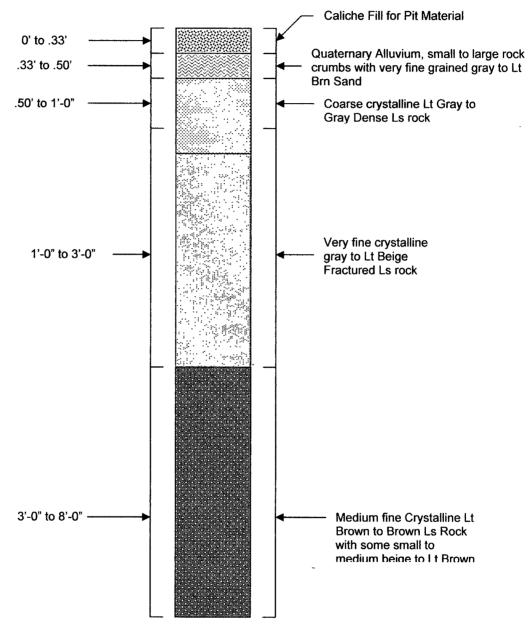
TD: 8'-0"

**NOT DRAWN TO SCALE** 

# Center of Pardue SWD Injection Facility Pit Auger Boring Log (Plate 5)

Drawing by jab Date 7/24/2008

Soil Description by jab Scale None

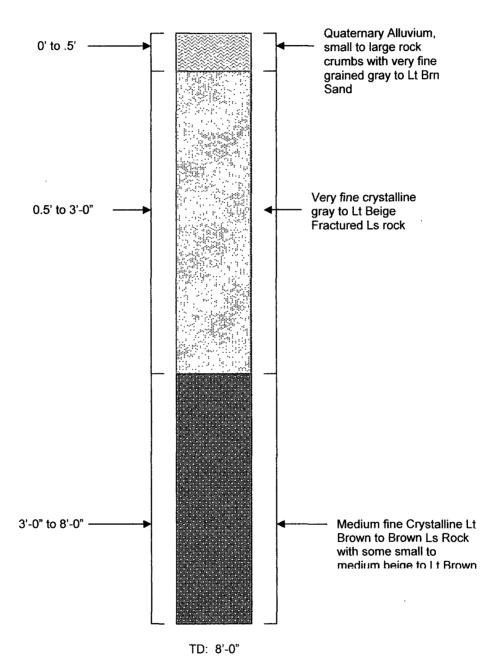


TD: 8'-0"

**NOT DRAWN TO SCALE** 

#### Back side of Pardue SWD Injection Facility site Auger Boring Log (Plate 6)

Drawing by jab Date 7/24/2008 Soil Description by jab Scale None



**NOT DRAWN TO SCALE**